TEST REPORT

KCTL Inc.
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1. Applicant

Name: CommScope, Inc. of North Carolina

Address: 1100 CommScope Place SE Hickory NC 28602, USA

2. Sample Description:

FCC ID: TOUC1004W2

Type of equipment: 10G GEPON ONU

Basic Model: C1004W

3. Date of Test: June 23 ~ June 30, 2015

4. Test method used: FCC Part 15 Subpart E 15.407

5. Test Results

Test Item: Refer to page 9

Result: Refer to page 10 ~ page 336

Measurement Uncertainty: Refer to page 9

This result shown in this report refer only to the sample(s) tested unless otherwise stated.

Affirmation	Tested by Name: JANG, MYEONG HWA	Technical Manager Name: SON, MIN GI

2015. 07. 23

KCTL Inc. Testing Laboratory

[Contents]

1. Client information

Applicant:	CommScope, Inc. of North Carolina
Address:	1100 CommScope Place SE Hickory NC 28602, USA
Telephone number:	+82-828-431-2563
Facsimile number:	+82-828-431-2563
Contact person:	J. Roberto Mazariegos / Rmazariegos@commscope.com
Manufacturer:	ubiquoss Inc.
Address:	83 SANEOP-RO 155BEON-GIL GWONSEON-GU SUWON-SI GYEONGGI-DO 441-360 KOREA

2. Laboratory information

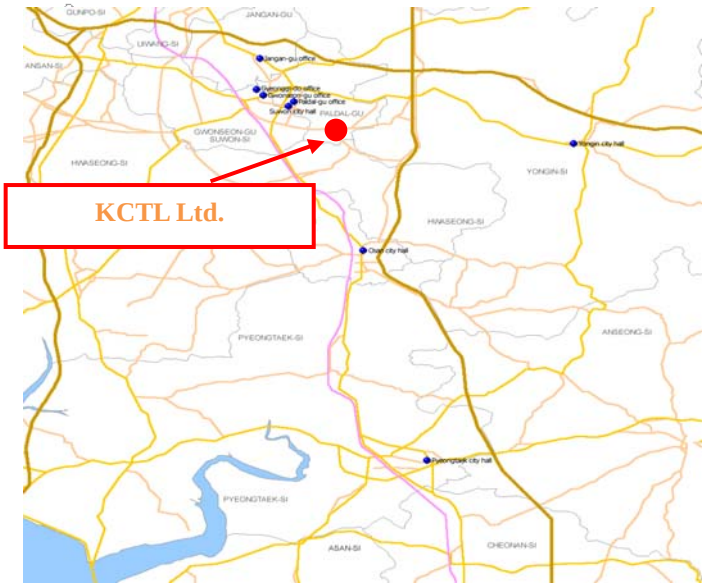
Address

KCTL INC.
65, Sinwon-ro, Yeongtong-gu, Gyeonggi-do, Suwon-si, 443-390, Korea
Telephone Number: 82-70-5008-1016 Facsimile Number: 82-505-299-8311

Certificate

KOLAS No.: 231
FCC Site Designation No: KR0040
FCC Site Registration No: 687132
VCCI Site Registration No.: R-3327, G-198, C-3706, T-1849
IC Site Registration No.:8035A-2

SITE MAP



3. Description of E.U.T.

3.1 Basic description

Applicant:	CommScope, Inc. of North Carolina
Address of Applicant	1100 CommScope Place SE Hickory NC 28602, USA
Manufacturer	ubiquoss Inc.
Address of Manufacturer	83 SANEOP-RO 155BEON-GIL GWONSEON-GU SUWON-SI GYEONGGI-DO 441-360 KOREA
Type of equipment	10G GEPON ONU
Basic Model	C1004W
Serial number	N/A

3.2 General description

Frequency Range	5 180 ㎒ ~ 5 240 ㎒ / 5 745 ㎒ ~ 5 825 ㎒ (802.11a/ac/n_HT20) 5 190 ㎒ ~ 5 230 ㎒ / 5 755 ㎒ ~ 5 795 ㎒ (802.11a/ac/n_HT40) 5 210 ㎒ / 5 775 ㎒ (802.11ac_HT80)
Communication	IEEE 802.11a/b/g/n/ac
Type of Modulation	CCK, OFDM
Number of Channels	4 ch (11a/n_HT20,VHT20): 5 150 ㎒ Band 5 ch (11a/n_HT20,VHT20): 5 725 ㎒ Band 2 ch (11a/n_HT40,VHT20): 5 150 ㎒ Band 2 ch (11a/n_HT40,VHT20): 5 725 ㎒ Band 1 ch (11a/n_HT80,VHT20): 5 150 ㎒ Band 1 ch (11a/n_HT80,VHT20): 5 725 ㎒ Band
Type of Antenna	Dipole antenna
Antenna Gain	Ant1 : 4.648 dBi (5 150 ㎒ Band), 3.596 dBi (5 725 ㎒ Band) Ant2 : 4.441 dBi (5 150 ㎒ Band), 4.640 dBi (5 725 ㎒ Band) Ant3 : 4.488 dBi (5 150 ㎒ Band), 4.252 dBi (5 725 ㎒ Band)
Transmit Power	16.85 dBm
Power supply	DC 12.0 V
H/W Version	C1004W_R104 / ver 2.5
S/W Version	7.14.89.14 / ver 1.2
Test SW Version	MTool-2.0.2.7
RF power setting in TEST SW	The Value 62
Adaptor Model	BP4012N3M, 2ABP-40MB

Note1) : The above EUT information was declared by the manufacturer.
Note2) : 802.11a/b/g modes are not transmitting simultaneously.

3.3 Test frequency

* 802.11a/ac/n_HT20/VHT20

	BAND 1	BAND 4
Low frequency	5 180	5 745
Middle frequency	5 200	5 785
High frequency	5 240	5 825

* 802.11ac/n_HT40/VHT40

	BAND 1	BAND 4
Low frequency	5 190	5 755
Middle frequency	5 230	5 795

* 802.11ac_VHT80

	BAND 1	BAND 4
Low frequency	5 210	5 775

3.4 Test Voltage

Mode	Voltage
Norminal voltage	DC 12.0 V

3.5 Duty Factor

Mode	Duty Cycle	Duty Cycle Factor[dB]
802.11a 1Tx	0.951 2	0.22
802.11n HT20 1Tx	0.950 2	0.22
802.11n HT20 2Tx	0.950 2	0.22
802.11n HT20 3Tx	0.876 1	0.57
802.11n HT40 1Tx	0.914 7	0.39
802.11n HT40 2Tx	0.785 9	1.05
802.11n HT40 3Tx	0.784 0	1.06
802.11ac VHT20 1Tx	0.984 5	0.07
802.11ac VHT20 2Tx	0.876 4	0.57
802.11ac VHT20 3Tx	0.963 4	0.16
802.11ac VHT40 1Tx	0.971 3	0.13
802.11ac VHT40 2Tx	0.786 0	1.05
802.11ac VHT40 3Tx	0.929 5	0.32
802.11ac VHT80 1Tx	0.946 6	0.24
802.11ac VHT80 2Tx	0.664 4	1.78
802.11ac VHT80 3Tx	0.876 1	0.57

Note
1. Duty Cycle = (On time / On time + Off Time)
2. Duty Cycle Factor = 10log(1/Duty Cycle)

4. Summary of test results

4.1 Standards & results

FCC Rule	Parameter	Report Section	Test Result
15.203 15.407(a)(1)(2)(3)	Antenna Requirement	5.1	C
15.407(a)(1)(2)	Maximum Conducted Output Power	5.2	C
15.403(i),15.407(e)	Bandwidth Measurement	5.3	C
15.407(a)(1)(2)(5)	Peak Power Spectral Density	5.4	C
15.205(a), 15.209(a), 15.407(b)(1), 15.407(b)(2), 15.407(b)(3)	Spurious Emission, Band Edge and Restricted bands	5.5	C
15.407(g)	Frequency Stability	5.6	C
15.207(a)	Conducted Emissions	5.7	C
15.407(h)	Dynamic Frequency Selection	5.8	N/A

Note: C = complies
NC = Not complies
NT = Not tested
NA = Not Applicable

* The general test methods used to test this device is ANSI C63.10:2013

4.2 Uncertainty

Measurement Item	Expanded Uncertainty U = KUc (K = 2)	
Conducted RF power	± 1.30 dB	
Conducted Spurious Emissions	± 1.52 dB	
Radiated Spurious Emissions	30 ㎒ ~ 300 ㎒:	+ 4.94 dB, - 5.06 dB
		+ 4.93 dB, - 5.05 dB
	300 ㎒ ~ 1 000 ㎒:	+ 4.97 dB, - 5.08 dB
		+ 4.84 dB, - 4.96 dB
	1 ㎓ ~ 40 ㎓:	+ 6.03 dB, - 6.05 dB
Conducted Emissions	9 ㎑ ~ 150 ㎑:	± 3.75 dB
	150 ㎑ ~ 30 ㎒:	± 3.36 dB

5. Test results

5.1 Antenna Requirement

5.1.1 Regulation

According to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

And according to §15.407(a)(1)(2)(3), If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

5.1.2 Result

-Complied

The transmitter has an integral Dipole antenna.
The total directional peak gain of the antenna does not exceed 6.0 dBi

	5 150 ㎒ Band	5 725 ㎒ Band
ANT 1	4.648 dBi	3.596 dBi
ANT 2	4.441 dBi	4.640 dBi
ANT 3	4.488 dBi	4.252 dBi

According to KDB 662911 D01 Multiple Transmitter Output v02r01

- Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

5 150 MHz band

2Tx mimo Total gain = 7.658 dBi (individual gain(4.648 dBi) + Array gain(3.01 dBi))

3Tx mimo Total gain = 9.419 dBi (individual gain(4.648 dBi) + Array gain(4.77 dBi))

5 725 MHz band

2Tx mimo Total gain = 7.650 dBi (individual gain(4.640 dBi) + Array gain(3.01 dBi))

3Tx mimo Total gain = 9.411 dBi (individual gain(4.640 dBi) + Array gain(4.77 dBi))

- It was calculated by the most highest antenna gain.

For power measurements on IEEE 802.11 devices

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};

Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

5 150 MHz band

2Tx mimo Total gain = 4.648 dBi (individual gain(4.648 dBi) + Array gain(0 dBi))

3Tx mimo Total gain = 4.648 dBi (individual gain(4.648 dBi) + Array gain(0 dBi))

5 725 MHz band

2Tx mimo Total gain = 4.640 dBi (individual gain(4.640 dBi) + Array gain(0 dBi))

3Tx mimo Total gain = 4.640 dBi (individual gain(4.640 dBi) + Array gain(0 dBi))

- It was calculated by the most highest antenna gain.

5.2 Maximum Conducted Output Power

5.2.1 Regulation

According to §15.407(a) (1) (ii) For an indoor access point operating in the band 5.15-5.25 ㎓, the maximumConducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to §15.407(a) (2) For the 5.25-5.35 ㎓ and 5.47-5.725 ㎓ bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 ㎽ or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dBthat the directional gain of the antenna exceeds 6 dBi.

According to §15.407(a) (3) For the band 5.725-5.85 ㎓, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-㎑ band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

5.2.2 Measurement Procedure

These test measurement settings are specified in section C of 789033 D02 General UNII Test Procedures.

5.2.2.1 Method PM (Measurement using an RF average power meter):

(i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.
• The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
• At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
• The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
(ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section II.B.
(iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
(iv) Adjust the measurement in dBm by adding 10 log(1/x) where x is the duty cycle (e.g., 10 log(1/0.25) if the duty cycle is 25 percent).

5.2.4 Test Result

-Complied

5 150 Band

802.11a_ANT 1

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	14.28	-	-	0.22	14.50	30.00	15.50
5 200	14.27	-	-	0.22	14.49	30.00	15.51
5 240	14.47	-	-	0.22	14.69	30.00	15.31

802.11a_ANT 2

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	-	14.26	-	0.22	14.48	30.00	15.52
5 200	-	14.17	-	0.22	14.39	30.00	15.61
5 240	-	14.26	-	0.22	14.47	30.00	15.53

802.11a_ANT 3

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	-	-	14.16	0.22	14.38	30.00	15.62
5 200	-	-	14.15	0.22	14.37	30.00	15.63
5 240	-	-	14.23	0.22	14.44	30.00	15.56

802.11n HT20_ANT 1

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	14.27	-	-	0.22	14.49	30.00	15.51
5 200	14.23	-	-	0.22	14.45	30.00	15.55
5 240	14.29	-	-	0.22	14.51	30.00	15.49

802.11n HT20_ANT 2

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	-	14.18	-	0.22	14.40	30.00	15.60
5 200	-	14.19	-	0.22	14.41	30.00	15.59
5 240	-	14.35	-	0.22	14.57	30.00	15.43

802.11n HT20_ANT 3

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	-	-	14.19	0.22	14.41	30.00	15.59
5 200	-	-	14.09	0.22	14.31	30.00	15.69
5 240	-	-	14.31	0.22	14.53	30.00	15.47

802.11n HT20_MIMO (ANT 1+2)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	12.09	12.13	-	0.22	15.34	30.00	14.66
5 200	12.12	11.96	-	0.22	15.28	30.00	14.72
5 240	12.01	11.93	-	0.22	15.21	30.00	14.79

802.11n HT20_MIMO (ANT 2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	-	11.98	11.81	0.22	15.12	30.00	14.88
5 200	-	11.63	11.77	0.22	14.93	30.00	15.07
5 240	-	11.86	11.52	0.22	14.92	30.00	15.08

802.11n HT20_MIMO (ANT 1+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	12.20	-	11.82	0.22	15.25	30.00	14.75
5 200	11.98	-	11.38	0.22	14.92	30.00	15.08
5 240	12.14	-	11.87	0.22	15.24	30.00	14.76

802.11n HT20_MIMO (ANT 1+2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	10.49	10.08	10.00	0.57	15.54	30.00	14.46
5 200	10.58	10.03	10.14	0.57	15.60	30.00	14.40
5 240	10.59	10.05	10.04	0.57	15.58	30.00	14.42

802.11n HT40_ANT 1

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	15.79	-	-	0.39	16.18	30.00	13.82
5 230	15.79	-	-	0.39	16.17	30.00	13.83

802.11n HT40_ANT 2

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	-	15.73	-	0.39	16.11	30.00	13.89
5 230	-	15.68	-	0.39	16.07	30.00	13.93

802.11n HT40_ANT 3

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	-	-	15.69	0.39	16.07	30.00	13.93
5 230	-	-	15.61	0.39	16.00	30.00	14.00

802.11n HT40_MIMO (ANT 1+2)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	12.62	12.46	-	1.05	16.60	30.00	13.40
5 230	12.50	12.15	-	1.05	16.38	30.00	13.62

802.11n HT40_MIMO (ANT 2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	-	12.21	12.27	1.05	16.29	30.00	13.71
5 230	-	12.40	12.24	1.05	16.38	30.00	13.62

802.11n HT40_MIMO (ANT 1+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	12.43	-	12.48	1.05	16.51	30.00	13.49
5 230	12.34	-	12.29	1.05	16.37	30.00	13.63

802.11n HT40_MIMO (ANT 1+2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	11.23	10.79	10.76	1.06	16.76	30.00	13.24
5 230	11.24	10.77	10.82	1.06	16.78	30.00	13.22

802.11ac VHT20_ANT 1

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	14.46	-	-	0.07	14.53	30.00	15.47
5 200	14.37	-	-	0.07	14.44	30.00	15.56
5 240	14.58	-	-	0.07	14.64	30.00	15.36

802.11ac VHT20_ANT 2

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	-	14.37	-	0.07	14.44	30.00	15.56
5 200	-	14.35	-	0.07	14.42	30.00	15.58
5 240	-	14.45	-	0.07	14.52	30.00	15.48

802.11ac VHT20_ANT 3

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	-	-	14.32	0.07	14.39	30.00	15.61
5 200	-	-	14.44	0.07	14.50	30.00	15.50
5 240	-	-	14.47	0.07	14.54	30.00	15.46

802.11ac VHT20_MIMO (ANT 1+2)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	12.19	11.97	-	0.57	15.67	30.00	14.66
5 200	12.07	11.99	-	0.57	15.61	30.00	14.41
5 240	12.01	11.88	-	0.57	15.53	30.00	14.33

802.11ac VHT20_MIMO (ANT 2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	-	11.98	11.62	0.57	15.39	30.00	14.61
5 200	-	12.00	11.92	0.57	15.54	30.00	14.46
5 240	-	11.83	11.54	0.57	15.27	30.00	14.73

802.11ac VHT20_MIMO (ANT 1+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	12.01	-	12.02	0.57	15.60	30.00	14.40
5 200	12.11	-	12.03	0.57	15.65	30.00	14.35
5 240	12.13	-	11.69	0.57	15.50	30.00	14.50

802.11ac VHT20_MIMO (ANT 1+2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 180	10.62	10.07	10.22	0.16	15.24	30.00	14.76
5 200	10.79	10.10	10.14	0.16	15.29	30.00	14.71
5 240	10.55	10.10	10.26	0.16	15.24	30.00	14.76

802.11ac VHT40_ANT 1

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	15.93	-	-	0.13	16.06	30.00	13.94
5 230	15.77	-	-	0.13	15.90	30.00	14.10

802.11ac VHT40_ANT 2

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	-	15.84	-	0.13	15.97	30.00	14.03
5 230	-	15.71	-	0.13	15.84	30.00	14.16

802.11ac VHT40_ANT 3

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	-	-	15.73	0.13	15.86	30.00	14.14
5 230	-	-	15.62	0.13	15.74	30.00	14.26

802.11ac VHT40_MIMO (ANT 1+2)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	12.44	12.39	-	1.05	16.47	30.00	13.53
5 230	12.45	12.26	-	1.05	16.41	30.00	13.59

802.11ac VHT40_MIMO (ANT 2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	-	12.31	12.45	1.05	16.44	30.00	13.56
5 230	-	12.32	12.29	1.05	16.36	30.00	13.64

802.11ac VHT40_MIMO (ANT 1+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	12.51	-	12.26	1.05	16.44	30.00	13.56
5 230	12.46	-	12.38	1.05	16.47	30.00	13.53

802.11ac VHT40_MIMO (ANT 1+2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 190	11.13	10.73	10.80	0.32	15.97	30.00	14.03
5 230	11.16	10.68	10.81	0.32	15.98	30.00	14.02

802.11ac VHT80_ANT 1

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 210	16.05	-	-	0.24	16.29	30.00	13.71

802.11ac VHT80_ANT 2

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 210	-	15.97	-	0.24	16.21	30.00	13.79

802.11ac VHT80_ANT 3

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 210	-	-	15.70	0.24	15.93	30.00	14.07

802.11ac VHT80_MIMO (ANT 1+2)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 210	11.52	11.34	-	1.78	16.22	30.00	13.78

802.11ac VHT80_MIMO (ANT 2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 210	-	11.40	11.26	1.78	16.12	30.00	13.88

802.11ac VHT80_MIMO (ANT 1+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 210	11.72	-	11.43	1.78	16.37	30.00	13.63

802.11ac VHT80_MIMO (ANT 1+2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 210	11.23	10.90	10.89	0.57	16.36	30.00	13.64

5 725 Band

802.11a_ANT 1

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	14.42	-	-	0.22	14.64	30.00	15.36
5 785	14.56	-	-	0.22	14.77	30.00	15.23
5 825	14.24	-	-	0.22	14.46	30.00	15.54

802.11a_ANT 2

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	-	14.69	-	0.22	14.91	30.00	15.09
5 785	-	14.81	-	0.22	15.03	30.00	14.97
5 825	-	14.68	-	0.22	14.90	30.00	15.10

802.11a_ANT 3

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	-	-	14.28	0.22	14.50	30.00	15.50
5 785	-	-	14.25	0.22	14.46	30.00	15.54
5 825	-	-	14.14	0.22	14.36	30.00	15.64

802.11n HT20_ANT 1

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	14.32	-	-	0.22	14.54	30.00	15.46
5 785	14.57	-	-	0.22	14.79	30.00	15.21
5 825	14.39	-	-	0.22	14.61	30.00	15.39

802.11n HT20_ANT 2

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	-	14.71	-	0.22	14.93	30.00	15.07
5 785	-	14.85	-	0.22	15.08	30.00	14.92
5 825	-	14.50	-	0.22	14.72	30.00	15.28

802.11n HT20_ANT 3

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	-	-	14.07	0.22	14.29	30.00	15.71
5 785	-	-	14.26	0.22	14.48	30.00	15.52
5 825	-	-	14.17	0.22	14.40	30.00	15.60

802.11n HT20_MIMO (ANT 1+2)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	11.52	12.12	-	0.22	15.06	30.00	14.94
5 785	11.77	12.22	-	0.22	15.23	30.00	14.77
5 825	11.76	12.17	-	0.22	15.20	30.00	14.80

802.11n HT20_MIMO (ANT 2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	-	11.84	11.51	0.22	14.91	30.00	15.09
5 785	-	11.97	11.58	0.22	15.01	30.00	14.99
5 825	-	11.85	11.45	0.22	14.89	30.00	15.11

802.11n HT20_MIMO (ANT 1+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	11.86	-	11.75	0.22	15.03	30.00	14.97
5 785	11.88	-	11.48	0.22	14.91	30.00	15.09
5 825	12.04	-	11.74	0.22	15.12	30.00	14.88

802.11n HT20_MIMO (ANT 1+2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	10.03	10.38	10.05	0.57	15.50	30.00	14.50
5 785	10.22	10.41	10.38	0.57	15.69	30.00	14.31
5 825	10.23	10.45	10.12	0.57	15.61	30.00	14.39

802.11n HT40_ANT 1

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	15.73	-	-	0.39	16.12	30.00	13.88
5 795	15.80	-	-	0.39	16.18	30.00	13.82

802.11n HT40_ANT 2

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	-	15.83	-	0.39	16.22	30.00	13.78
5 795	-	16.06	-	0.39	16.45	30.00	13.55

802.11n HT40_ANT 3

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	-	-	15.58	0.39	15.97	30.00	14.03
5 795	-	-	15.80	0.39	16.19	30.00	13.81

802.11n HT40_MIMO (ANT 1+2)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	12.53	12.40	-	1.05	16.52	30.00	13.48
5 795	12.77	12.83	-	1.05	16.85	30.00	13.15

802.11n HT40_MIMO (ANT 2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	-	12.64	12.32	1.05	16.54	30.00	13.46
5 795	-	12.57	12.44	1.05	16.56	30.00	13.44

802.11n HT40_MIMO (ANT 1+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	12.54	-	12.48	1.05	16.57	30.00	13.43
5 795	12.59	-	12.64	1.05	16.67	30.00	13.33

802.11n HT40_MIMO (ANT 1+2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	11.18	10.83	10.87	1.06	16.79	30.00	13.21
5 795	11.19	10.94	10.71	1.06	16.78	30.00	13.22

802.11ac VHT20_ANT 1

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	14.32	-	-	0.07	14.38	30.00	15.62
5 785	14.47	-	-	0.07	14.54	30.00	15.46
5 825	14.52	-	-	0.07	14.59	30.00	15.41

802.11ac VHT20_ANT 2

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	-	14.68	-	0.07	14.74	30.00	15.26
5 785	-	14.68	-	0.07	14.74	30.00	15.26
5 825	-	14.90	-	0.07	14.96	30.00	15.04

802.11ac VHT20_ANT 3

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	-	-	14.14	0.07	14.20	30.00	15.80
5 785	-	-	14.30	0.07	14.37	30.00	15.63
5 825	-	-	14.39	0.07	14.45	30.00	15.55

802.11ac VHT20_MIMO (ANT 1+2)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	11.72	11.80	-	0.57	15.34	30.00	14.66
5 785	11.76	12.24	-	0.57	15.59	30.00	14.41
5 825	11.86	12.31	-	0.57	15.67	30.00	14.33

802.11ac VHT20_MIMO (ANT 2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	-	12.11	11.66	0.57	15.47	30.00	14.53
5 785	-	11.98	11.59	0.57	15.38	30.00	14.62
5 825	-	11.97	11.66	0.57	15.40	30.00	14.60

802.11ac VHT20_MIMO (ANT 1+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	11.97	-	11.61	0.57	15.38	30.00	14.62
5 785	11.87	-	11.57	0.57	15.30	30.00	14.70
5 825	11.90	-	11.79	0.57	15.43	30.00	14.57

802.11ac VHT20_MIMO (ANT 1+2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 745	10.47	10.70	10.26	0.16	15.42	30.00	14.58
5 785	10.29	10.46	10.37	0.16	15.31	30.00	14.69
5 825	10.16	10.53	10.22	0.16	15.24	30.00	14.76

802.11ac VHT40_ANT 1

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	15.77	-	-	0.13	15.90	30.00	14.10
5 795	15.90	-	-	0.13	16.02	30.00	13.98

802.11ac VHT40_ANT 2

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	-	15.91	-	0.13	16.03	30.00	13.97
5 795	-	15.97	-	0.13	16.09	30.00	13.91

802.11ac VHT40_ANT 3

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	-	-	15.67	0.13	15.80	30.00	14.20
5 795	-	-	15.80	0.13	15.93	30.00	14.07

802.11ac VHT40_MIMO (ANT 1+2)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	12.56	12.65	-	1.05	16.66	30.00	13.34
5 795	12.57	12.69	-	1.05	16.69	30.00	13.31

802.11ac VHT40_MIMO (ANT 2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	-	12.56	12.52	1.05	16.60	30.00	13.40
5 795	-	12.55	12.54	1.05	16.60	30.00	13.40

802.11ac VHT40_MIMO (ANT 1+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	12.59	-	12.57	1.05	16.63	30.00	13.37
5 795	12.90	-	12.57	1.05	16.80	30.00	13.20

802.11ac VHT40_MIMO (ANT 1+2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 755	10.98	10.73	10.85	0.32	15.94	30.00	14.06
5 795	10.81	10.77	10.77	0.32	15.87	30.00	14.13

802.11ac VHT80_ANT 1

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 775	15.79	-	-	0.24	16.02	30.00	13.98

802.11ac VHT80_ANT 2

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 775	-	16.06	-	0.24	16.30	30.00	13.70

802.11ac VHT80_ANT 3

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 775	-	-	15.55	0.24	15.79	30.00	14.21

802.11ac VHT80_MIMO (ANT 1+2)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 775	11.37	11.59	-	1.78	16.27	30.00	13.73

802.11ac VHT80_MIMO (ANT 2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 775	-	11.78	11.23	1.78	16.30	30.00	13.70

802.11ac VHT80_MIMO (ANT 1+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 775	11.41	-	11.39	1.78	16.18	30.00	13.82

802.11ac VHT80_MIMO (ANT 1+2+3)

Freq [㎒]	Average Power Ant 1 [dBm]	Average Power Ant 2 [dBm]	Average Power Ant 3 [dBm]	Duty Factor [dB]	Result [dBm]	Limit [dBm]	Margin [dBm]
5 775	10.80	10.99	10.64	0.57	16.16	30.00	13.84

-NOTE:

1. 2Tx Total power calculation = 10 log(10^(Ant1 power/10) + 10^(Ant2 power/10)).
   3Tx Total power calculation = 10 log(10^(Ant1 power/10) + 10^(Ant2 power/10)+ 10^(Ant3 power/10)).
2. Duty Factor : refer to 3.5
3. Result = Total power calculation + Duty Factor

5.3 Bandwidth Measurement

5.3.1 Regulation

According to §15.403,(i) *Emission bandwidth.* For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 ㏈ down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

According to §15.407,(e) Within the 5.725-5.85 ㎓ band, the minimum 6 ㏈ bandwidth of U-NII devices shall be at least 500 ㎑.

5.3.2 Measurement Procedure

1.Emission Bandwidth (EBW)

a)Set RBW = approximately 1% of the emission bandwidth.
b)Set the VBW > RBW.
c)Detector = Peak.
d)Trace mode = max hold.
e)Measure the maximum width of the emission that is 26 ㏈ down from the maximum of theemission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeatmeasurement as needed until the RBW/EBW ratio is approximately 1%.

2.Minimum Emission Bandwidth for the band 5.725-5.85 ㎓

Section 15.407(e) specifies the minimum 6 ㏈ emission bandwidth of at least 500 ㎑ for theband 5.715-5.85 ㎓. The following procedure shall be used for measuring this bandwidth:
a)Set RBW = 100 ㎑.
b)Set the video bandwidth (VBW) ≥ 3 × RBW.
c)Detector = Peak.
d)Trace mode = max hold.
e)Sweep = auto couple.
f)Allow the trace to stabilize.
g)Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 ㏈ relative to the maximum level measured in the fundamental emission.

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

5.3.3 Test Result

-Complied

5 150 Band

802.11a_ANT 1

Frequency	26 dB Bandwidth	OBW
5 180	19.87	16.49
5 200	19.71	16.51
5 240	19.87	16.47

802.11n HT20_ANT 1

Frequency	26 dB Bandwidth	OBW
5 180	20.49	17.66
5 200	20.57	17.69
5 240	20.40	17.69

802.11n HT20_MIMO (ANT 1+2)

Frequency	26 dB Bandwidth	OBW
5 180	20.38	17.65
5 200	20.36	17.63
5 240	20.51	17.66

802.11n HT20_MIMO (ANT 1+2+3)

Frequency	26 dB Bandwidth	OBW
5 180	20.40	17.64
5 200	20.33	17.68
5 240	20.36	17.66

802.11n HT0_ANT 1

Frequency	26 dB Bandwidth	OBW
5 190	38.54	36.15
5 230	38.60	36.14

802.11n HT40_MIMO (ANT 1+2)

Frequency	26 dB Bandwidth	OBW
5 190	38.53	36.15
5 230	38.60	36.13

802.11n HT40_MIMO (ANT 1+2+3)

Frequency	26 dB Bandwidth	OBW
5 190	38.49	36.15
5 230	38.43	36.13

802.11ac VHT20_ANT 1

Frequency	26 dB Bandwidth	OBW
5 180	20.54	17.67
5 200	20.37	17.71
5 240	20.36	17.67

802.11ac VHT20_MIMO (ANT 1+2)

Frequency	26 dB Bandwidth	OBW
5 180	20.35	17.68
5 200	20.37	17.67
5 240	20.16	17.68

802.11ac VHT20_MIMO (ANT 1+2+3)

Frequency	26 dB Bandwidth	OBW
5 180	20.32	17.66
5 200	20.37	17.67
5 240	20.45	17.66

802.11ac VHT40_ANT 1

Frequency	26 dB Bandwidth	OBW
5 190	38.59	36.14
5 230	38.48	36.15

802.11ac VHT40_MIMO (ANT 1+2)

Frequency	26 dB Bandwidth	OBW
5 190	38.57	36.14
5 230	38.54	36.14

802.11ac VHT40_MIMO (ANT 1+2+3)

Frequency	26 dB Bandwidth	OBW
5 190	38.48	36.14
5 230	38.39	36.15

802.11ac VHT80_ANT 1

Frequency	26 dB Bandwidth	OBW
5 210	78.55	75.29

802.11ac VHT80_MIMO (ANT 1+2)

Frequency	26 dB Bandwidth	OBW
5 210	78.52	75.22

802.11ac VHT80_MIMO (ANT 1+2+3)

Frequency	26 dB Bandwidth	OBW
5 210	78.30	75.24

5 725 Band

802.11a_ANT 1

Frequency	6 dB Bandwidth	OBW
5 745	16.35	16.50
5 785	16.35	16.50
5 825	16.36	16.50

802.11n HT20_ANT 1

Frequency	6 dB Bandwidth	OBW
5 745	17.72	17.68
5 785	17.59	17.69
5 825	17.60	17.68

802.11n HT20_MIMO (ANT 1+2)

Frequency	6 dB Bandwidth	OBW
5 745	17.58	17.67
5 785	17.58	17.66
5 825	17.59	17.66

802.11n HT20_MIMO (ANT 1+2+3)

Frequency	6 dB Bandwidth	OBW
5 745	17.61	17.67
5 785	17.60	17.65
5 825	17.59	17.66

802.11n HT40_ANT 1

Frequency	6 dB Bandwidth	OBW
5 755	36.33	36.16
5 795	36.35	36.16

802.11n HT40_MIMO (ANT 1+2)

Frequency	6 dB Bandwidth	OBW
5 755	36.36	36.16
5 795	36.36	36.15

802.11n HT40_MIMO (ANT 1+2+3)

Frequency	6 dB Bandwidth	OBW
5 755	36.35	36.12
5 795	36.34	36.13

802.11ac VHT20_ANT 1

Frequency	6 dB Bandwidth	OBW
5 745	17.60	17.68
5 785	17.58	17.71
5 825	17.59	17.68

802.11ac VHT20_MIMO (ANT 1+2)

Frequency	6 dB Bandwidth	OBW
5 745	17.58	17.64
5 785	17.58	17.65
5 825	17.67	17.65

802.11ac VHT20_MIMO (ANT 1+2+3)

Frequency	6 dB Bandwidth	OBW
5 745	17.59	17.69
5 785	17.58	17.64
5 825	17.60	17.69

802.11ac VHT40_ANT 1

Frequency	6 dB Bandwidth	OBW
5 755	36.35	36.14
5 795	36.36	36.16

802.11ac VHT40_MIMO (ANT 1+2)

Frequency	6 dB Bandwidth	OBW
5 755	36.36	36.14
5 795	36.35	36.15

802.11ac VHT40_MIMO (ANT 1+2+3)

Frequency	6 dB Bandwidth	OBW
5 755	36.32	36.14
5 795	36.32	36.15

802.11ac VHT80_ANT 1

Frequency	6 dB Bandwidth	OBW
5 775	76.28	75.27

802.11ac VHT80_MIMO (ANT 1+2)

Frequency	6 dB Bandwidth	OBW
5 775	75.74	75.30

802.11ac VHT80_MIMO (ANT 1+2+3)

Frequency	6 dB Bandwidth	OBW
5 775	75.70	75.29

5.3.4 Test Plot

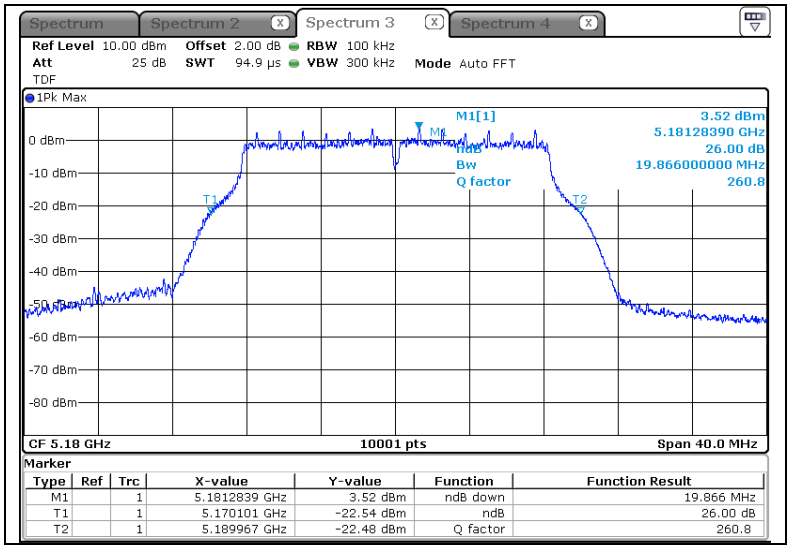
Figure 1. Bandwidth Measurement

5 150 Band

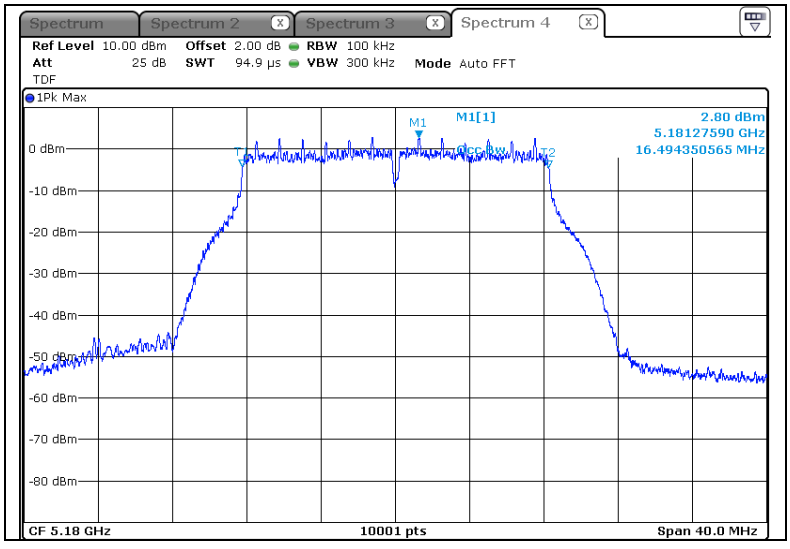
802.11a_ANT 1

-5 180 ㎒

26 ㏈ Bandwidth

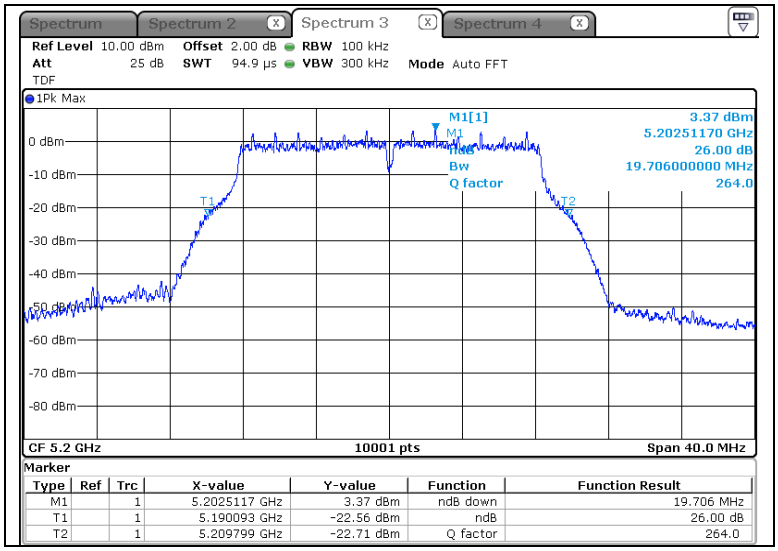


OBW

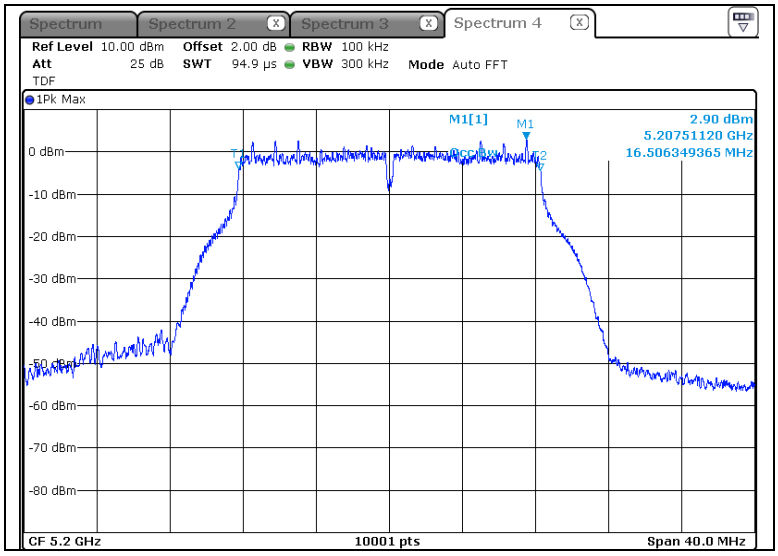


-5 200 ㎒

26 ㏈ Bandwidth

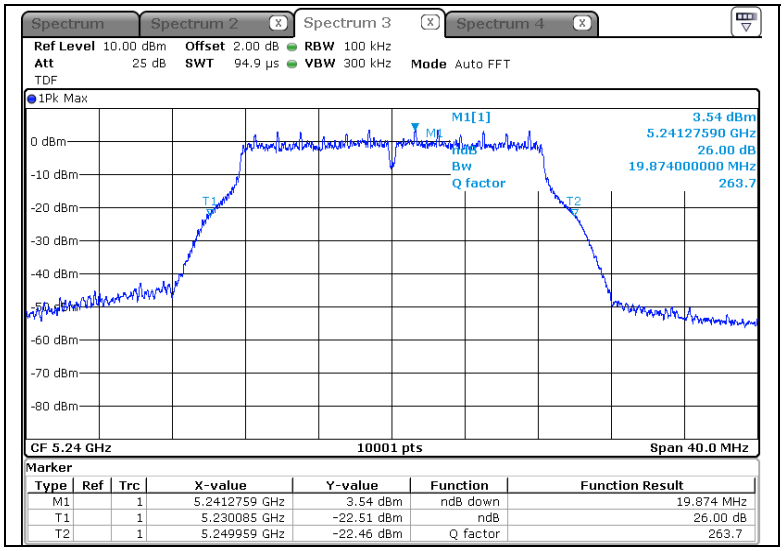


OBW

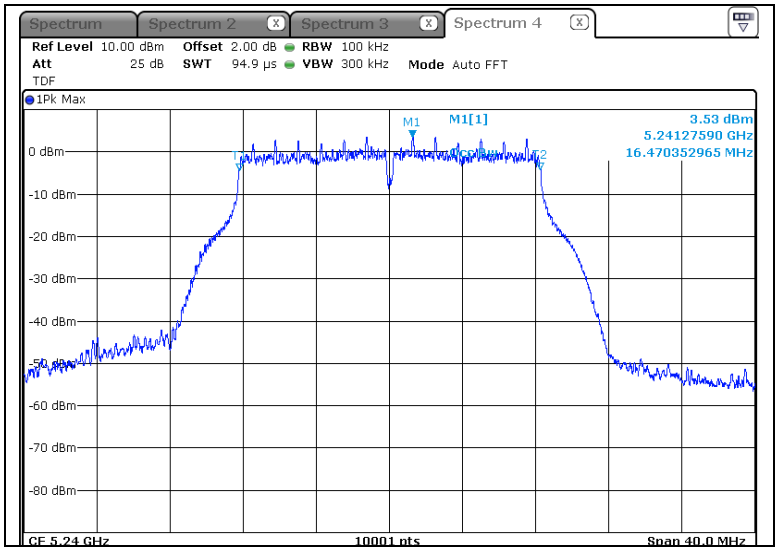


-5 240 ㎒

26 ㏈ Bandwidth



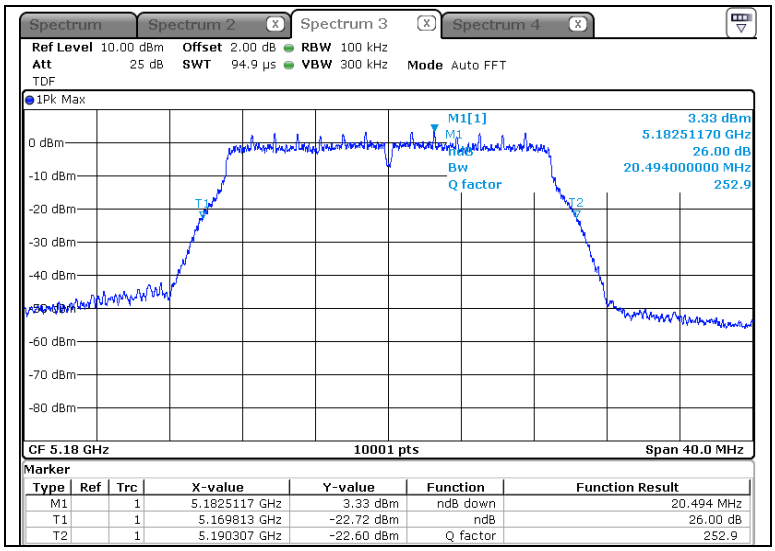
OBW



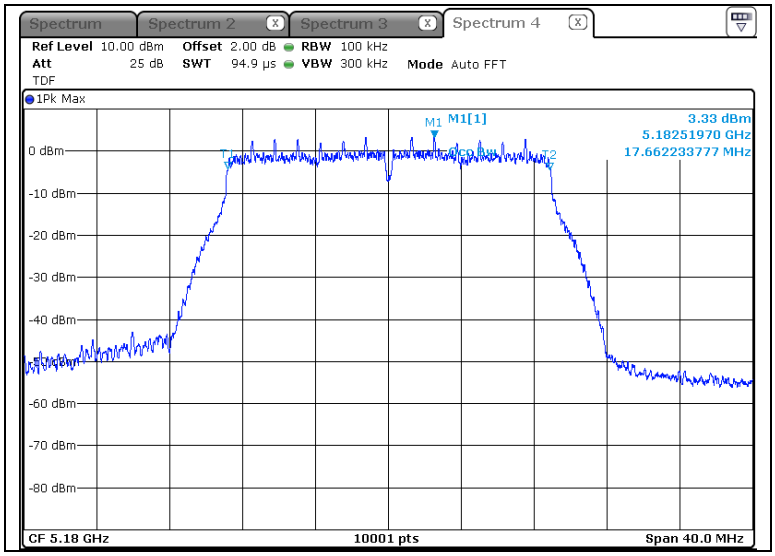
802.11n HT20_ANT 1

-5 180 ㎒

26 ㏈ Bandwidth

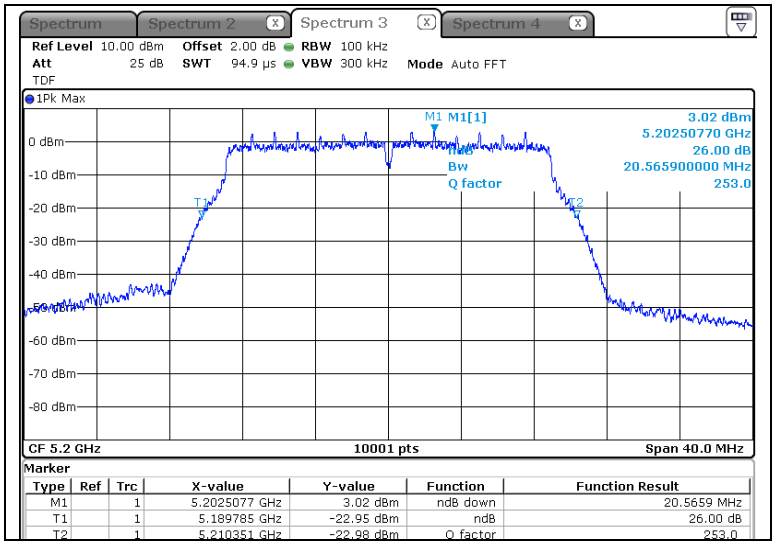


OBW

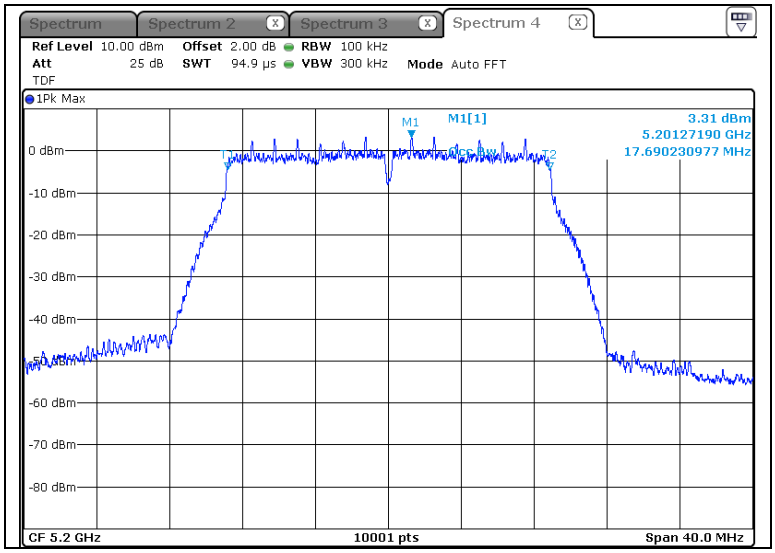


-5 200 ㎒

26 ㏈ Bandwidth

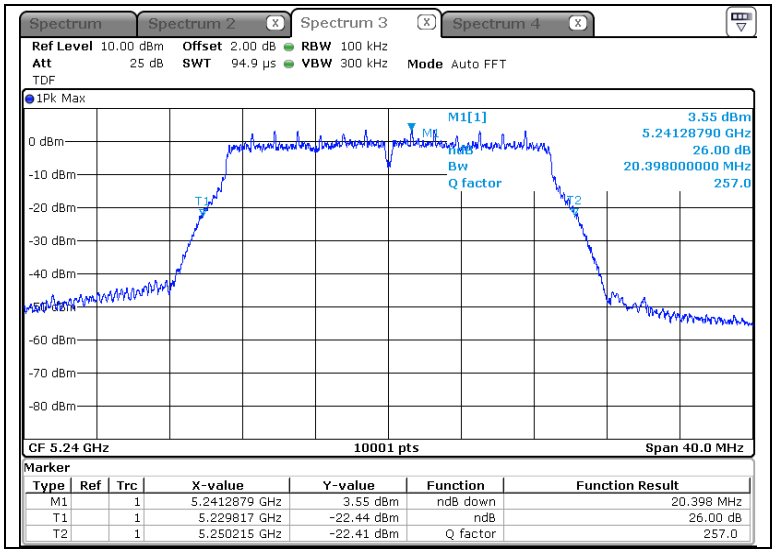


OBW

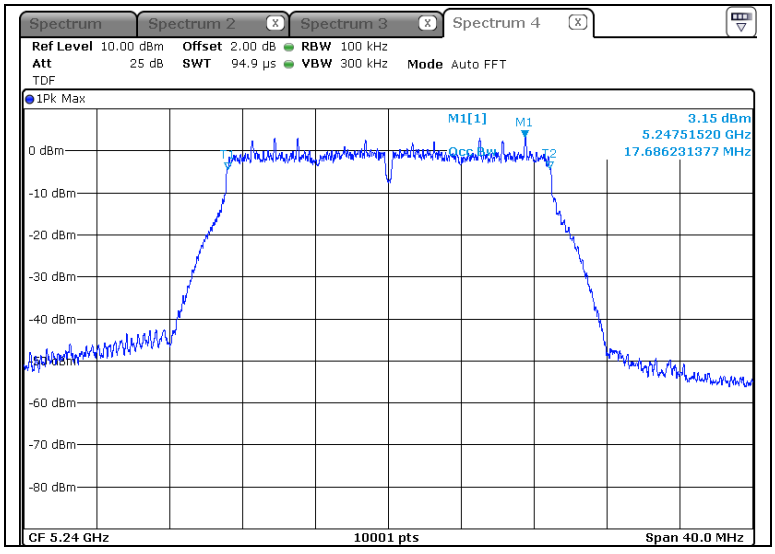


-5 240 ㎒

26 ㏈ Bandwidth



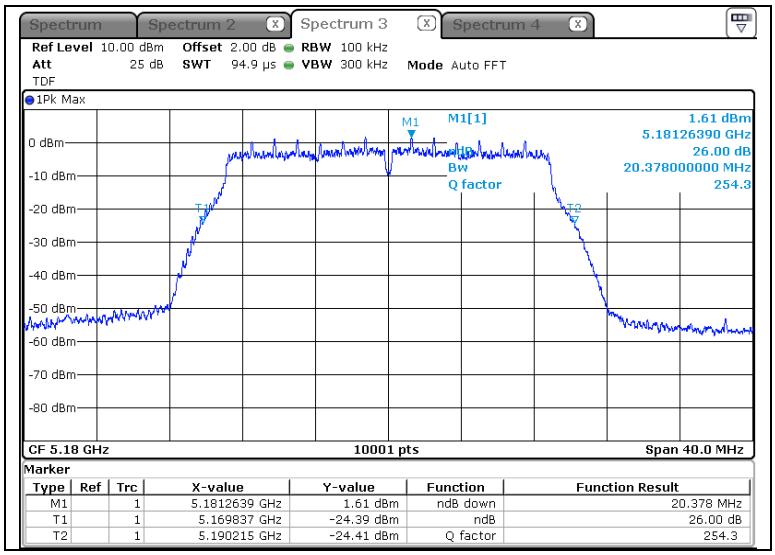
OBW



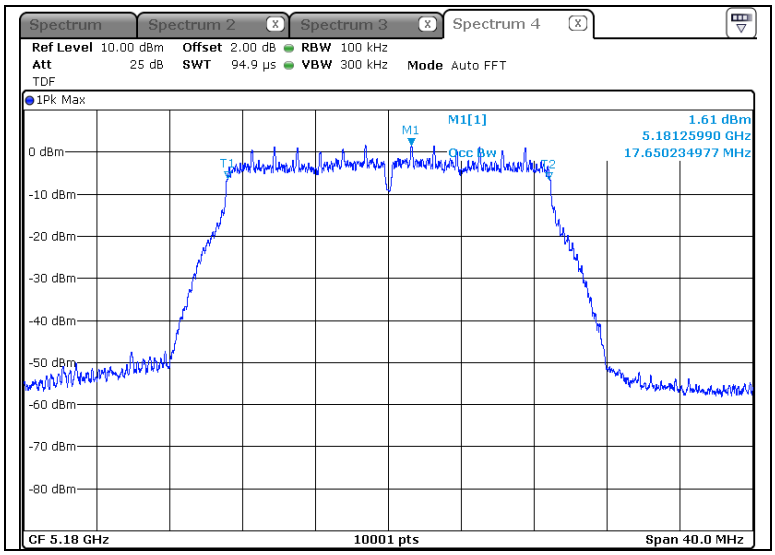
802.11n HT20_MIMO (ANT 1+2)

-5 180 ㎒

26 ㏈ Bandwidth

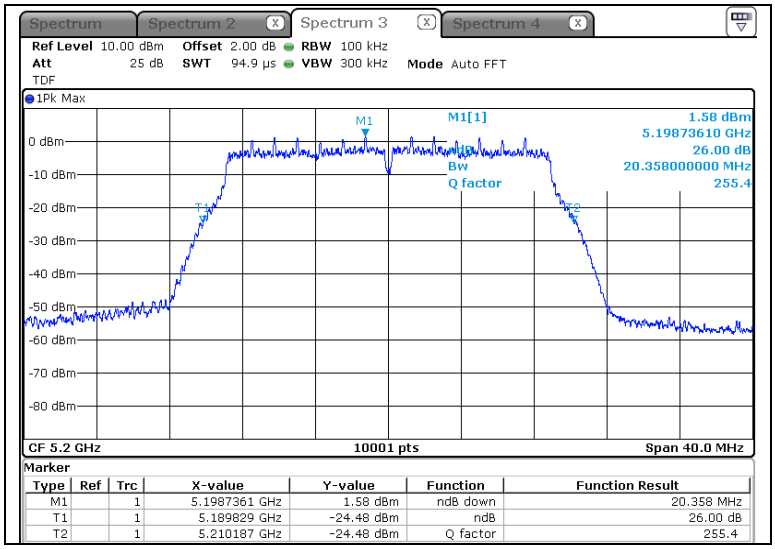


OBW

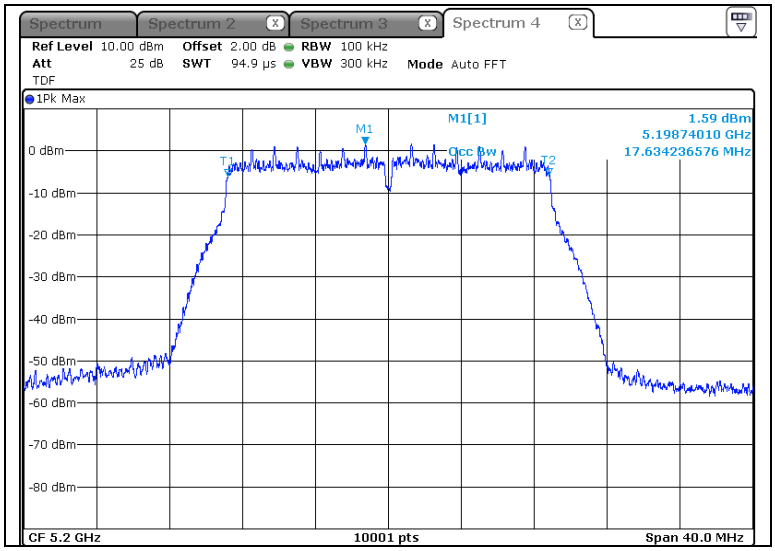


-5 200 ㎒

26 ㏈ Bandwidth

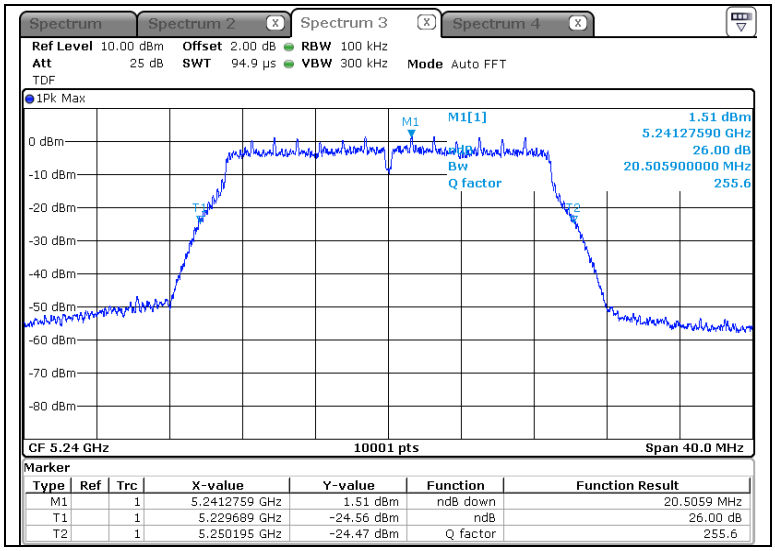


OBW

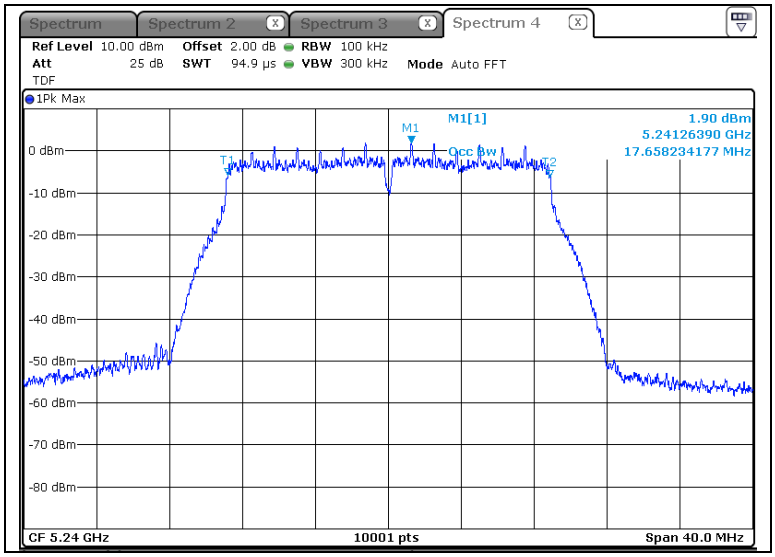


-5 240 ㎒

26 ㏈ Bandwidth



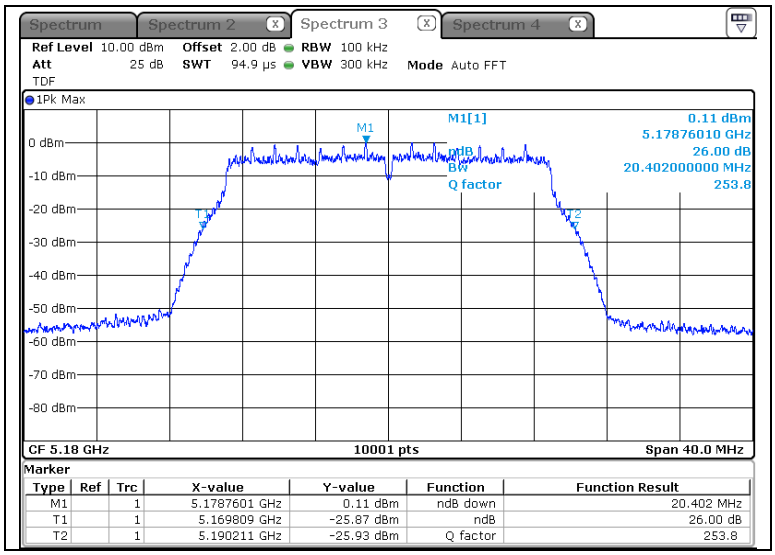
OBW



802.11n HT20_MIMO (ANT 1+2+3)

-5 180 ㎒

26 ㏈ Bandwidth



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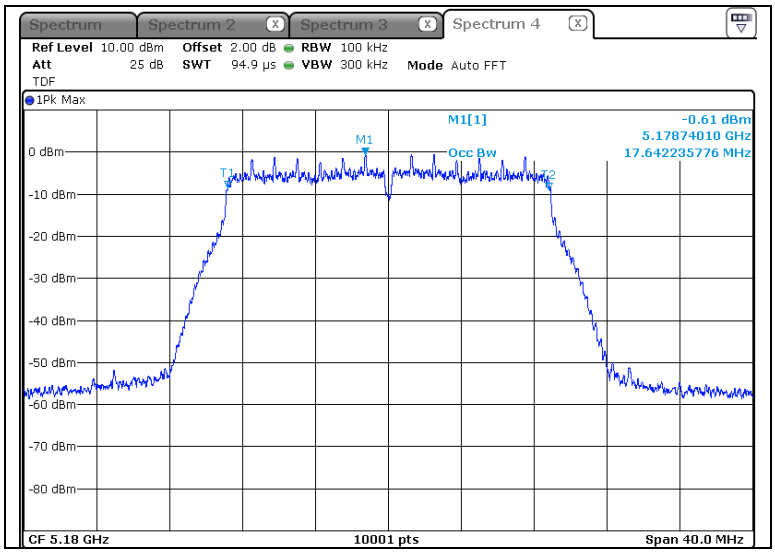
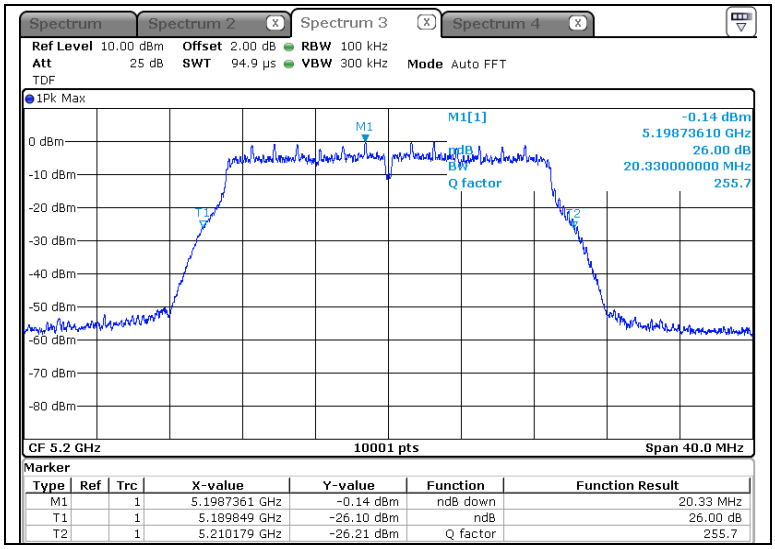


-5 200 ㎒

26 ㏈ Bandwidth



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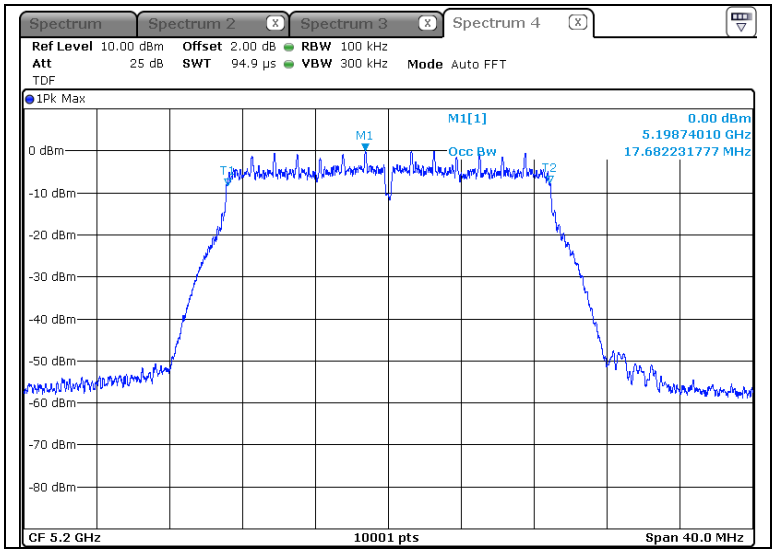
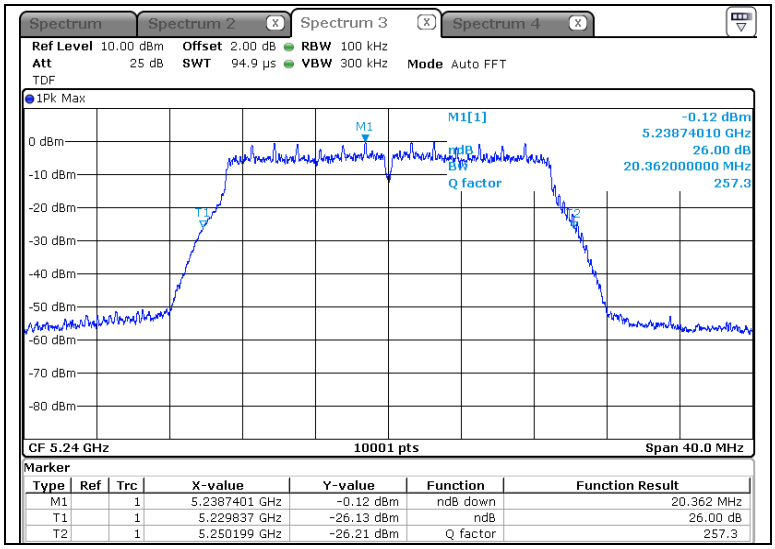


-5 240 ㎒

26 ㏈ Bandwidth



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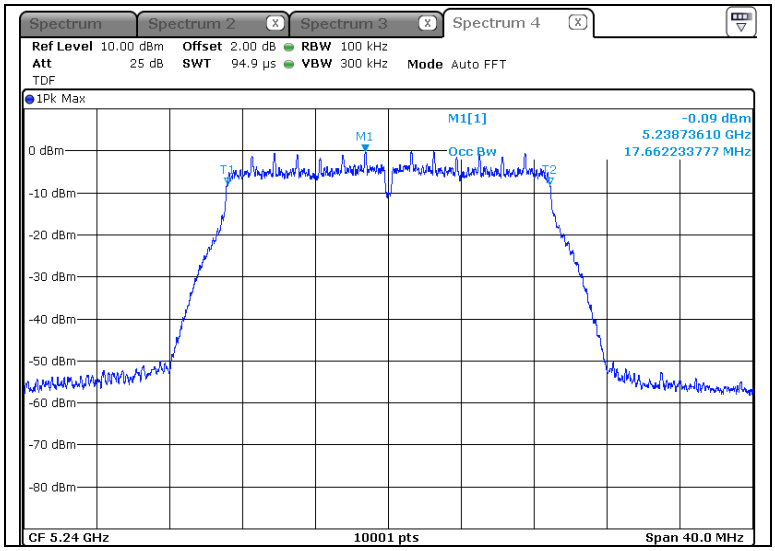
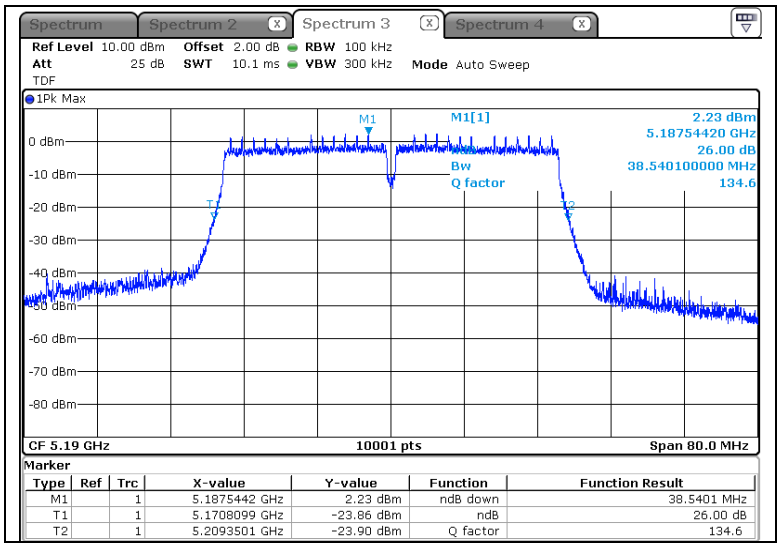


802.11n HT40_ANT 1

-5 190 ㎒

26 ㏈ Bandwidth



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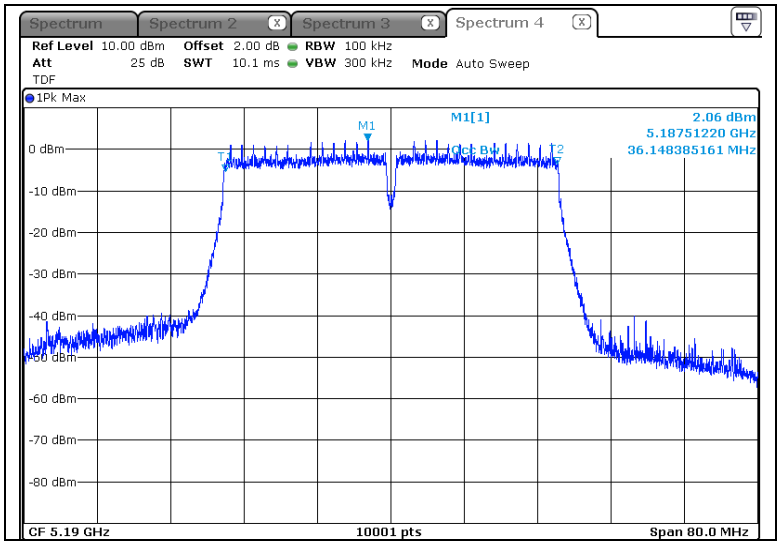
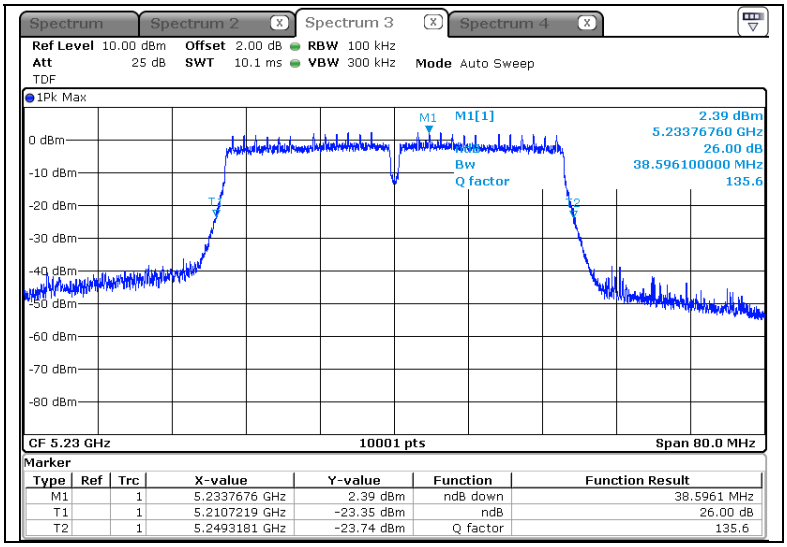


-5 230 ㎒

26 ㏈ Bandwidth



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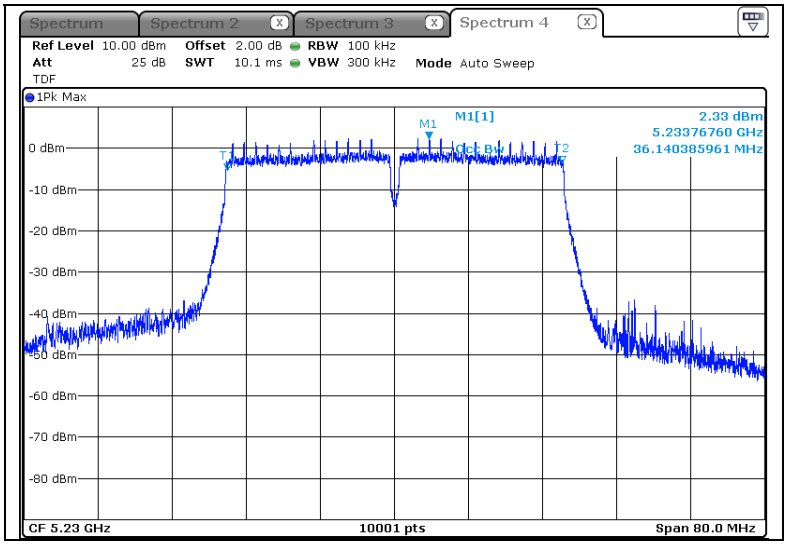
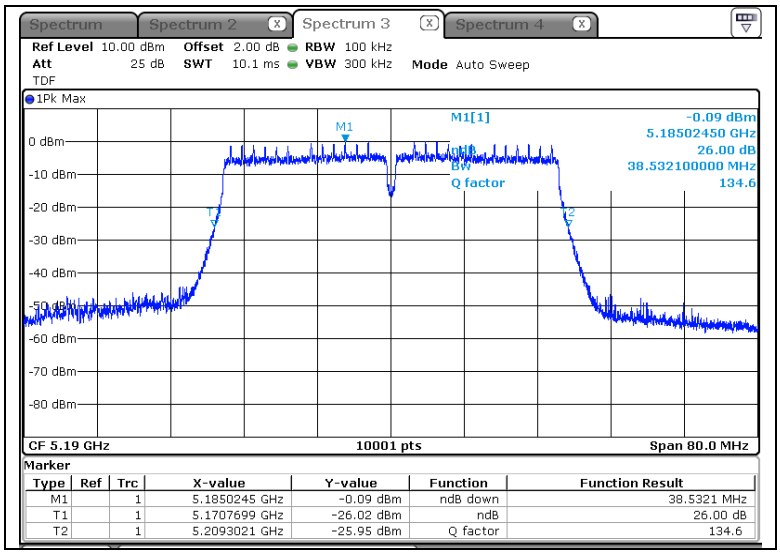


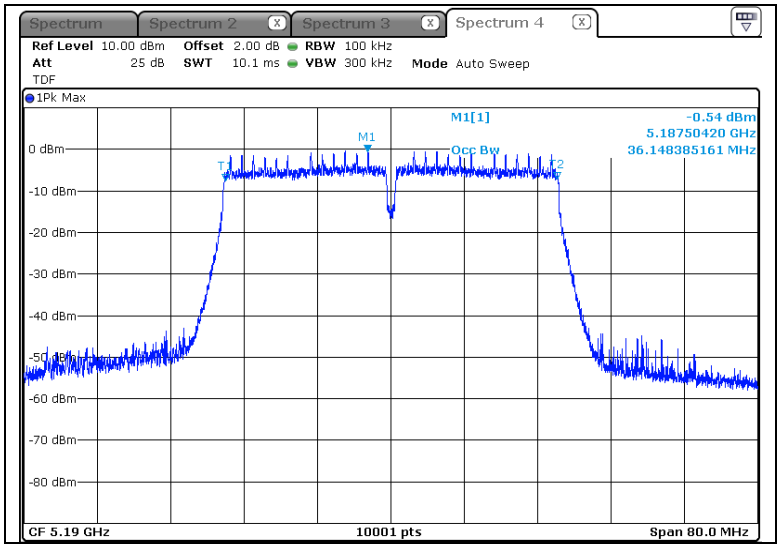
802.11n HT40_MIMO (ANT 1+2)

-5 190 ㎒

26 ㏈ Bandwidth

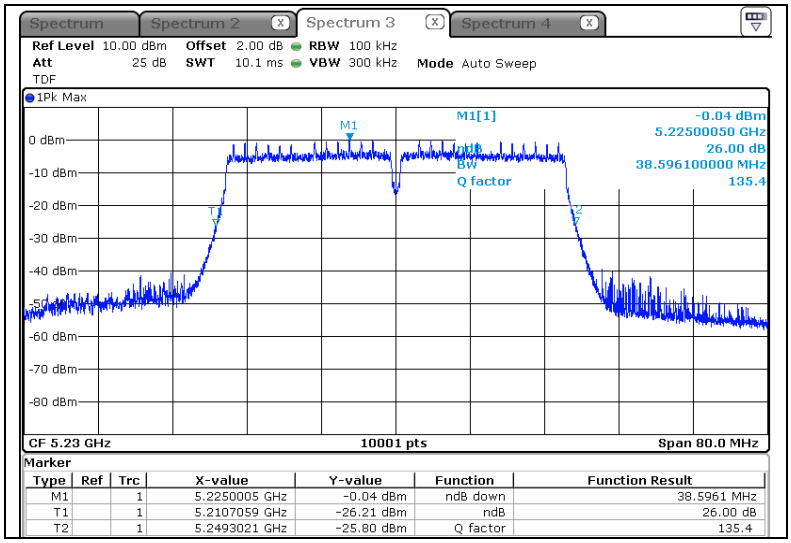


OBW

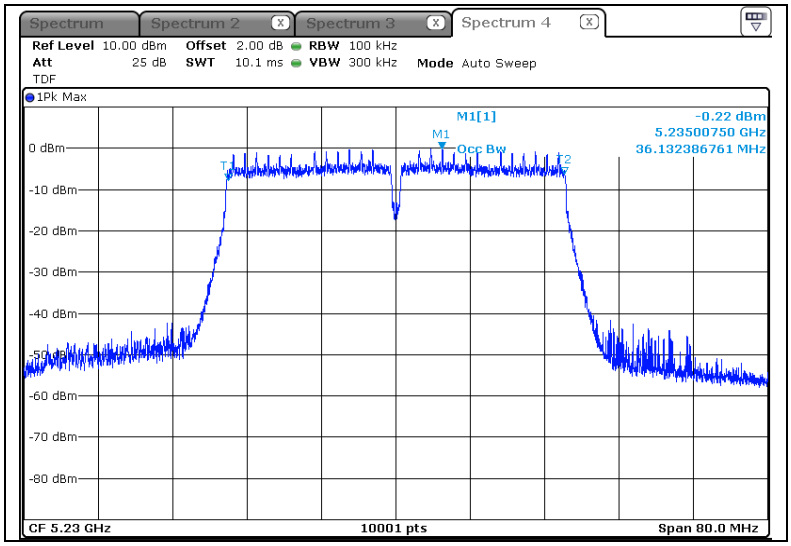


-5 230 ㎒

26 ㏈ Bandwidth



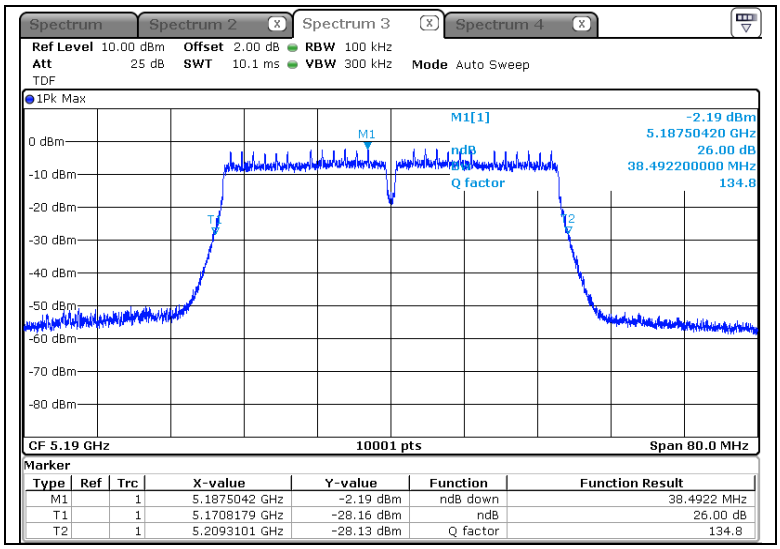
OBW



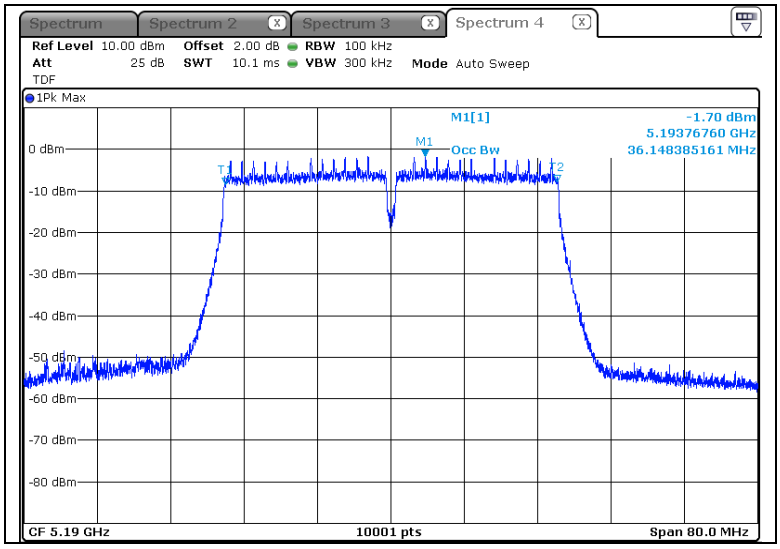
802.11a HT40_MIMO (ANT 1+2+3)

-5 190 ㎒

26 ㏈ Bandwidth

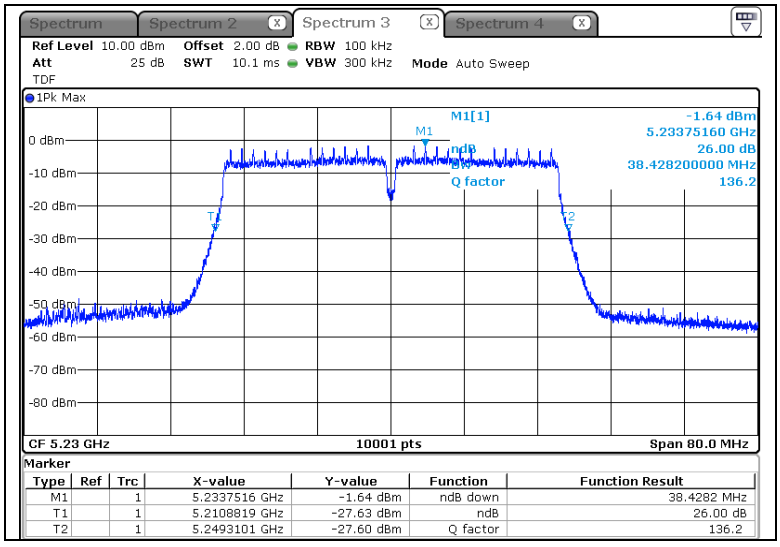


OBW

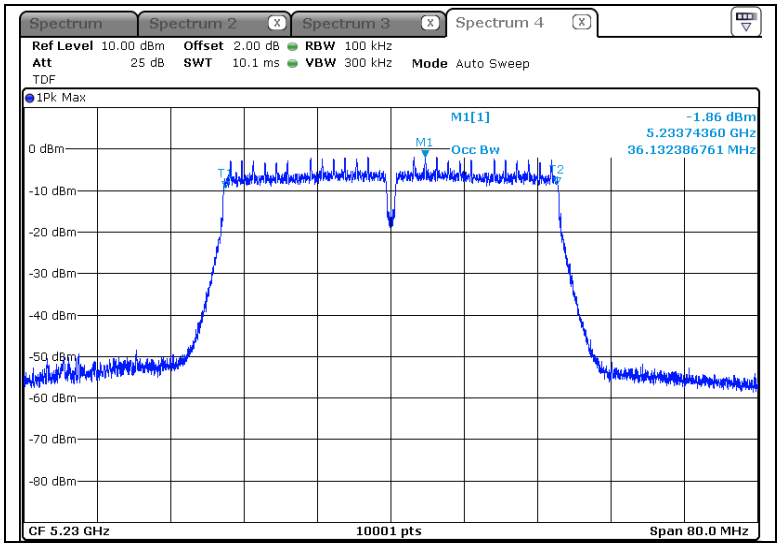


-5 230 ㎒

26 ㏈ Bandwidth



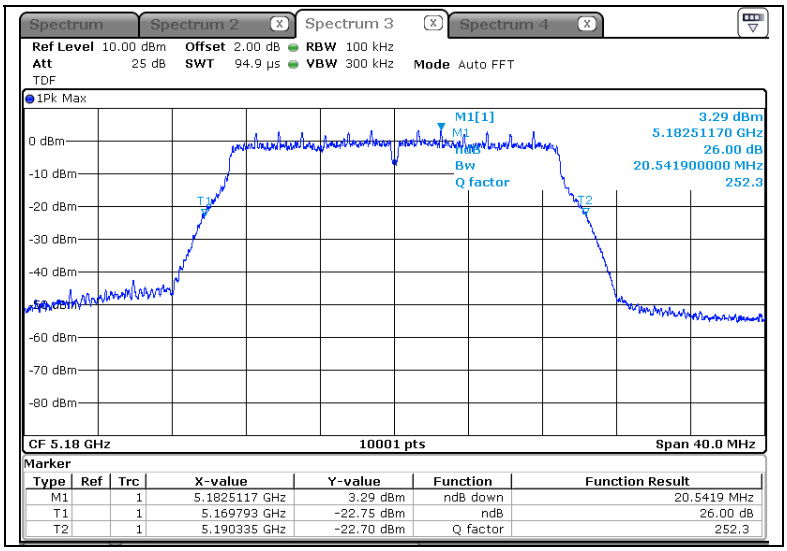
OBW



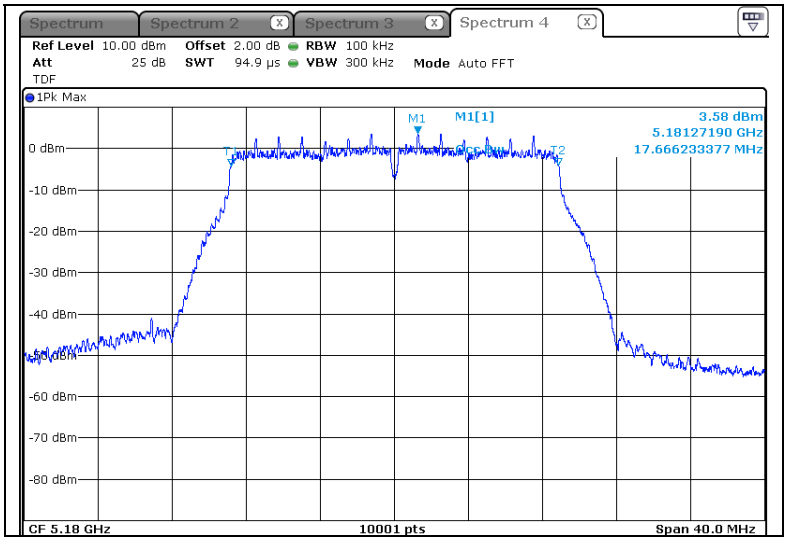
802.11ac VHT20_ANT 1

-5 180 ㎒

26 ㏈ Bandwidth

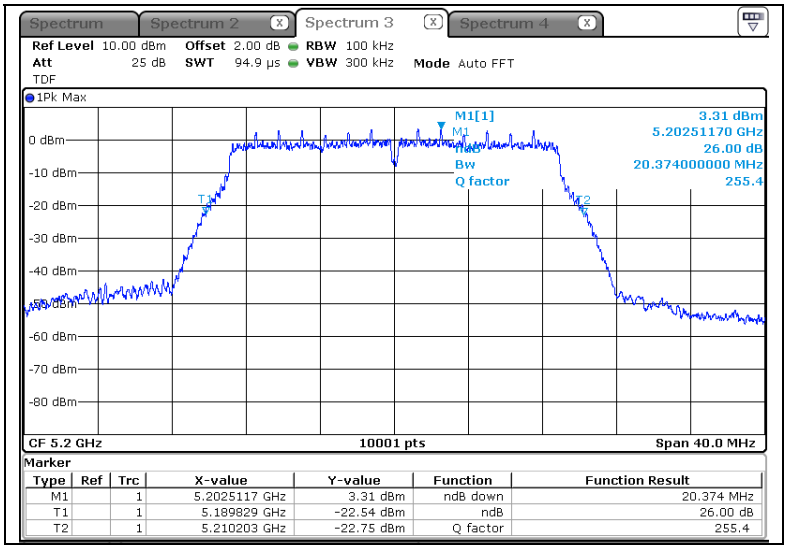


OBW

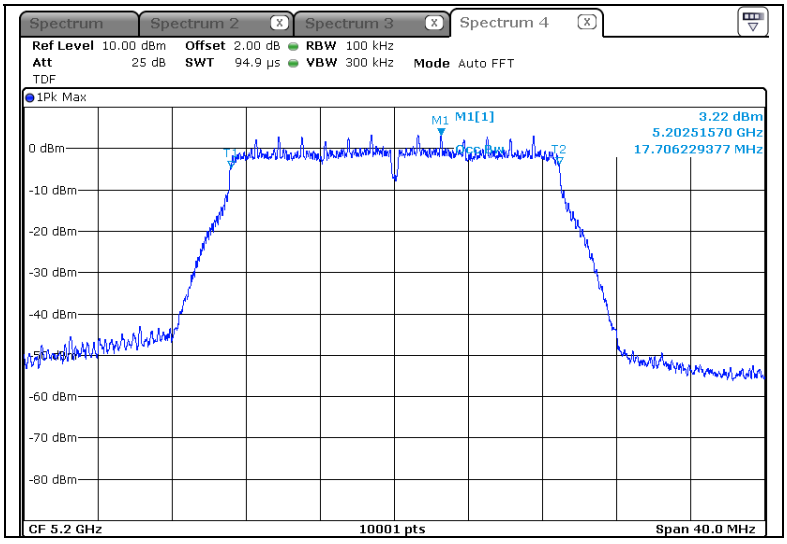


-5 200 ㎒

26 ㏈ Bandwidth

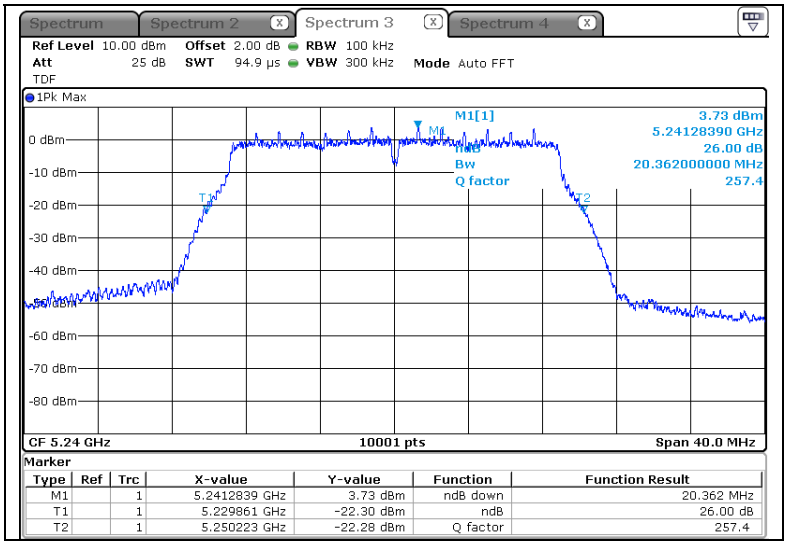


OBW

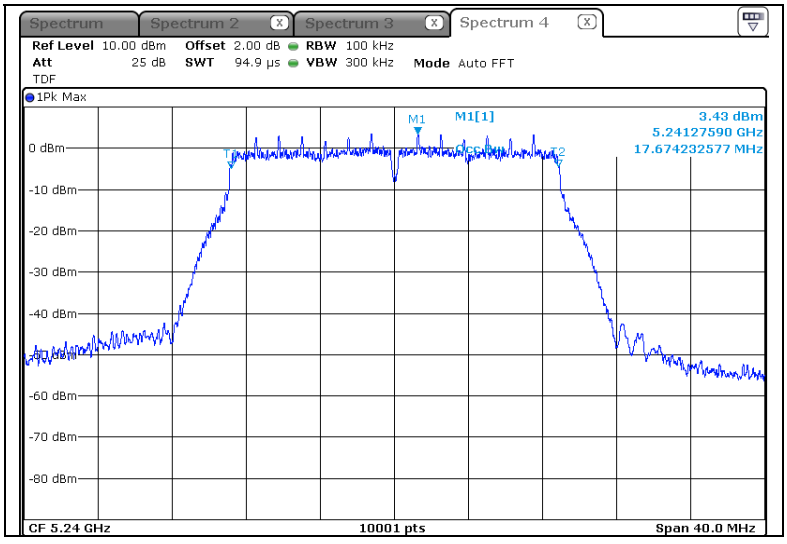


-5 240 ㎒

26 ㏈ Bandwidth



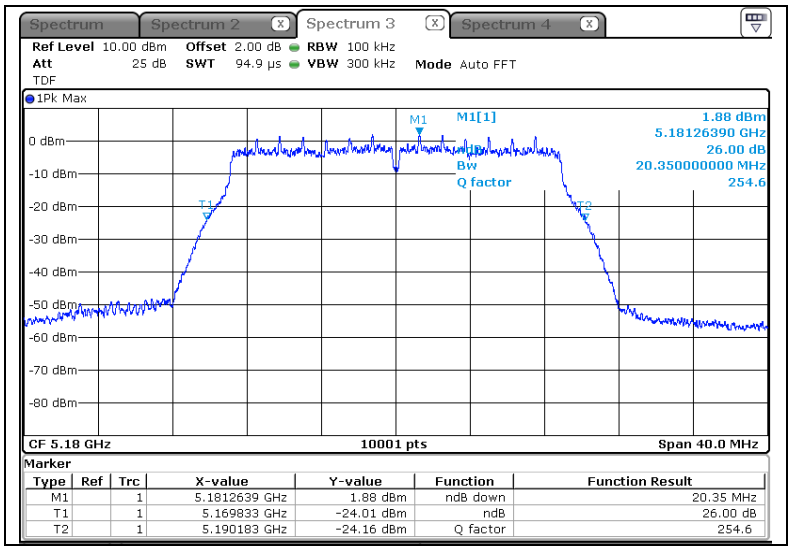
OBW



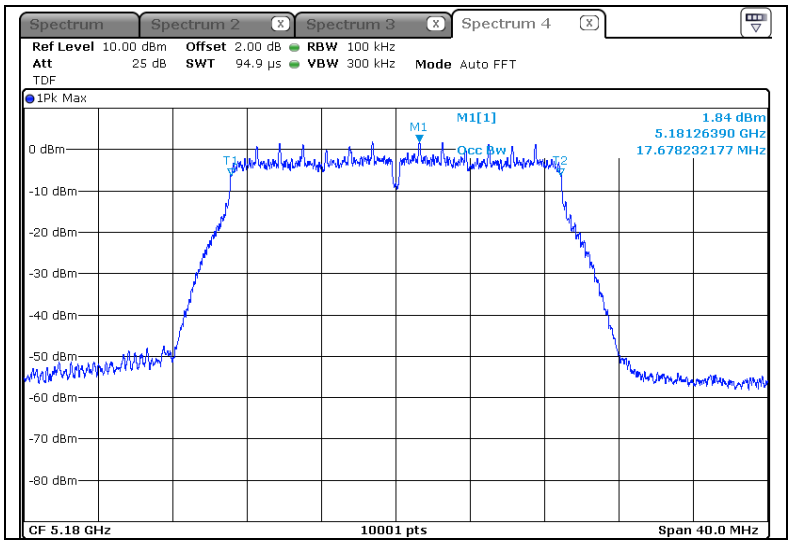
802.11ac VHT20_MIMO (ANT 1+2)

-5 180 ㎒

26 ㏈ Bandwidth

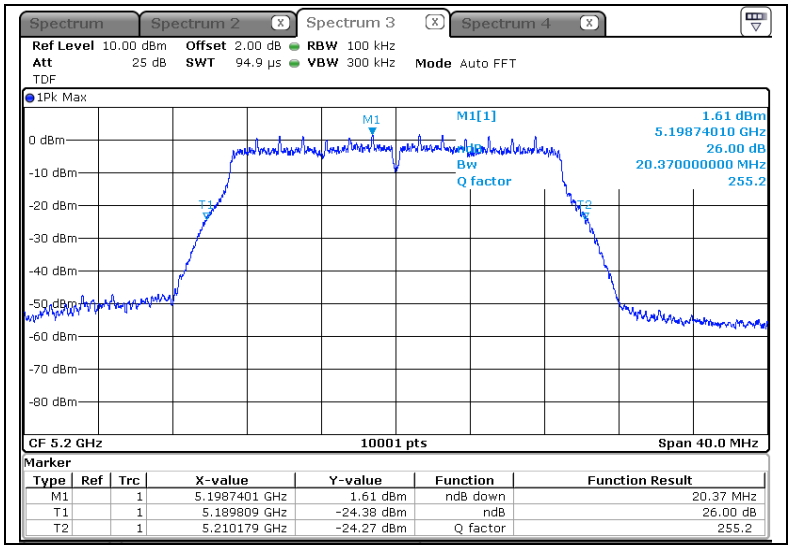


OBW

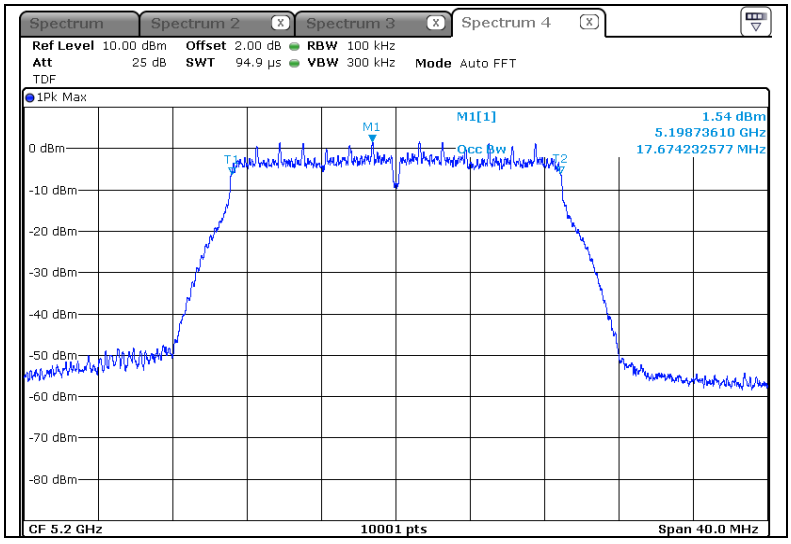


-5 200 ㎒

26 ㏈ Bandwidth

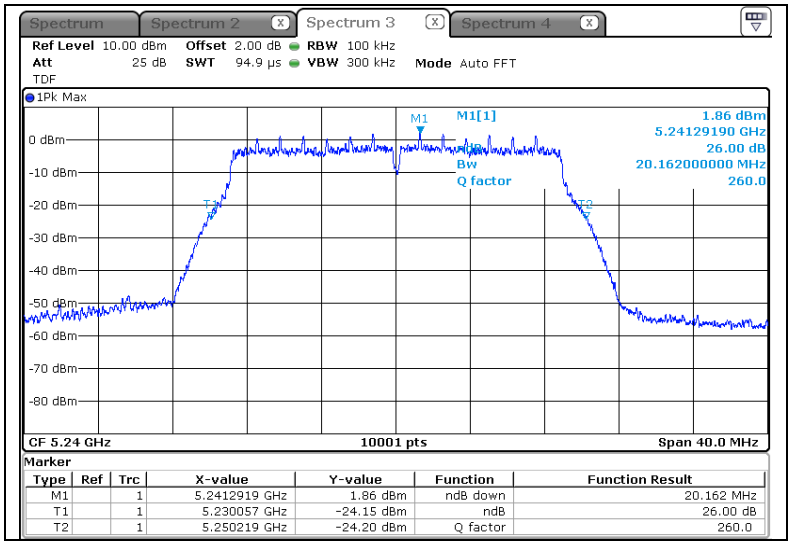


OBW

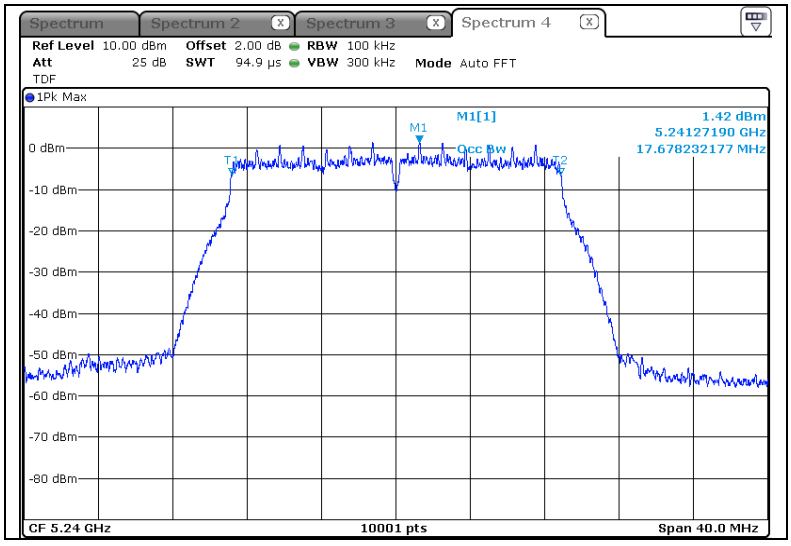


-5 240 ㎒

26 ㏈ Bandwidth



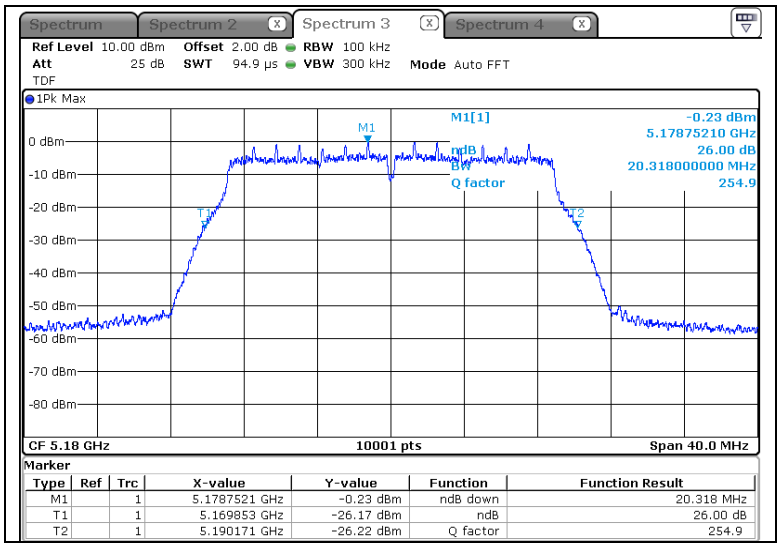
OBW



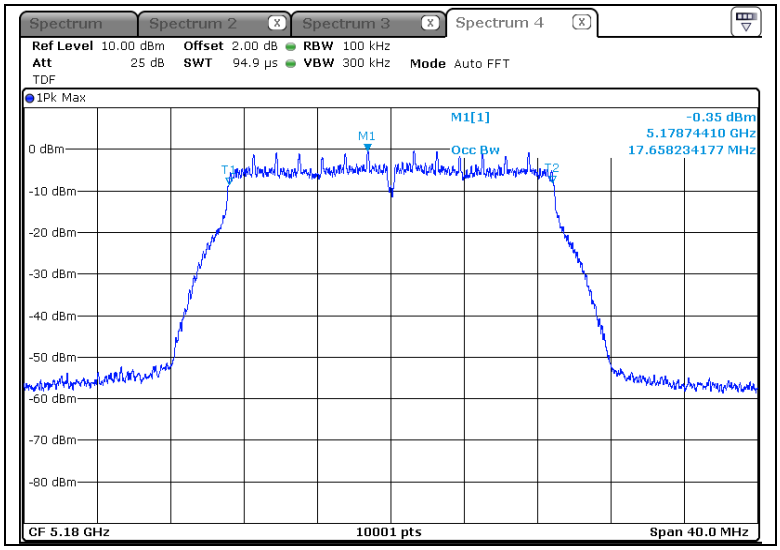
802.11ac VHT20_MIMO (ANT 1+2+3)

-5 180 ㎒

26 ㏈ Bandwidth

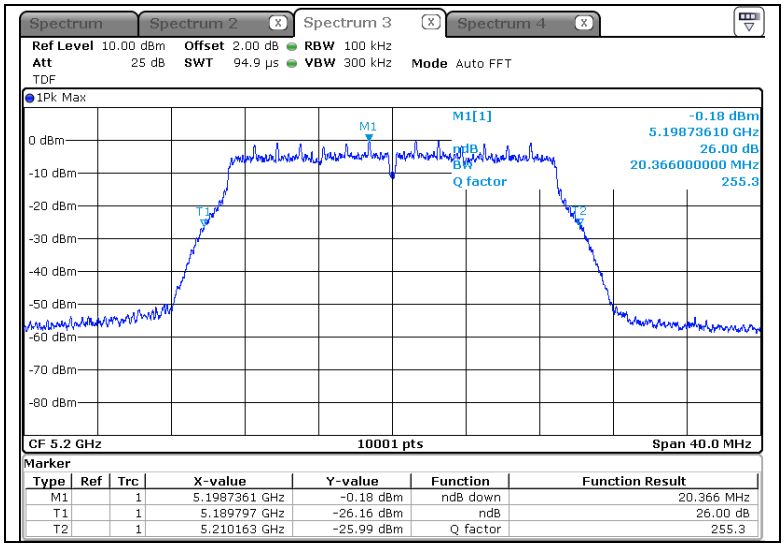


OBW

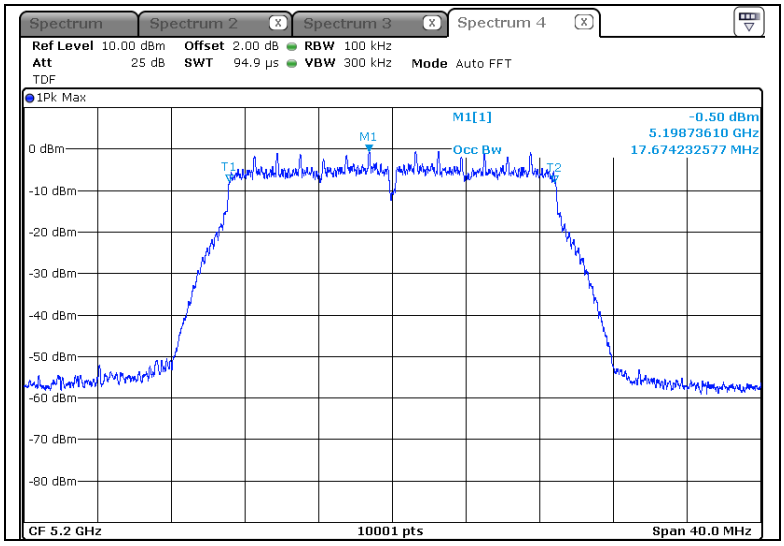


-5 200 ㎒

26 ㏈ Bandwidth

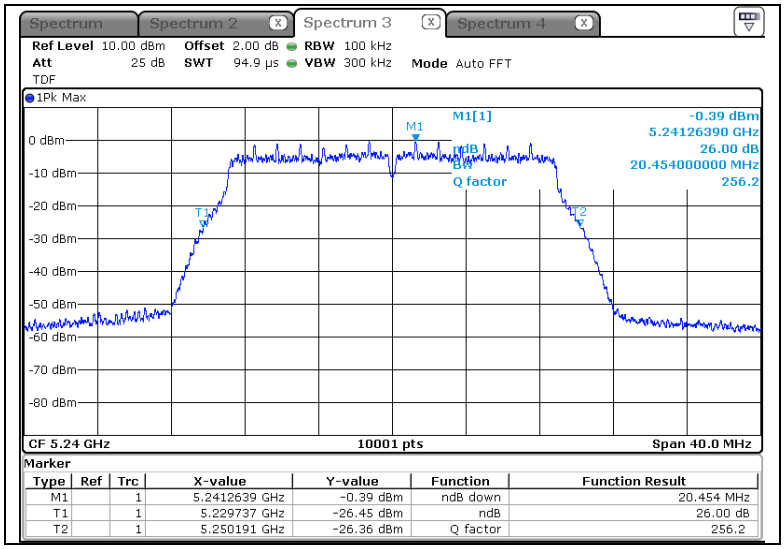


OBW

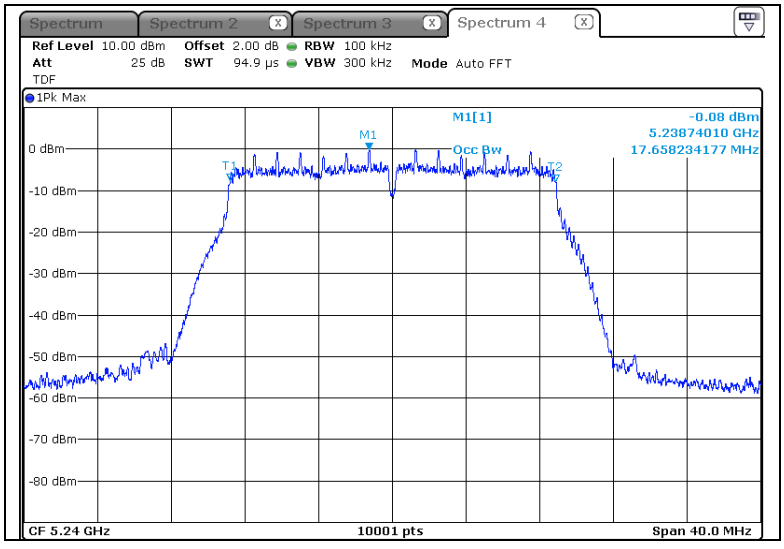


-5 240 ㎒

26 dB Bandwidth



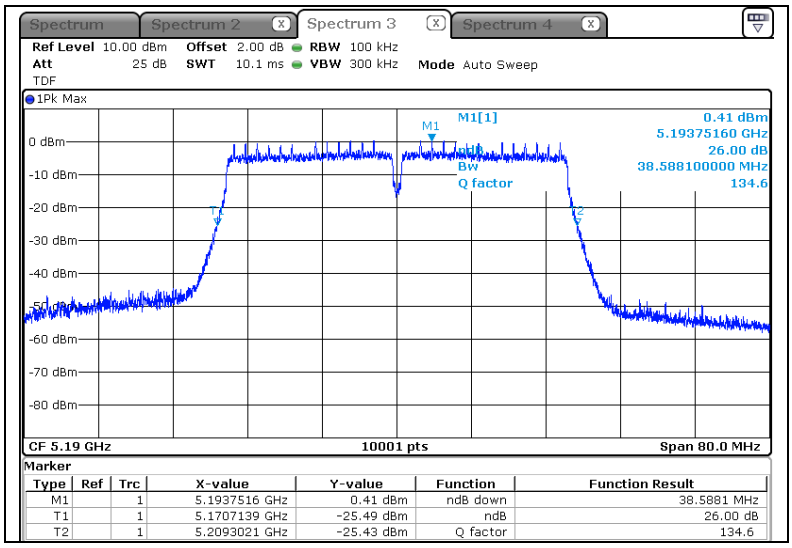
OBW



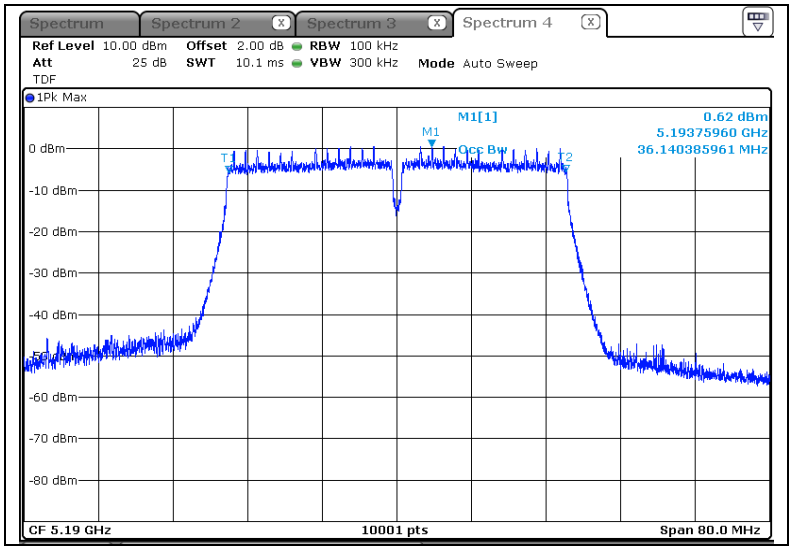
802.11ac VHT40_ANT 1

-5 190 ㎒

26 ㏈ Bandwidth

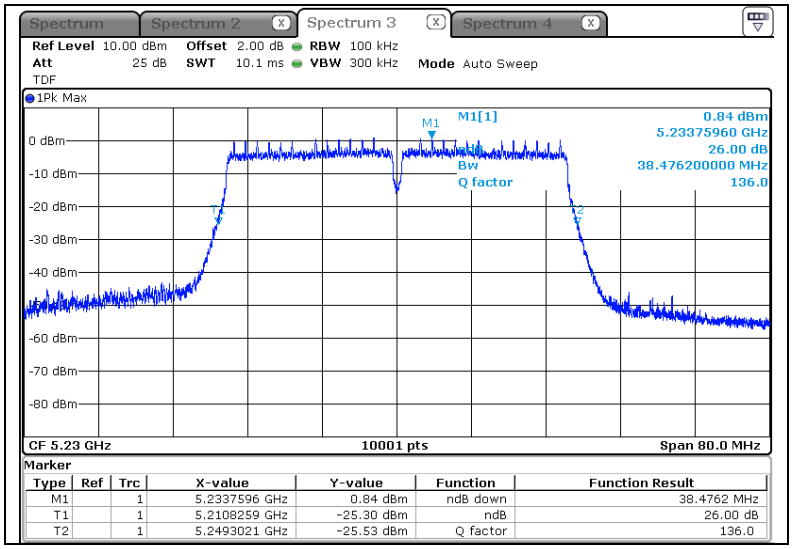


OBW

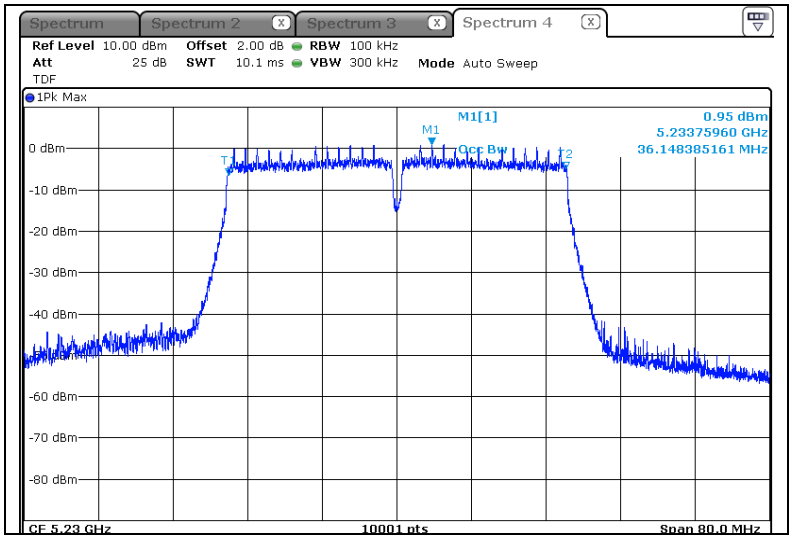


-5 230 ㎒

26 ㏈ Bandwidth



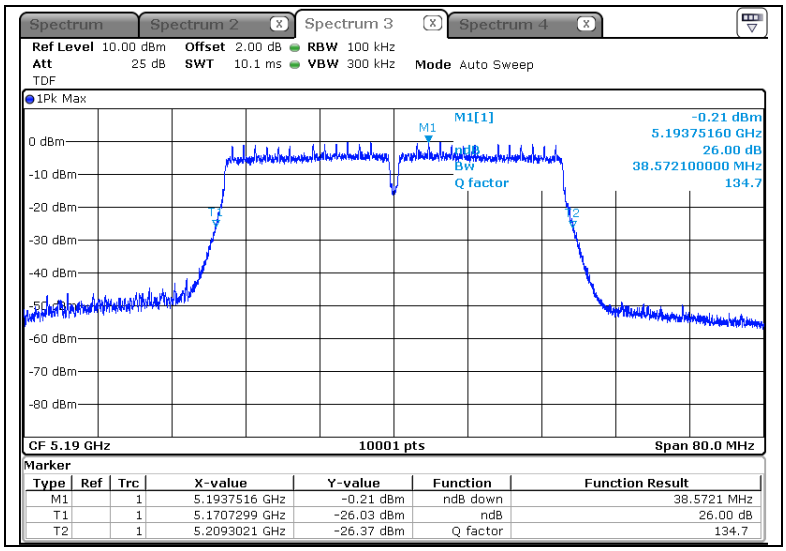
OBW



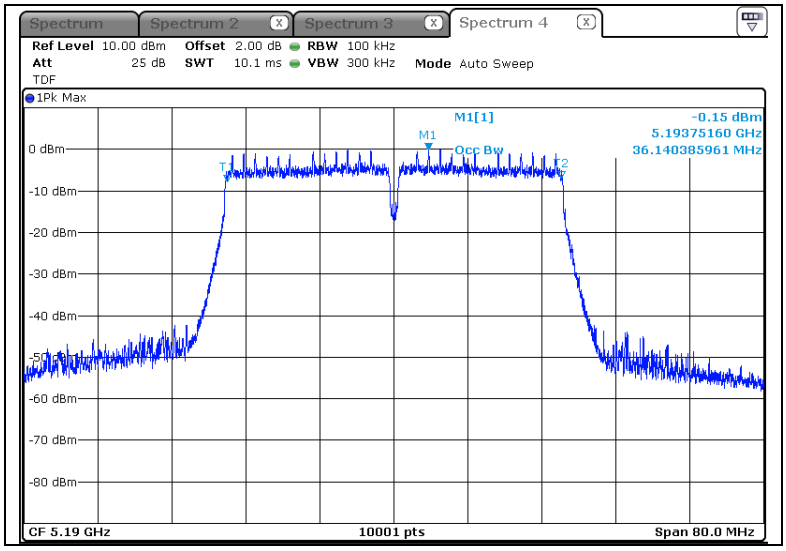
802.11ac VHT40_MIMO (ANT 1+2)

-5 190 ㎒

26 ㏈ Bandwidth

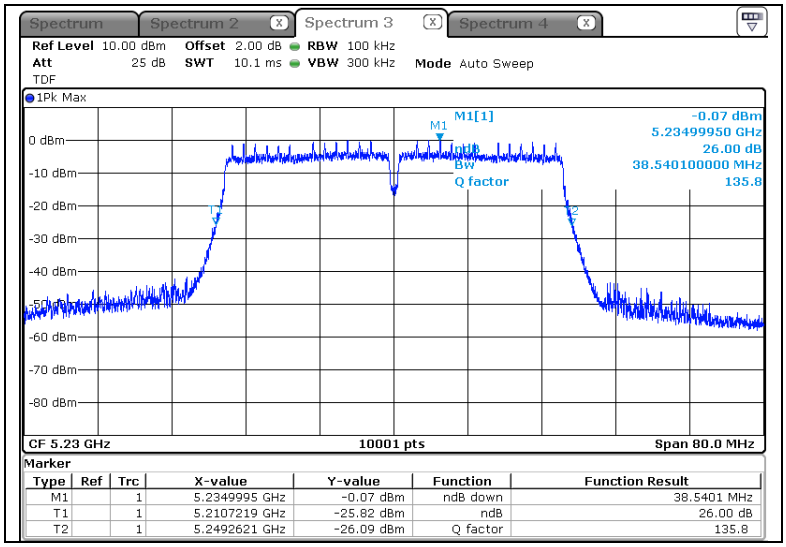


OBW

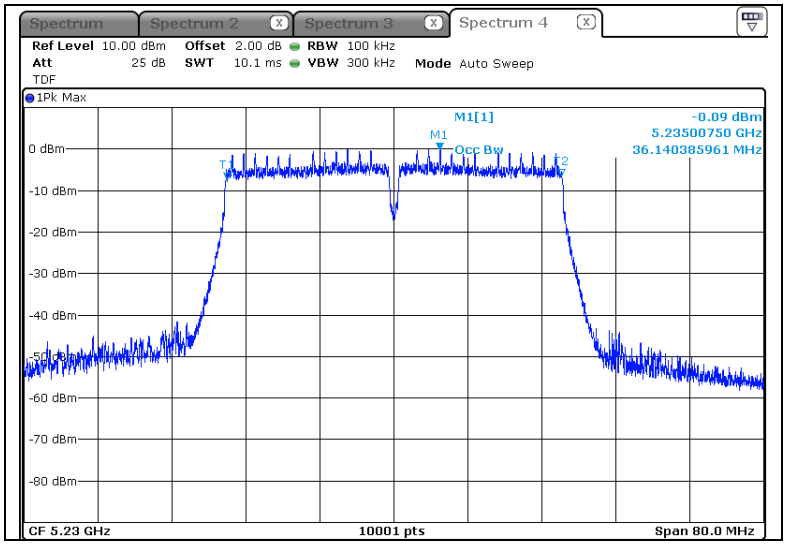


-5 230 ㎒

26 dB Bandwidth



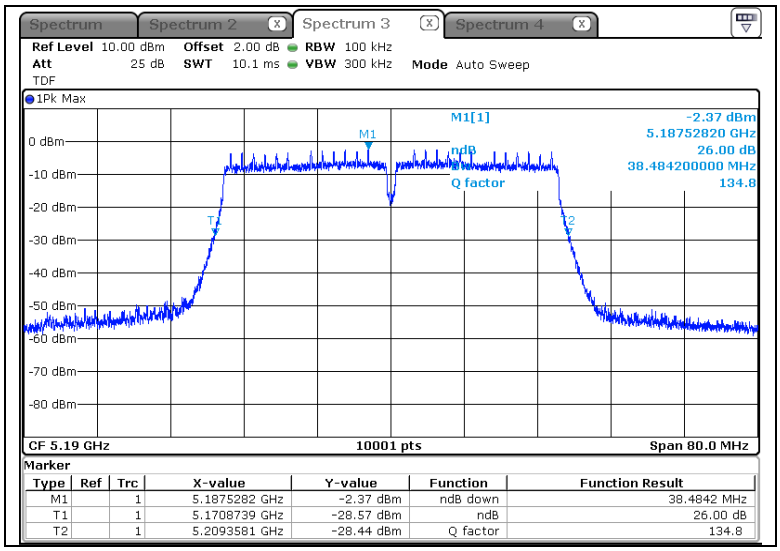
OBW



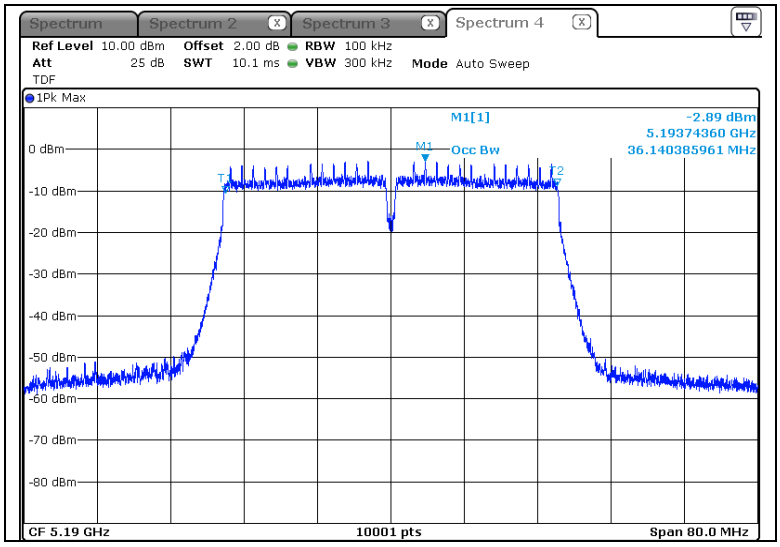
802.11ac VHT40_MIMO (ANT 1+2+3)

-5 190 ㎒

26 ㏈ Bandwidth

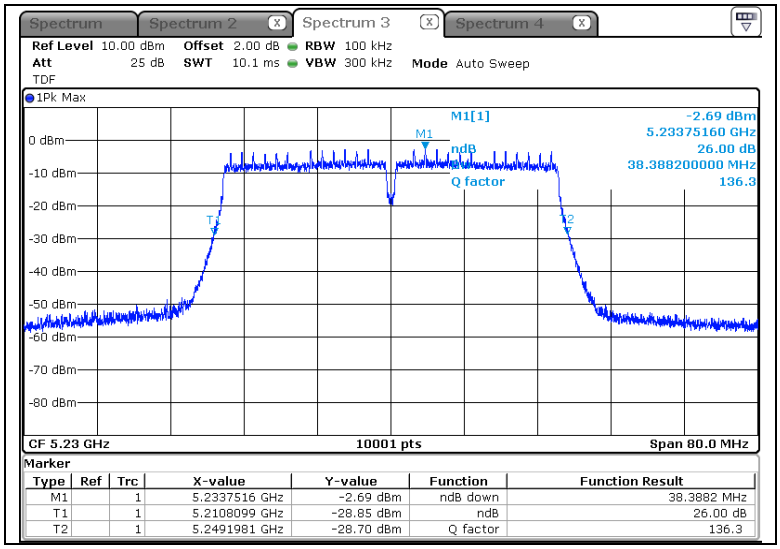


OBW

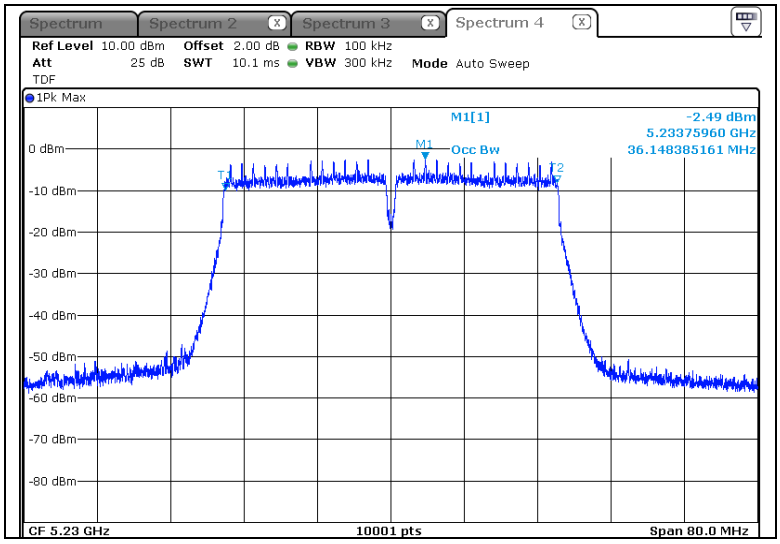


-5 230 ㎒

26 ㏈ Bandwidth



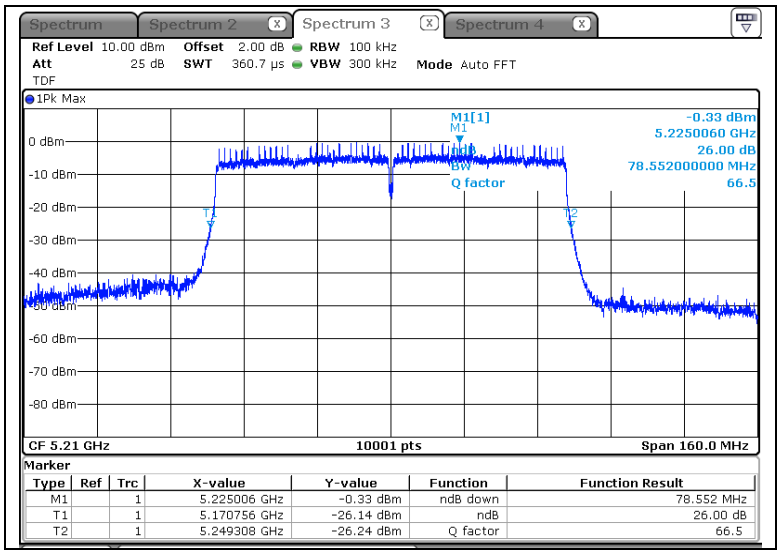
OBW



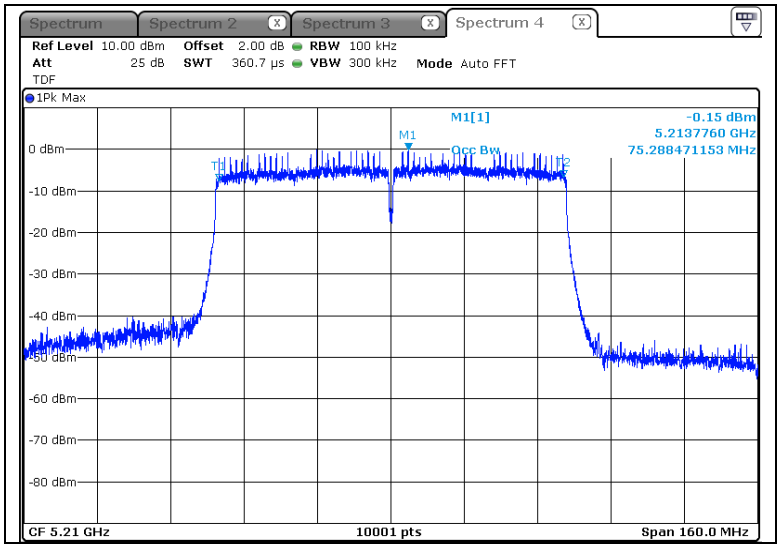
802.11ac VHT80_ANT 1

-5 210 ㎒

26 ㏈ Bandwidth



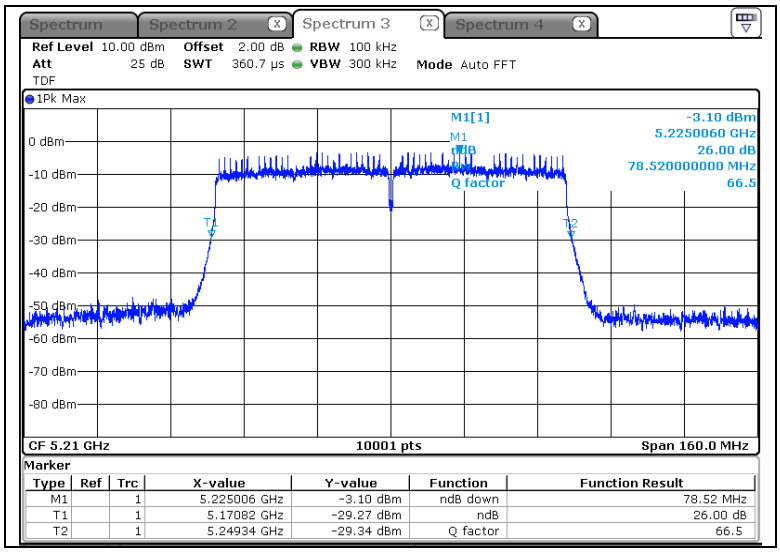
OBW



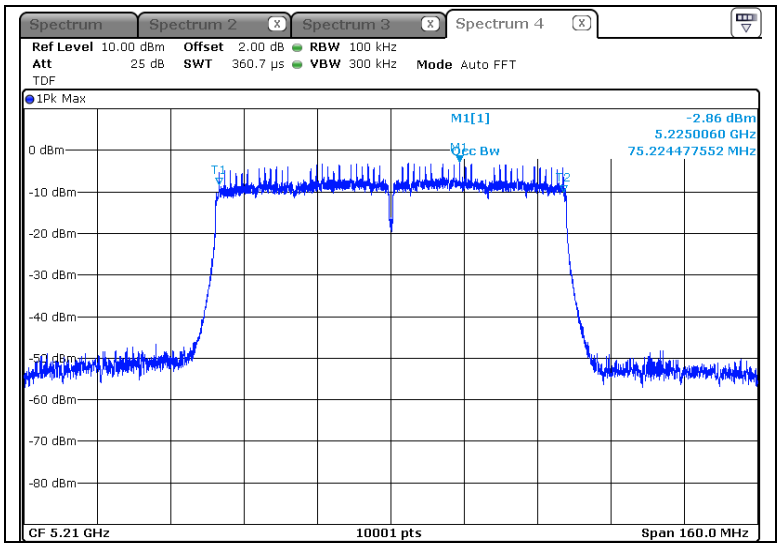
802.11ac VHT80_MIMO (ANT 1+2)

-5 210 ㎒

26 ㏈ Bandwidth



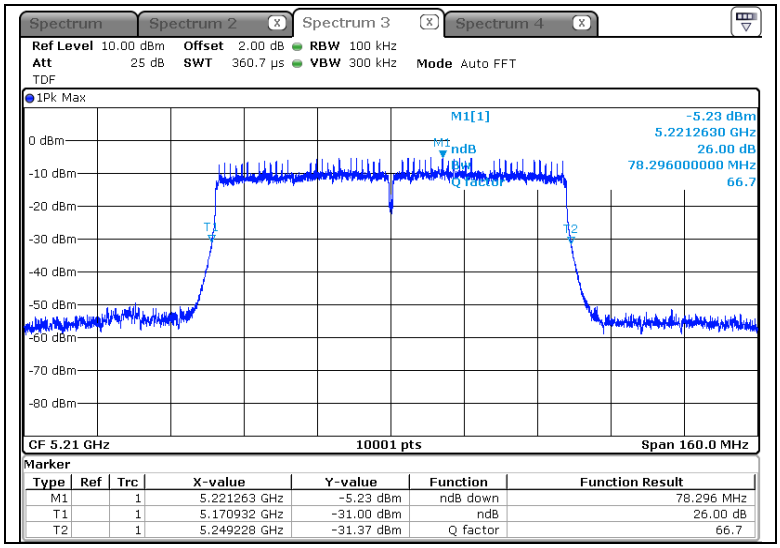
OBW



802.11ac VHT80_MIMO (ANT 1+2+3)

-5 210 ㎒

26 ㏈ Bandwidth



OBW