TEST REPORT

KCTL Inc.
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KCTL
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1. Applicant

Name:	Hyundai Mobis Co., Ltd.
Address:	203, Teheran-ro, Gangnam-gu, Seoul, 135-977, Korea

2. Sample Description:

FCC ID:	TQ8-AVBB0G2AN
IC ID:	5074A-AVBB0G2KN
Type of equipment:	DIGITAL CAR AUDIO SYSTEM
Basic Model:	AVBB0G2AN
Variant Model:	AVBB0G2KN

3. Date of Test: September 01 ~ September 18, 2015

4. Test method used:
FCC Part 15 Subpart E, 15.407
RSS-247 Issue 1 May 2015
RSS GEN Issue 4 November 2014

5. Test Results

Test Item:	Refer to page 9
Result:	Refer to page 10 ~ page 157
Measurement Uncertainty:	Refer to page 9

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

Affirmation	Tested by Name: KIM, TAE YONG	Technical Manager Name: SON, MIN GI

2015. 09. 21

KCTL Inc. Testing Laboratory

[Contents]

1. Client information

Applicant:	Hyundai Mobis Co., Ltd.
Address:	203, Teheran-ro, Gangnam-gu, Seoul, 135-977, Korea
Telephone number:	+82-31-260-0098
Contact person:	Seung Hoon Choe / csh@mobis.co.kr

Manufacturer:	Hyundai Mobis Co., Ltd.
Address:	95, Sayang 2-Gil, Munbaek-Myeon, Jincheon-Gun, Chungcheongbuk-Do 365-862 Korea

2. Laboratory information

Address

KCTL Ltd.
65 Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea (443-390)
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:	Hyundai Mobis Co., Ltd.
Address of Applicant	203, Teheran-ro, Gangnam-gu, Seoul, 135-977, Korea
Manufacturer	Hyundai Mobis Co., Ltd.
Address of Manufacturer	95, Sayang 2-Gil, Munbaek-Myeon, Jincheon-Gun, Chungcheongbuk-Do 365-862 Korea
Type of equipment	DIGITAL CAR AUDIO SYSTEM
Basic Model	AVBB0G2AN
Variant Model	AVBB0G2KN *
Serial number	N/A

* Variant model name is only for export toward Canada.

3.2 General description

Frequency Range	2 402 ㎒ ~ 2 480 ㎒ (Bluetooth) 2 412 ㎒ ~ 2 462 ㎒ (802.11b/g/n_HT20) 5 180 ㎒ ~ 5 240 ㎒ (802.11a/n/ac_HT20/VHT20) 5 190 ㎒ ~ 5 230 ㎒ (802.11n/ac_HT40/VHT40) 5 210 ㎒ (802.11ac_VHT80) 5 260 ㎒ ~ 5 320 ㎒ (802.11a/n/ac_HT20/VHT20) 5 270 ㎒ ~ 5 310 ㎒ (802.11n/ac_HT40/VHT40) 5 290 ㎒ (802.11ac_VHT80) 5 500 ㎒ ~ 5 700 ㎒ (802.11a/n/ac_HT20/VHT20) 5 510 ㎒ ~ 5 670 ㎒ (802.11n/ac_HT40/VHT40) 5 530 ㎒ (802.11ac_VHT80) 5 745 ㎒ ~ 5 825 ㎒ (802.11a/n/ac_HT20/VHT20) 5 755 ㎒ ~ 5 795 ㎒ (802.11n/ac_HT40/VHT40) 5 775 ㎒ (802.11ac_VHT80)
Type of Modulation	GFSK, π/4DQPSK, 8DPSK : Bluetooth, DSSS, OFDM : WIFI 2.4 G, OFDM : WIFI 5 G
Number of Channels	2.0 ㎓:79 ch (Bluetooth) 11 ch (802.11b/g/n_HT20) 5.0 ㎓: 5 150 ㎒ Band: 4 ch (802.11a/n/ac_HT20/VHT20) 2 ch (802.11n/ac_HT40/VHT40) 1 ch (802.11ac_VHT80) 5 250 ㎒ Band: 4 ch (802.11a/n/ac_HT20/VHT20) 2 ch (802.11n/ac_HT40/VHT40) 1 ch (802.11ac_VHT80) 5 470 ㎒ Band: 11 ch (11a/n/ac_HT20/VHT20) 5 ch (802.11n/ac_HT40/VHT40) 1 ch (802.11ac_VHT80) 5 725 ㎒ Band: 4 ch (802.11a/n/ac_HT20/VHT20) 2 ch (802.11n/ac_HT40/VHT40) 1 ch (802.11ac_VHT80)
Type of Antenna	Chip Antenna
Antenna Gain	2 ㎓: 2.29 dBi (Bluetooth), 4.11 dBi (WiFi) 5 ㎓: 5 150 ㎒ Band: 2.89 dBi, 5 250 ㎒ Band: 2.89 dBi 5 470 ㎒ Band: 2.51 dBi, 5 725 ㎒ Band: 5.78 dBi
Transmit Power	13.34 dBm
Power supply	DC 14.4 V
H/W Version	1.0
S/W Version	1.0
Test S/W version	JFHEV.USA.0000.V060.150427
RF Power setting	Using original setting value inside EUT

Note : The above EUT information was declared by the manufacturer.

3.3 Test frequency

5.0 ㎓ Band

* 802.11a/n/ac_HT20/VHT20

Frequency	Band 1	Band 2	Band 3	Band 4
Low frequency	5 180 ㎒	5 260 ㎒	5 500 ㎒	5 745 ㎒
Middle frequency	5 200 ㎒	5 300 ㎒	5 580 ㎒	5 785 ㎒
High frequency	5 240 ㎒	5 320 ㎒	5 700 ㎒	5 825 ㎒

* 802.11n/ac_HT40/VHT40

Frequency	Band 1	Band 2	Band 3	Band 4
Low frequency	5 190 ㎒	5 270 ㎒	5 510 ㎒	5 755 ㎒
Middle frequency	5 230 ㎒	5 310 ㎒	5 550 ㎒	5 795 ㎒
High frequency	-	-	5 670 ㎒	-

* 802.11ac_VHT80

Frequency	Band 1	Band 2	Band 3	Band 4
Low frequency	5 210 ㎒	5 290 ㎒	5 530 ㎒	5 775 ㎒
Middle frequency	-	-	-	-
High frequency	-	-	-	-

3.4 Test Voltage

Mode	Voltage
Norminal voltage	DC 14.4 V

3.5 Duty Factor

Mode	Duty cycle [dB]	Duty cycle factor [dB]
802.11a	93.66	0.28
802.11n HT20	93.26	0.30
802.11n HT40	87.05	0.60
802.11ac VHT20	93.13	0.31
802.11ac VHT40	87.12	0.60
802.11ac VHT80	77.21	1.21

* Duty cycle factor=10log(1/Duty cycle)

4. Summary of test results

4.1 Standards & results

FCC Rule	IC Rule (RSS-GEN)	Parameter	Report Section	Test Result
15.203 15.407(a)(1)(2)(3)	-	Antenna Requirement	5.1	C
15.403(i),15.407(e)	RSS-247, 5.1 RSS-GEN, 6.6	Bandwidth Measurement	5.2	C
15.407(a)(1)(2)	RSS-247, 5.4	Maximum Conducted Output Power	5.3	C
15.407(a)(1)(2)(5)	RSS-247, 5.3, (2)	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)	RSS-247, 5.5 RSS-GEN, 8.9, 10	Spurious Emission, Band Edge and Restricted bands	5.6	C
15.407(g)	RSS-GEN, 6.11	Frequency Stability	5.7	C
15.207(a)	RSS-GEN, 8.8	Conducted Emissions	5.8	$NA_{1)}$
15.407(h)	RSS-247, 6.3	Dynamic Frequency Selection	5.9	C

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

$NA_{1)}$: This test is not applicable because the EUT falls into the automotive device and it's not to be connected to the public utility(AC) power line.

* 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 Chip antenna.
The most highest total directional peak gain of the antenna among 1~4 Band is 5.78 dBi and it doesn't exceed 6.0 dBi.

5.2 Maximum Conducted Output Power

5.2.1 Regulation

According to §15.407(a) (1) (iv) For mobile and portable client devices in the 5.15-5.25 ㎓ band, the maximum conducted output power over the frequency band of operation shall not exceed 250 ㎽ provided the maximum antenna gain does not exceed 6 dBi. 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 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

*802.11a _5 150 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 180	12.56	0.28	12.84	24.00	11.16
5 200	12.51	0.28	12.79	24.00	11.21
5 240	12.05	0.28	12.33	24.00	11.67

*802.11n HT20 _5 150 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 180	12.31	0.30	12.61	24.00	11.39
5 200	12.13	0.30	12.43	24.00	11.57
5 240	12.09	0.30	12.39	24.00	11.61

*802.11n HT40 _5 150 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 190	12.50	0.60	13.10	24.00	10.90
5 230	11.89	0.60	12.49	24.00	11.51

*802.11ac VHT20 _5 150 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 180	12.58	0.31	12.89	24.00	11.11
5 200	12.19	0.31	12.50	24.00	11.50
5 240	11.96	0.31	12.27	24.00	11.73

*802.11ac VHT40_5 150 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 190	12.37	0.60	12.97	24.00	11.03
5 230	12.09	0.60	12.69	24.00	11.31

*802.11ac VHT80_5 150 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 210	11.82	1.12	12.94	24.00	11.06

*802.11a_5 250 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 260	13.34	0.28	13.62	24.00	10.38
5 300	12.47	0.28	12.75	24.00	11.25
5 320	12.05	0.28	12.33	24.00	11.67

*802.11n HT20 _5 250 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 260	12.78	0.30	13.08	24.00	10.92
5 300	12.34	0.30	12.64	24.00	11.36
5 320	12.03	0.30	12.33	24.00	11.67

*802.11n HT40_5 250 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 270	12.29	0.60	12.89	24.00	11.11
5 310	11.80	0.60	12.40	24.00	11.60

*802.11ac VHT20_5 250 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 260	12.78	0.31	13.09	24.00	10.91
5 300	12.21	0.31	12.52	24.00	11.48
5 320	11.90	0.31	12.21	24.00	11.79

*802.11ac VHT40_5 250 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 270	12.29	0.60	12.89	24.00	11.11
5 310	11.80	0.60	12.40	24.00	11.60

*802.11ac VHT80_5 250 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 290	11.28	1.12	12.40	24.00	11.60

*802.11a_5 470 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 500	9.32	0.28	9.60	24.00	14.40
5 580	9.64	0.28	9.92	24.00	14.08
5 700	11.25	0.28	11.53	24.00	12.47

*802.11n HT20_5 470 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 500	9.44	0.30	9.74	24.00	14.26
5 580	9.72	0.30	10.02	24.00	13.98
5 700	10.98	0.30	11.28	24.00	12.72

*802.11n HT40_5 470 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 510	9.19	0.60	9.79	24.00	14.21
5 550	9.39	0.60	9.99	24.00	14.01
5 670	10.10	0.60	10.70	24.00	13.30

*802.11ac VHT20_5 470 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 500	9.25	0.31	9.56	24.00	14.44
5 580	9.52	0.31	9.83	24.00	14.17
5 700	11.03	0.31	11.34	24.00	12.66

*802.11ac VHT40_5 470 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 510	9.38	0.60	9.98	24.00	14.02
5 550	9.30	0.60	9.90	24.00	14.10
5 670	10.22	0.60	10.82	24.00	13.18

*802.11ac VHT80_5 470 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 530	8.31	1.12	9.43	24.00	14.57

*802.11a_5 725 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 745	10.77	0.28	11.05	30.00	18.95
5 785	11.17	0.28	11.45	30.00	18.55
5 825	12.08	0.28	12.36	30.00	17.64

*802.11n HT20_5 725 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 745	11.09	0.30	11.39	30.00	18.61
5 785	11.60	0.30	11.90	30.00	18.10
5 825	12.27	0.30	12.57	30.00	17.43

*802.11n HT40_5 725 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 755	10.86	0.60	11.46	30.00	18.54
5 795	11.38	0.60	11.98	30.00	18.02

*802.11ac VHT20_5 725 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 745	10.97	0.31	11.28	30.00	18.72
5 785	11.58	0.31	11.89	30.00	18.11
5 825	11.75	0.31	12.06	30.00	17.94

*802.11ac VHT40_5 725 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 755	10.86	0.60	11.46	30.00	18.54
5 795	11.32	0.60	11.92	30.00	18.08

*802.11ac VHT80_5 725 Band

Frequency [㎒]	Result [dBm]	Duty Factor [dBm]	Total result [dBm]	Limit [dBm]	Margin [dBm]
5 775	10.32	1.12	11.44	30.00	18.56

-NOTE:

1. Duty Factor : refer to 3.5
2. Result = Total power calculation(Average Power) + 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 the emission. 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 associatedwith the two outermost amplitude points (upper and lower frequencies) that are attenuated by6 ㏈ 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

*802.11a_5 150 Band

Frequency	26 dB Bandwidth	OBW
5 180	21.50	16.86
5 200	21.54	16.78
5 240	21.50	16.86

*802.11n HT20_5 150 Band

Frequency	26 dB Bandwidth	OBW
5 180	21.74	17.90
5 200	21.98	17.94
5 240	21.94	17.98

*802.11n HT40_5 150 Band

Frequency	26 dB Bandwidth	OBW
5 190	40.68	36.60
5 230	40.36	36.36

*802.11ac VHT20_5 150 Band

Frequency	26 dB Bandwidth	OBW
5 180	21.78	17.90
5 200	21.82	17.86
5 240	21.86	17.90

*802.11ac VHT40_5 150 Band

Frequency	26 dB Bandwidth	OBW
5 190	40.44	36.52
5 230	40.36	36.52

*802.11ac VHT80_5 150 Band

Frequency	26 dB Bandwidth	OBW
5 210	82.00	75.76

*802.11a_5 250 Band

Frequency	26 dB Bandwidth	OBW
5 260	21.46	16.86
5 300	21.58	16.86
5 320	21.54	16.94

*802.11n HT20_5 250 Band

Frequency	26 dB Bandwidth	OBW
5 260	21.66	17.90
5 300	21.70	17.86
5 320	21.62	17.94

*802.11n HT40_5 250 Band

Frequency	26 dB Bandwidth	OBW
5 270	40.36	36.44
5 310	40.52	36.52

*802.11ac VHT20_5 250 Band

Frequency	26 dB Bandwidth	OBW
5 260	21.86	17.94
5 300	21.42	17.86
5 320	21.62	17.86

*802.11ac VHT40_5 250 Band

Frequency	26 dB Bandwidth	OBW
5 270	40.36	36.44
5 310	40.28	36.44

*802.11ac VHT80_5 250 Band

Frequency	26 dB Bandwidth	OBW
5 290	82.64	76.08

*802.11a_5 470 Band

Frequency	26 dB Bandwidth	OBW
5 500	21.46	16.82
5 580	21.58	16.90
5 700	21.66	16.90

*802.11n HT20_5 470 Band

Frequency	26 dB Bandwidth	OBW
5 500	21.54	17.86
5 580	21.46	17.90
5 700	21.74	18.06

*802.11n HT40_5 470 Band

Frequency	26 dB Bandwidth	OBW
5 510	40.44	36.52
5 550	40.60	36.52
5 670	40.52	36.52

*802.11ac VHT20_5 470 Band

Frequency	26 dB Bandwidth	OBW
5 500	21.58	17.94
5 580	21.70	17.94
5 700	21.98	17.98

*802.11ac VHT40_5 470 Band

Frequency	26 dB Bandwidth	OBW
5 510	40.44	36.52
5 550	40.44	36.60
5 670	40.60	36.52

*802.11ac VHT80_5 470 Band

Frequency	26 dB Bandwidth	OBW
5 530	82.32	75.92

*802.11a_5 725 Band

Frequency	6 dB Bandwidth	OBW
5 745	16.30	16.86
5 785	16.34	16.90
5 825	16.34	16.74

*802.11n HT20_5 725 Band

Frequency	6 dB Bandwidth	OBW
5 745	17.58	18.02
5 785	17.54	17.94
5 825	17.58	17.82

*802.11n HT40_5 725 Band

Frequency	6 dB Bandwidth	OBW
5 755	36.32	36.44
5 795	36.28	36.60

*802.11ac VHT20_5 725 Band

Frequency	6 dB Bandwidth	OBW
5 745	17.58	17.94
5 785	17.58	17.90
5 825	17.58	17.94

*802.11ac VHT40_5 725 Band

Frequency	6 dB Bandwidth	OBW
5 755	36.04	36.52
5 795	36.28	36.60

*802.11ac VHT80_5 725 Band

Frequency	6 dB Bandwidth	OBW
5 775	75.28	75.92

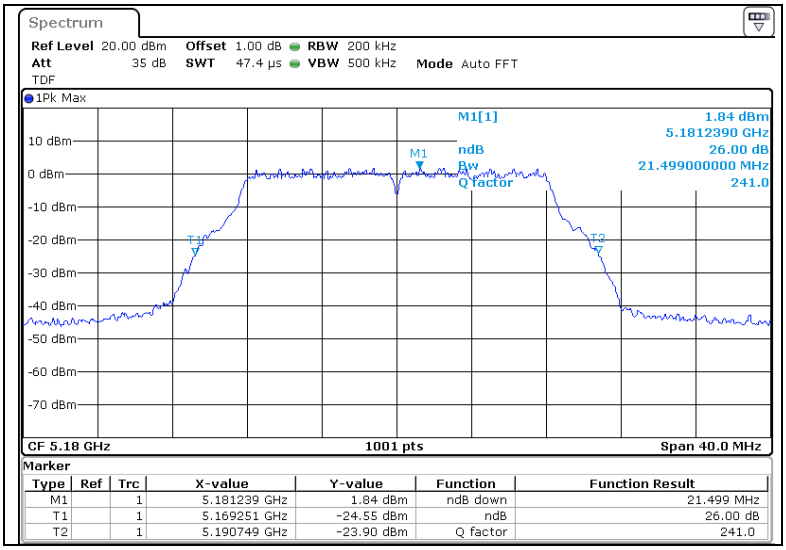
5.3.4 Test Plot

Figure 1. Plot of Bandwidth Measurement

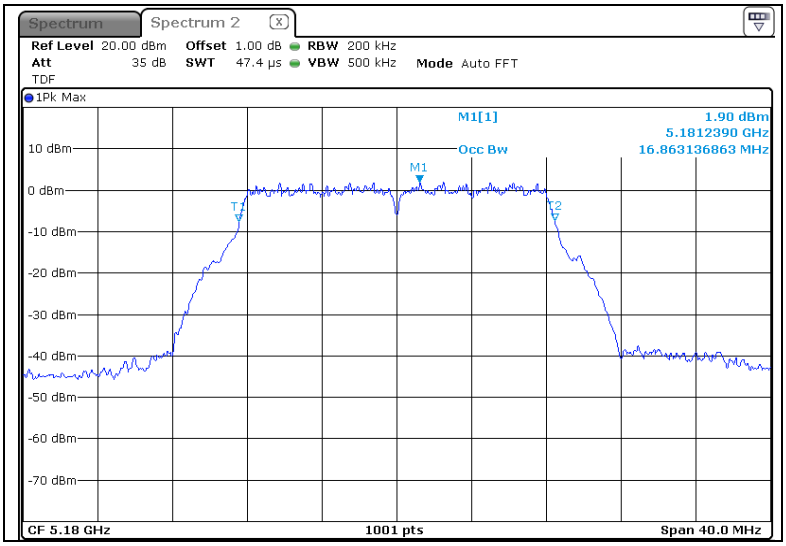
* 802.11a_5 150 Band

-5 180 ㎒

EBW

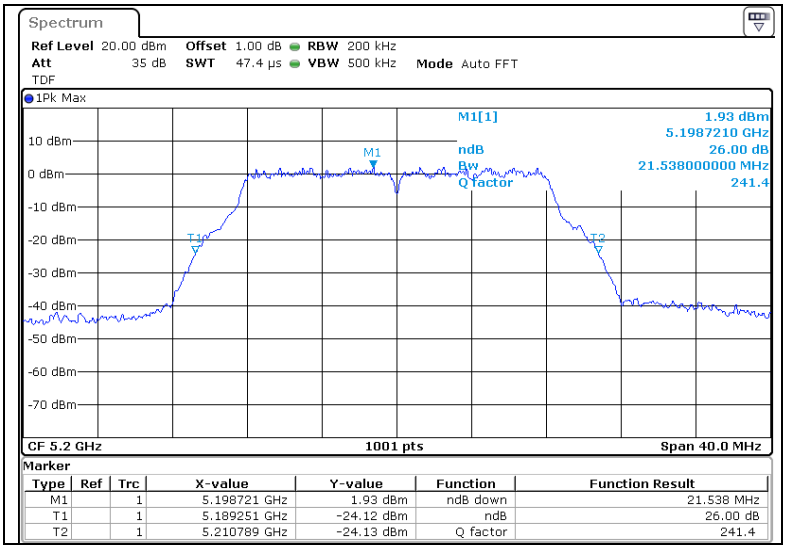


OBW

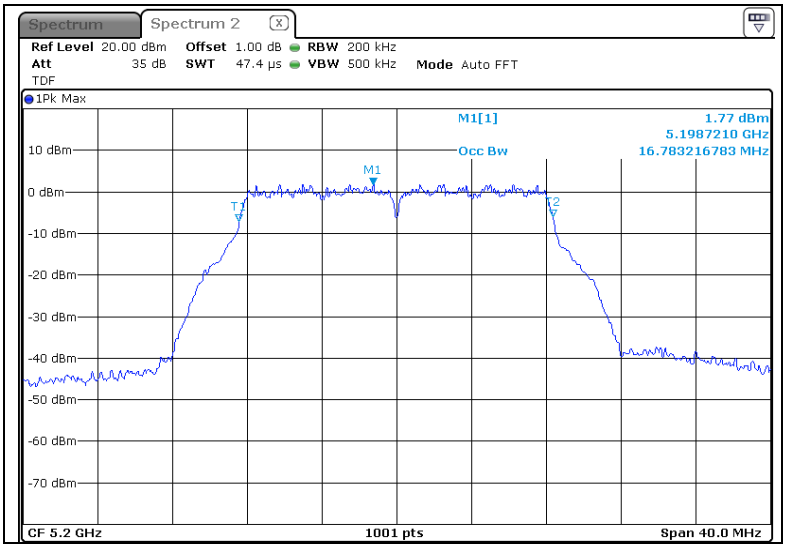


-5 200 ㎒

EBW

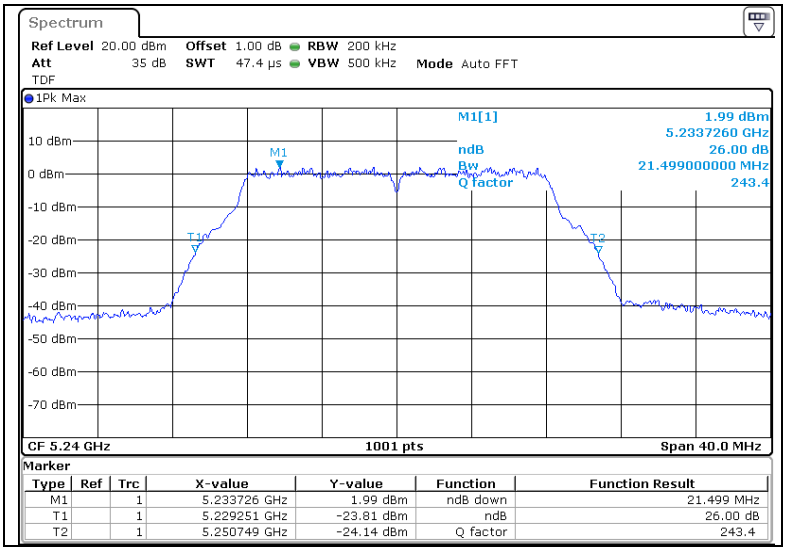


OBW

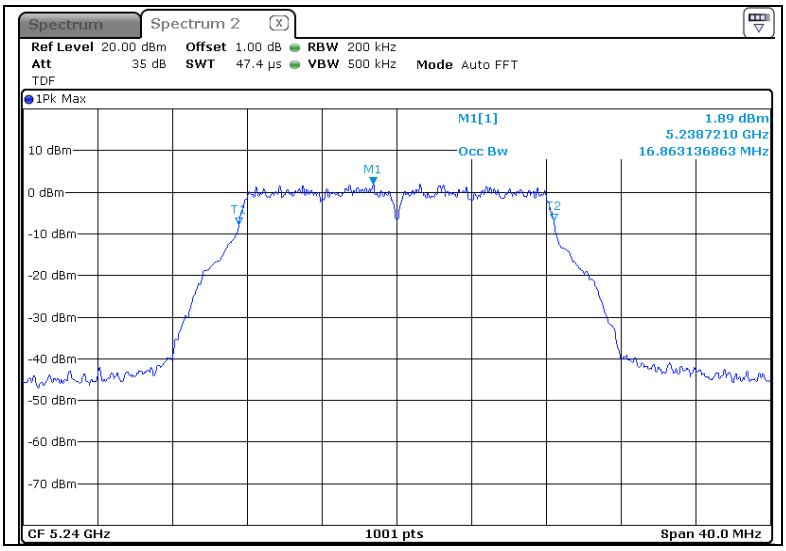


-5 240 ㎒

EBW



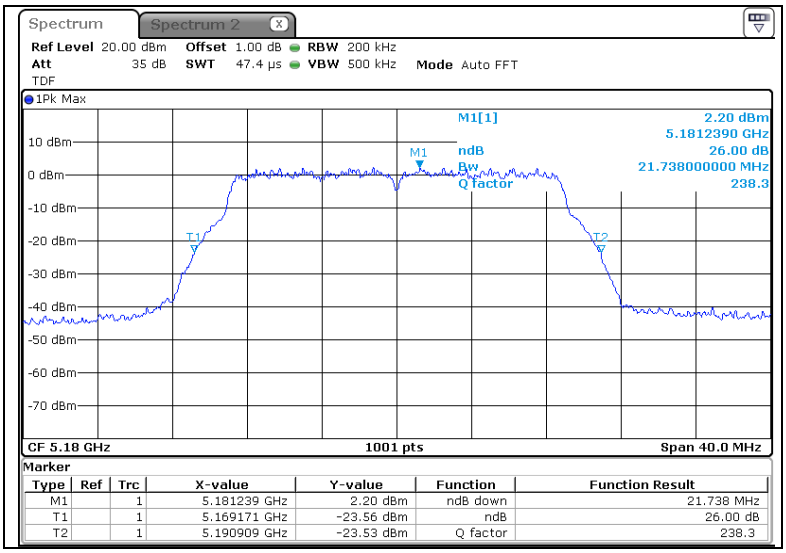
OBW



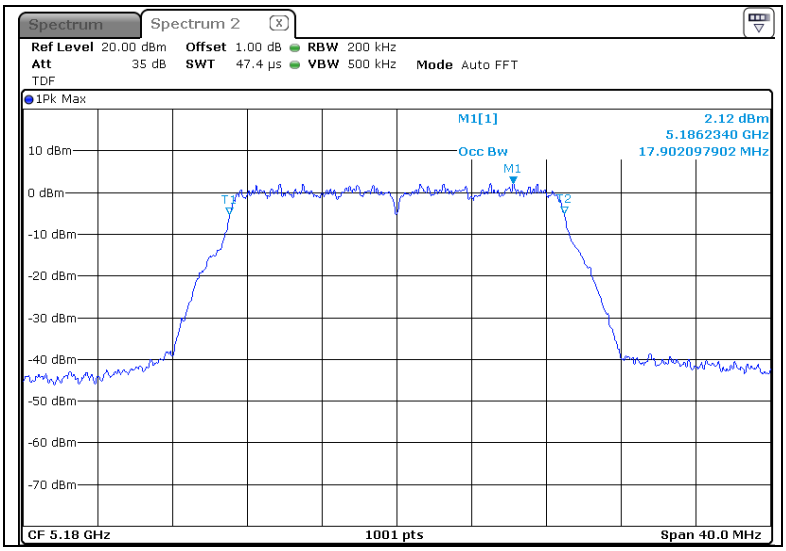
* 802.11n HT20_5 150 Band

-5 180 ㎒

EBW

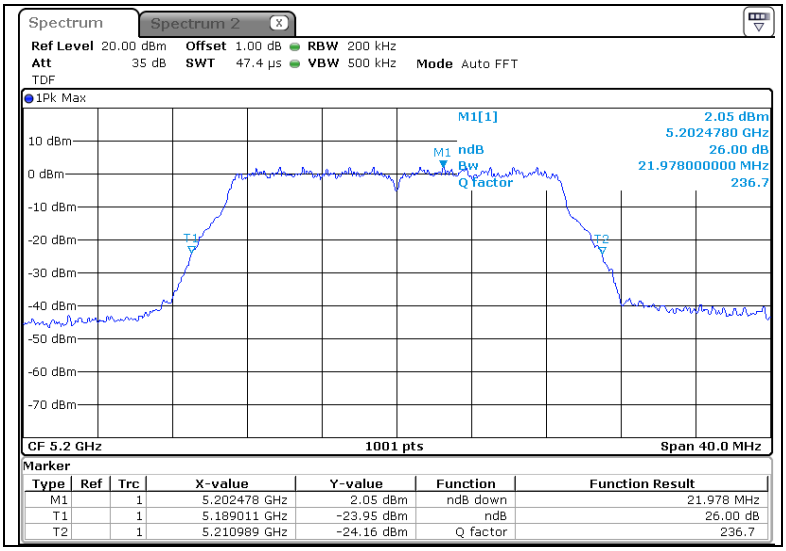


OBW

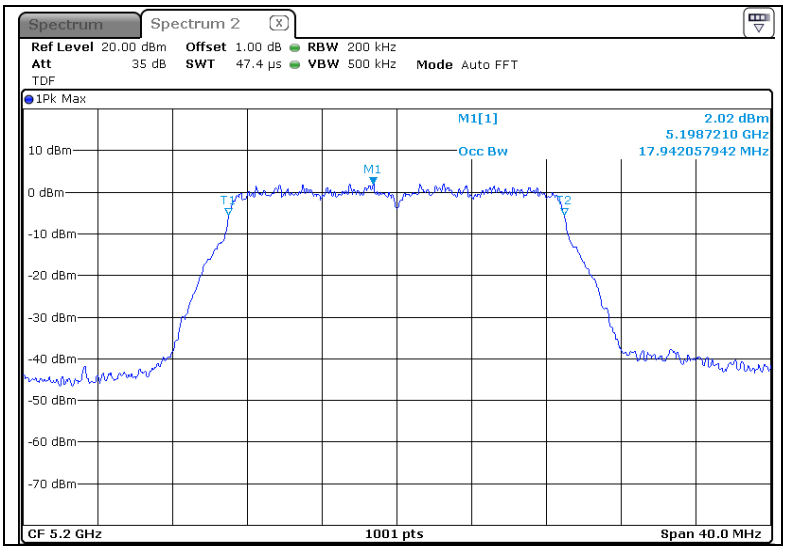


-5 200 ㎒

EBW

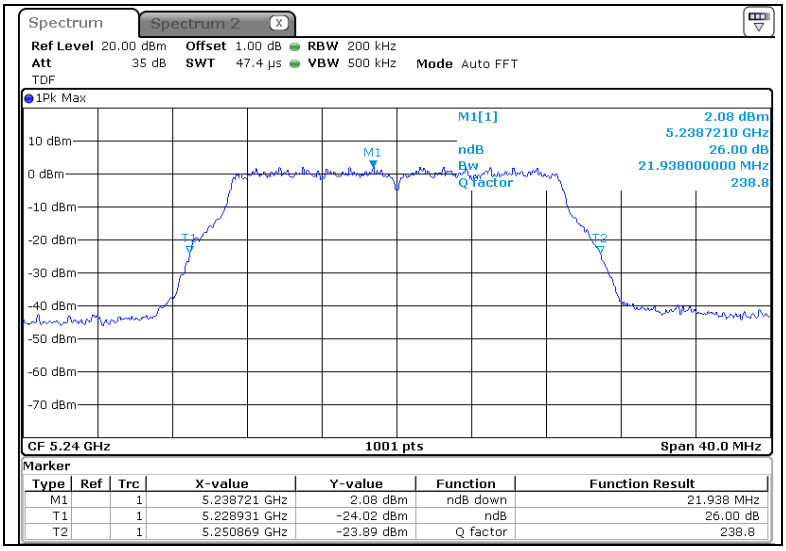


OBW

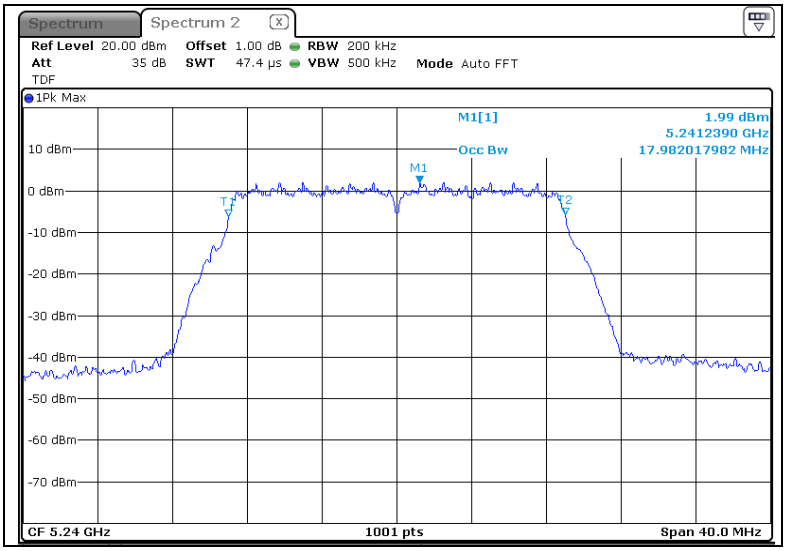


-5 240 ㎒

EBW



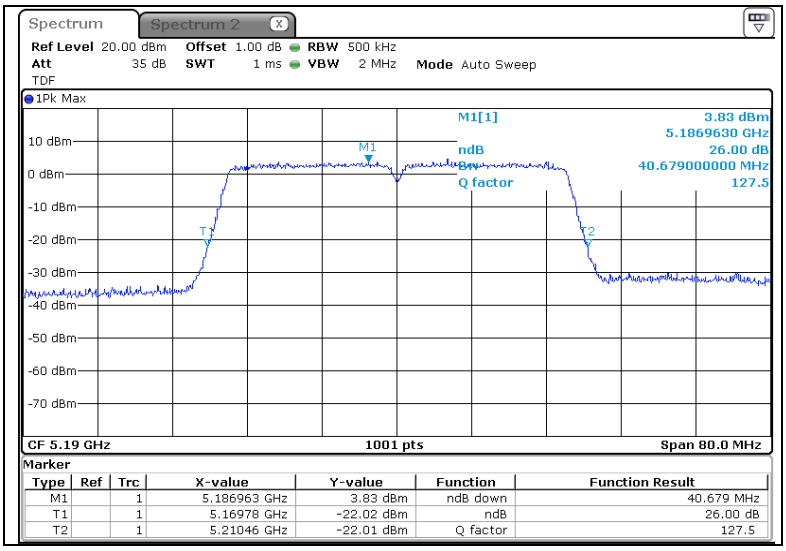
OBW



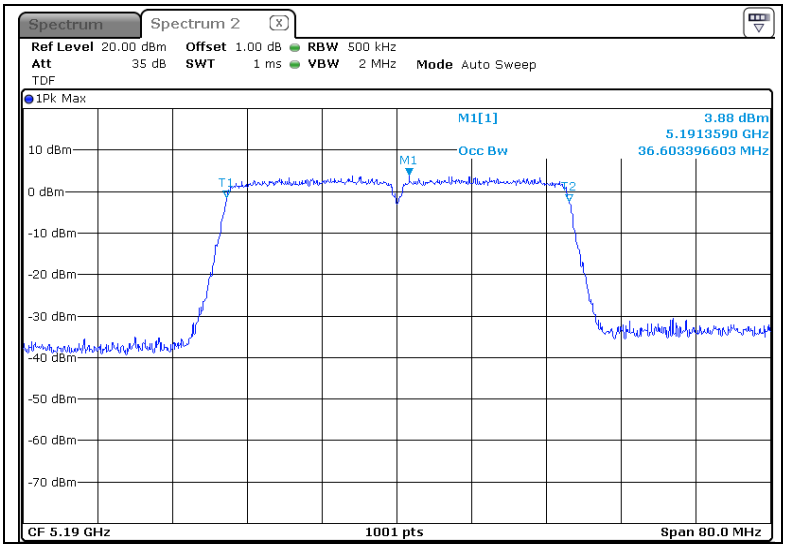
* 802.11n HT40_5 150 Band

-5 190 ㎒

EBW

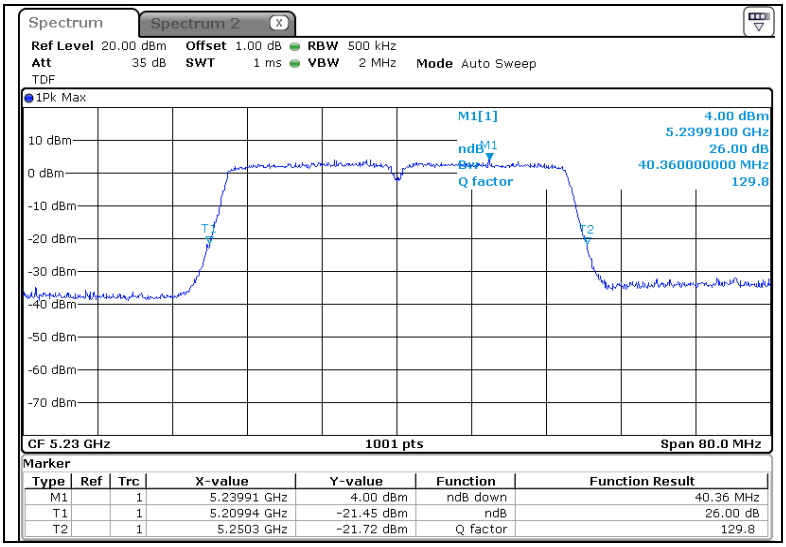


OBW

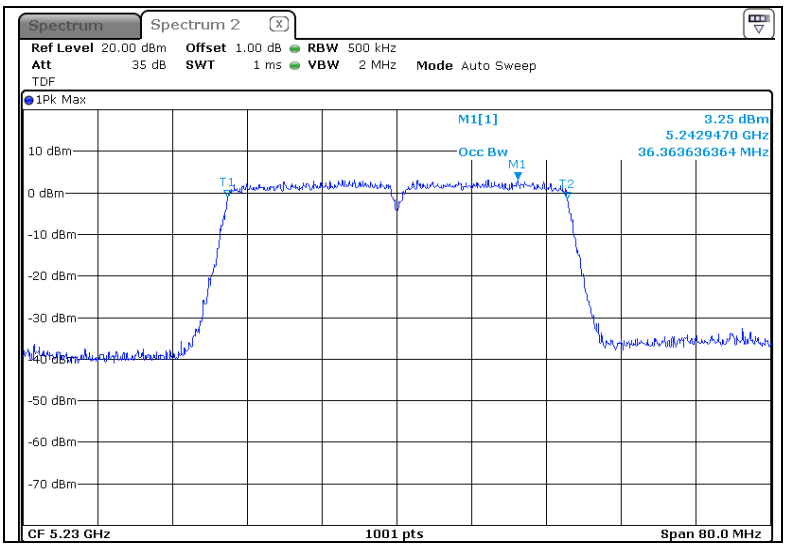


-5 230 ㎒

EBW



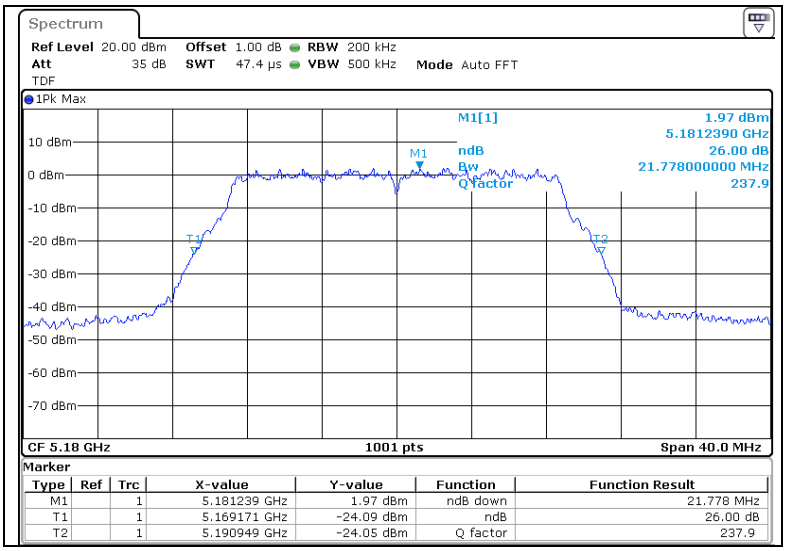
OBW



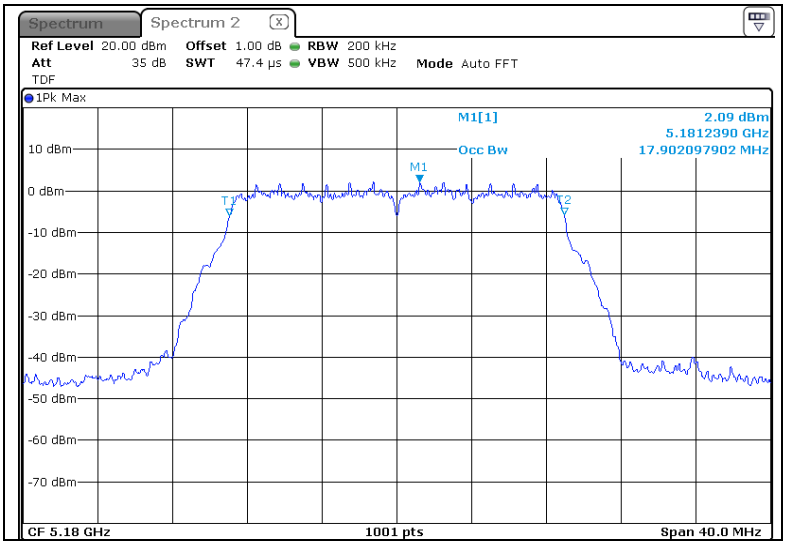
* 802.11ac VHT20_5 150 Band

-5 180 ㎒

EBW

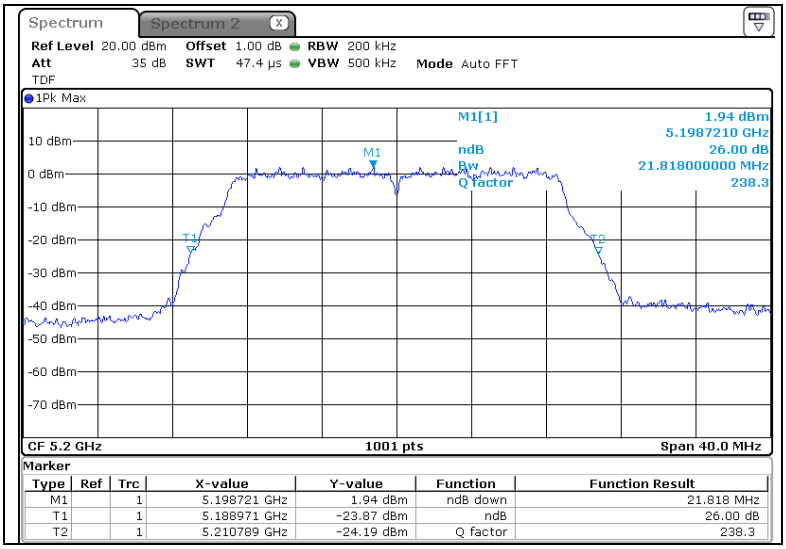


OBW



-5 200 ㎒

EBW



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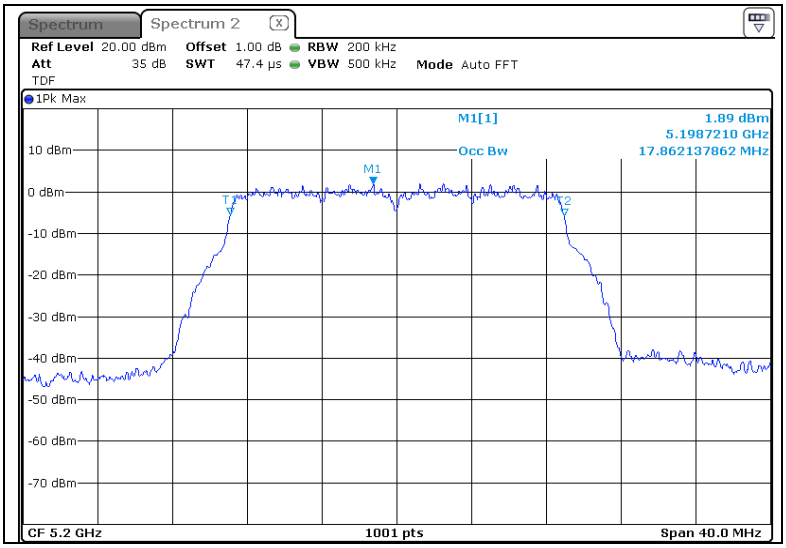
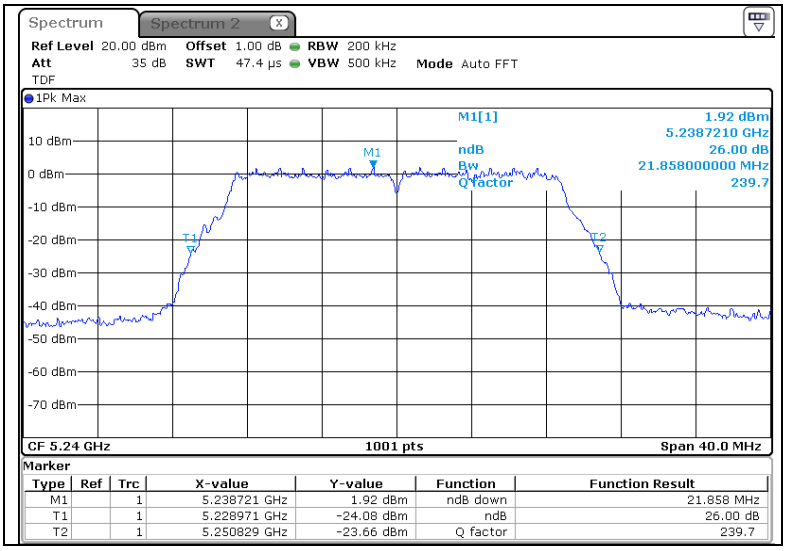


-5 240 ㎒

EBW



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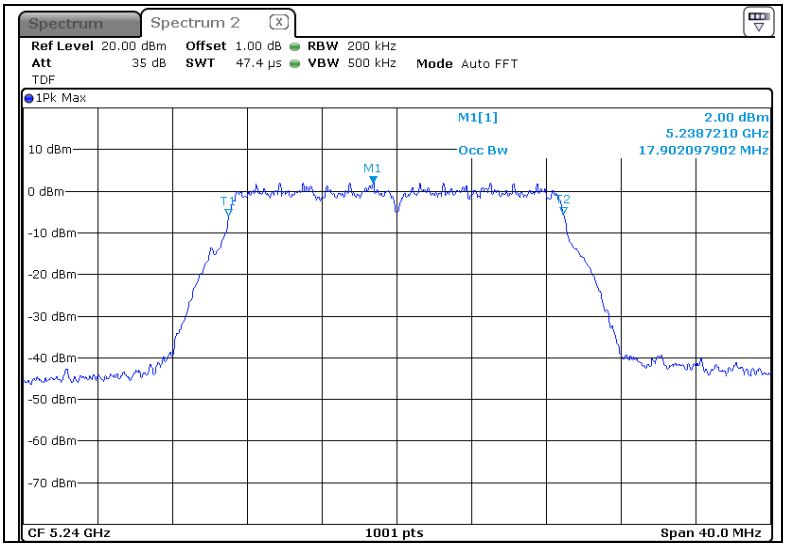
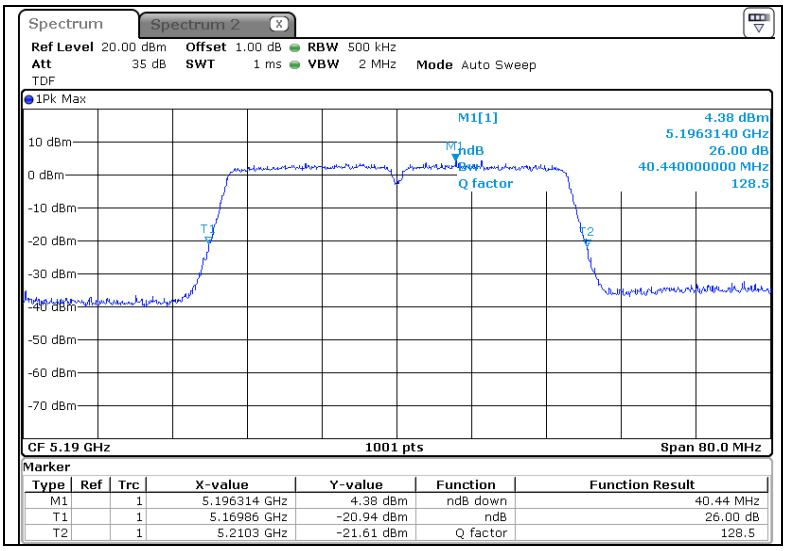


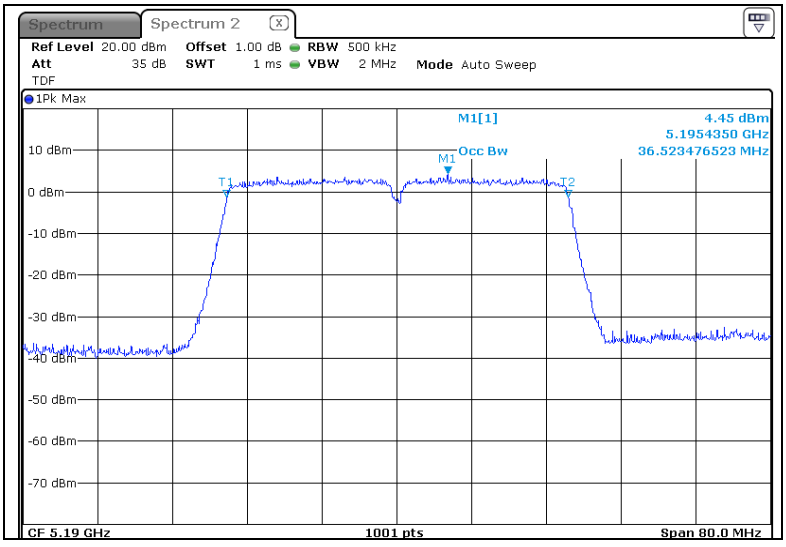
* 802.11ac VHT40_5 150 Band

-5 190 ㎒

EBW

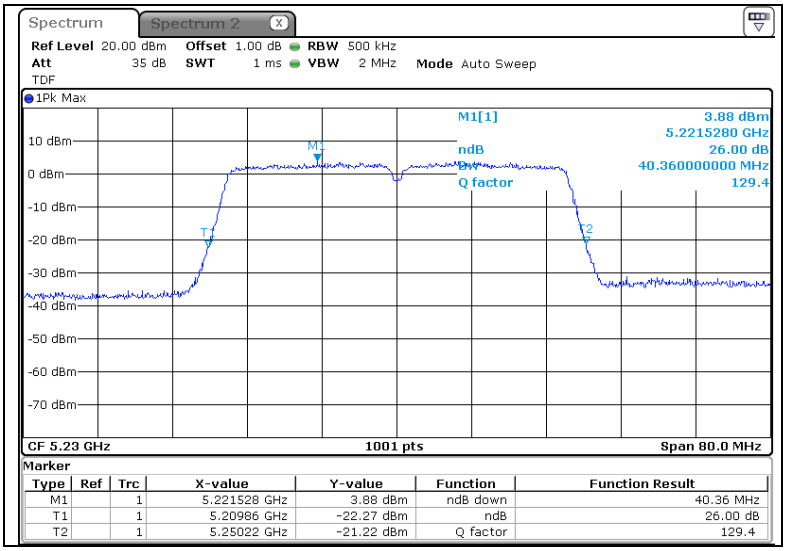


OBW



-5 230 ㎒

EBW



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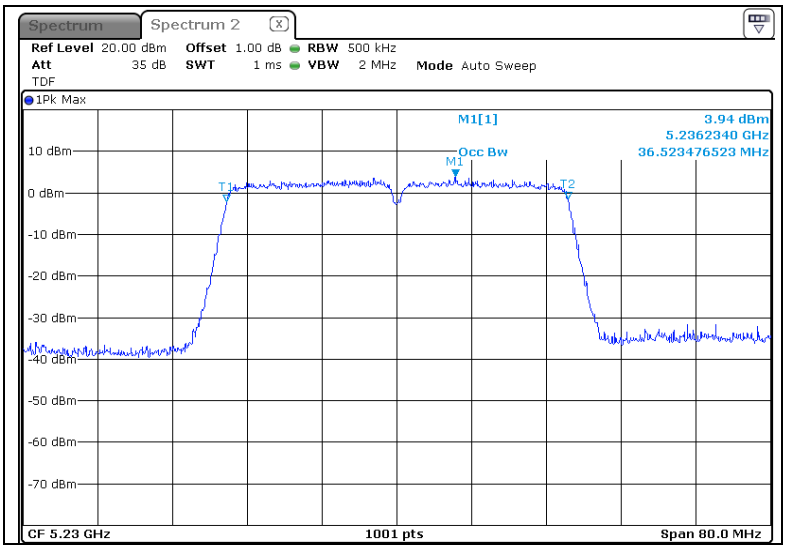
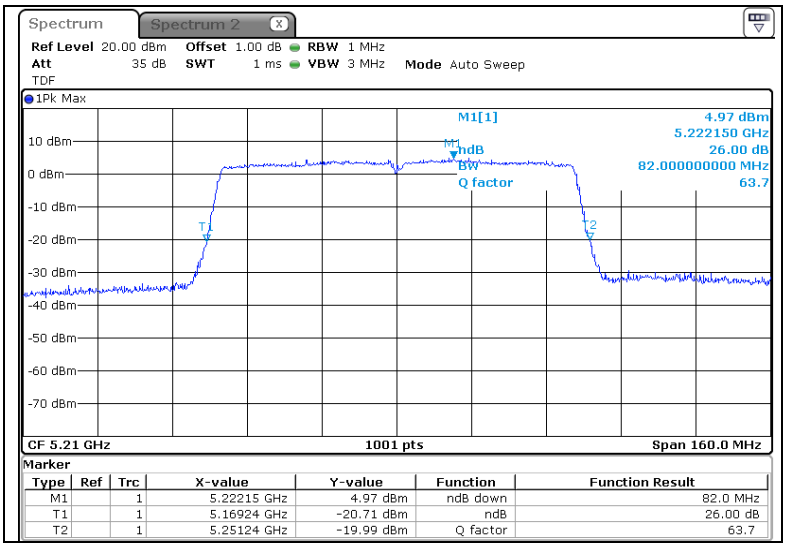


* 802.11ac VHT80_5 150 Band

-5 210 ㎒

EBW



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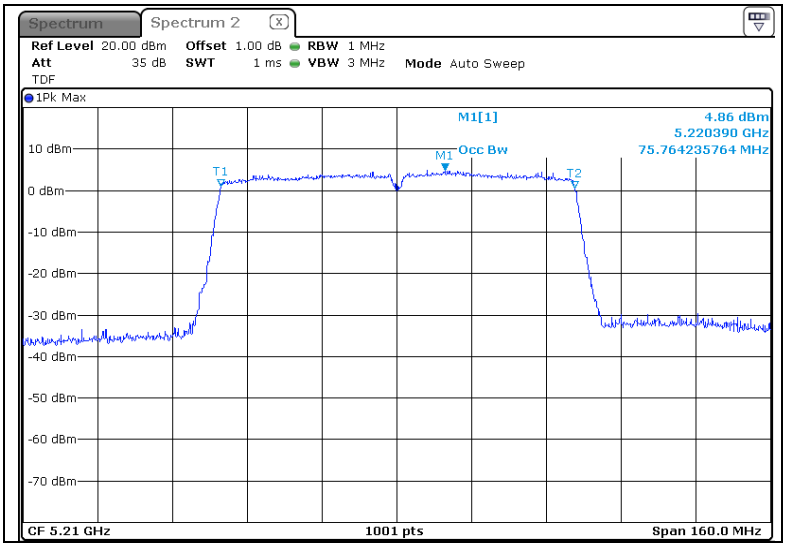
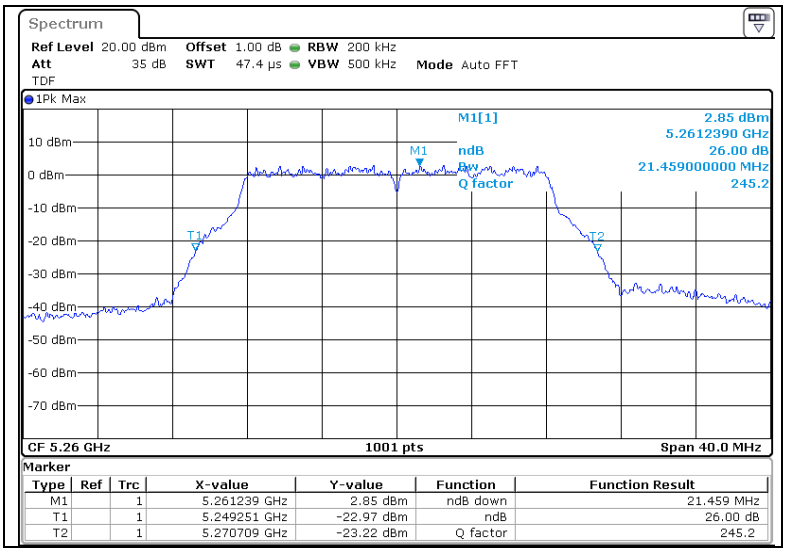


* 802.11a_5 250 Band

-5 260 ㎒

EBW



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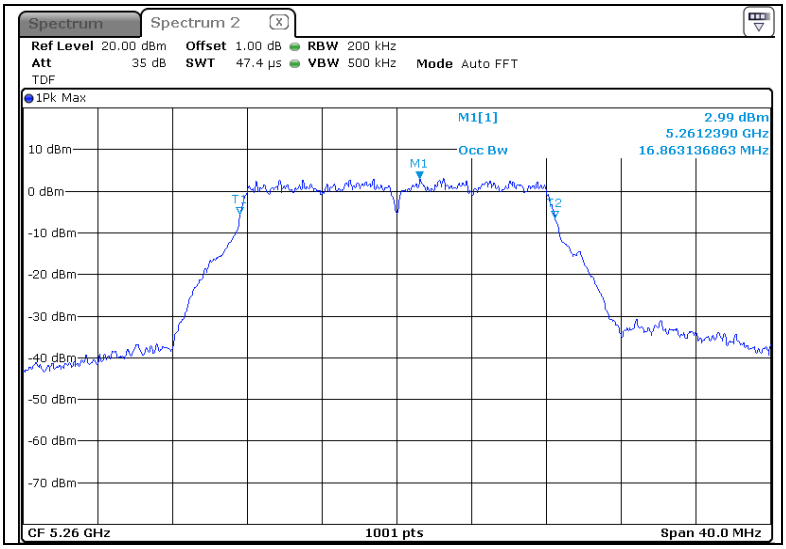
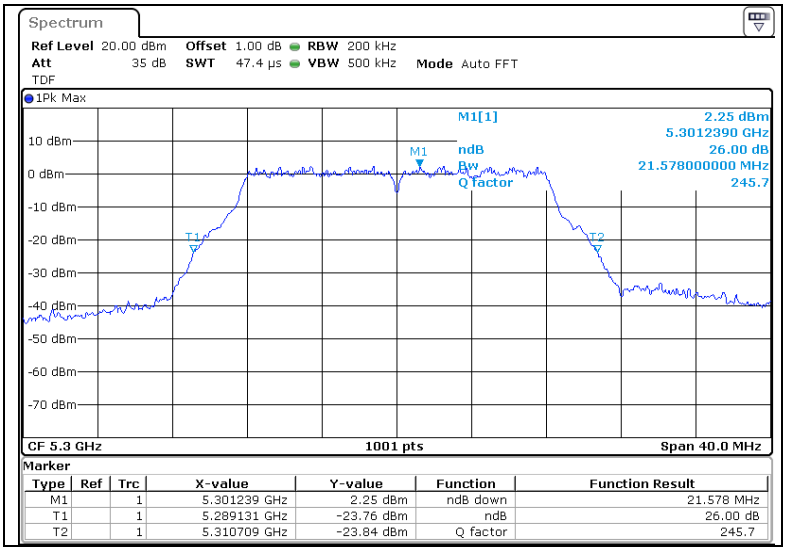
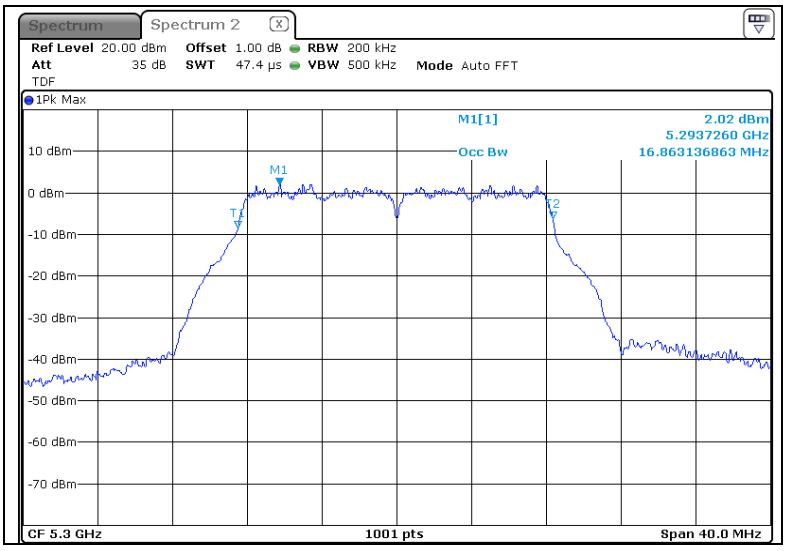


-5 300 ㎒

EBW

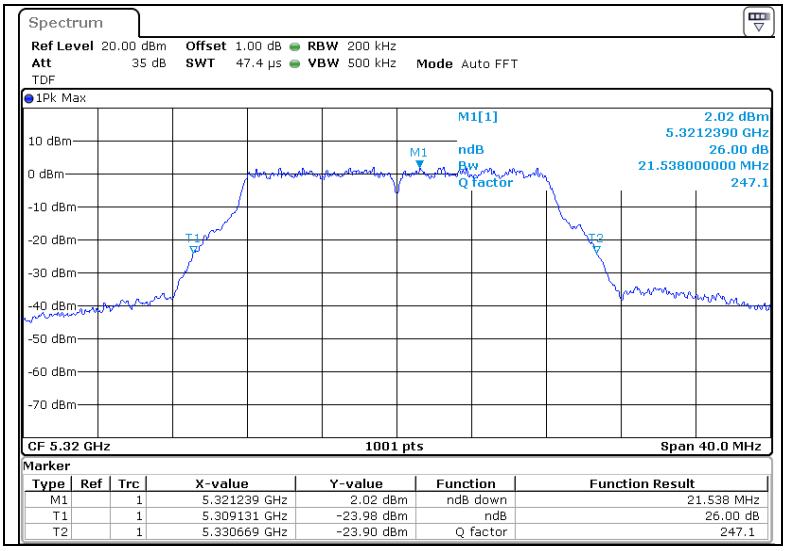


OBW

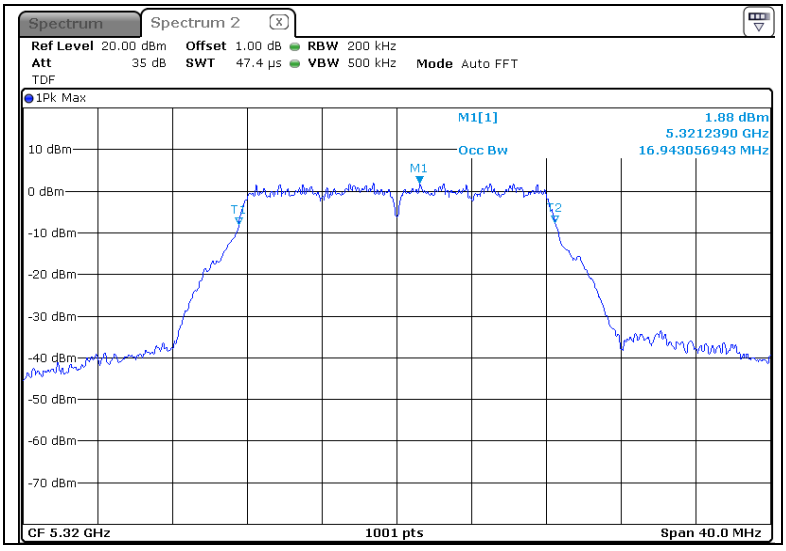


-5 320 ㎒

EBW



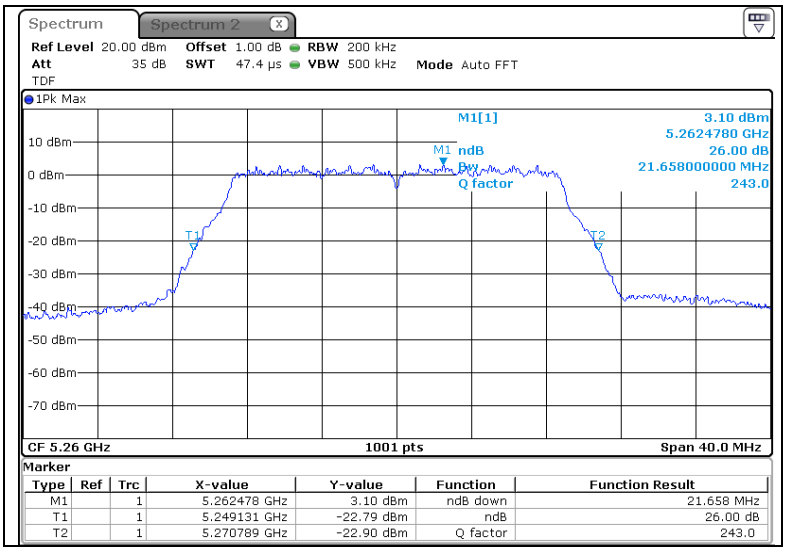
OBW



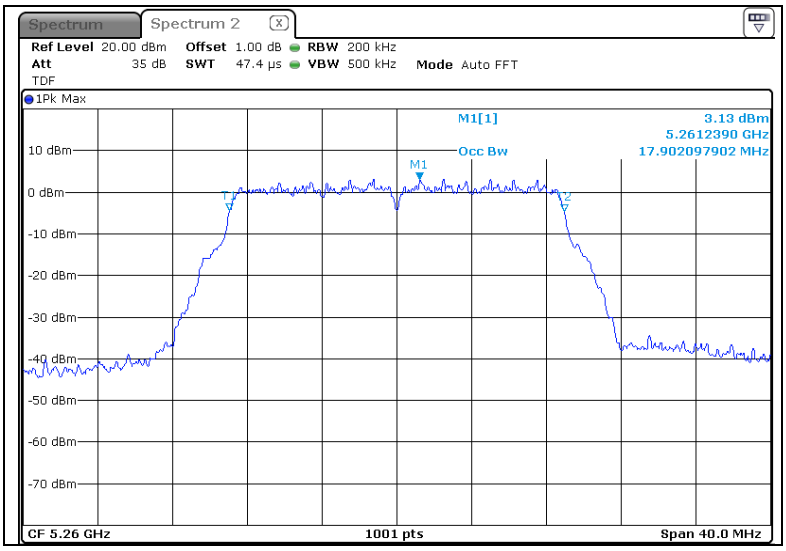
* 802.11n HT20_5 250 Band

-5 260 ㎒

EBW

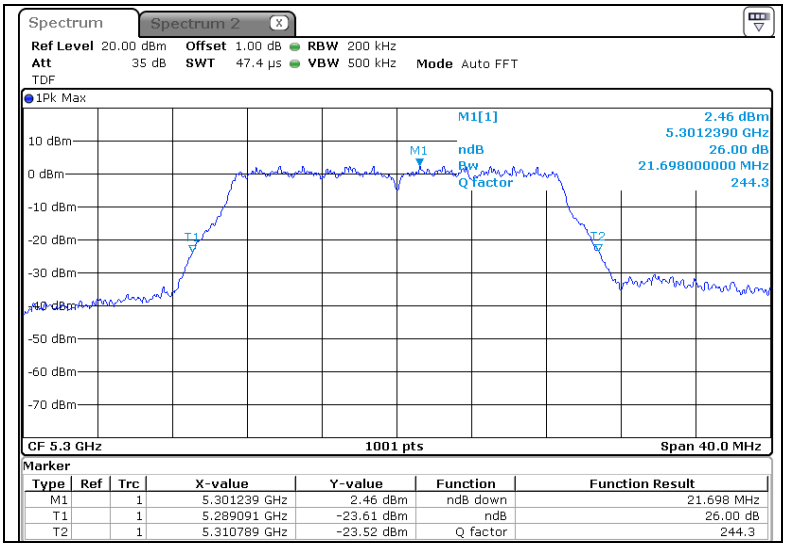


OBW

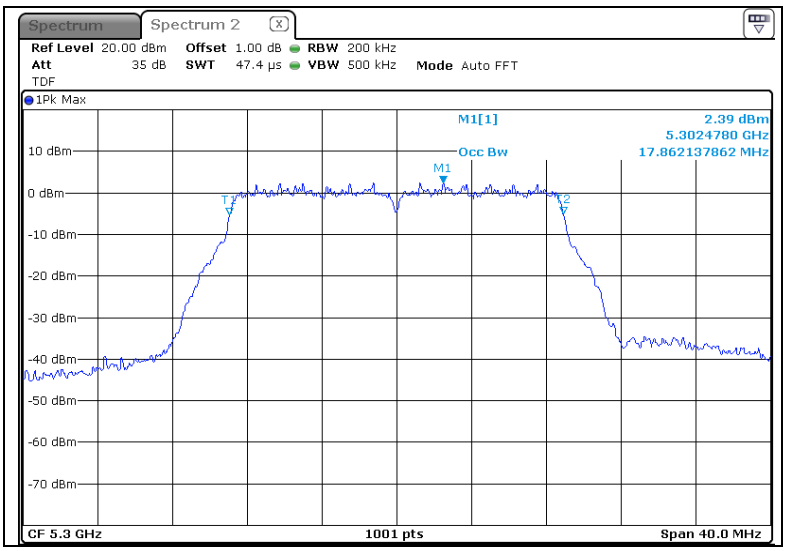


-5 300 ㎒

EBW

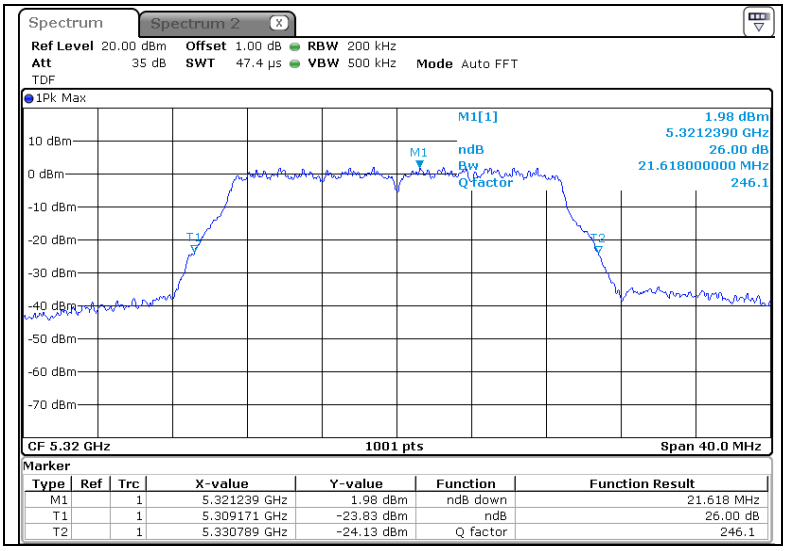


OBW

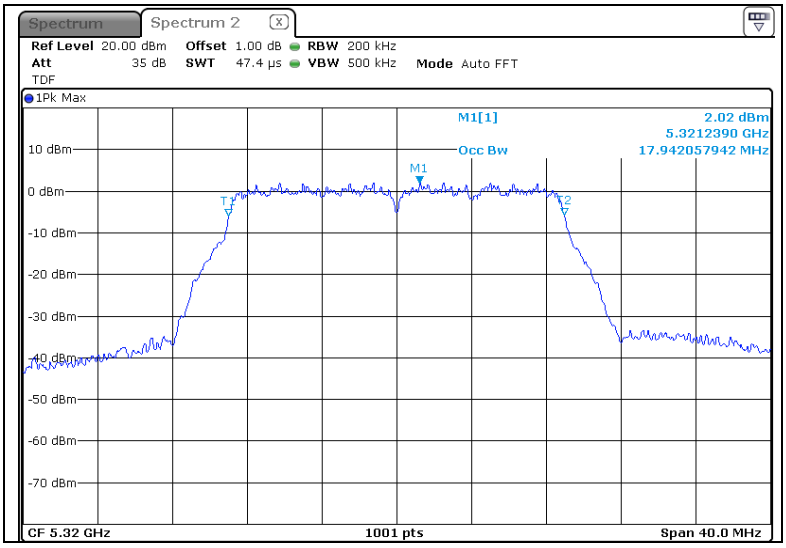


-5 320 ㎒

EBW



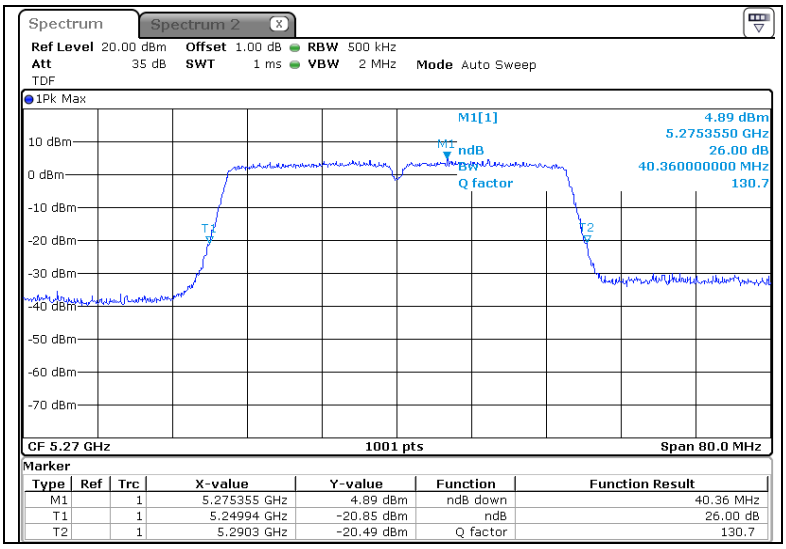
OBW



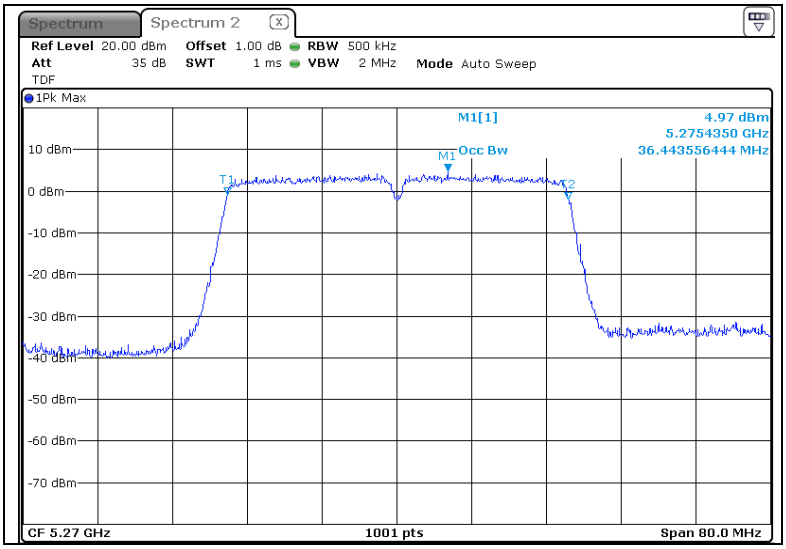
* 802.11n HT40_5 250 Band

-5 270 ㎒

EBW

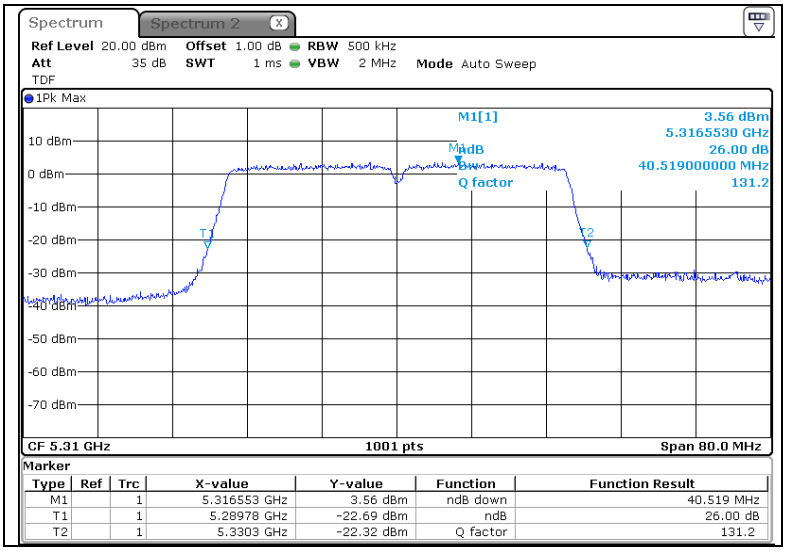


OBW

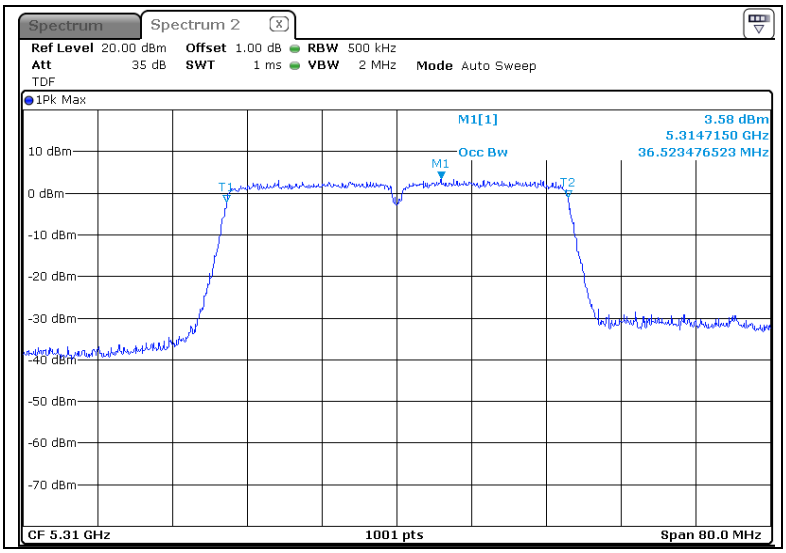


-5 310 ㎒

EBW



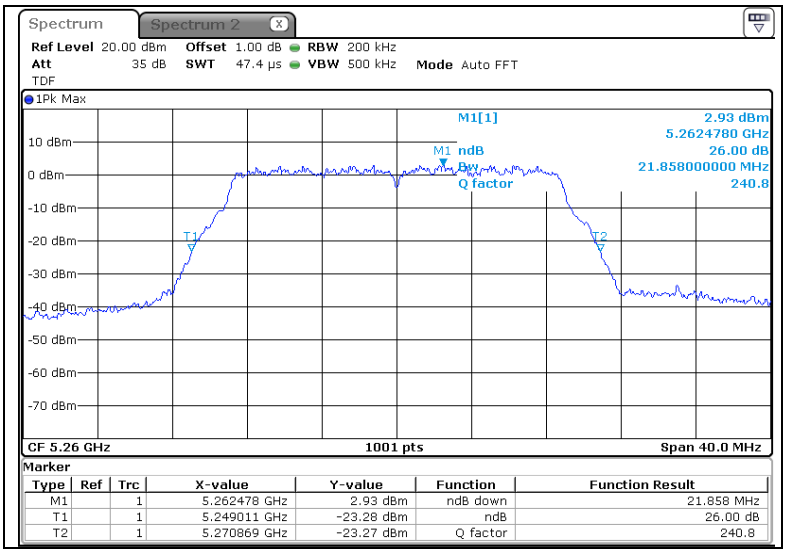
OBW



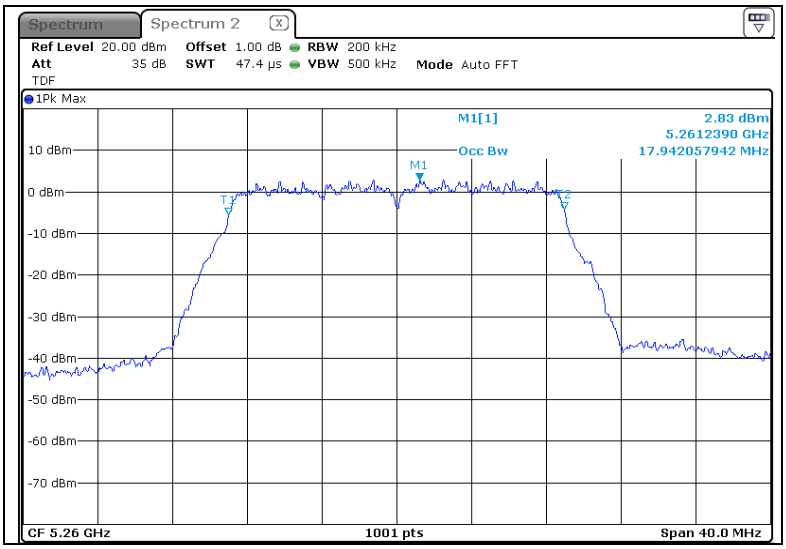
* 802.11ac VHT20_5 250 Band

-5 260 ㎒

EBW

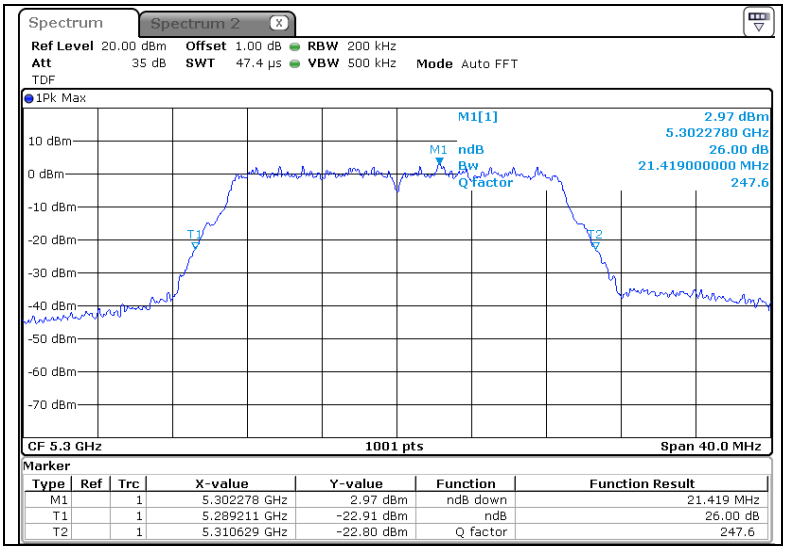


OBW

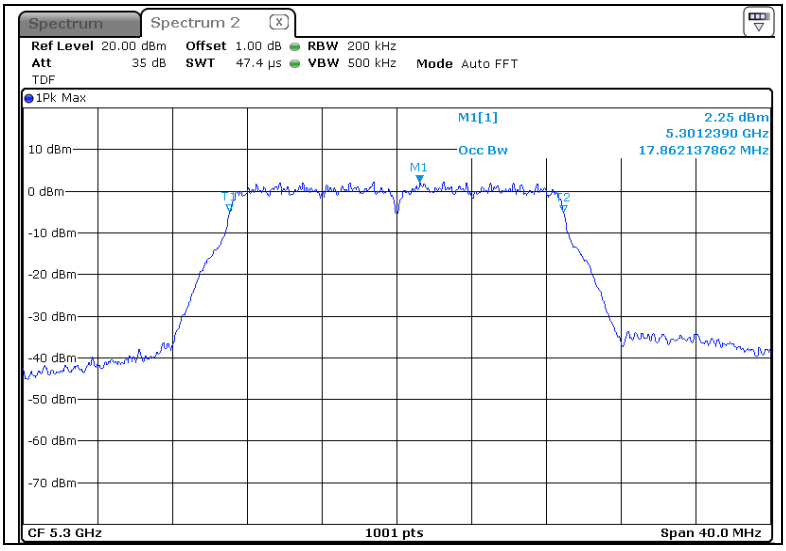


-5 300 ㎒

EBW

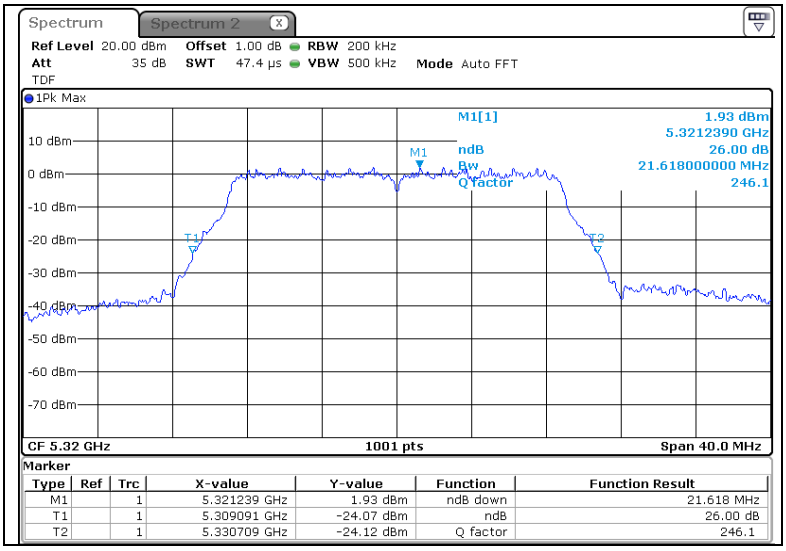


OBW

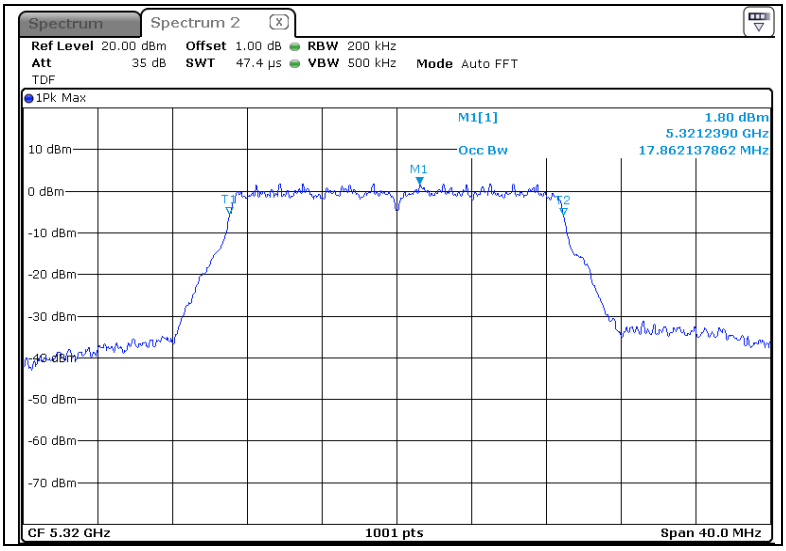


-5 320 ㎒

EBW



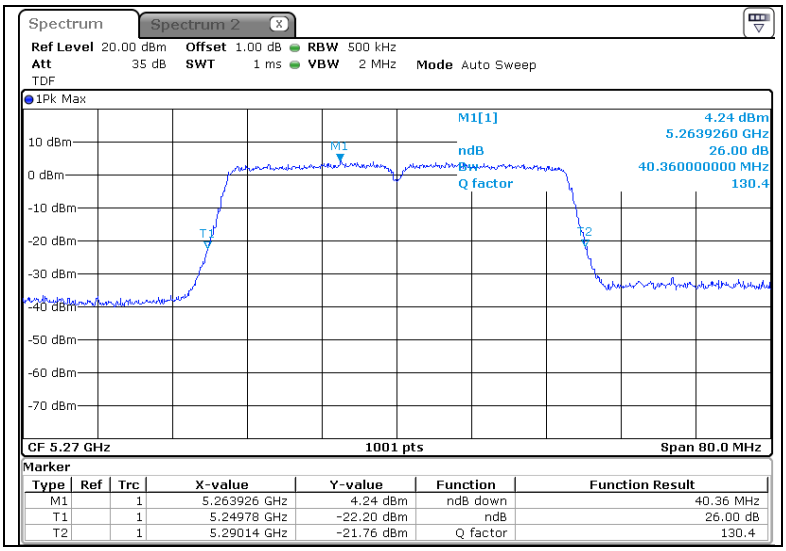
OBW



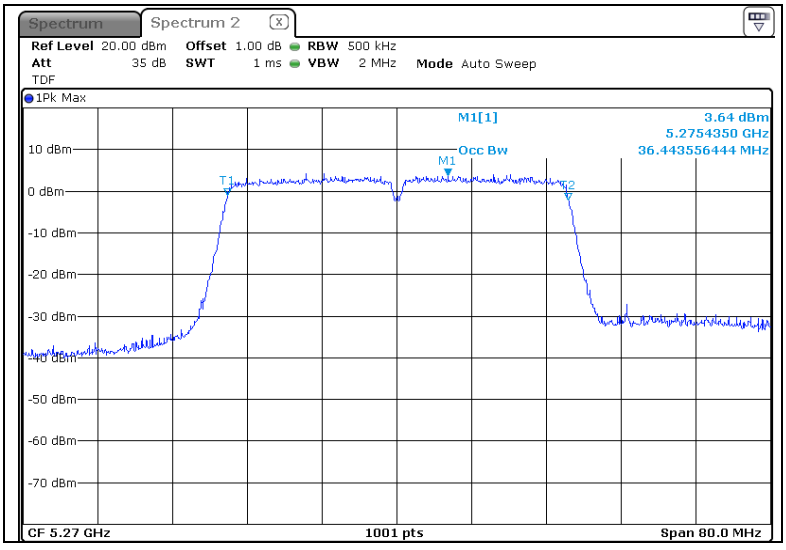
* 802.11ac VHT40_5 250 Band

-5 270 ㎒

EBW

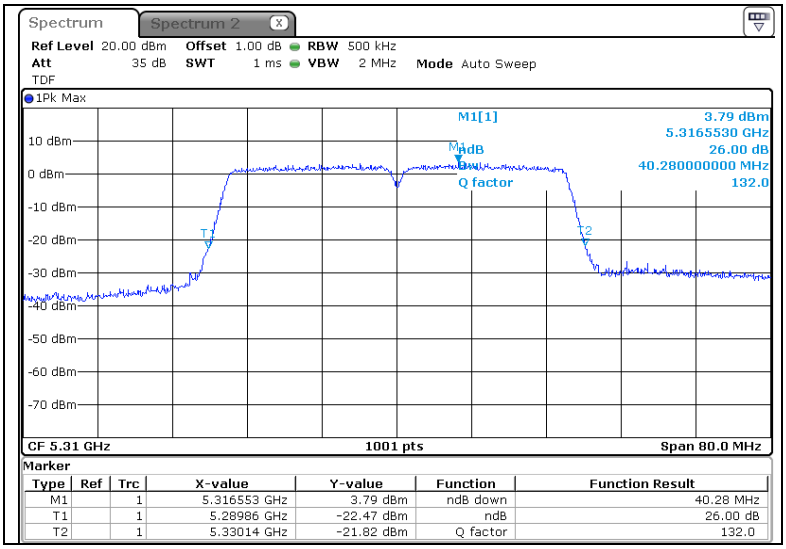


OBW

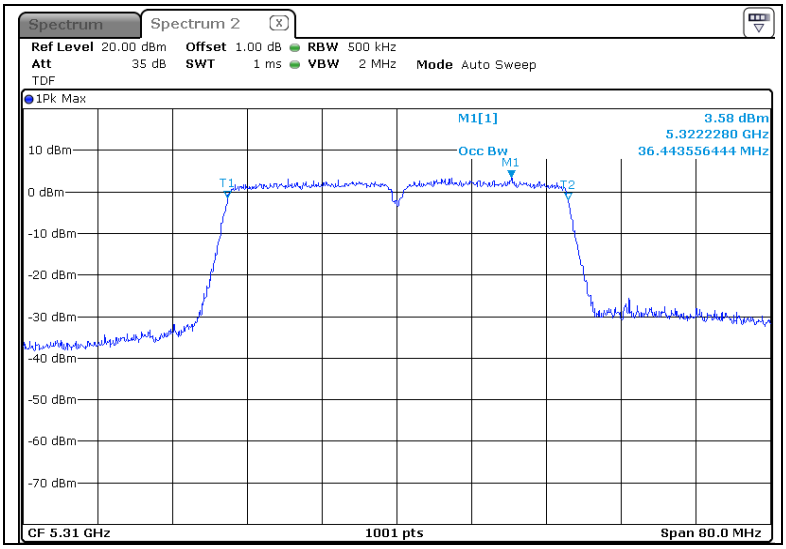


-5 310 ㎒

EBW



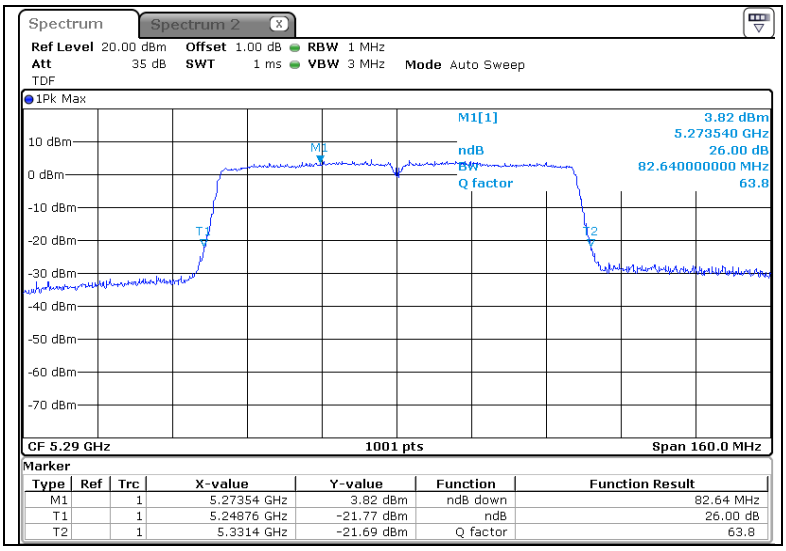
OBW



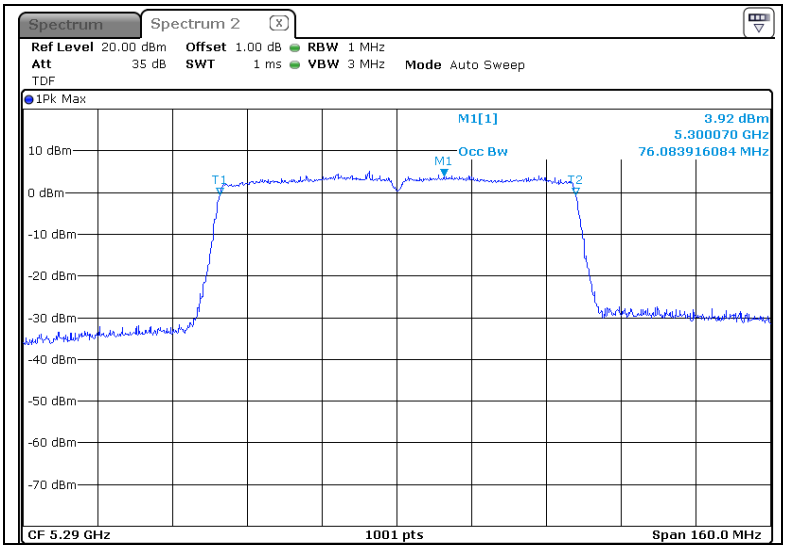
* 802.11ac VHT80_5 250 Band

-5 290 ㎒

EBW



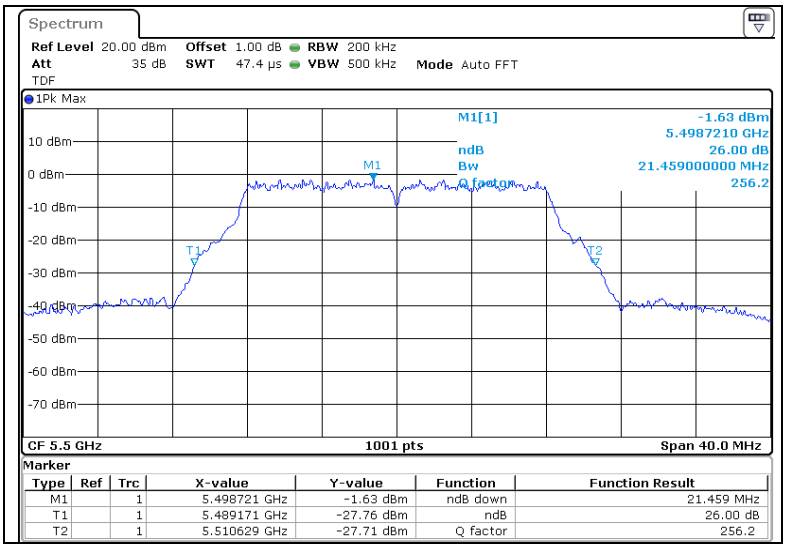
OBW



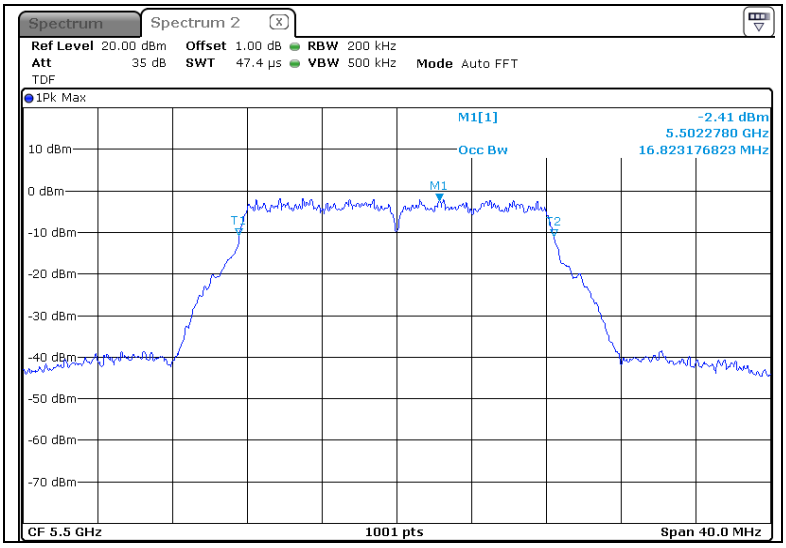
* 802.11a_5 470 Band

-5 500 ㎒

EBW

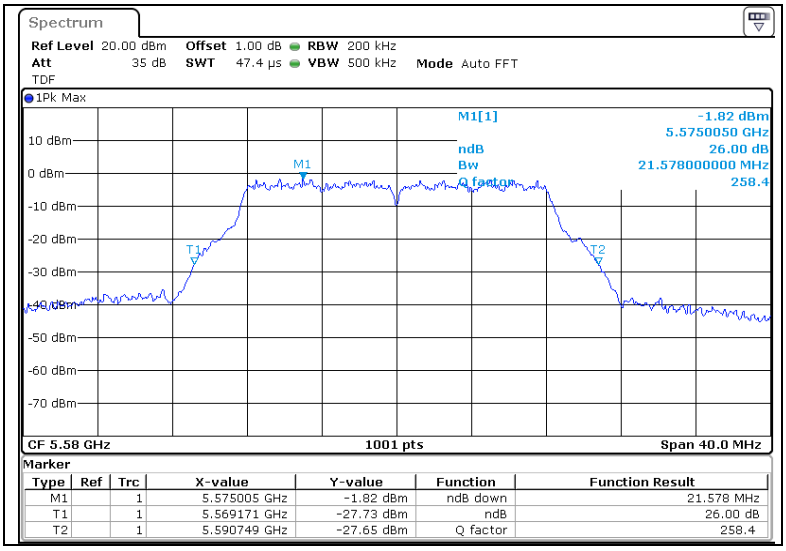


OBW



-5 580 ㎒

EBW



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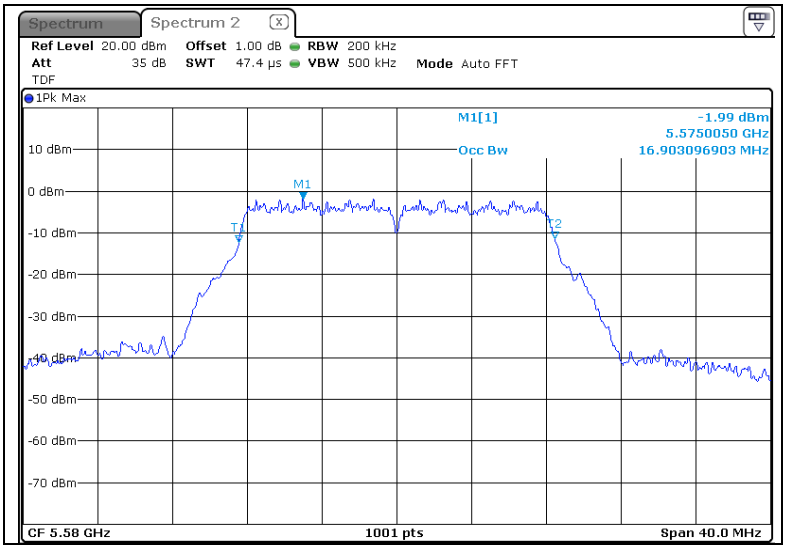
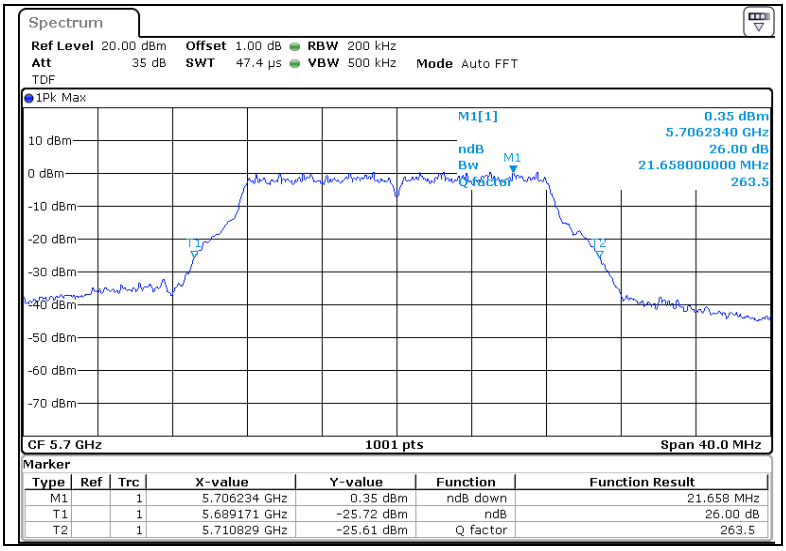


-5 700 ㎒

EBW



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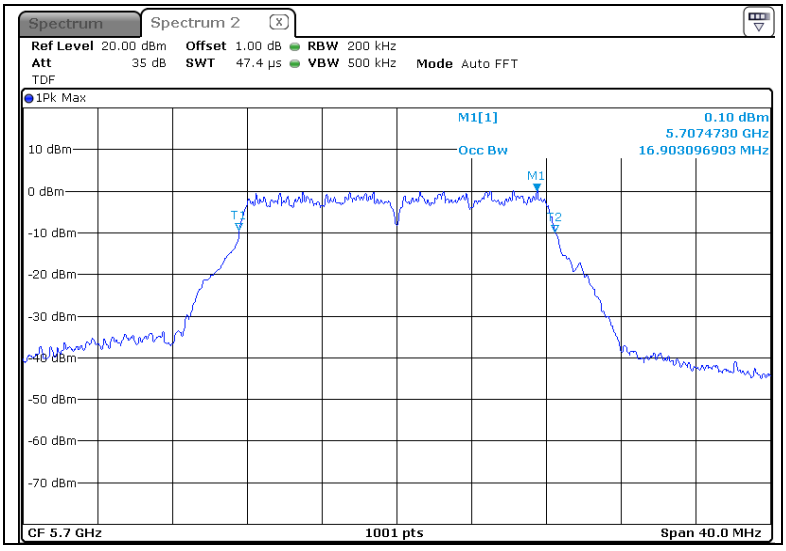
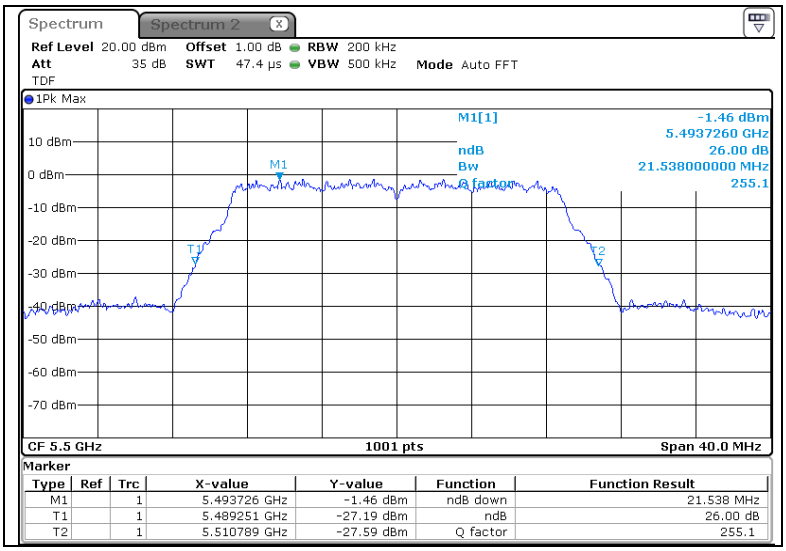


* 802.11n HT20_5 470 Band

-5 500 ㎒

EBW



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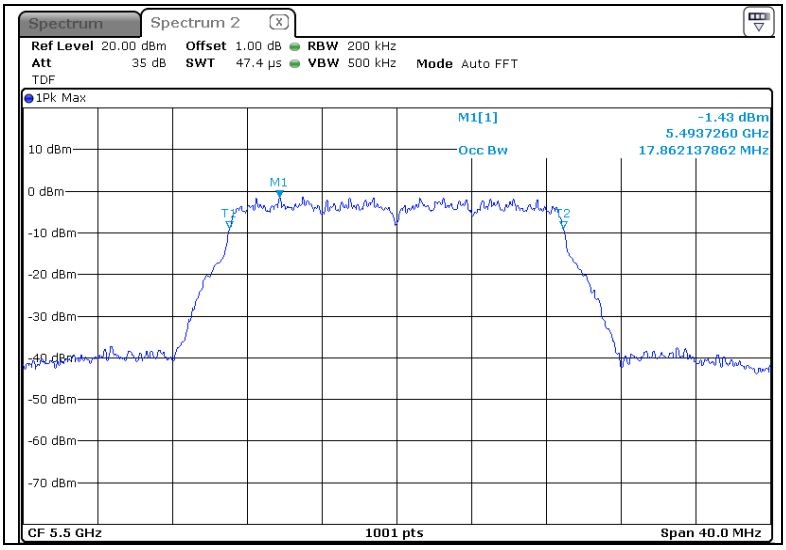
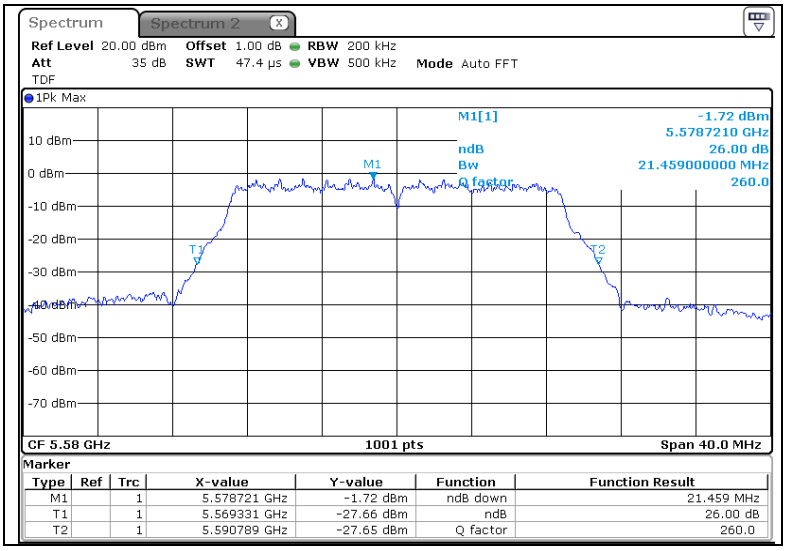


-5 580 ㎒

EBW



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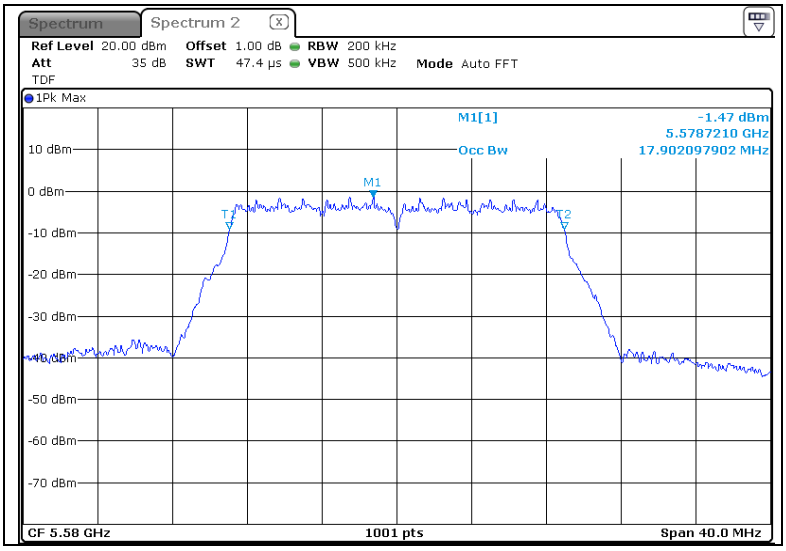

-5 700 ㎒

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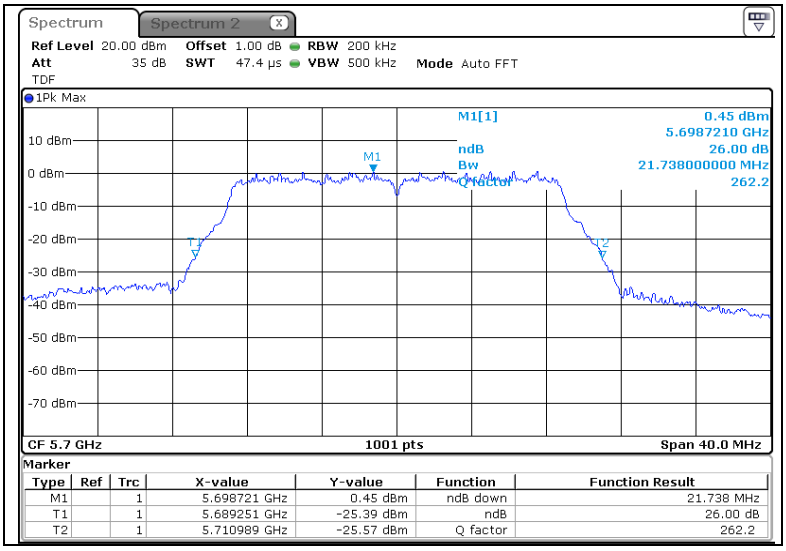

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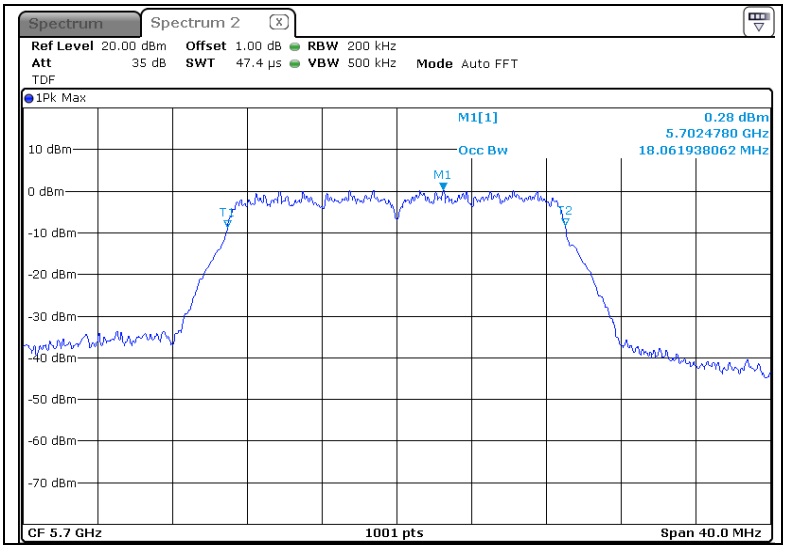
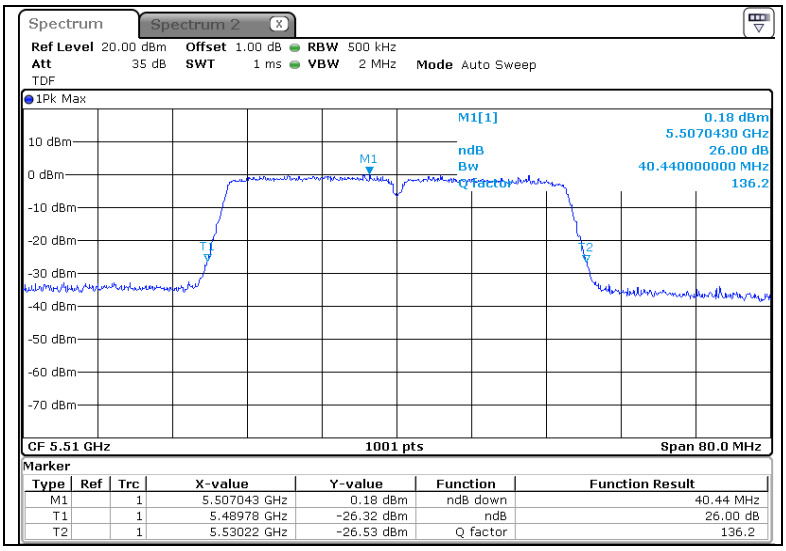


* 802.11n HT40_5 470 Band

-5 510 ㎒

EBW



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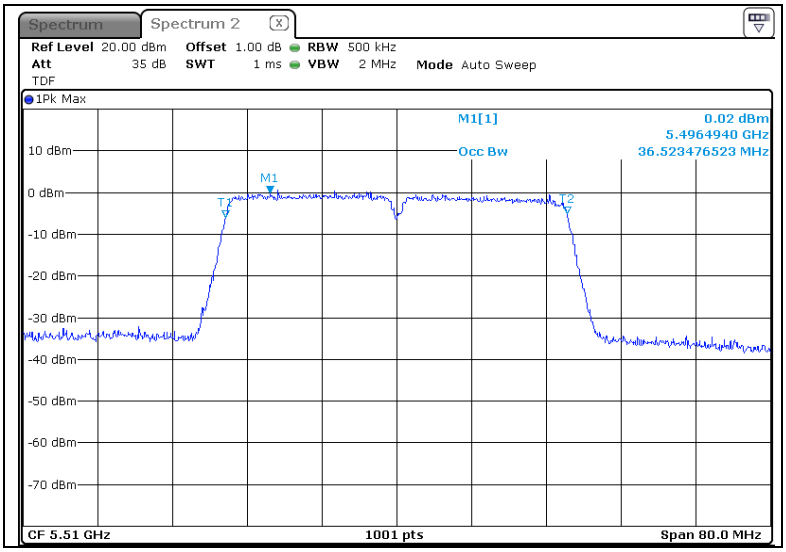

-5 550 ㎒

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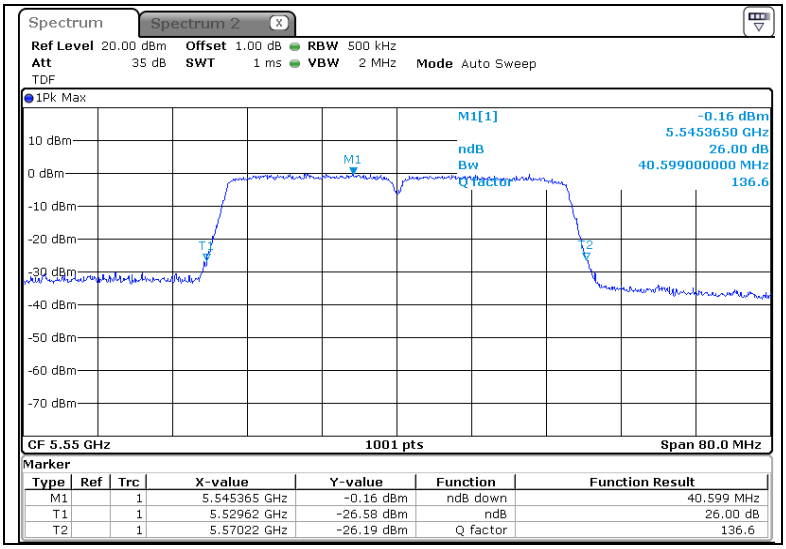

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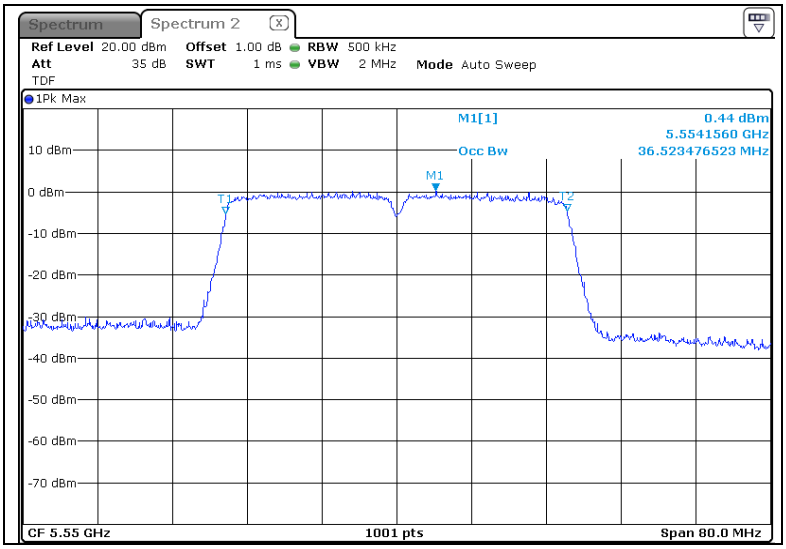
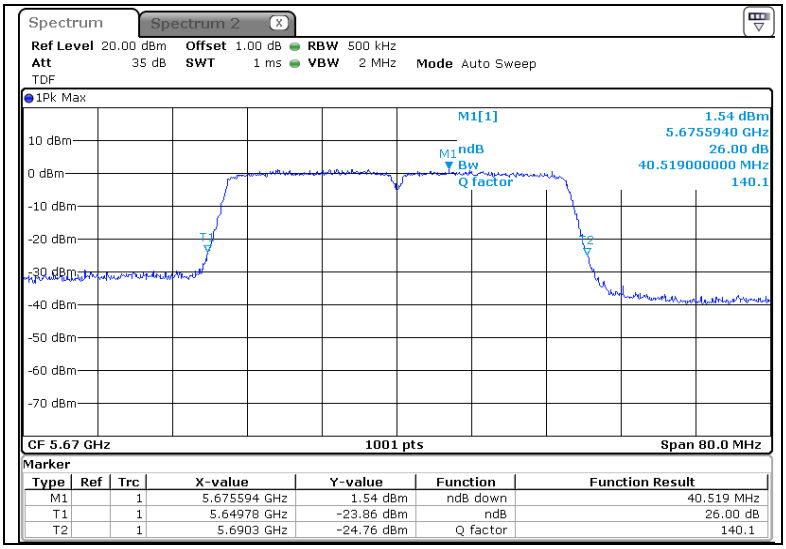


-5 670 ㎒

EBW



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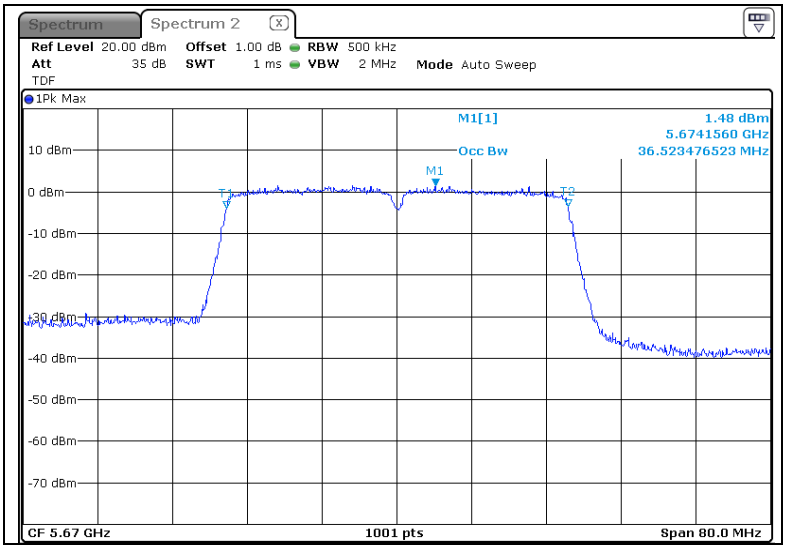
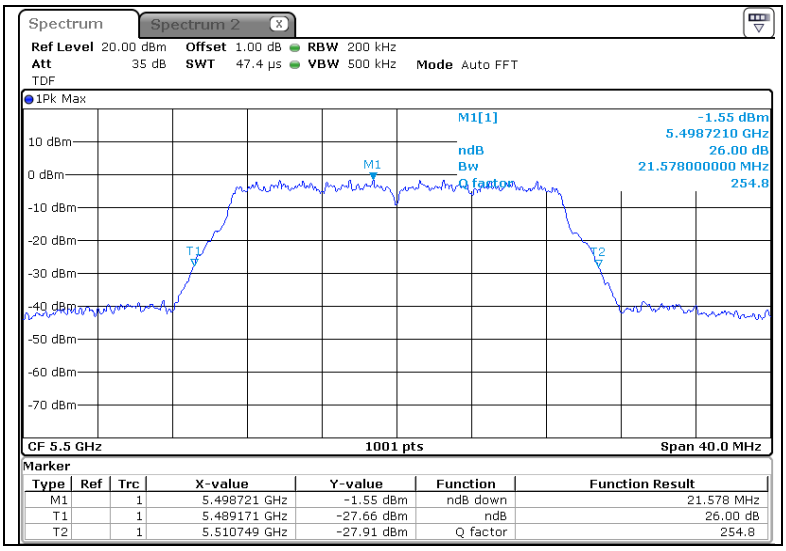


* 802.11ac VHT20_5 470 Band

-5 500 ㎒

EBW



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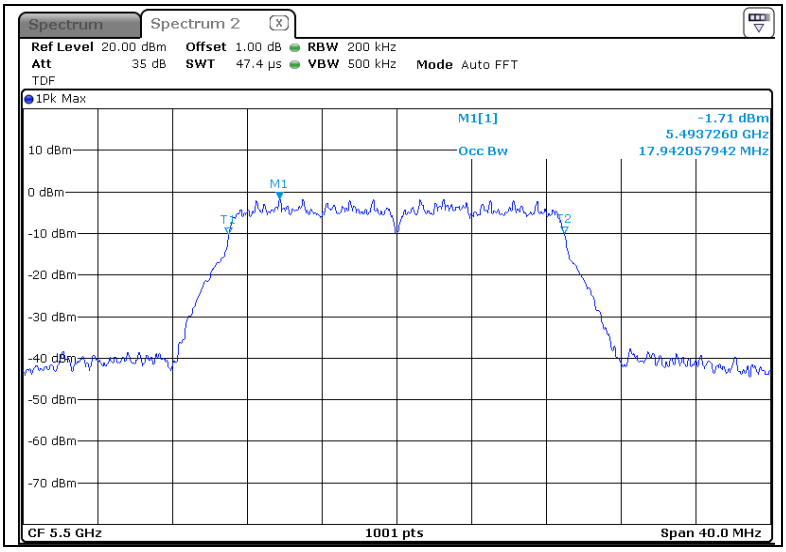
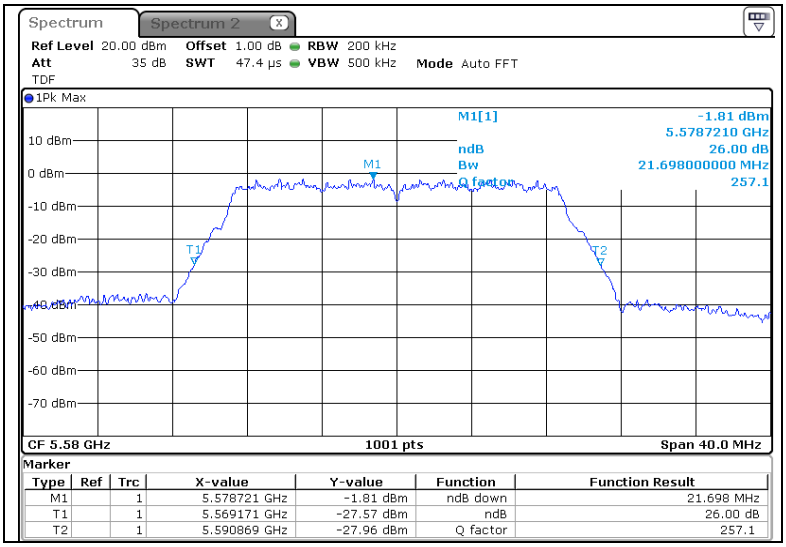


-5 580 ㎒

EBW



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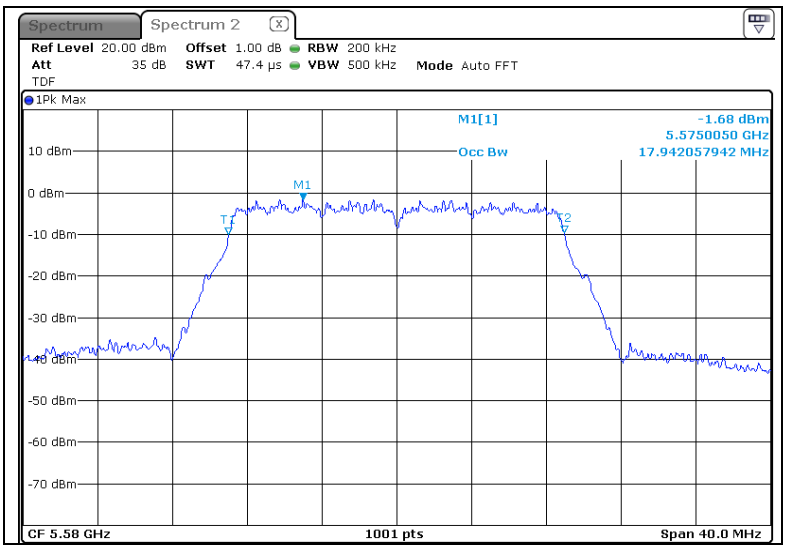
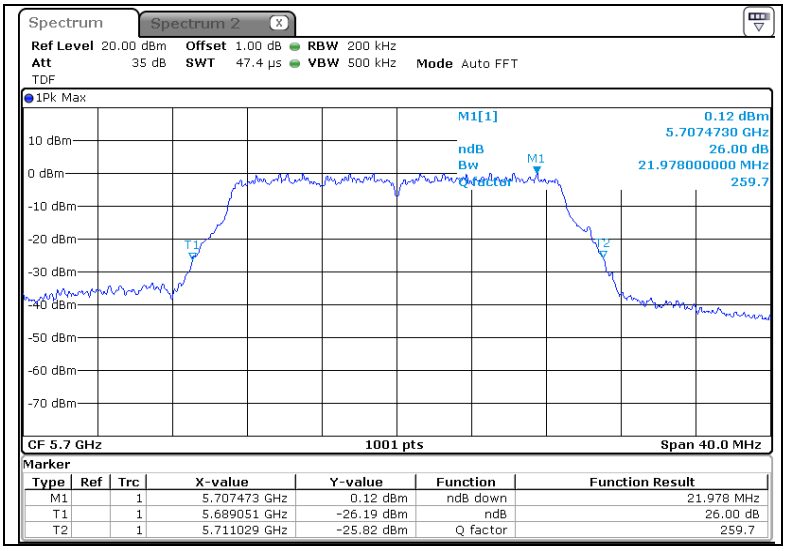


-5 700 ㎒

EBW



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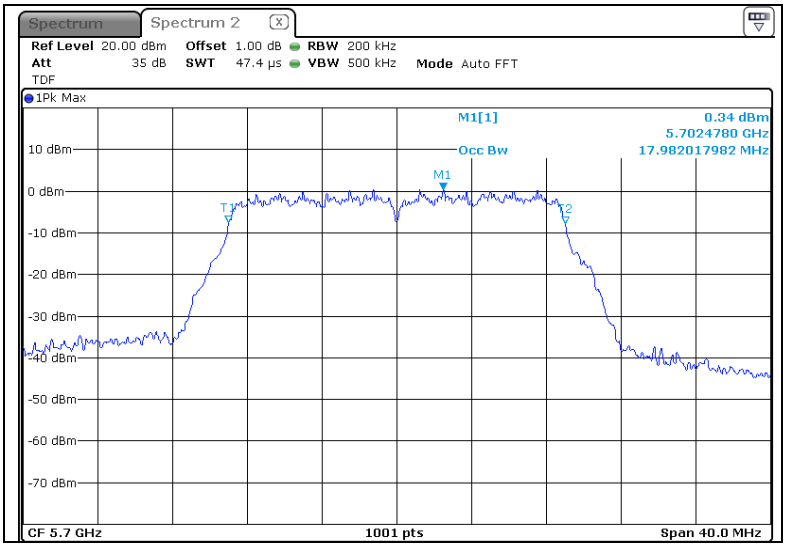
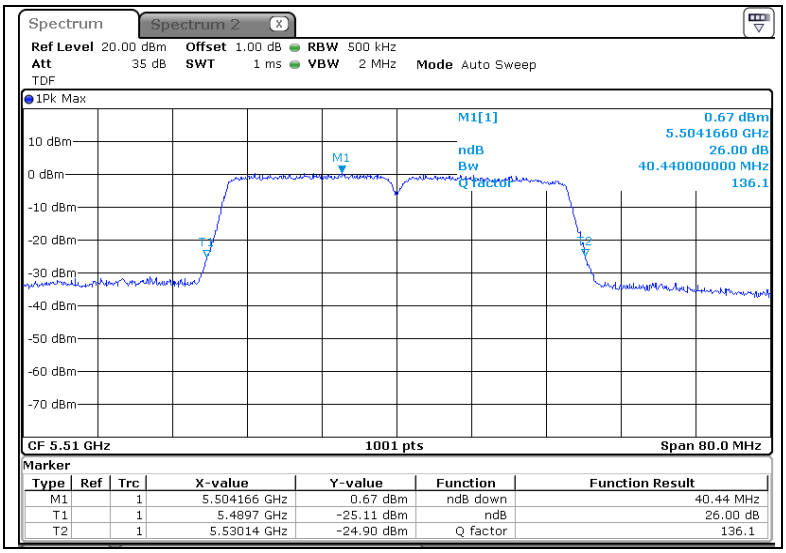


* 802.11ac VHT40_5 470 Band

-5 510 ㎒

EBW



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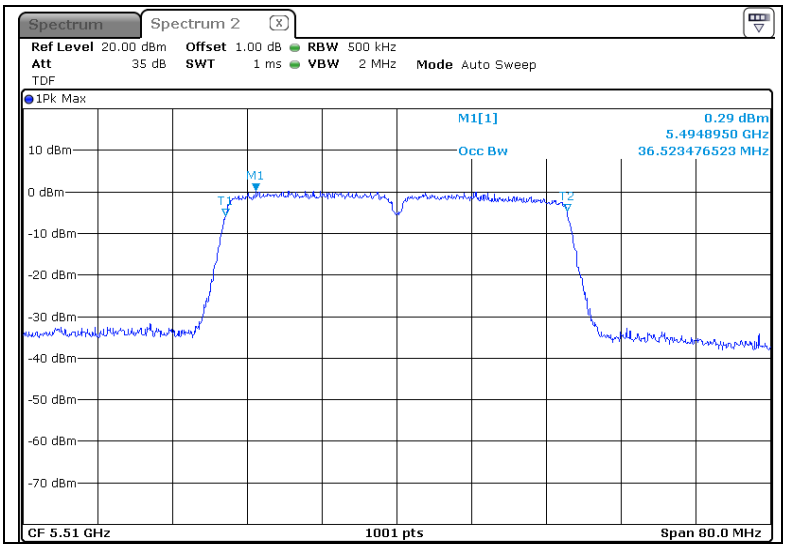
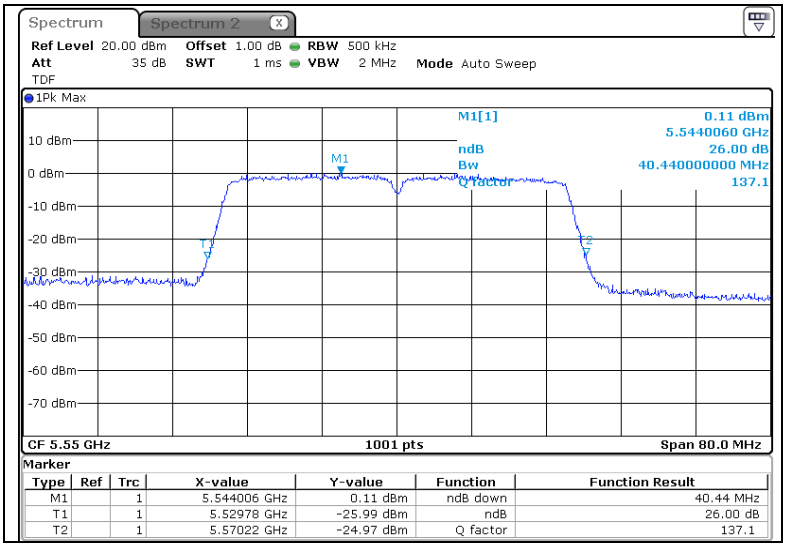


-5 550 ㎒

EBW



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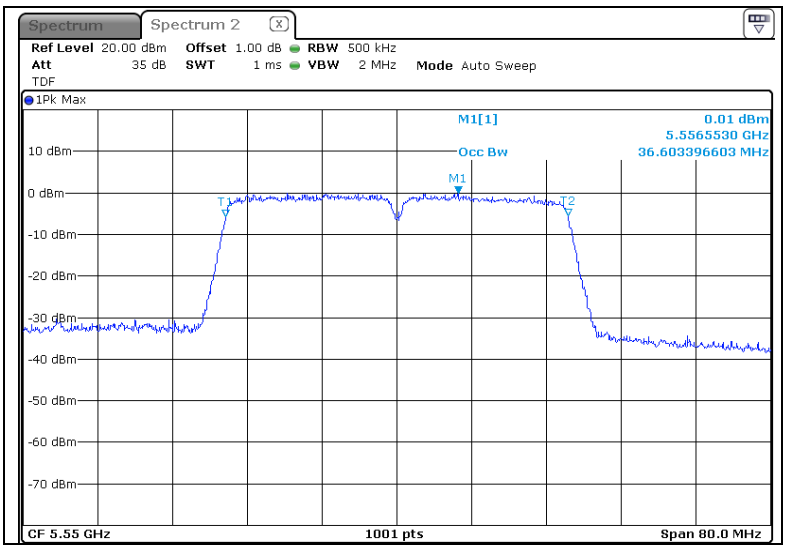
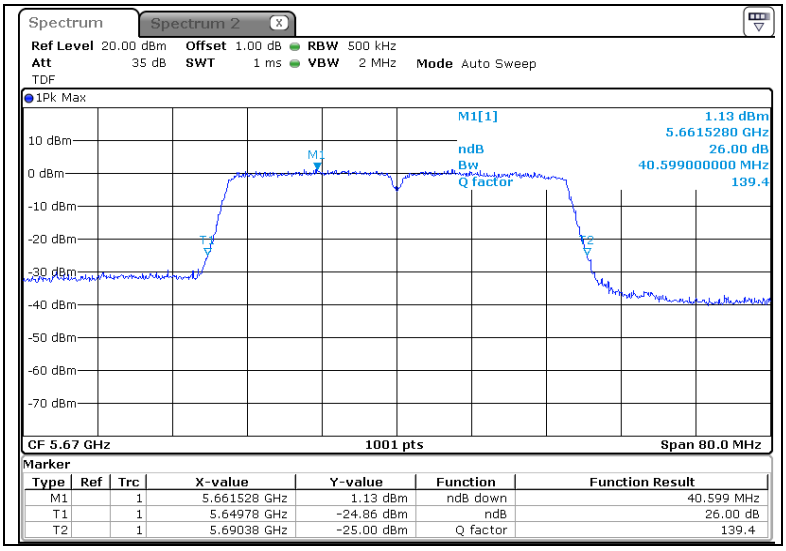
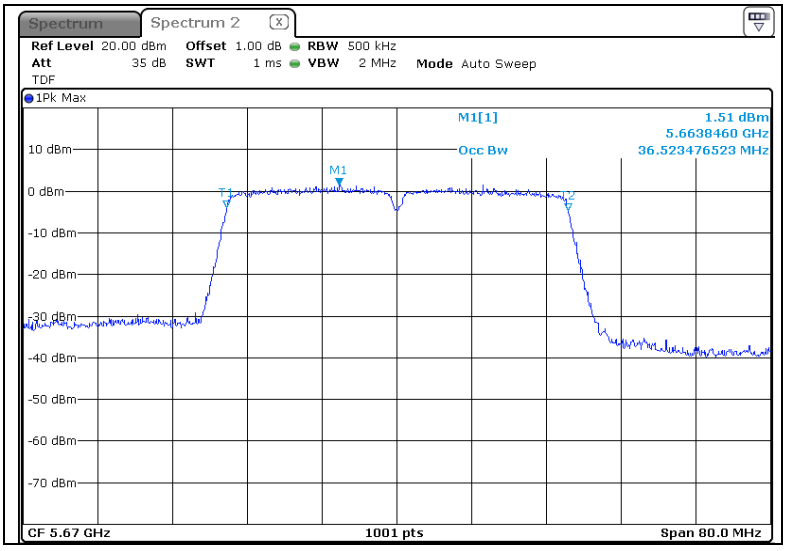


-5 670 ㎒

EBW



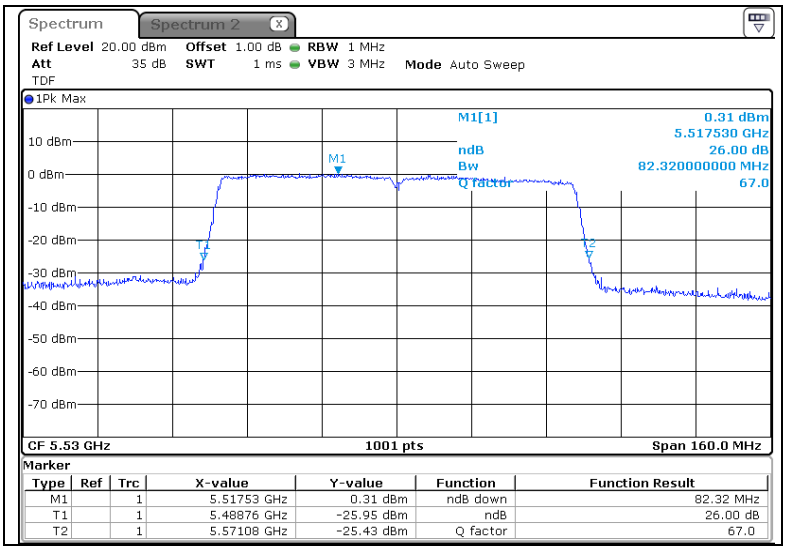
OBW



* 802.11ac VHT80_5 470 Band

-5 530 ㎒

EBW



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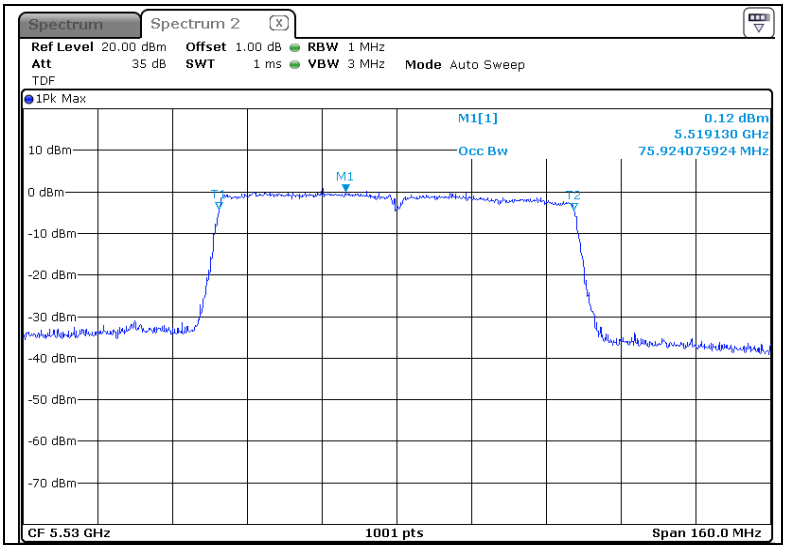
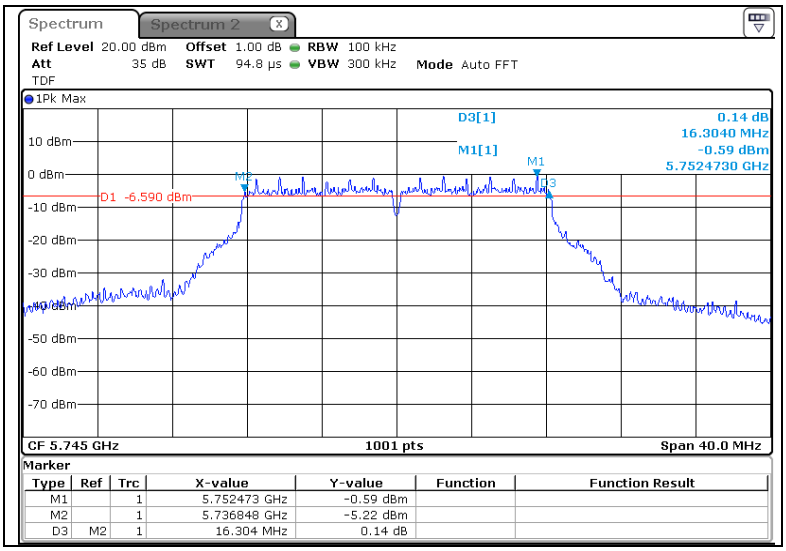


* 802.11a_5 725 Band

-5 745 ㎒

EBW



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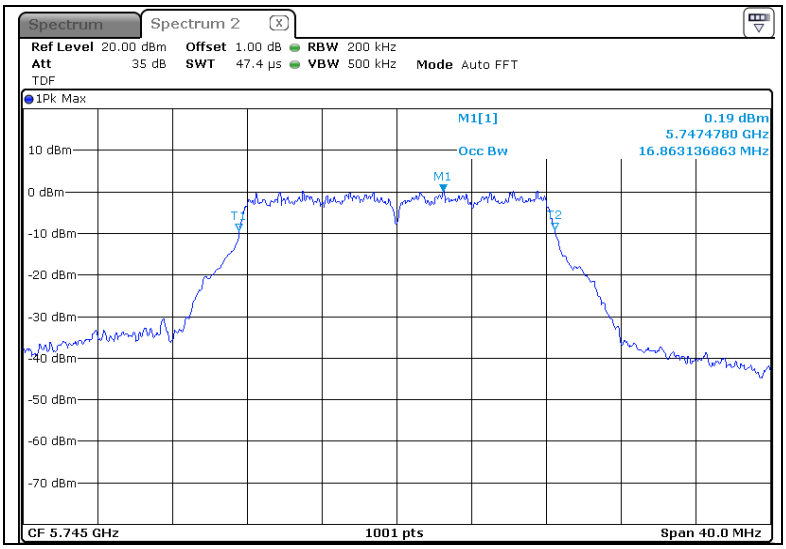
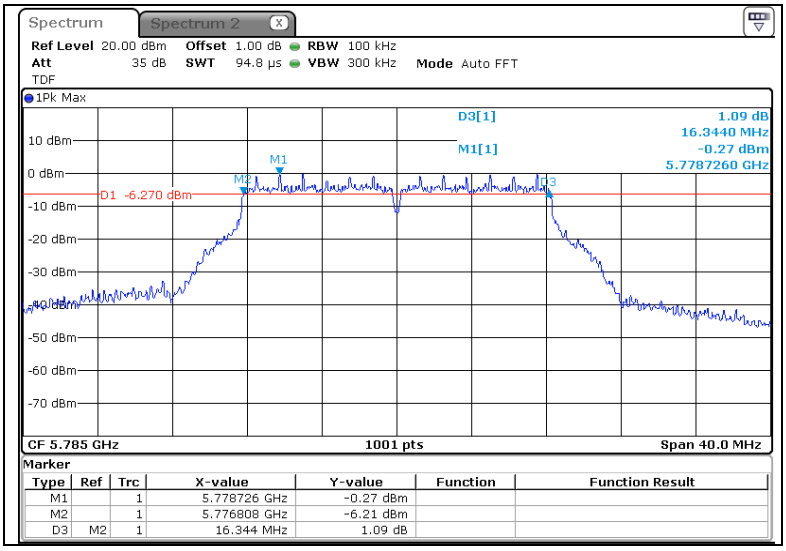


-5 785 ㎒

EBW



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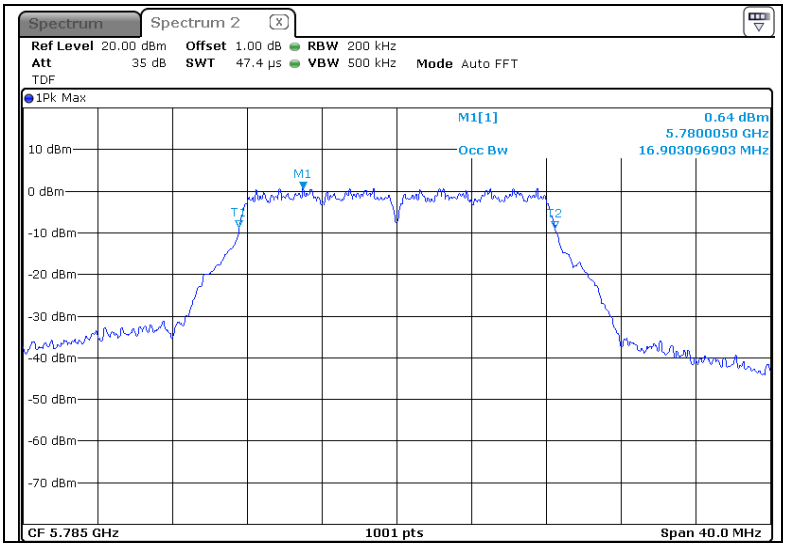
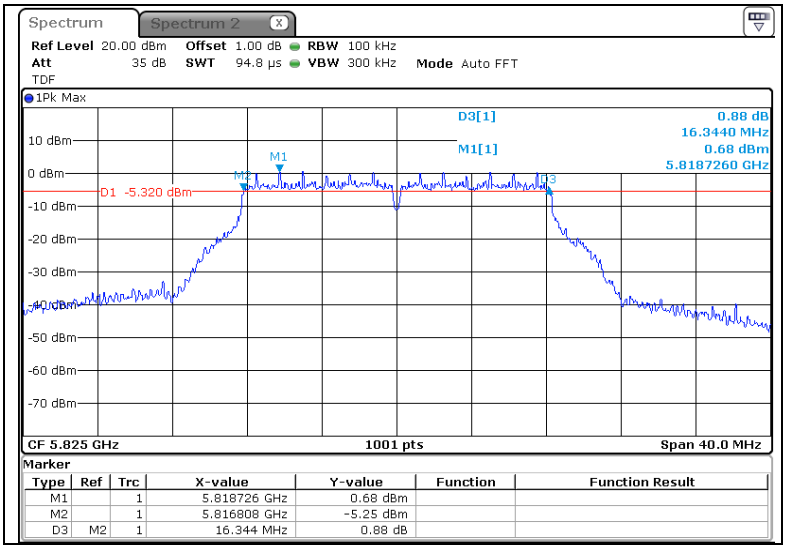
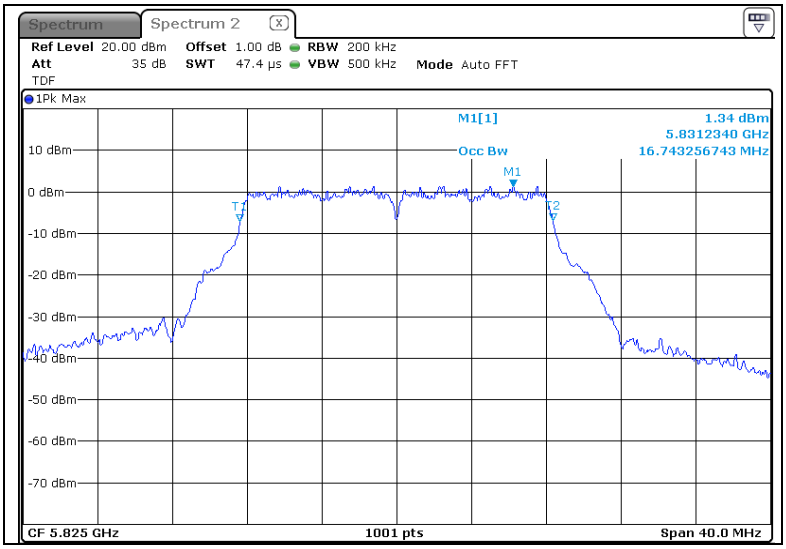


-5 825 ㎒

EBW



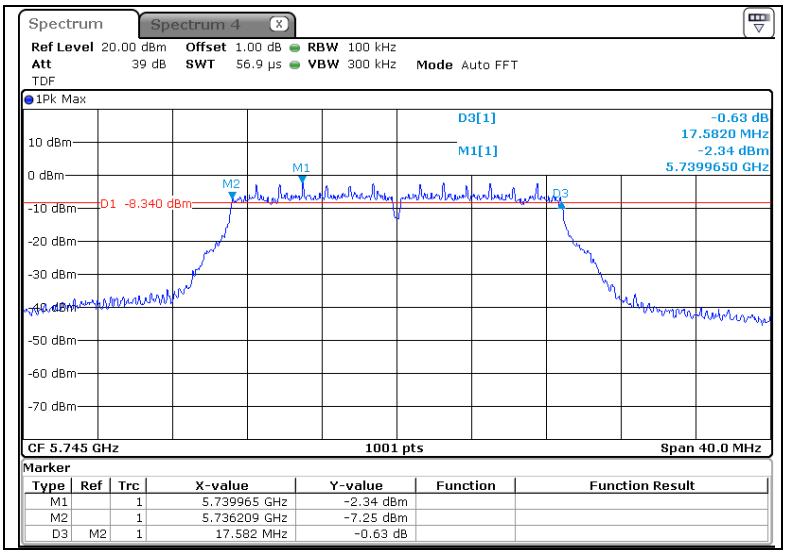
OBW



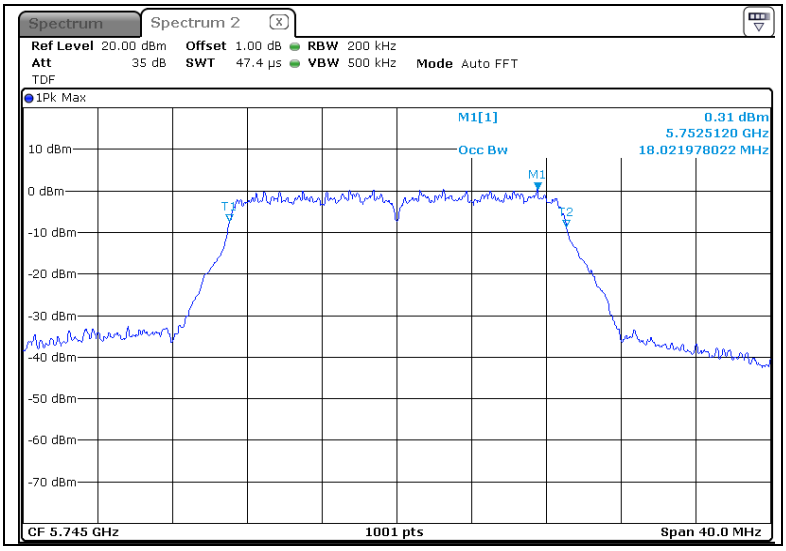
* 802.11n HT20_5 725 Band

-5 745 ㎒

EBW

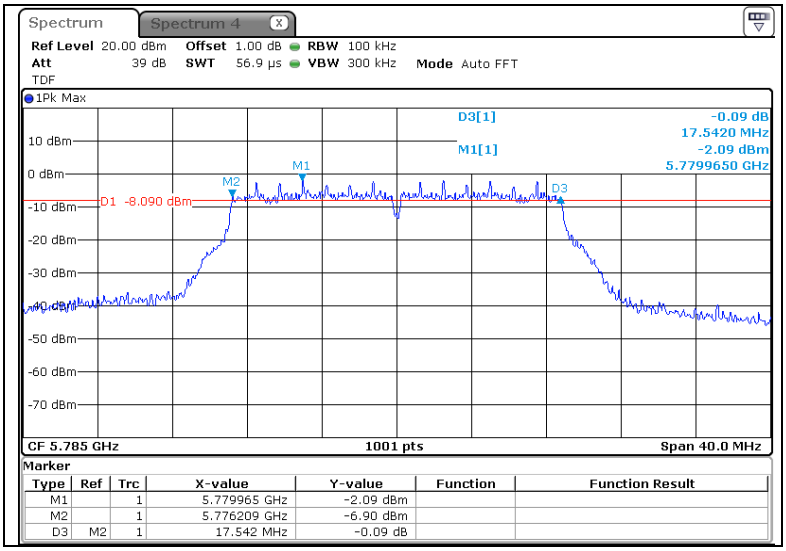


OBW

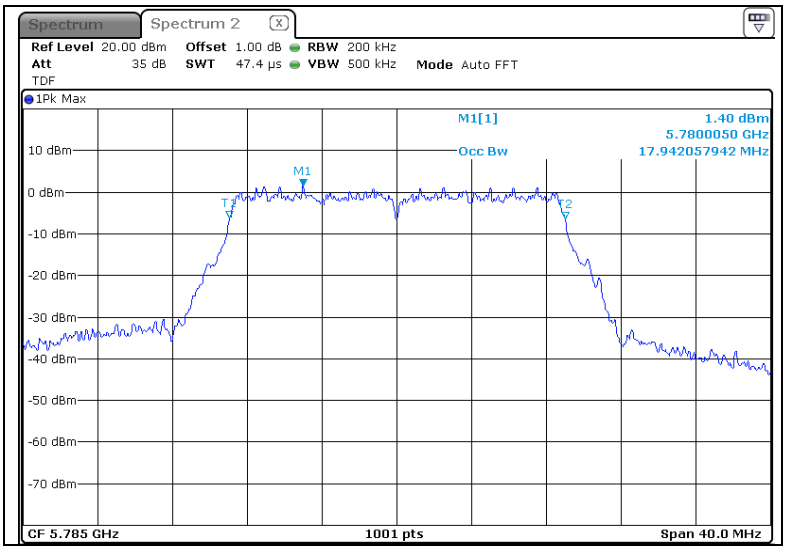


-5 785 ㎒

EBW

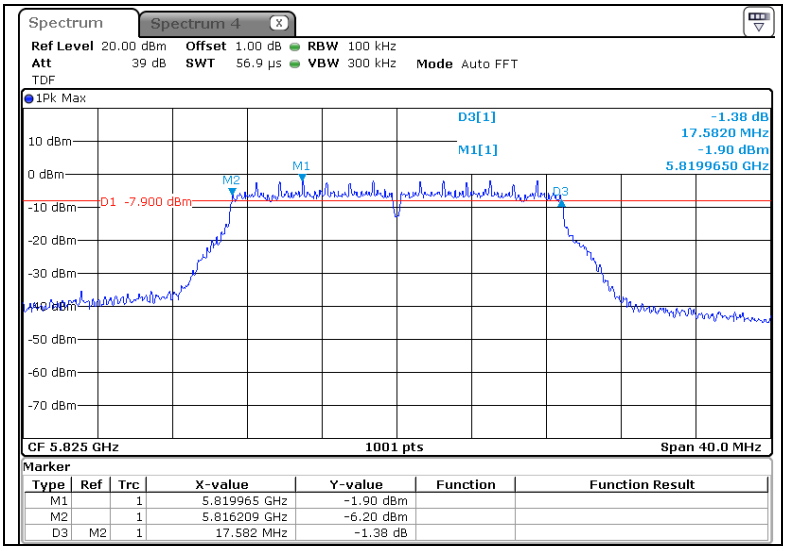


OBW



-5 825 ㎒

EBW



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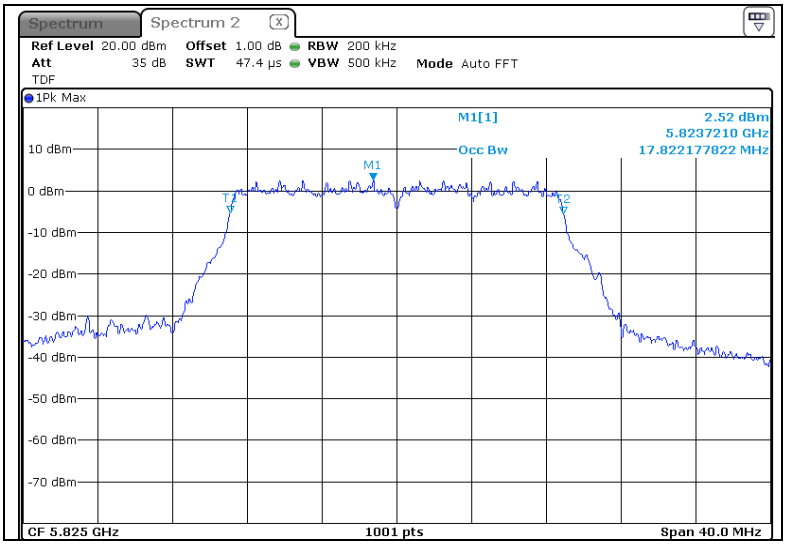
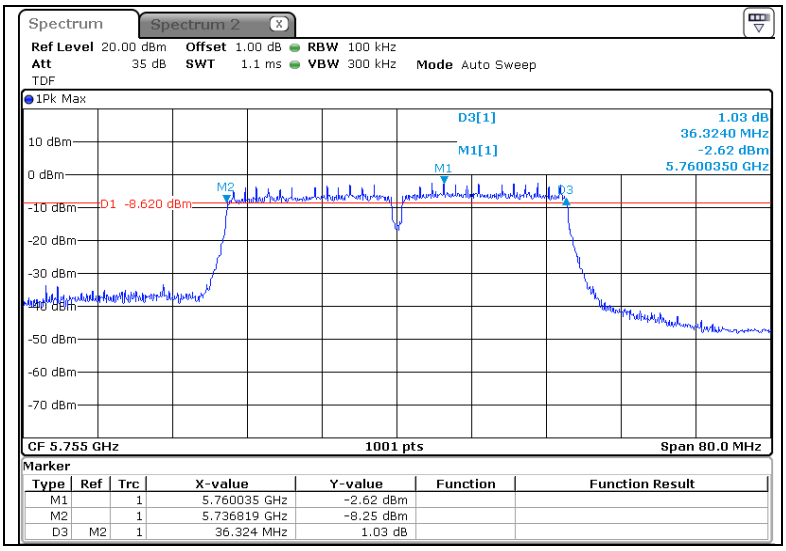


* 802.11n HT40_5 725 Band

-5 755 ㎒

EBW



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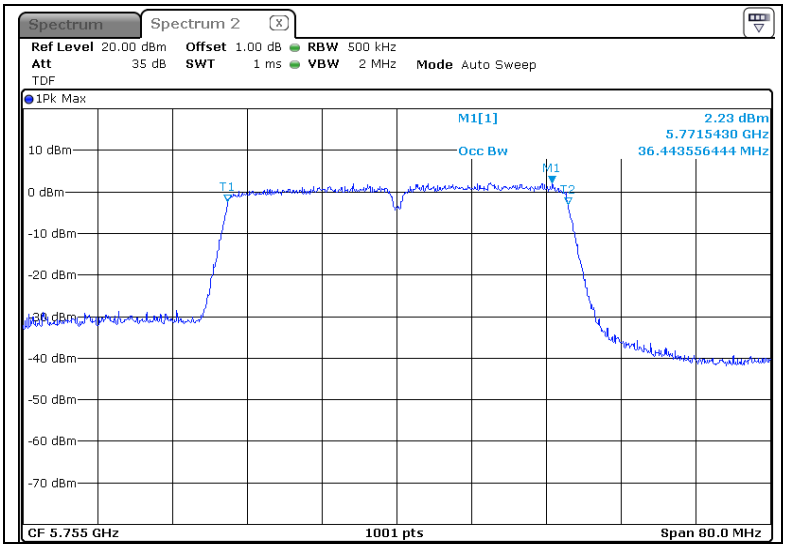
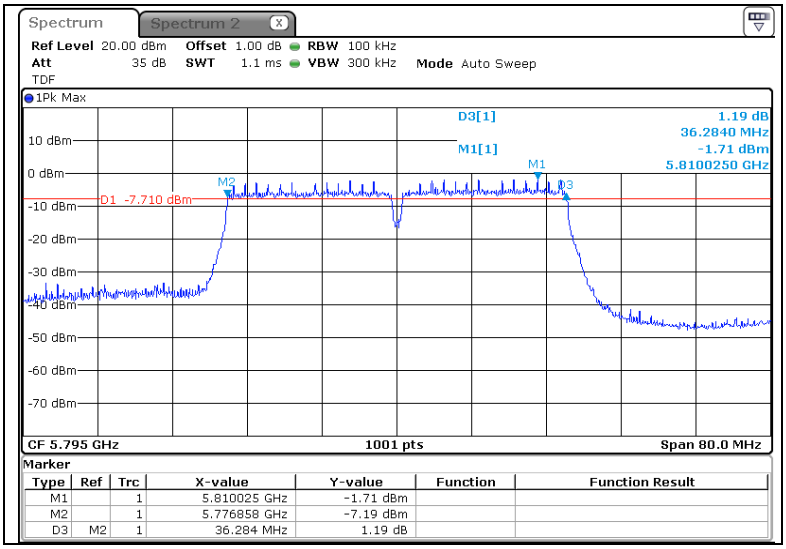
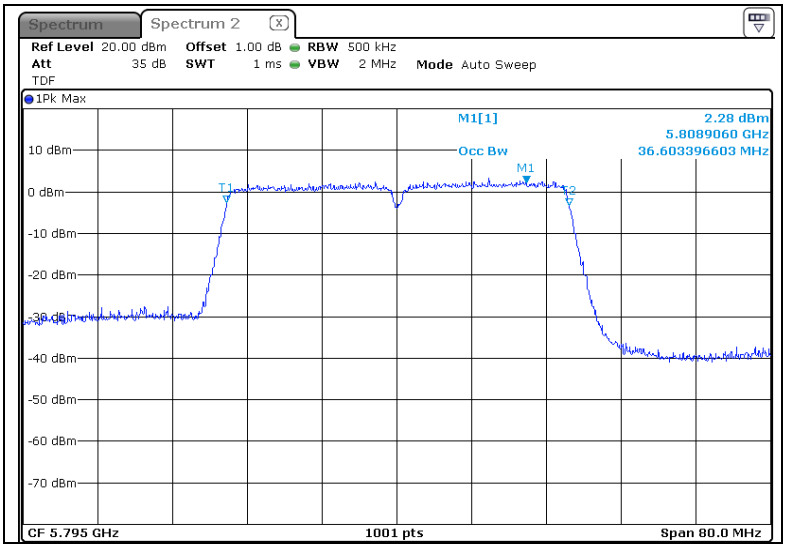


-5 795 ㎒

EBW



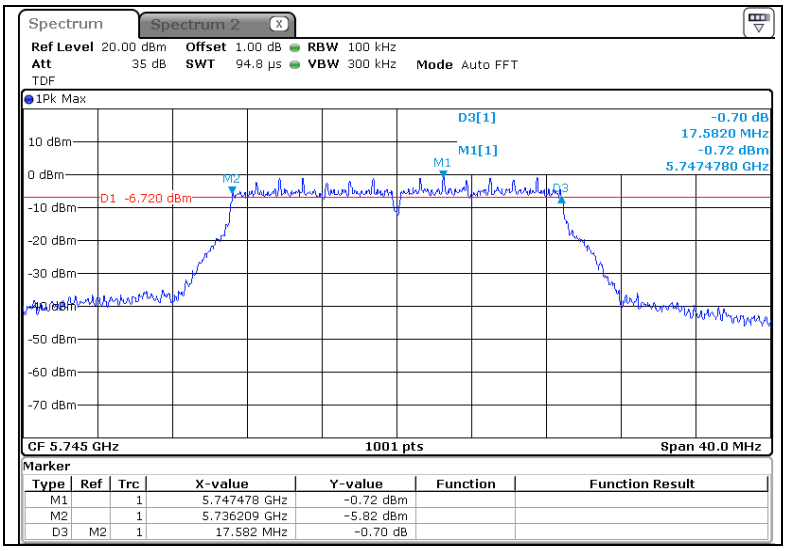
OBW



* 802.11ac VHT20_5 725 Band

-5 745 ㎒

EBW



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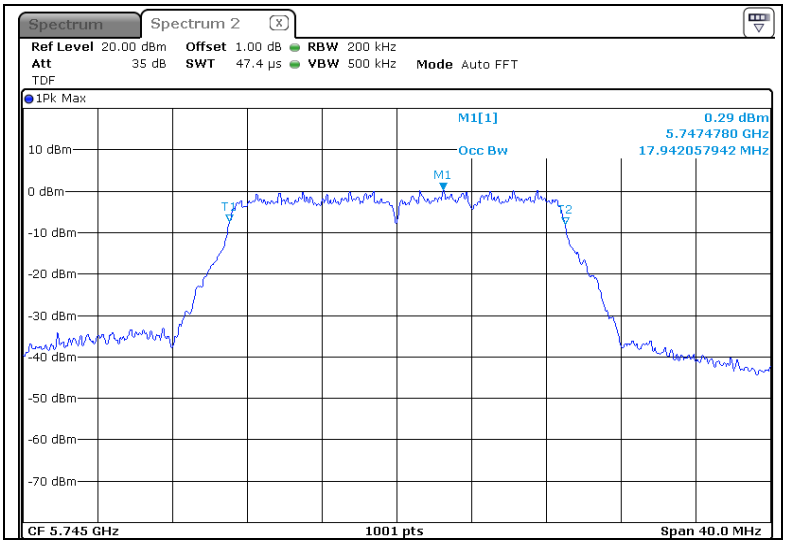
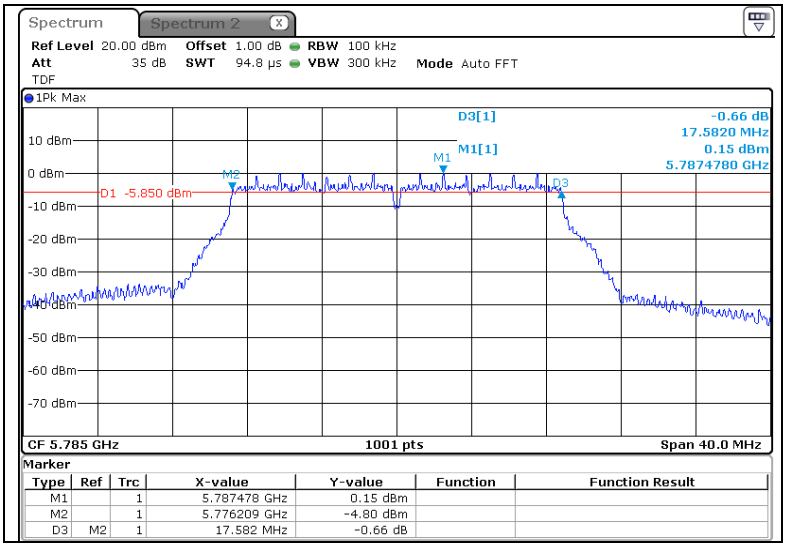
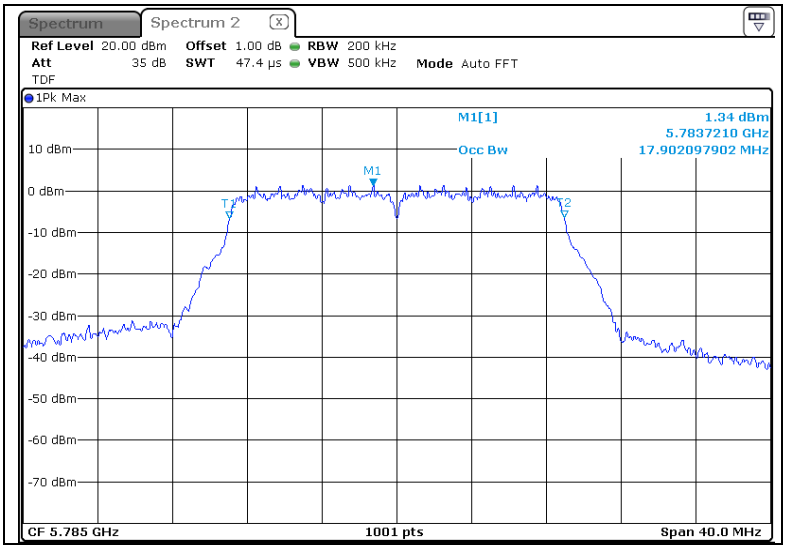


-5 785 ㎒

EBW

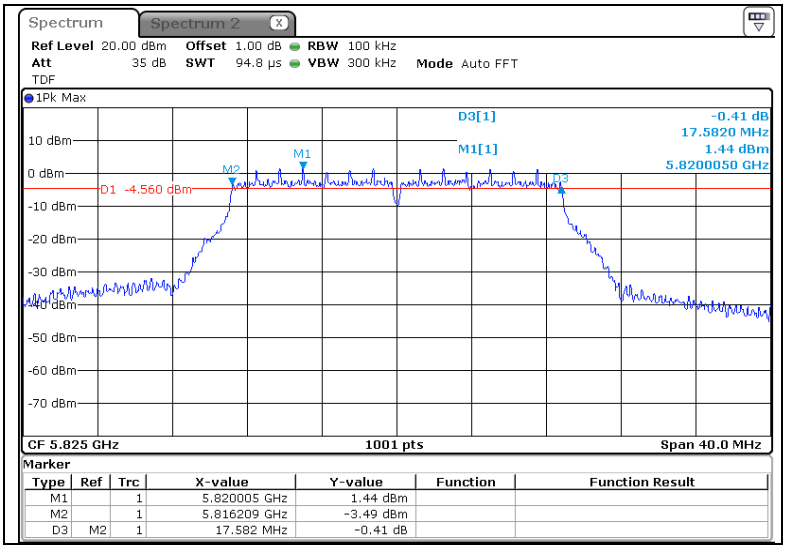


OBW

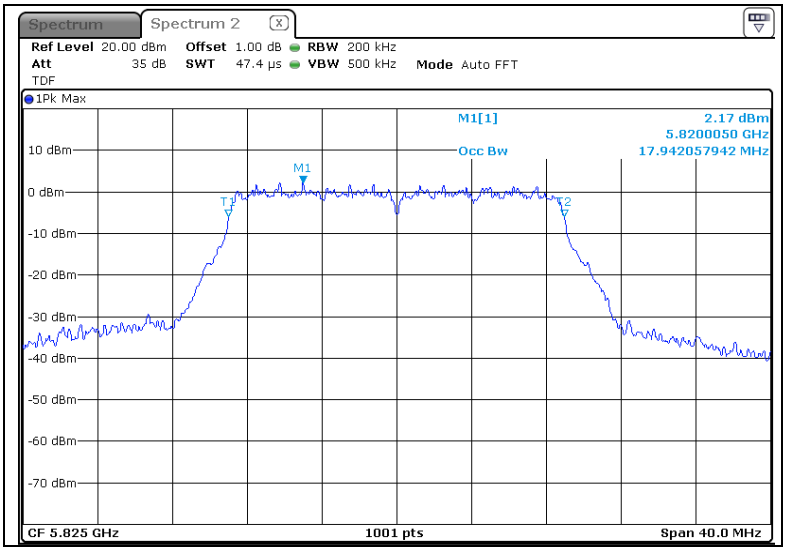


-5 825 ㎒

EBW



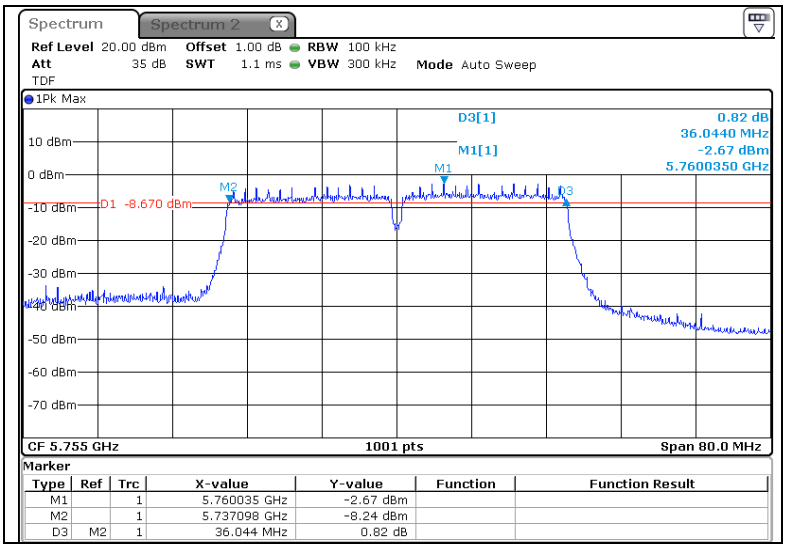
OBW



* 802.11ac VHT40_5 725 Band

-5 755 ㎒

EBW



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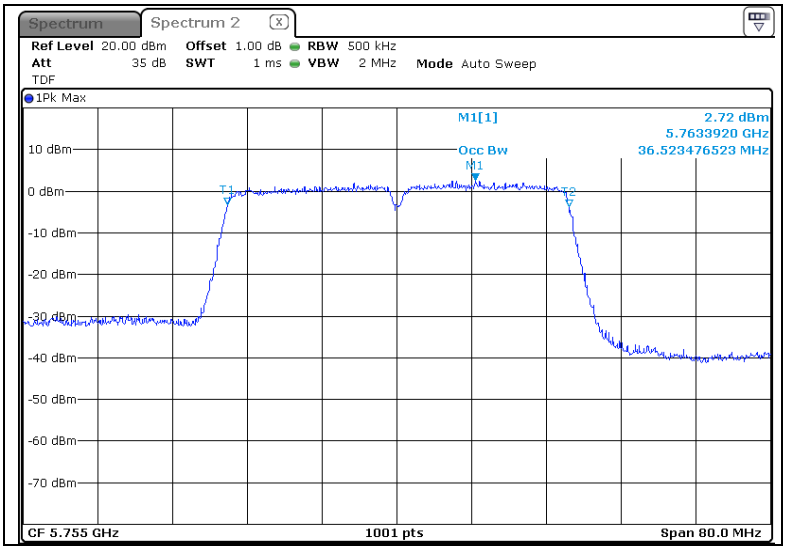
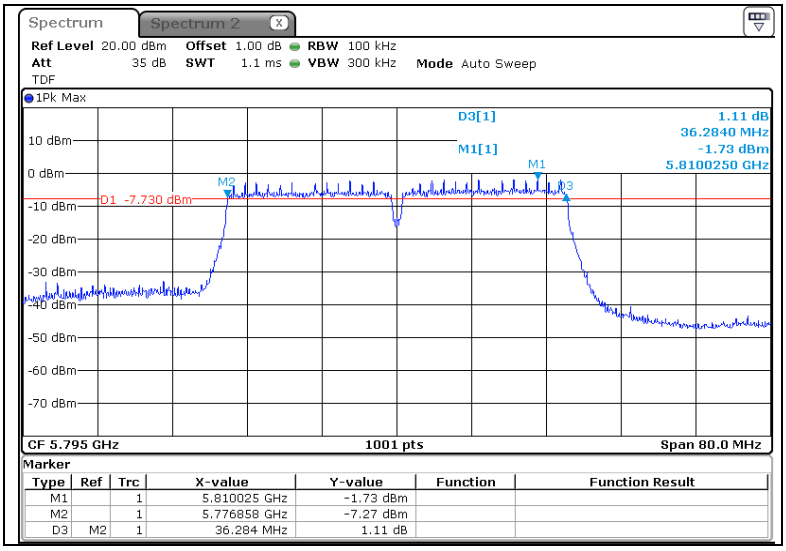
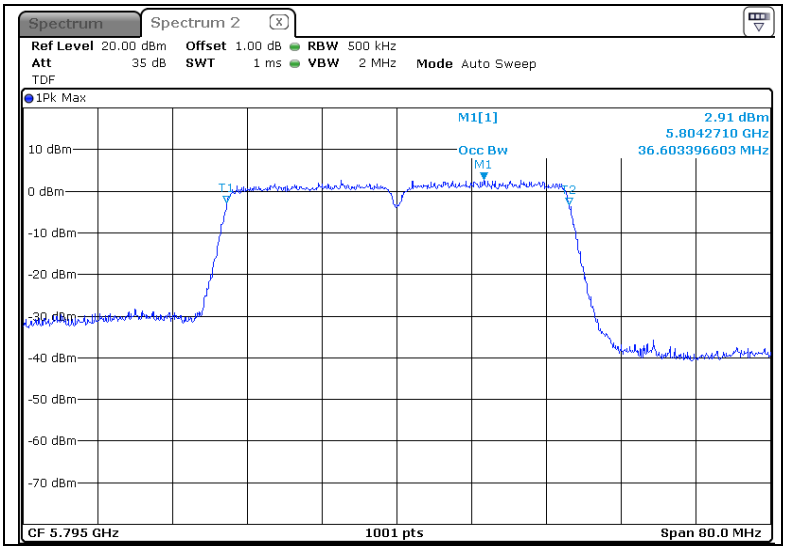


-5 795 ㎒

EBW



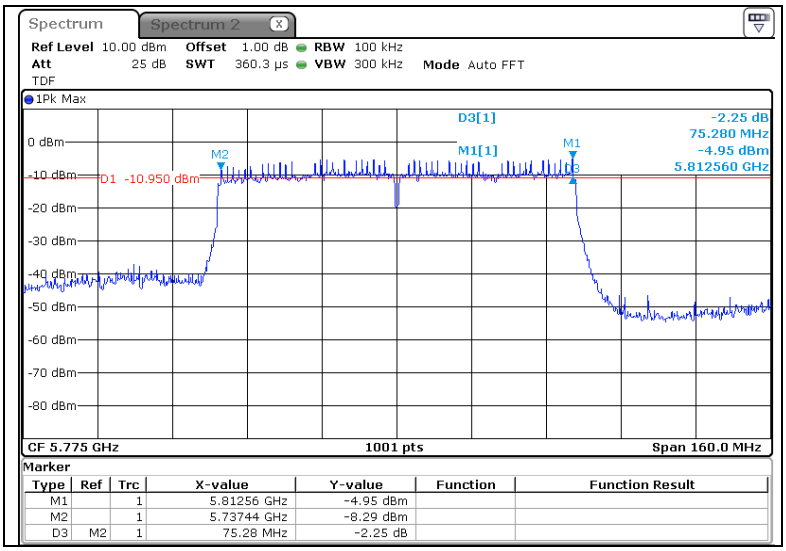
OBW



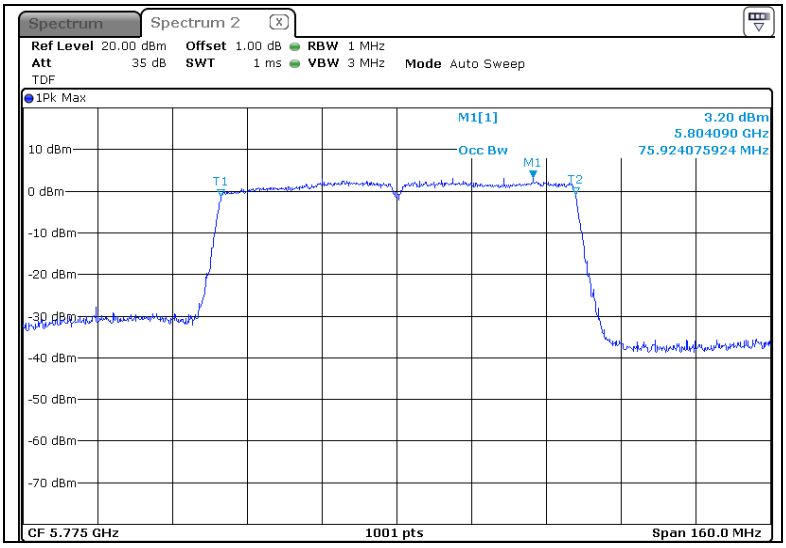
* 802.11ac VHT80_5 725 Band

-5 775 ㎒

EBW



OBW



5.4 Peak Power Spectral Density

5.4.1 Regulation

According to §15.407(a) (1) (iv) For mobile and portable client devices in the 5.15-5.25 ㎓ band, the maximum conducted output power over the frequency band of operation shall not exceed 250 ㎽ provided the maximum antenna gain does not exceed 6 dBi. 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 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.

5.4.2 Measurement Procedure

These test measurement settings are specified in section F of 789033 D02 General UNII Test Procedures New Rules v01.

5.4.2.1 Maximum power spectral density (PSD)

1. Create an average power spectrum for the EUT operating mode being tested by following the instructions in section II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, "Compute power…". (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)

2. Use the peak search function on the instrument to find the peak of the spectrum and record its value.

3. Make the following adjustments to the peak value of the spectrum, if applicable:
a) If Method SA-2 or SA-2 Alternative was used, add 10 log(1/x), where x is the duty cycle, to the peak of the spectrum.
b) If Method SA-3 Alternative was used and the linear mode was used in step II.E.2.g)(viii), add 1 ㏈ to the final result to compensate for the difference between linear averaging and power averaging.
4. The result is the Maximum PSD over 1 ㎒ reference bandwidth.

5. For devices operating in the bands 5.15-5.25 ㎓, 5.25-5.35 ㎓, and 5.47-5.725 ㎓, the above procedures make use of 1 ㎒ RBW to satisfy directly the 1 ㎒ reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 ㎓, the rules specify a measurement bandwidth of 500 ㎑. Many spectrum analyzers do not have 500 ㎑ RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 ㎒, or 500 ㎑, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (i.e., 1 ㎒, or 500 ㎑). If measurements are performed using a reduced resolution bandwidth (< 1 ㎒, or < 500 ㎑) and integrated over 1 ㎒, or 500 ㎑ bandwidth, the following adjustments to the procedures apply: a) Set RBW ≥ 1/T, where T is defined in section II.B.l.a).
c) Set VBW ≥ 3 RBW.
d) If measurement bandwidth of Maximum PSD is specified in 500 ㎑, add 10log(500㎑/RBW) to the measured result, whereas RBW (< 500 ㎑) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
e) If measurement bandwidth of Maximum PSD is specified in 1 ㎒, add 10log(1㎒/RBW) to the measured result, whereas RBW (< 1 ㎒) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
f) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 ㎑ for the sections 5.c) and 5.d) above, since RBW=100 ㎑ is available on nearly all spectrum analyzers.

5.4.3 Test Result

-Complied

* 802.11a_5 150 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 180	1.60	0.28	1.88	11.00	9.12
5 200	1.53	0.28	1.81	11.00	9.19
5 240	1.46	0.28	1.74	11.00	9.26

* 802.11n HT20_5 150 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 180	0.86	0.30	1.16	11.00	9.84
5 200	0.86	0.30	1.16	11.00	9.84
5 240	0.70	0.30	1.00	11.00	10.00

* 802.11n HT40_5 150 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 190	-2.08	0.60	-1.48	11.00	12.48
5 230	-2.18	0.60	-1.58	11.00	12.58

* 802.11ac VHT20_5 150 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 180	0.79	0.31	1.10	11.00	9.90
5 200	0.90	0.31	1.21	11.00	9.79
5 240	0.78	0.31	1.09	11.00	9.91

* 802.11ac VHT40_5 150 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 190	-2.11	0.60	-1.51	11.00	12.51
5 230	-2.16	0.60	-1.56	11.00	12.56

* 802.11ac VHT80_5 150 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 210	-4.89	1.12	-3.77	11.00	14.77

* 802.11a_5 250 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 260	2.57	0.28	2.85	11.00	8.15
5 300	1.84	0.28	2.12	11.00	8.88
5 320	1.49	0.28	1.77	11.00	9.23

* 802.11n HT20_5 250 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 260	1.82	0.30	2.12	11.00	8.88
5 300	1.34	0.30	1.64	11.00	9.36
5 320	0.78	0.30	1.08	11.00	9.92

* 802.11n HT40_5 250 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 270	-1.36	0.60	-0.76	11.00	11.76
5 310	-2.24	0.60	-1.64	11.00	12.64

* 802.11ac VHT20_5 250 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 260	1.58	0.31	1.89	11.00	9.11
5 300	1.19	0.31	1.50	11.00	9.50
5 320	0.75	0.31	1.06	11.00	9.94

* 802.11ac VHT40_5 250 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 270	-1.29	0.60	-0.69	11.00	11.69
5 310	-2.56	0.60	-1.96	11.00	12.96

* 802.11ac VHT80_5 250 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 290	-5.67	1.12	-4.55	11.00	15.55

* 802.11a_5 470 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 500	-2.38	0.28	-2.10	11.00	13.10
5 580	-2.64	0.28	-2.36	11.00	13.36
5 700	-0.44	0.28	-0.16	11.00	11.16

* 802.11n HT20_5 470 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 500	-2.84	0.30	-2.54	11.00	13.54
5 580	-3.30	0.30	-3.00	11.00	14.00
5 700	-1.04	0.30	-0.74	11.00	11.74

* 802.11n HT40_5 470 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 510	-5.87	0.60	-5.27	11.00	16.27
5 550	-5.96	0.60	-5.36	11.00	16.36
5 670	-4.65	0.60	-4.05	11.00	15.05

* 802.11ac VHT20_5 470 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 500	-2.69	0.31	-2.38	11.00	13.38
5 580	-3.15	0.31	-2.84	11.00	13.84
5 700	-1.09	0.31	-0.78	11.00	11.78

* 802.11ac VHT40_5 470 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5510	-5.92	0.60	-5.32	11.00	16.32
5550	-5.87	0.60	-5.27	11.00	16.27
5670	-4.72	0.60	-4.12	11.00	15.12

* 802.11ac VHT80_5 470 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5530	-9.16	1.12	-8.04	11.00	19.04

* 802.11a_5 725 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 745	-0.68	0.28	-0.40	30.00	30.40
5 785	0.26	0.28	0.54	30.00	29.46
5 825	0.98	0.28	1.26	30.00	28.74

* 802.11n HT20_5 725 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 745	-1.29	0.30	-0.99	30.00	30.99
5 785	-0.28	0.30	0.02	30.00	29.98
5 825	0.32	0.30	0.62	30.00	29.38

* 802.11n HT40_5 725 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 755	-3.12	0.60	-2.52	30.00	32.52
5 795	-2.95	0.60	-2.35	30.00	32.35

* 802.11ac VHT20_5 725 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 745	-1.13	0.31	-0.82	30.00	30.82
5 785	-0.30	0.31	0.01	30.00	29.99
5 825	0.53	0.31	0.84	30.00	29.16

* 802.11ac VHT40_5 725 Band

Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5 755	-3.60	0.60	-3.00	30.00	33.00
5 795	-2.80	0.60	-2.20	30.00	32.20

* 802.11ac VHT80_5 725 Band

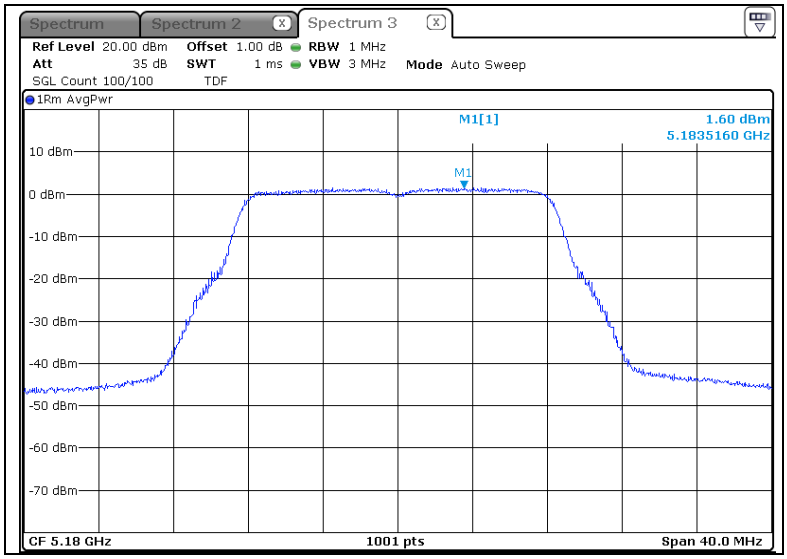
Frequency [㎒]	Reading [dBm]	Duty Cycle [dB]	Total result [dBm]	Limit [dBm]	Margin [dB]
5775	-6.59	1.12	-5.47	30.00	35.47

5.4.4 Test Plot

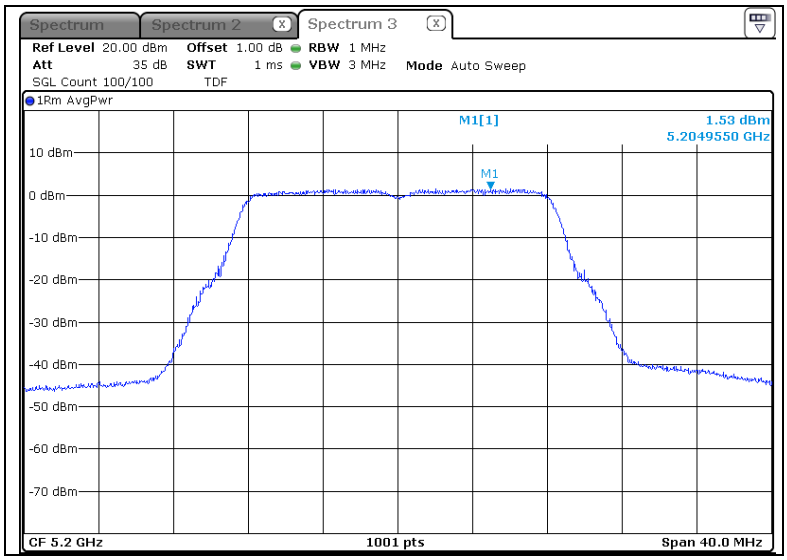
Figure 2. Plot of the Power Spectral Density

* 802.11a_5 150 Band

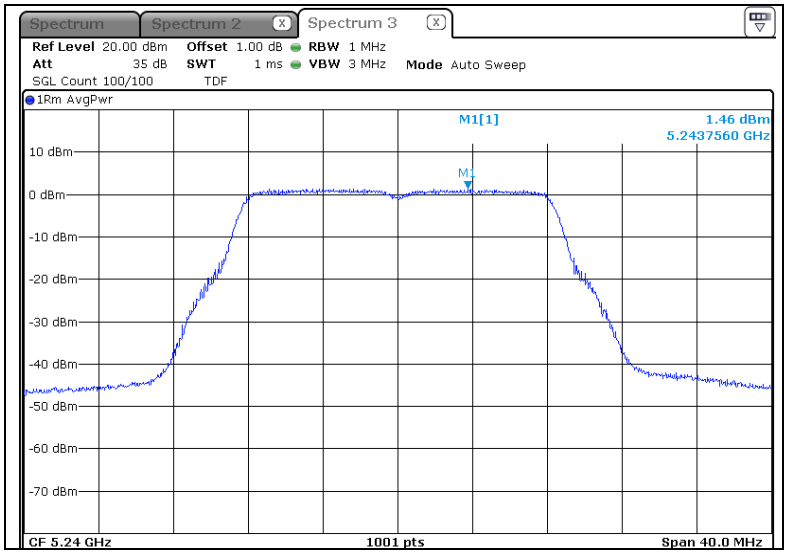
-5 180 ㎒



-5 200 ㎒

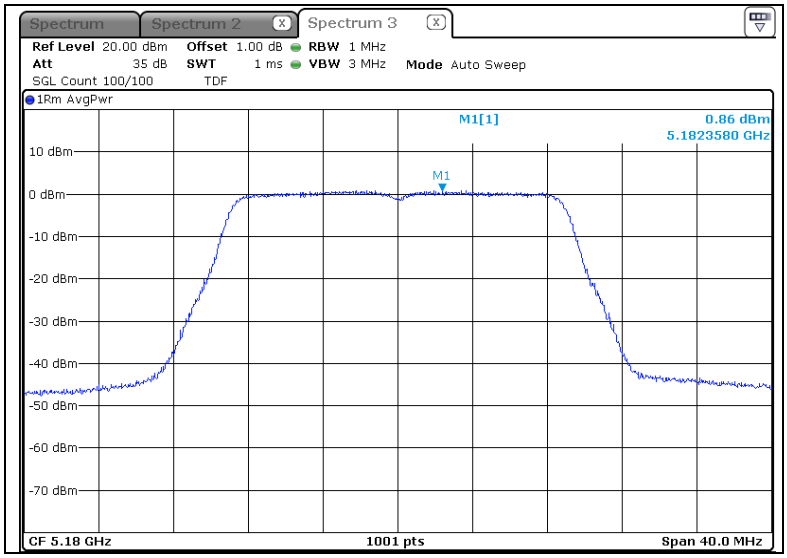


-5 240 ㎒

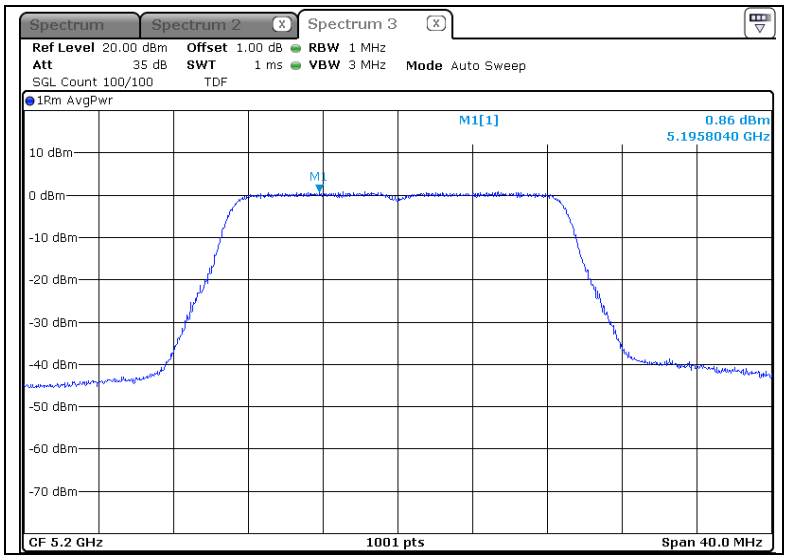


* 802.11n HT20 _5 150 Band

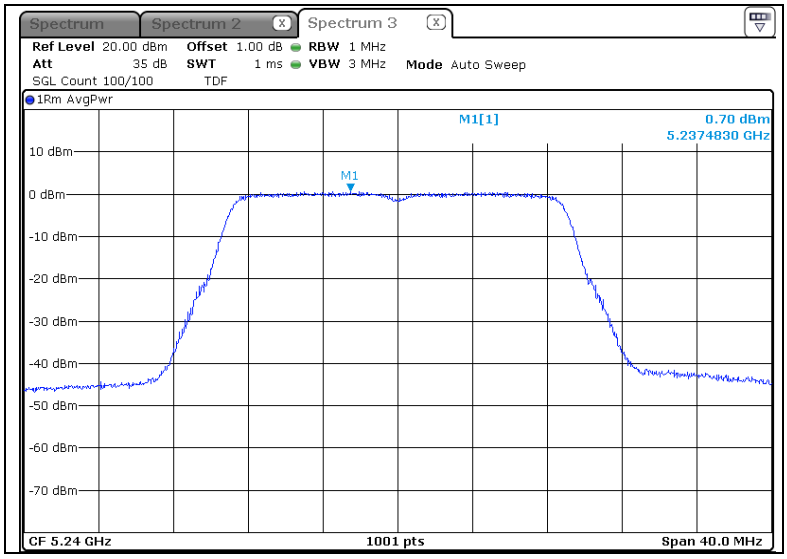
-5 180 ㎒



-5 200 ㎒

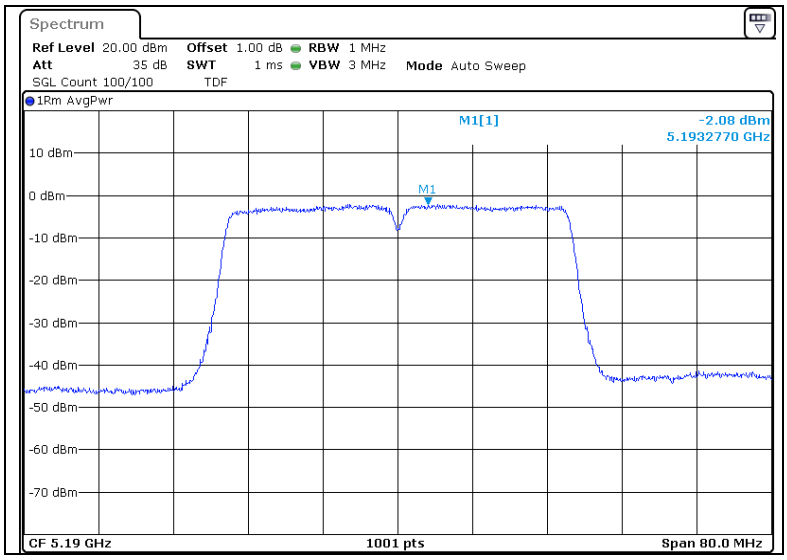


-5 240 ㎒

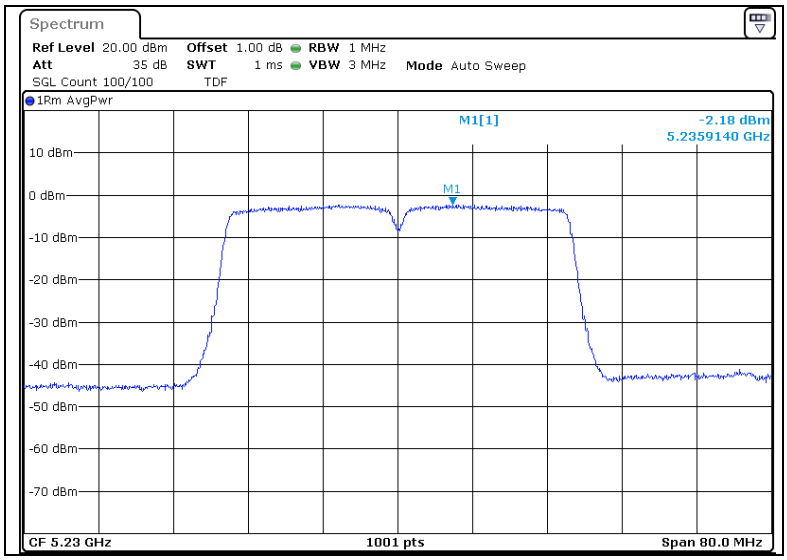


* 802.11n HT40_5 150 Band

-5 190 ㎒

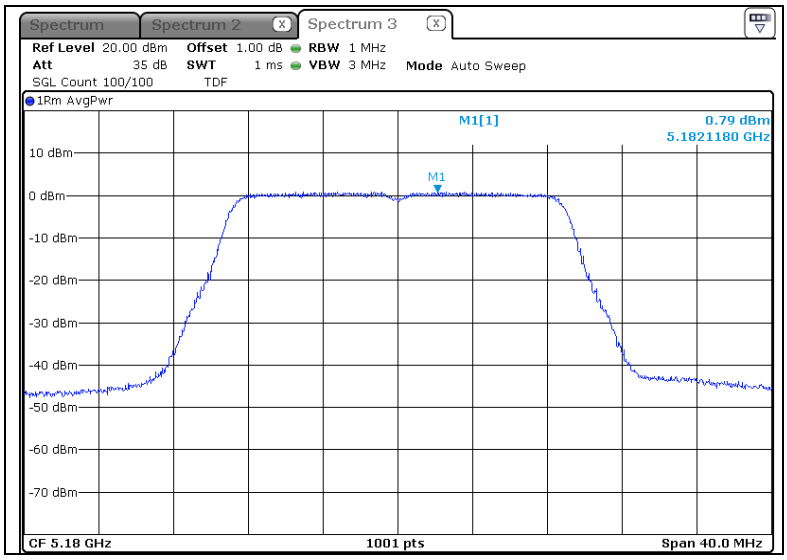


-5 230 ㎒

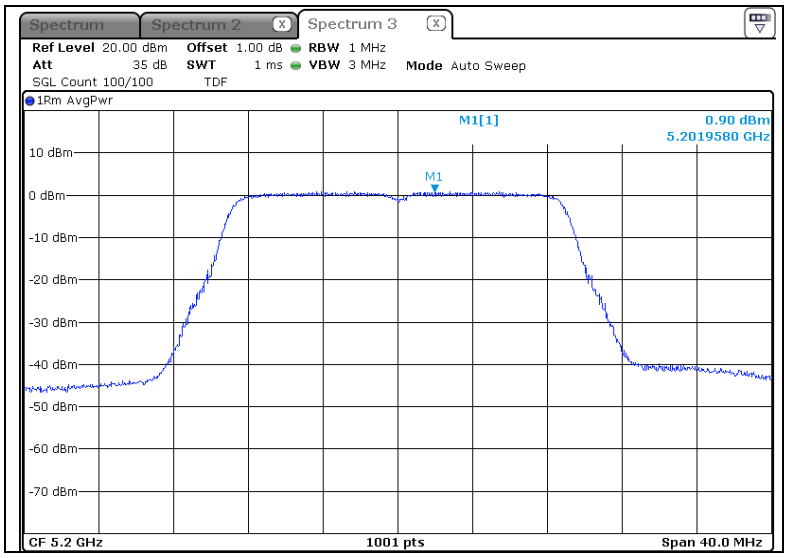


* 802.11ac VHT20_5 150 Band

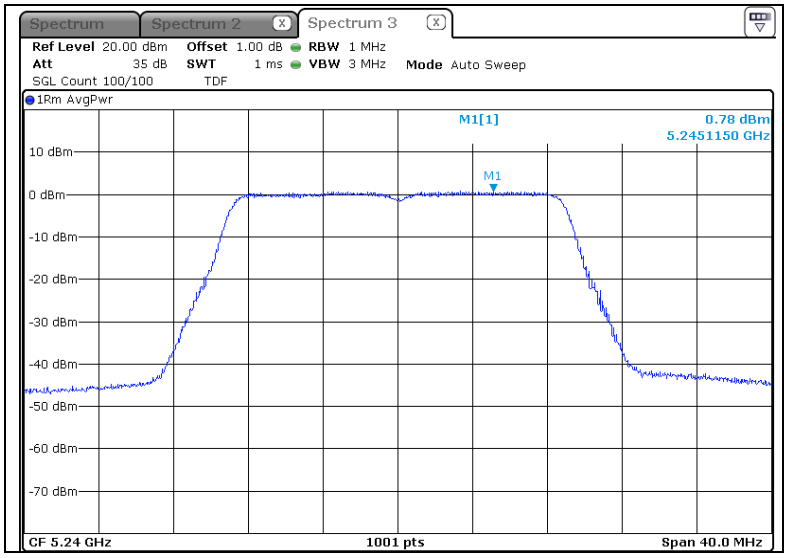
-5 180 ㎒



-5 200 ㎒

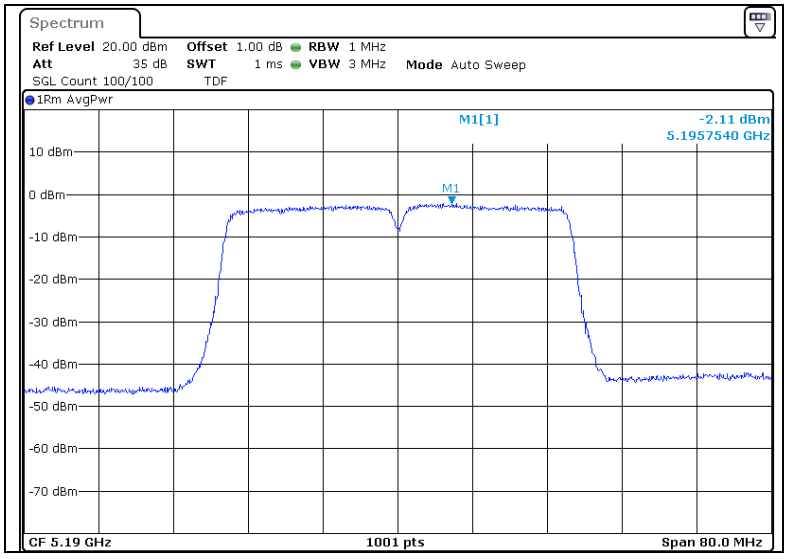


-5 240 ㎒

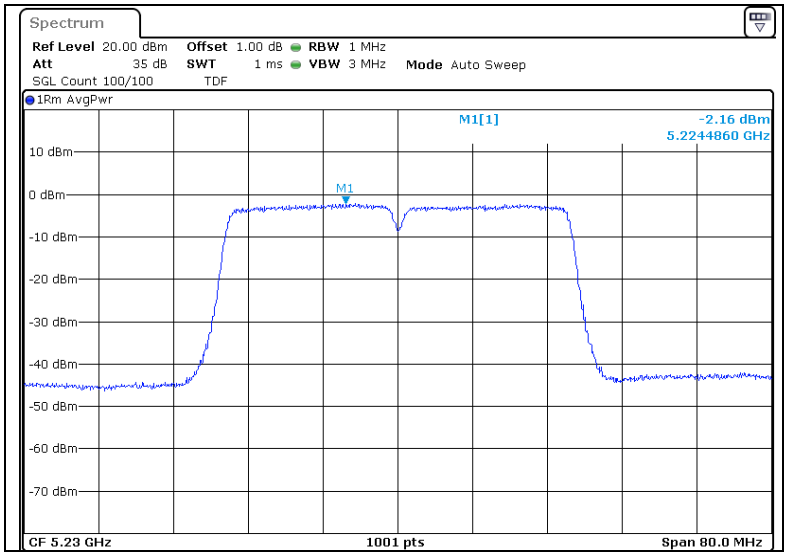


* 802.11ac VHT40_5 150 Band

-5 190 ㎒

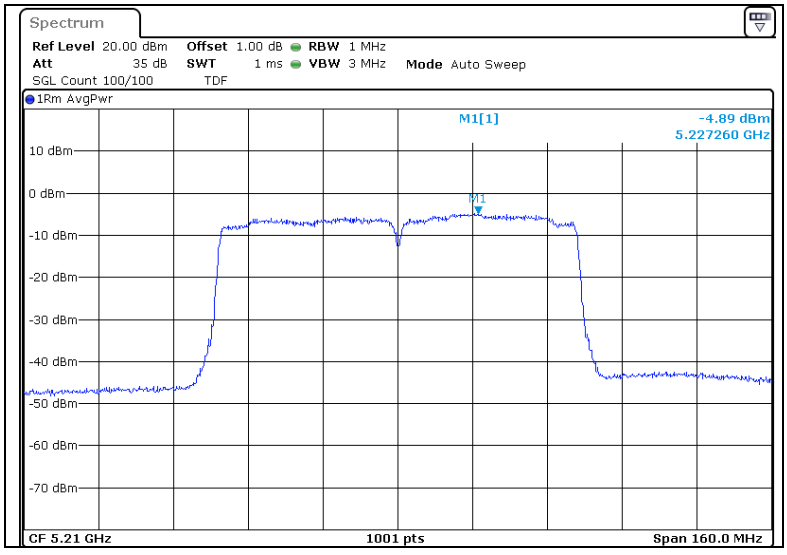


-5 230 ㎒



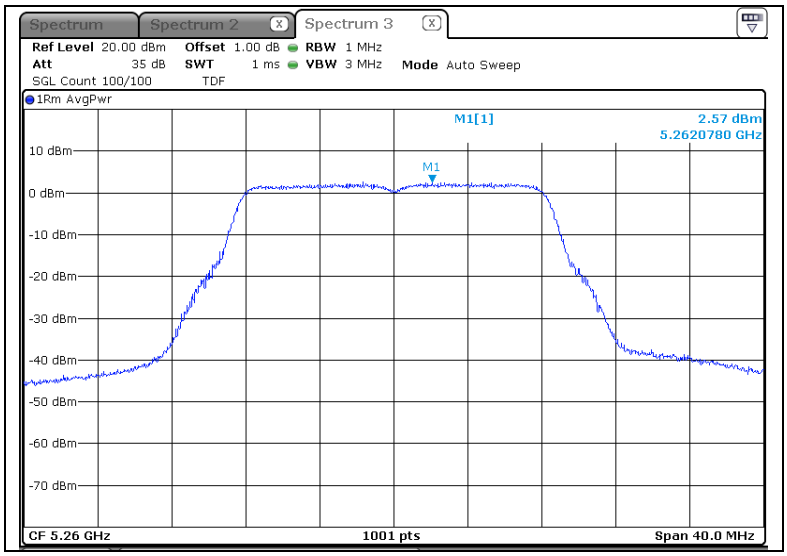
* 802.11ac VHT80_5 150 Band

-5 210 ㎒

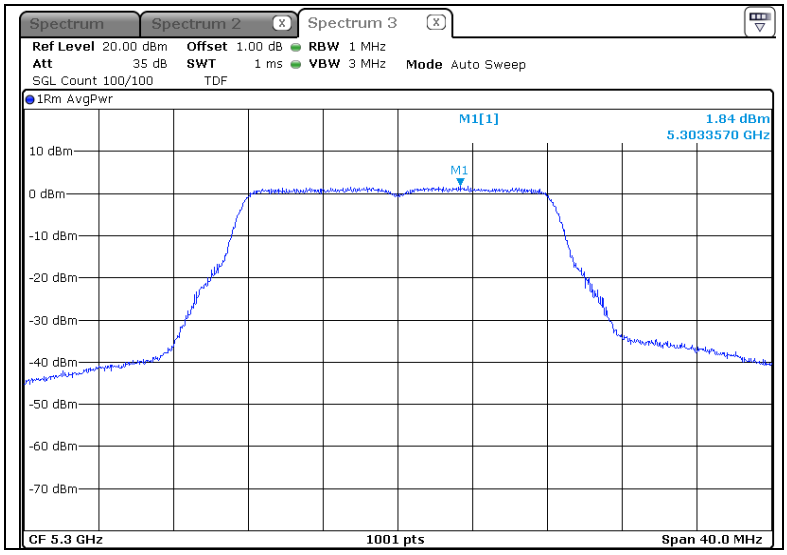


* 802.11a_5 250 Band

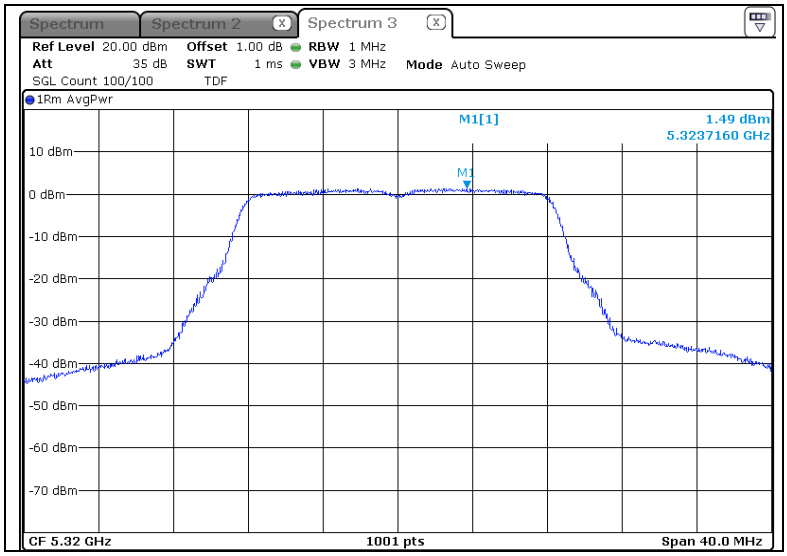
-5 260 ㎒



-5 300 ㎒

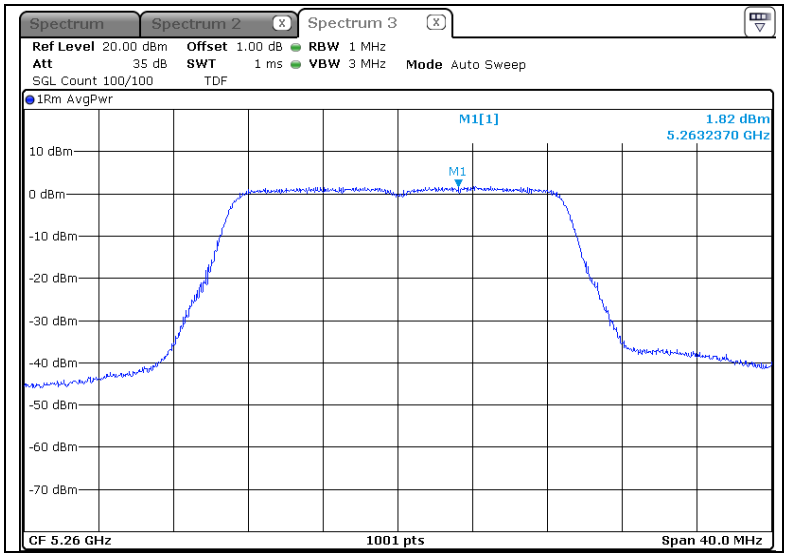


-5 320 ㎒

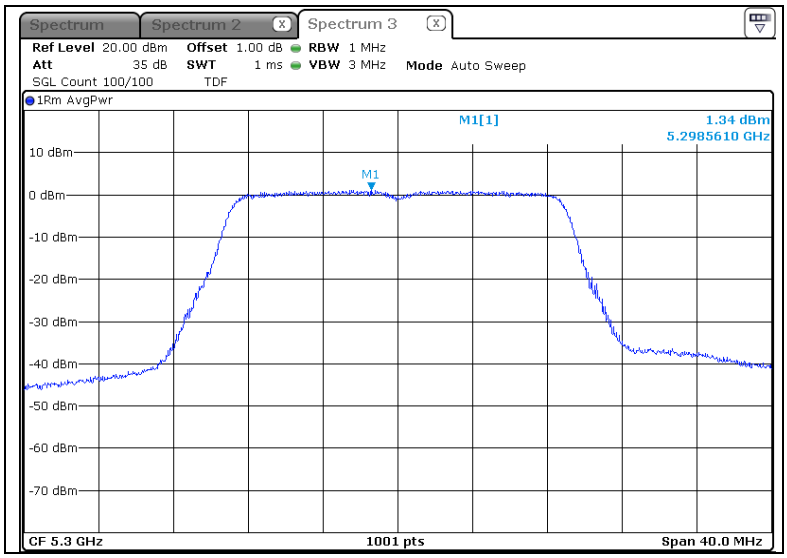


* 802.11n HT20_5 250 Band

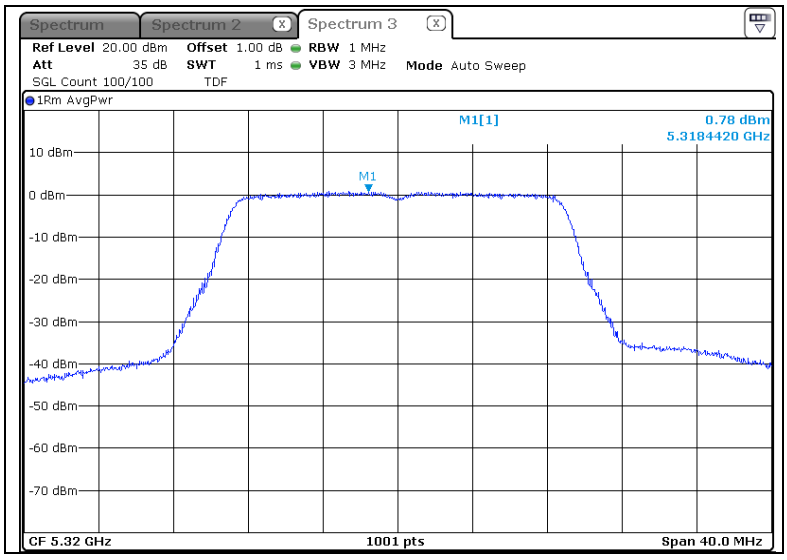
-5 260 ㎒



-5 300 ㎒

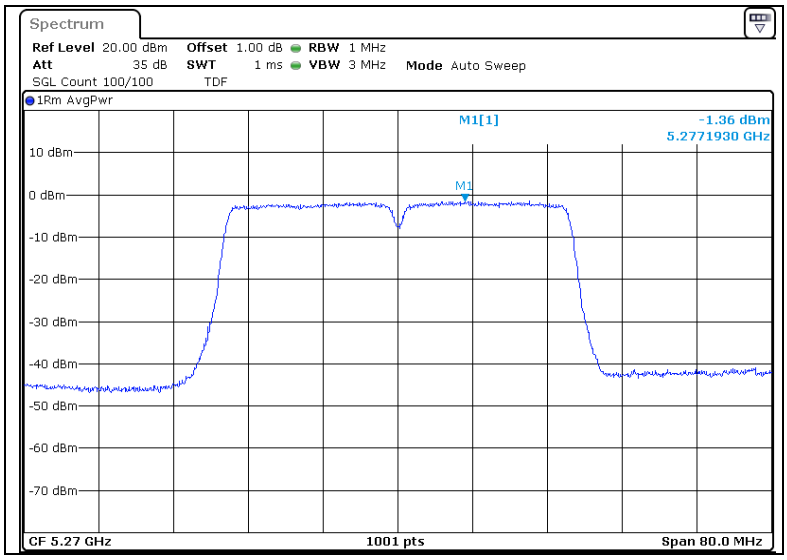


-5 320 ㎒

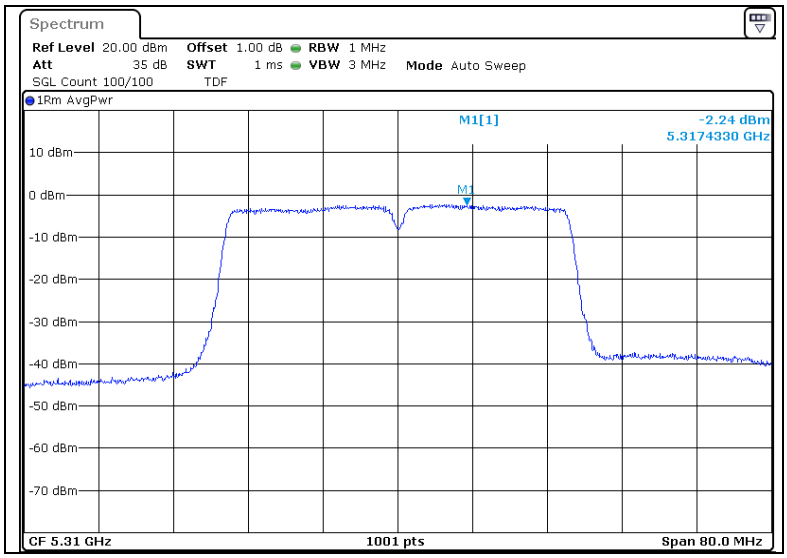


* 802.11n HT40_5 250 Band

-5 270 ㎒

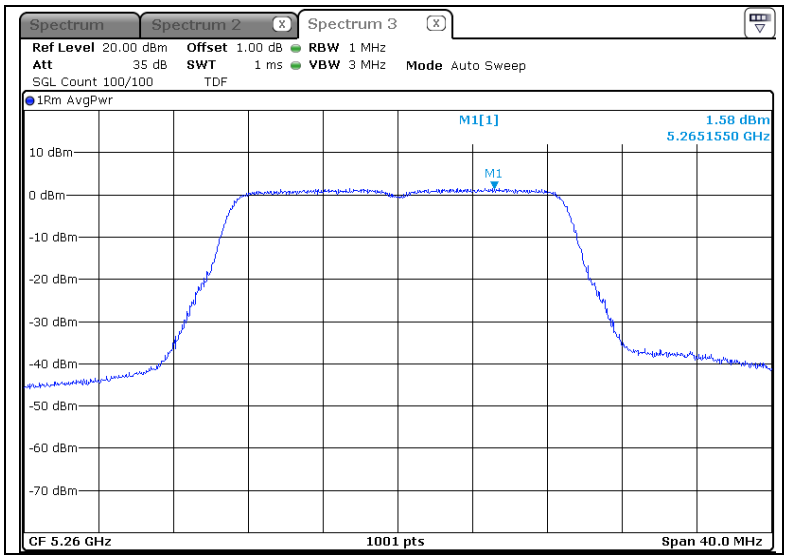


-5 310 ㎒

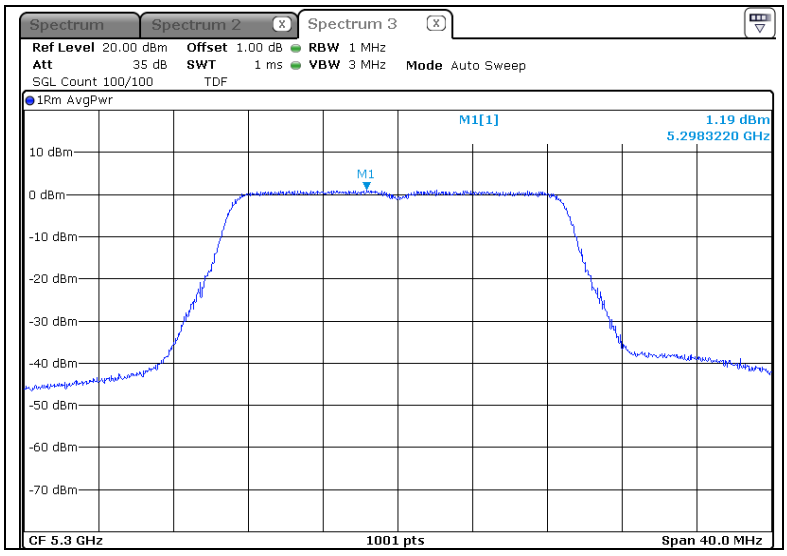


* 802.11ac VHT20_5 250 Band

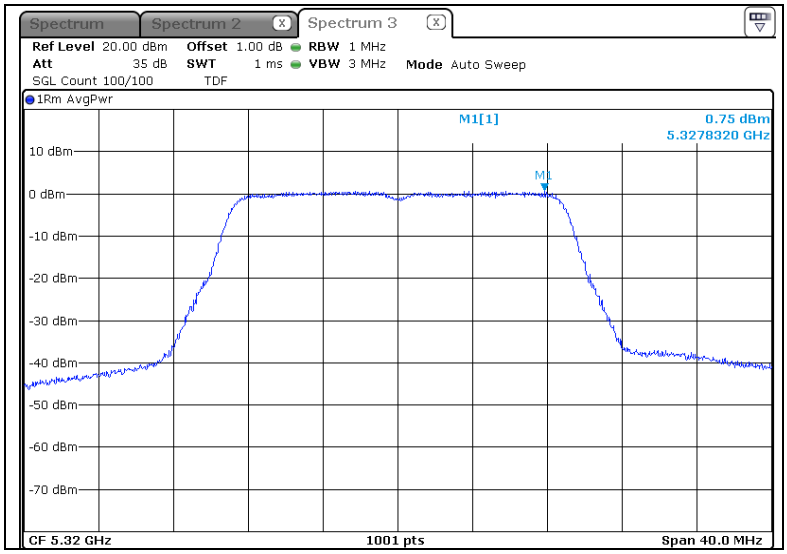
-5 260 ㎒



-5 300 ㎒

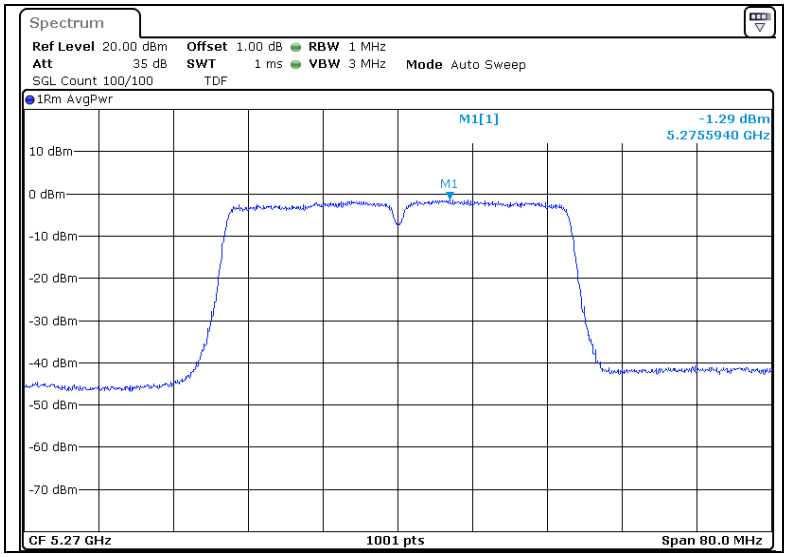


-5 320 ㎒

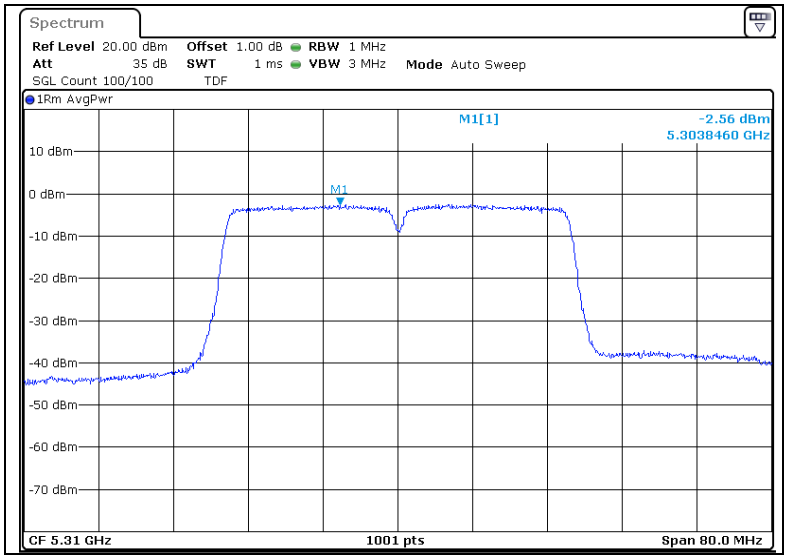


* 802.11ac VHT40_5 250 Band

-5 270 ㎒

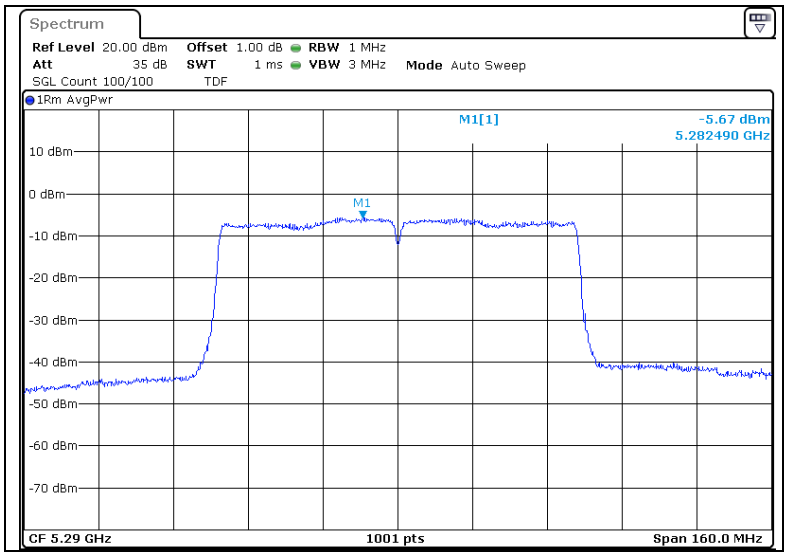


-5 310 ㎒



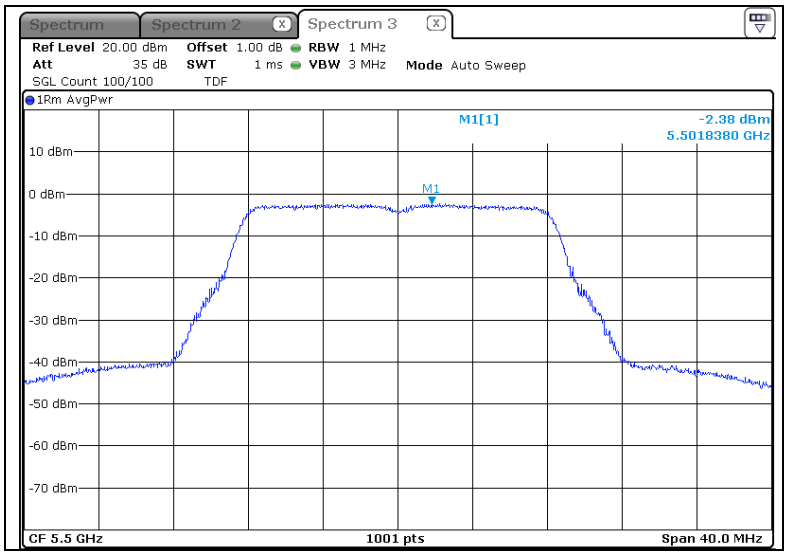
* 802.11ac VHT80_5 250 Band

-5 290 ㎒

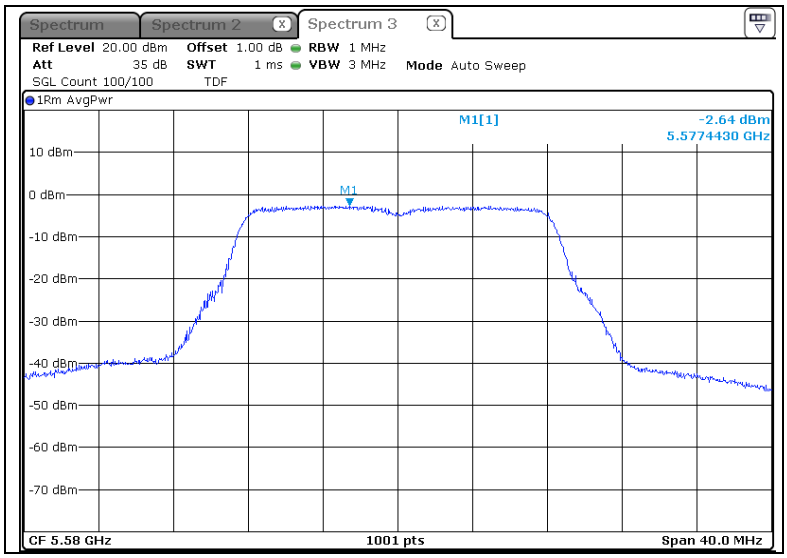


* 802.11a_5 470 Band

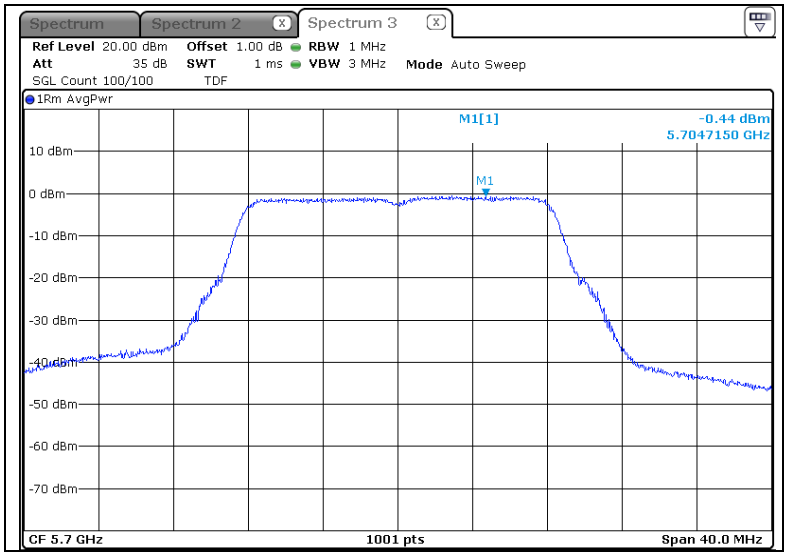
-5 500 ㎒



-5 580 ㎒

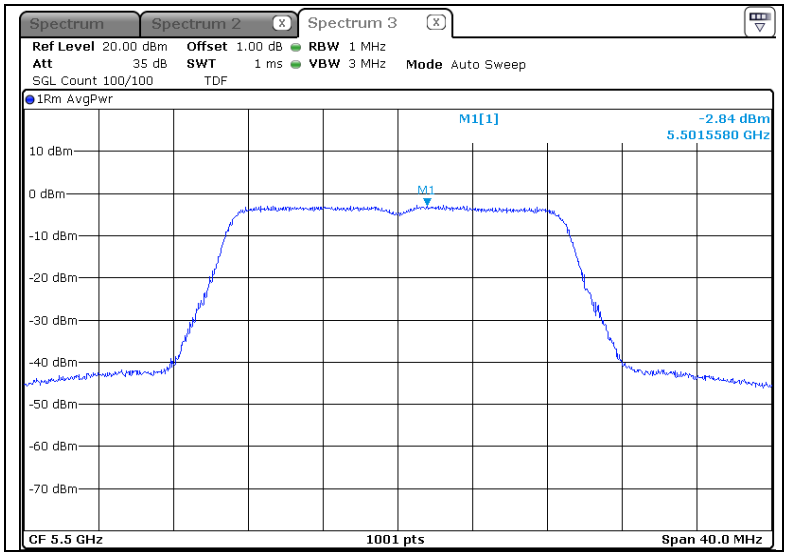


-5 700 ㎒

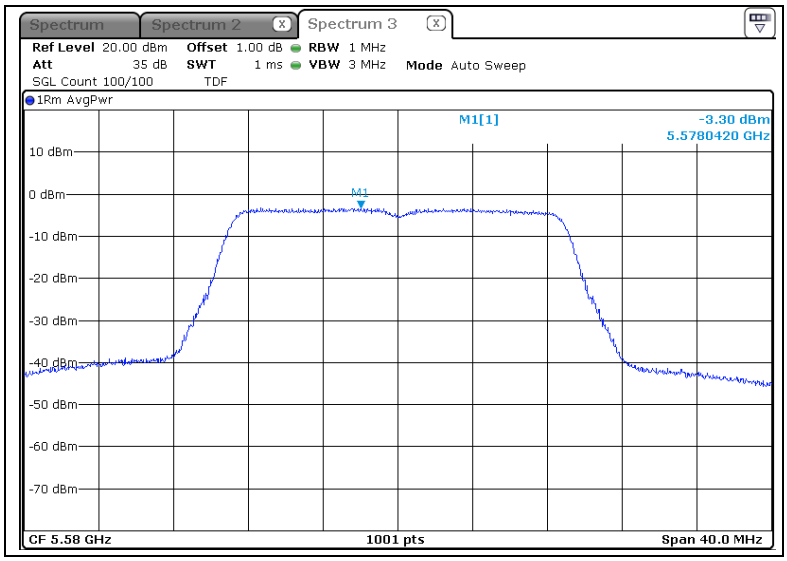


* 802.11n HT20_5 470 Band

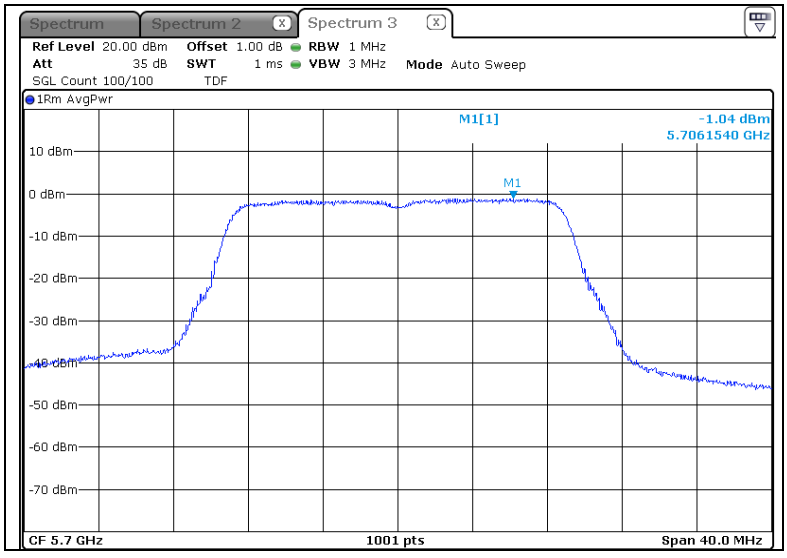
-5 500 ㎒



-5 580 ㎒

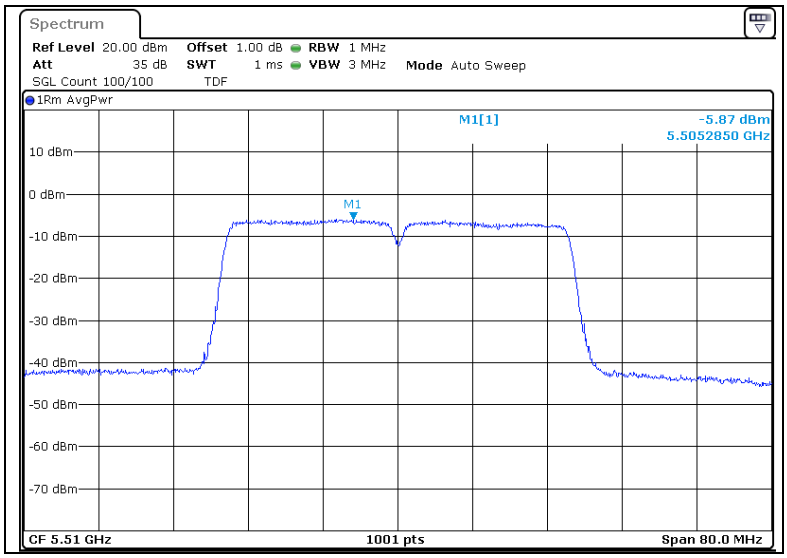


-5 700 ㎒

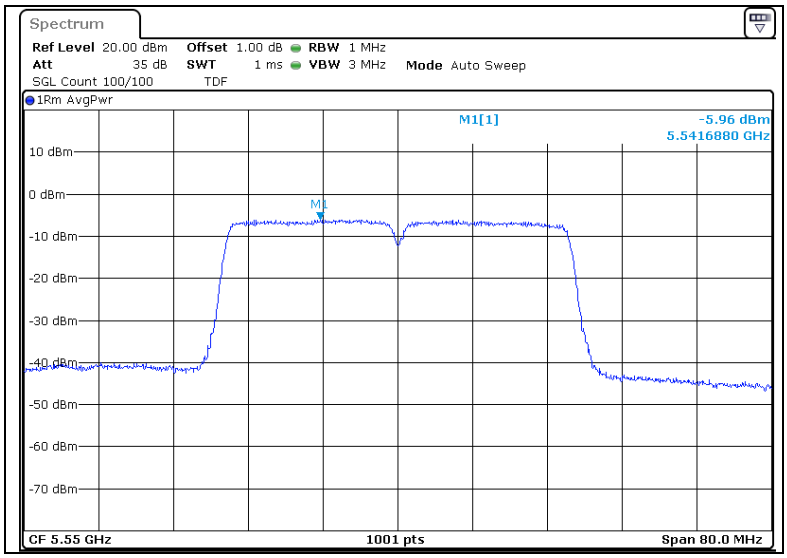


* 802.11n HT40_5 470 Band

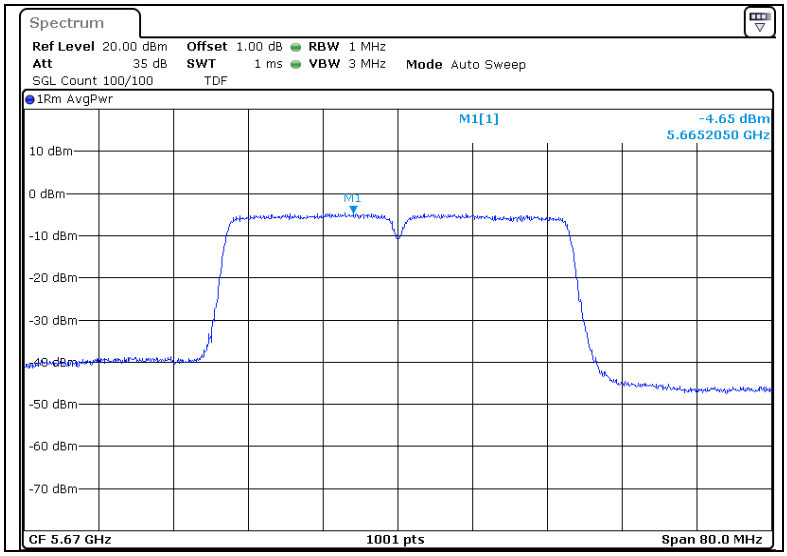
-5 510 ㎒



-5 550 ㎒

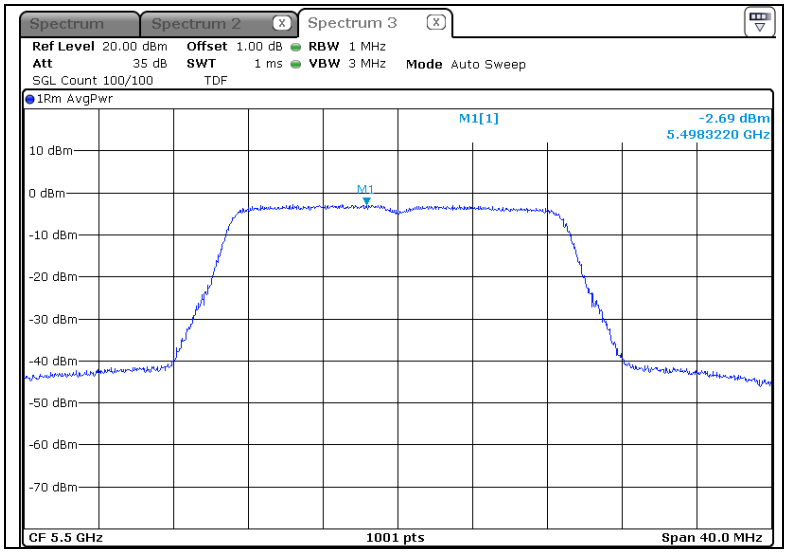


-5 670 ㎒

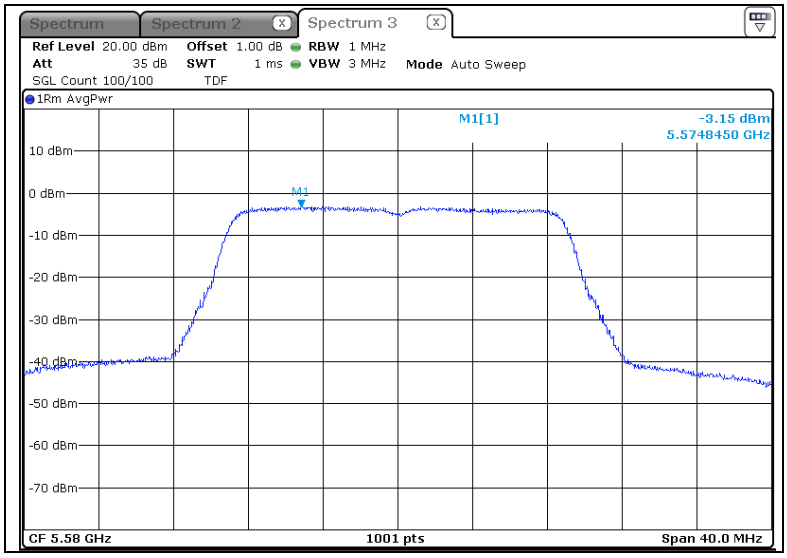


* 802.11ac VHT20_5 470 Band

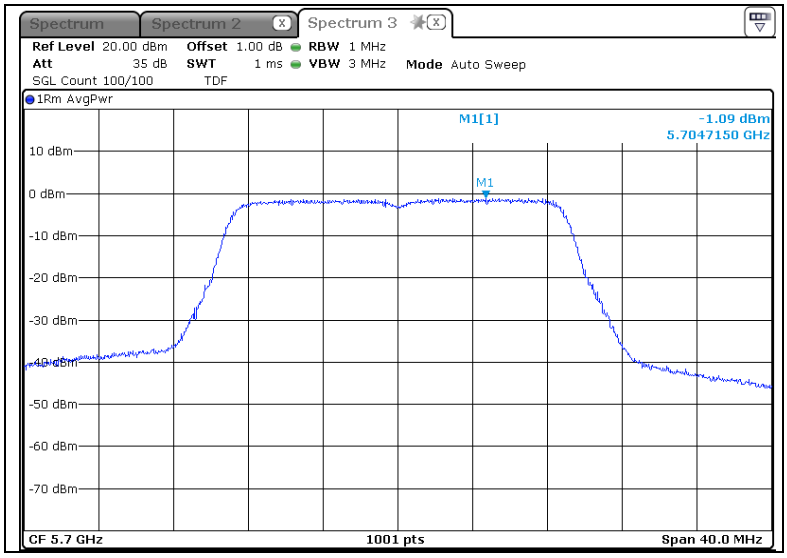
-5 500 ㎒



-5 580 ㎒

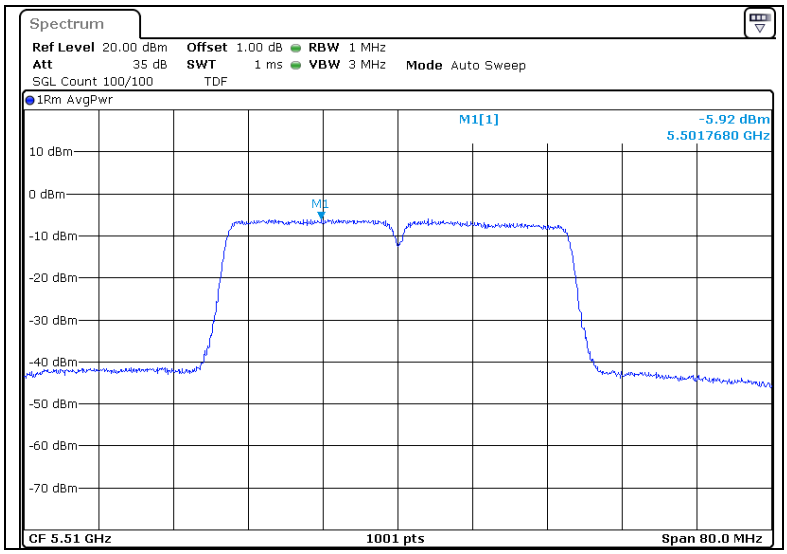


-5 700 ㎒

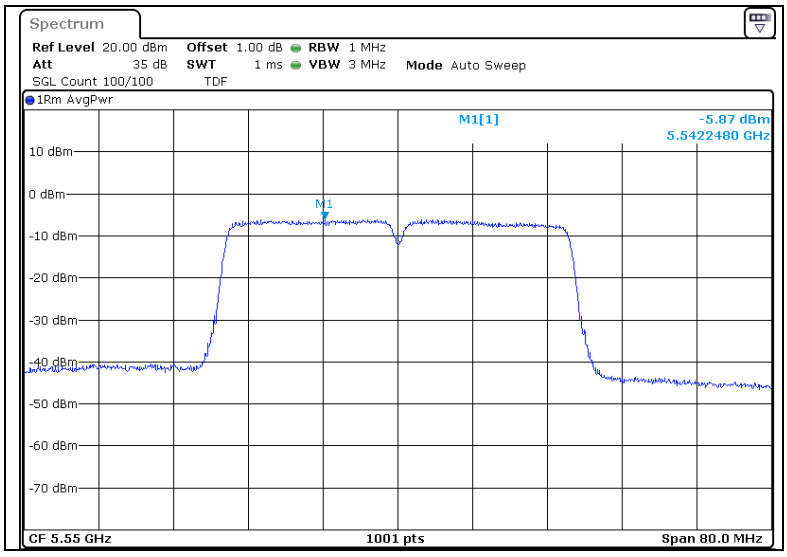


* 802.11ac VHT40_5 470 Band

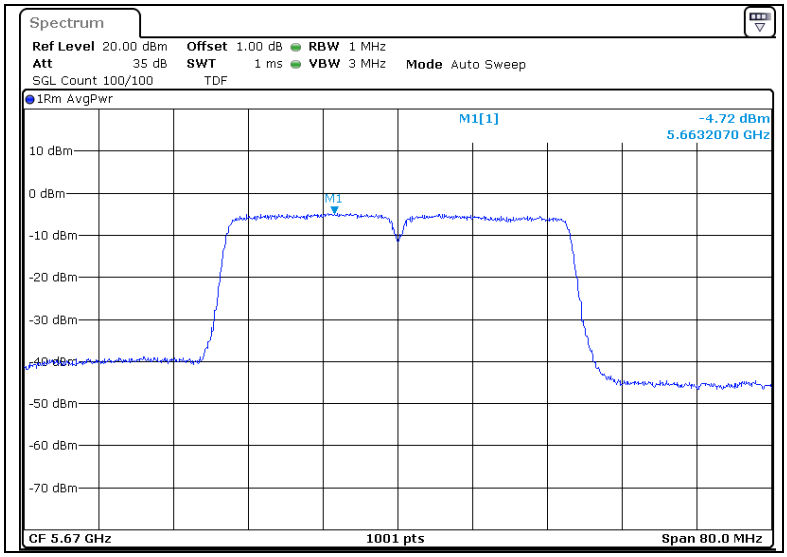
-5 510 ㎒



-5 550 ㎒

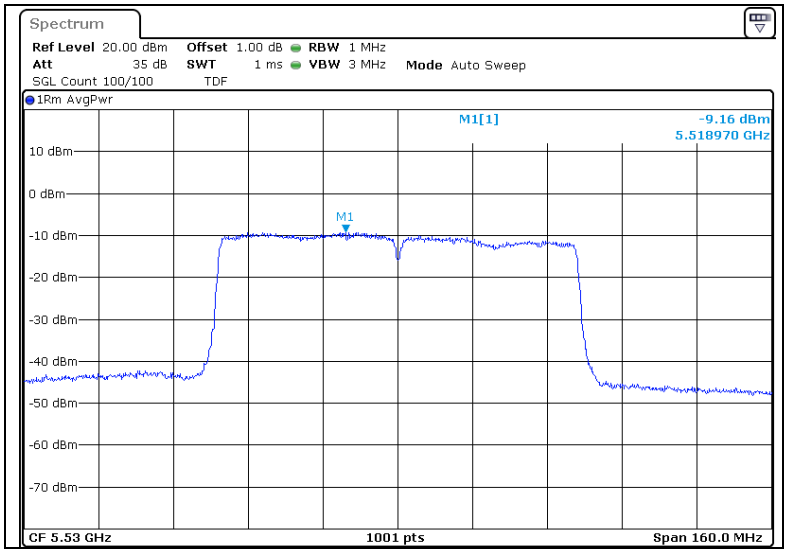


-5 670 ㎒



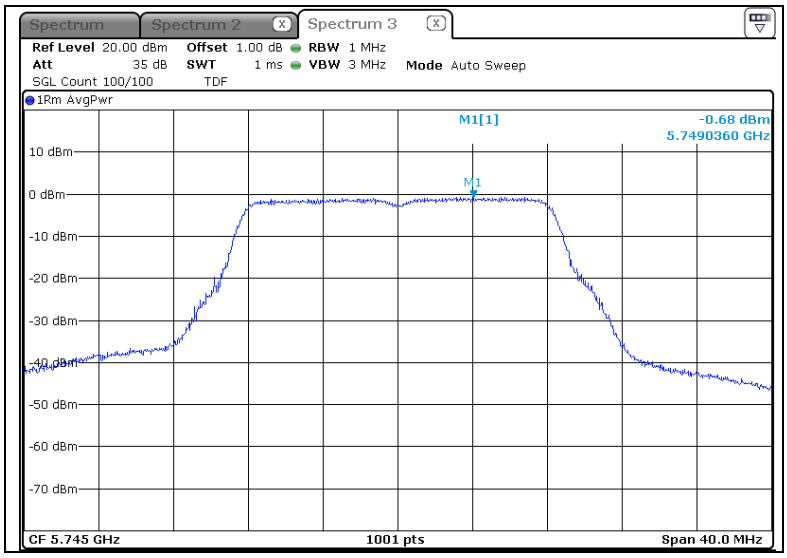
* 802.11ac VHT80_5 470 Band

-5 530 ㎒

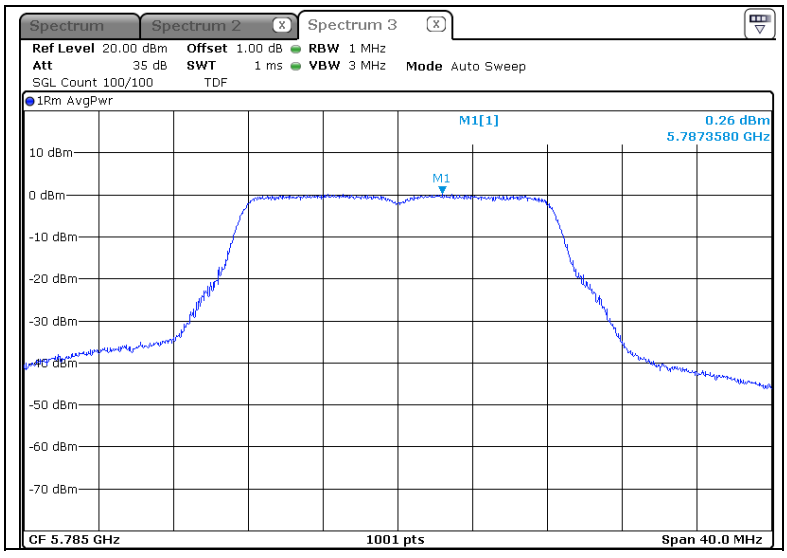


* 802.11a_5 725 Band

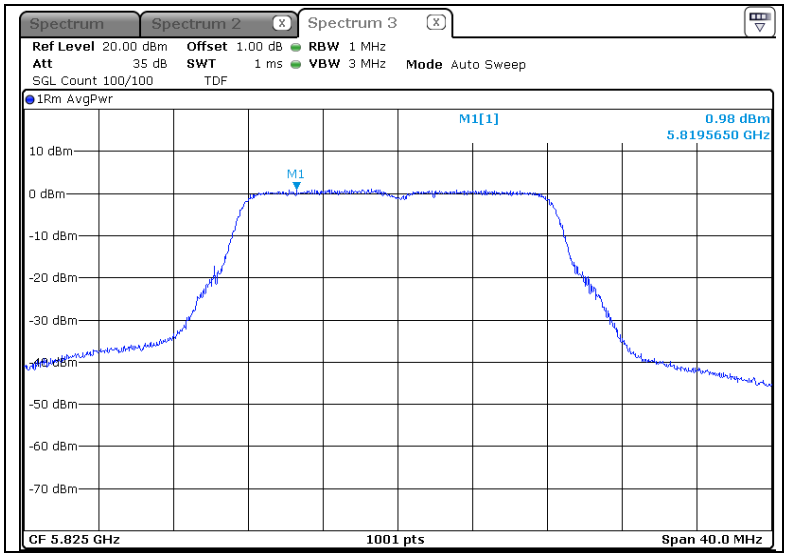
-5 745 ㎒



-5 785 ㎒

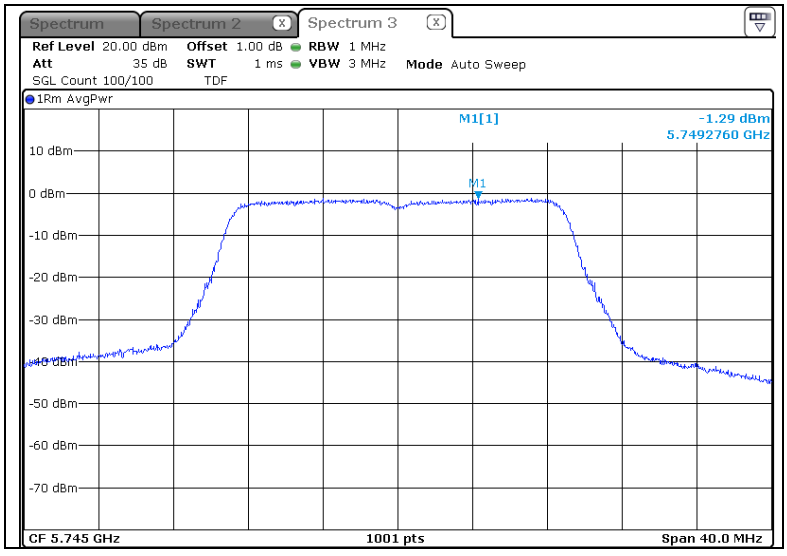


-5 825 ㎒

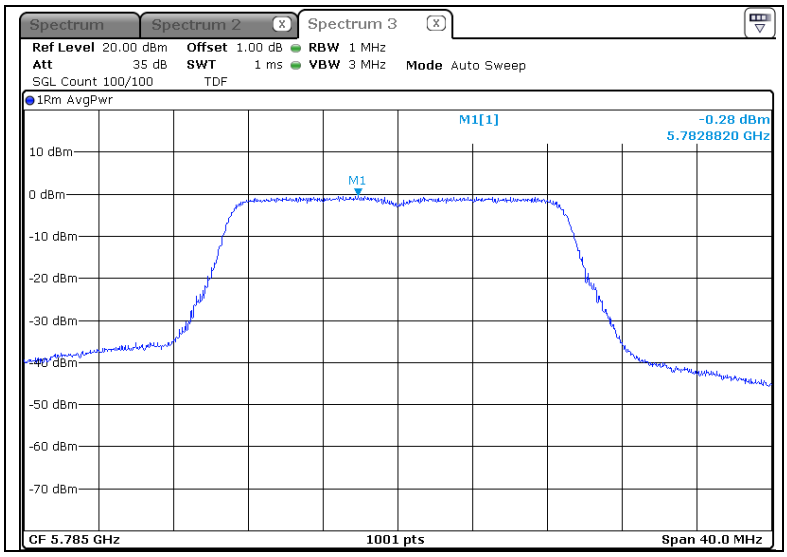


* 802.11n HT20_5 725 Band

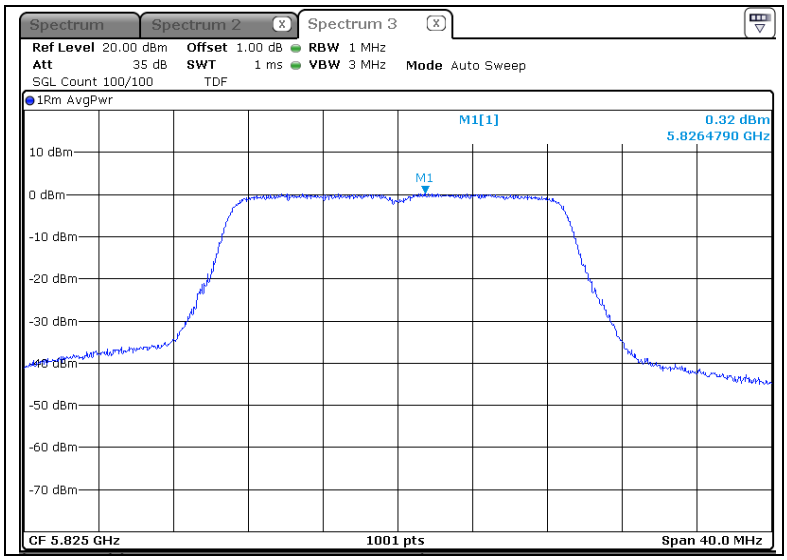
-5 745 ㎒



-5 785 ㎒

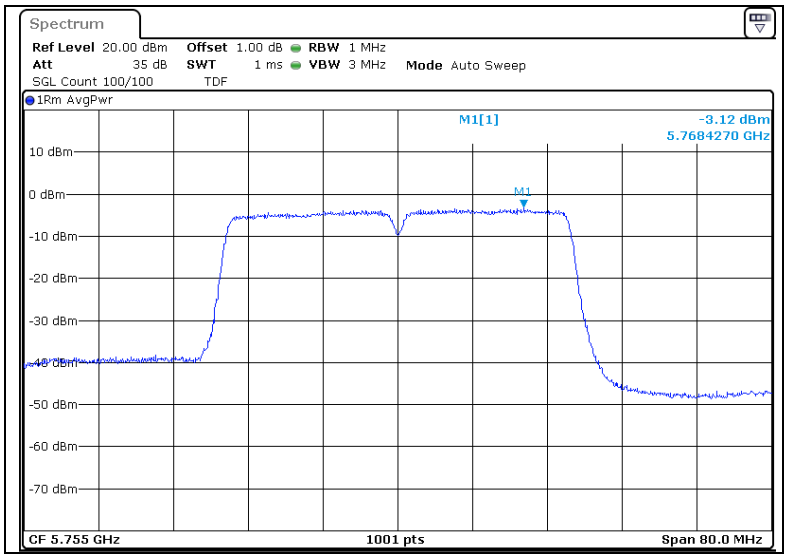


-5 825 ㎒

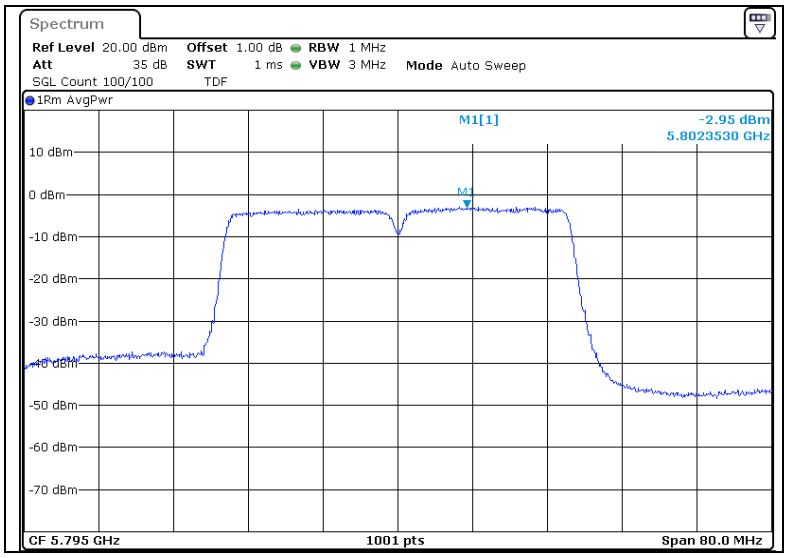


* 802.11n HT40_5 725 Band

-5 755 ㎒

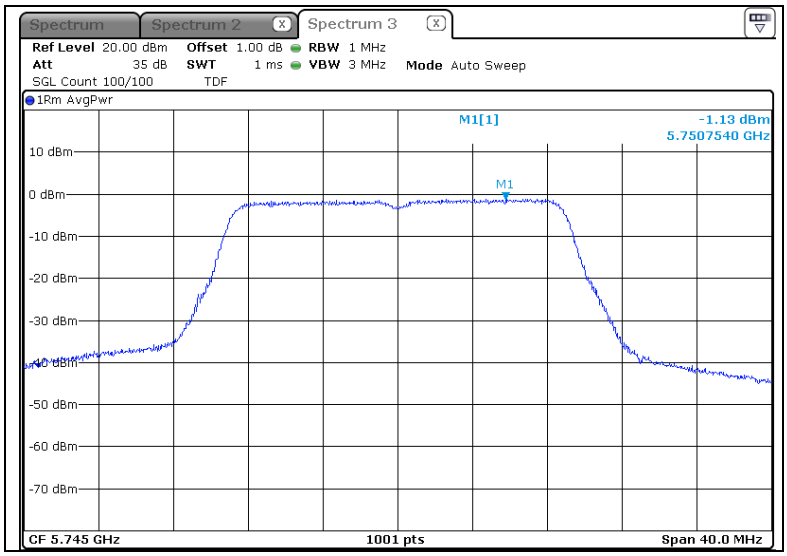


-5 795 ㎒

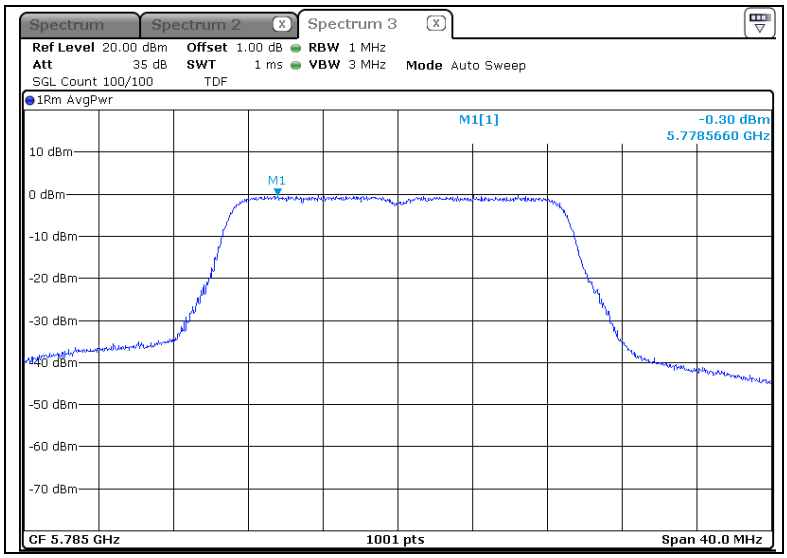


* 802.11ac VHT20_5 725 Band

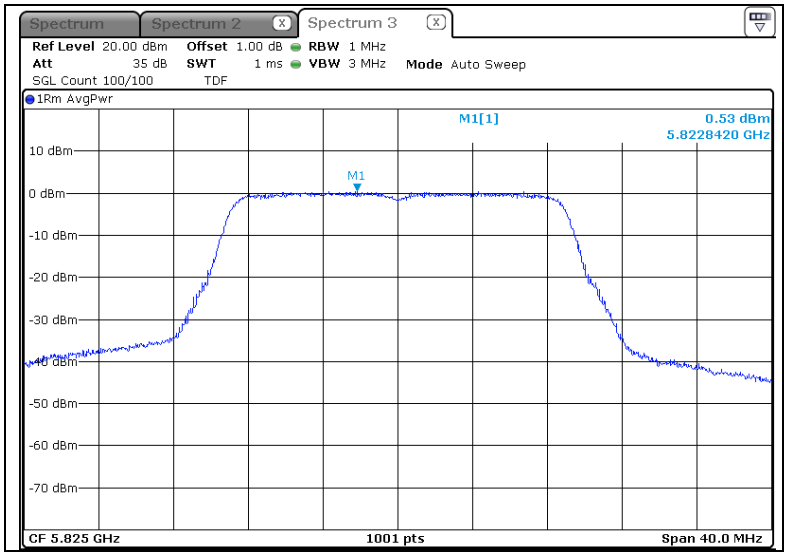
-5 745 ㎒



-5 785 ㎒

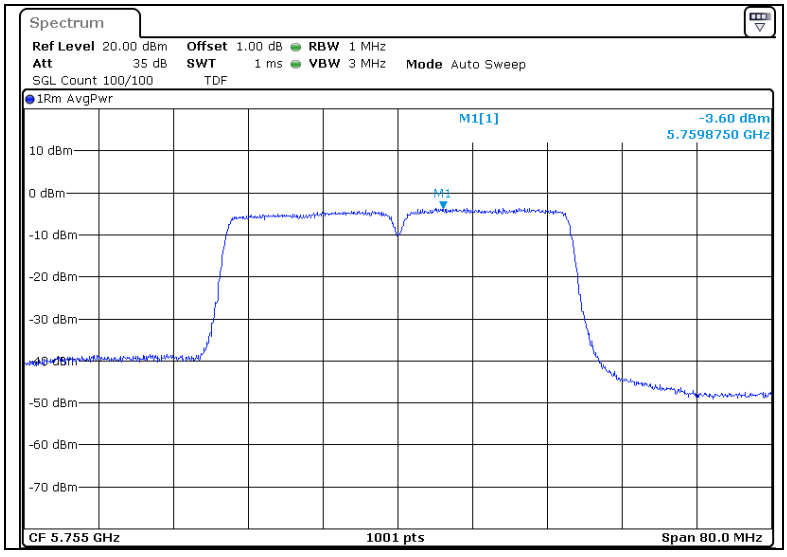


-5 825 ㎒

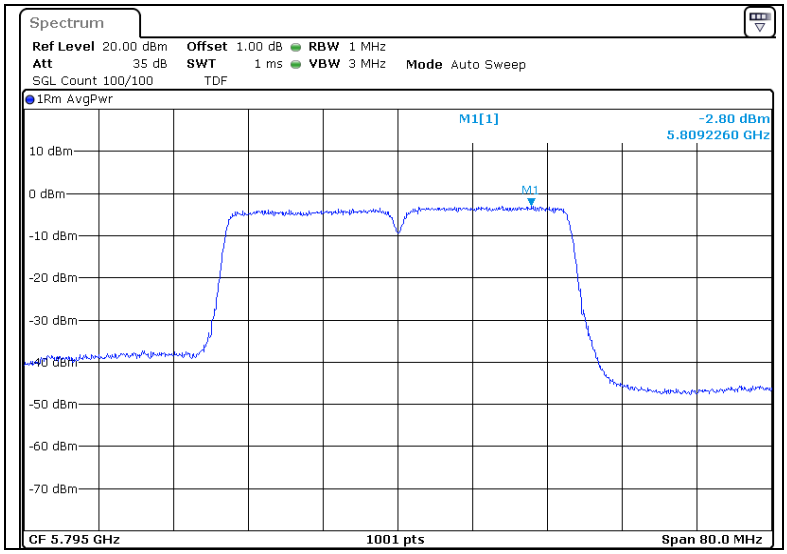


* 802.11ac VHT40_5 725 Band

-5 755 ㎒

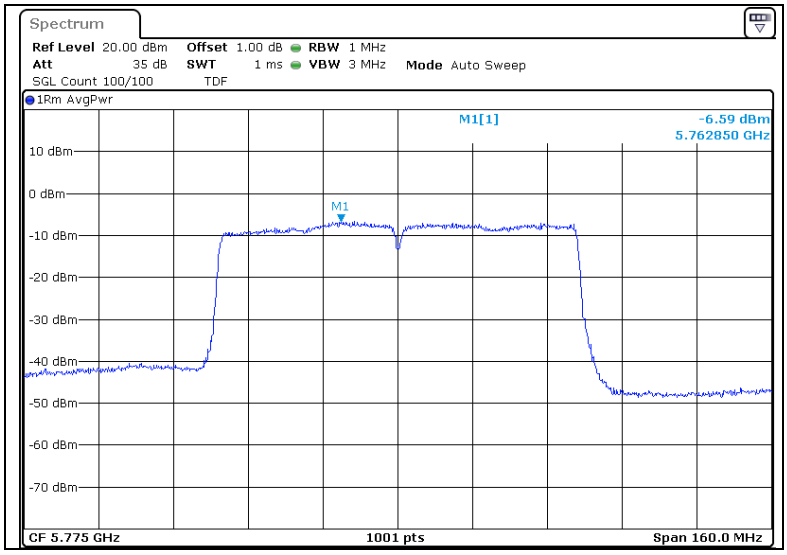


-5 795 ㎒



* 802.11ac VHT80_5 725 Band

-5 775 ㎒



5.6 Spurious Emission, Band Edge And Restricted Bands

5.6.1 Regulation

According to §15.407(b)(1) For transmitters operating in the 5.15–5.25 ㎓ band: all emissions outside of the 5.15–5.35 ㎓ band shall not exceed an EIRP of -27 dBm/㎒.

According to §15.407(b) (2) For transmitters operating in the 5.25-5.35 ㎓band: All emissions outside of the 5.15-5.35 ㎓band shall not exceed an e.i.r.p. of −27 dBm/㎒.

According to §15.407(b) For transmitters operating in the 5.47-5.725 ㎓band: All emissions outside of the 5.47-5.725 ㎓band shall not exceed an e.i.r.p. of −27 dBm/㎒.

According to §15.407(b) (4) For transmitters operating in the 5.725-5.85 ㎓ band: All emissions within the frequency range from the band edge to 10 ㎒ above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/㎒; for frequencies 10 ㎒ or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/㎒.

According to §15.407(b)(6) Unwanted emissions below 1 ㎓ must comply with the general field strength limits set forth in §15.209.

According to §15.209(a), Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall notexceed the field strength levels specified in the following table:

Frequency (㎒)	Field strength (μV/m)	Measurement distance (m)
0.009 - 0.490	2 400/F(㎑)	300
0.490 -1.705	24 000/F(㎑)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

** The emission limits shown in the above table are based on measurement instrumentation employing a CISPR quasi-peak detector and above 1000 ㎒ are based on the average value of measured emissions.

According to §15.407(b)(7) The provisions of §15.205 apply to intentional radiators operating under this section.
(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.

According to § 15.205(a) and (b), only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.009 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.694 75 - 16.695 25	608 - 614	5.35 - 5.46
2.173 5 - 2.190 5	16.804 25 - 16.804 75	960 – 1 240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1 300 – 1 427	8.025 - 8.5
4.177 25 - 4.177 75	37.5 - 38.25	1 435 – 1 626.5	9.0 - 9.2
4.207 25 - 4.207 75	73 - 74.6	1 645.5 – 1 646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1 660 – 1 710	10.6 - 12.7
6.267 75 - 6.268 25	108 - 121.94	1 718.8 – 1 722.2	13.25 - 13.4
6.311 75 - 6.312 25	123 - 138	2 200 – 2 300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2 310 – 2 390	15.35 - 16.2
8.362 - 8.366	156.524 75 - 156.525 25	2 483.5 – 2 500	17.7 - 21.4
8.376 25 - 8.386 75	156.7 - 156.9	2 690 – 2 900	22.01 - 23.12
8.414 25 - 8.414 75	162.012 5 - 167.17	3 260 – 3 267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3 332 – 3 339	31.2 - 31.8
12.519 75 - 12.520 25	240 - 285	3 345.8 – 3 358	36.43 - 36.5
12.576 75 - 12.577 25	322 - 335.4	3 600 – 4 400	Above 38.6
13.36 - 13.41			

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1 000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1 000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

5.6.2 Measurement Procedure

These test measurement settings are specified in section G of 789033 D02 General UNII Test Procedures New Rules v01.
For all radiated emissions tests, measurements must correspond to the direction of maximum emission level for each measured emission (see ANSI C63.10 for guidance).

5.6.2.1 Unwanted Emissions in the Restricted Bands & Outside of the Restricted Bands

(1) For all measurements, follow the requirements in section II.G.3.,
"General Requirements for Unwanted Emissions Measurements".
(2) At frequencies below 1000 ㎒, use the procedure described in section II.G.4.,
"Procedure for Unwanted Emissions Measurements Below 1000 ㎒".
(3) At frequencies above 1000 ㎒, measurements performed using the peak and average measurement procedures described in sections II.G.5. and II.G.6, respectively, must satisfy the respective peak and average limits. If all peak measurements satisfy the average limit, then average measurements are not required.

(4) Unwanted Emissions that fall Outside of the Restricted Bands
As specified in § 15.407(b), emissions above 1000 ㎒ that are outside of the restricted bands are subject to a maximum emission limit of -27 dBm/㎒ (or -17 dBm/㎒ as specified in § 15.407(b)(4)).
However, an out-of-band emission that complies with both the peak and average limits of § 15.209 is not required to satisfy the -27 dBm/㎒ or -17 dBm/㎒ maximum emission limit.

a) If radiated measurements are performed, field strength is then converted to EIRP as follows:
(i) EIRP = ((E*d)^2) / 30
where: • E is the field strength in V/m; • d is the measurement distance in meters;
• EIRP is the equivalent isotropically radiated power in watts.
(ii) Working in dB units, the above equation is equivalent to:
EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
(iii) Or, if d is 3 meters:
EIRP[dBm] = E[dBμV/m] - 95.2

5.6.2.2 Spurious Radiated Emissions:

1. The preliminary and final rdiated measurements were performed to determine the frequency producing the maximum emissions in at a 10m anechoic chamber. The EUT was tested at a distance 3 meters.
2. The EUT was placed on the top of the 0.8-meter height, 1 × 1.5 meter non-metallic table. To find the maximum emission levels, the height of a measuring antenna was changed and the turntable was rotated 360˚.
3. The antenna polarization was also changed from vertical to horizontal. The spectrum was scanned from 9 ㎑ to 30 ㎒ using the loop antenna, and from 30 to 1000 ㎒ using the TRILOG broadband antenna, and from 1 000 ㎒ to 40 000 ㎒ using the horn antenna.
4. Each frequency found during preliminary measurements was re-examined and investigated. The test-receiver system was set up to average, peak, and quasi-peak detector function with specified bandwidth.

Note

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 ㎑ for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1 ㎓.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 ㎒ for Peak detection and frequency above 1 ㎓.
   The resolution bandwidth of test receiver/spectrum analyzer is 1 ㎒ and the video bandwidth is 1 ㎑(≥1/T) for Average detection (AV) at frequency above 1 ㎓. (where T = pulse width)

5.6.3 Test Result

-complied

1. Band-edge & Conducted Spurious Emissions was shown in figure 3.
   Note: We took the insertion loss of the cable into consideration within the measuring instrument.
2. Measured value of the Field strength of spurious Emissions (Radiated)
3. It tested x,y and z – 3 axis each, mentioned only worst case data at this report.

*** Below 1 ㎓ data (Worst-case: 5 250 Band)**

802.11a_5 250 Band_Lowest Channel

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(㎶)]	Factor [dB]	Result [dB(㎶/m)]	Limit [dB(㎶/m)]	Margin [dB]
Quasi-Peak DATA. Emissions below 30 ㎒ (3m Distance)							
below 30.00	**Not Detected**	-	-	-	-	-	-
Quasi-Peak DATA. Emissions below 1 ㎓							
46.17	120	V	40.60	-16.50	24.10	40.00	15.90
199.95	120	H	39.70	-17.80	21.90	43.50	21.60
360.01	120	H	41.70	-13.30	28.40	46.00	17.60
459.02	120	H	39.90	-11.10	28.80	46.00	17.20
647.99	120	H	35.50	-7.20	28.30	46.00	17.70
Above 600.00	**Not Detected**	-	-	-	-	-	-

*** Above 1 ㎓ data_5150 Band**

802.11a (5 180 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(㎶)]	Factor [dB]	Result [dB(㎶/m)]	Limit [dB(㎶/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
*5147.69	1 000	V	46.50	5.50	52.00	74.00	22.00
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
*5147.69	1 000	V	34.10	5.50	39.60	54.00	14.40
Above 6 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

802.11a (5 200 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(㎶)]	Factor [dB]	Result [dB(㎶/m)]	Limit [dB(㎶/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-

802.11a (5 240 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(㎶)]	Factor [dB]	Result [dB(㎶/m)]	Limit [dB(㎶/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-

802.11n HT20 (5 180 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1738.38	1 000	H	51.30	2.00	53.30	74.00	20.70
* 5147.69	1 000	V	44.50	12.60	57.10	74.00	16.90
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1738.75	1 000	H	39.70	2.00	41.70	54.00	12.30
* 5147.69	1 000	V	31.60	12.60	44.20	54.00	9.80
Above 6 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

802.11n HT20 (5 200 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-

802.11n HT20 (5 240 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1 034.38	1 000	V	59.00	-2.30	56.70	74.00	17.30
Above 2 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1034.38	1 000	V	47.70	-2.30	45.40	54.00	8.60
Above 2 000.00	Not Detected	-	-	-	-	-	-

802.11n HT40 (5 190 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
* 5146.31	1 000	V	43.50	12.60	56.10	74.00	17.90
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
* 5146.87	1 000	V	31.80	12.60	44.40	54.00	9.60
Above 6 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

802.11n HT40 (5 230 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1025.44	1 000	V	55.10	-2.30	52.80	74.00	21.20
Above 2 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1026.70	1 000	V	44.40	-2.30	42.10	54.00	11.90
Above 2 000.00	Not Detected	-	-	-	-	-	-

802.11ac VHT20 (5 180 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
* 5149.53	1 000	V	42.80	5.50	48.30	74.00	25.70
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
* 5149.53	1 000	V	38.40	5.50	43.90	54.00	10.10
Above 6 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

802.11ac VHT20 (5 200 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-

802.11ac VHT20 (5 240 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-

802.11ac VHT40 (5 190 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
* 5140.81	1 000	V	41.60	12.60	54.20	74.00	19.80
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
* 5141.14	1 000	V	31.40	12.60	44.00	54.00	10.00
Above 6 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

802.11ac VHT40 (5 230 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1024.06	1 000	V	57.30	-2.30	55.00	74.00	19.00
Above 2 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1024.78	1 000	V	45.10	-2.30	42.80	54.00	11.20
Above 2 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

802.11ac VHT80 (5 210 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1011.00	1 000	V	53.70	-2.40	51.30	74.00	22.70
* 5147.69	1 000	V	52.30	12.60	64.90	74.00	9.10
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1009.85	1 000	V	41.50	-2.40	39.10	54.00	14.90
* 5149.79	1 000	V	38.20	12.60	50.80	54.00	3.20
Above 6 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

*** Above 1 ㎓ data_ 5250 Band**

802.11a (5 260 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(㎶)]	Factor [dB]	Result [dB(㎶/m)]	Limit [dB(㎶/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-

802.11a (5 300 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(㎶)]	Factor [dB]	Result [dB(㎶/m)]	Limit [dB(㎶/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-

802.11a (5 320 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(㎶)]	Factor [dB]	Result [dB(㎶/m)]	Limit [dB(㎶/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
* 5352.56	1 000	V	46.00	5.80	51.80	74.00	22.20
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
* 5352.56	1 000	V	38.30	5.80	44.10	54.00	9.90
Above 6 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

802.11n HT20 (5 260 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1050.88	1 000	V	60.70	-2.20	58.50	74.00	15.50
Above 2 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1050.88	1 000	V	48.40	-2.20	46.20	54.00	7.80
Above 2 000.00	Not Detected	-	-	-	-	-	-

802.11n HT20 (5 300 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1092.81	1 000	V	58.20	-2.00	56.20	74.00	17.80
1737.00	1 000	V	51.30	2.00	53.30	74.00	20.70
Above 5 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1092.81	1 000	V	47.40	-2.00	45.40	54.00	8.60
1737.00	1 000	V	28.50	2.00	30.50	54.00	23.50
Above 5 000.00	Not Detected	-	-	-	-	-	-

802.11n HT20 (5 320 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1114.13	1 000	V	57.10	-1.90	55.20	74.00	18.80
* 5351.19	1 000	V	45.40	13.00	58.40	74.00	15.60
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1114.13	1 000	V	46.00	-1.90	44.10	54.00	9.90
* 5351.12	1 000	V	32.40	13.00	45.40	54.00	8.60
Above 6 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

802.11n HT40 (5 270 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1063.25	1 000	V	58.20	-2.10	56.10	74.00	17.90
Above 2 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1063.37	1 000	V	45.90	-2.10	43.80	54.00	10.20
Above 2 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

802.11n HT40 (5 310 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1097.63	1 000	V	54.60	-2.00	52.60	74.00	21.40
* 5357.38	1 000	V	57.10	13.10	70.20	74.00	3.80
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1103.10	1 000	V	44.10	-1.90	42.20	54.00	11.80
* 5356.90	1 000	V	37.70	13.10	50.80	54.00	3.20
Above 6 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

802.11ac VHT20 (5 260 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-

802.11ac VHT20 (5 300 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
-	Not Detected	-	-	-	-	-	-

802.11ac VHT20 (5 320 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
* 5352.56	1 000	V	46.00	5.80	51.80	74.00	22.20
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
* 5352.56	1 000	V	38.30	5.80	44.10	54.00	9.90
Above 6 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

802.11ac VHT40 (5 270 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1063.25	1 000	V	58.20	-2.10	56.10	74.00	17.90
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1063.37	1 000	V	45.90	-2.10	43.80	54.00	10.20
Above 6 000.00	Not Detected	-	-	-	-	-	-

802.11ac VHT40 (5 310 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1097.63	1 000	V	54.60	-2.00	52.60	74.00	21.40
* 5357.38	1 000	V	57.10	13.10	70.20	74.00	3.80
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1103.10	1 000	V	44.10	-1.90	42.20	54.00	11.80
* 5356.90	1 000	V	37.70	13.10	50.80	54.00	3.20
Above 6 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

802.11ac VHT80 (5 290 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1091.44	1 000	V	53.30	-2.00	51.30	74.00	22.70
* 5358.06	1 000	V	55.80	13.10	68.90	74.00	5.10
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1091.18	1 000	V	41.10	-2.00	39.10	54.00	14.90
* 5357.16	1 000	V	37.60	13.10	50.70	54.00	3.30
Above 6 000.00	Not Detected	-	-	-	-	-	-

* This Asterisk means restricted band.

*** Above 1 ㎓ data_5470 Band**

802.11a (5 500 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(㎶)]	Factor [dB]	Result [dB(㎶/m)]	Limit [dB(㎶/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1748.69	1 000	V	48.80	2.10	50.90	74.00	23.10
# 5466.00	1 000	V	38.50	13.40	51.90	74.00	22.10
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1748.69	1 000	V	41.90	2.10	44.00	54.00	10.00
# 5466.00	1 000	V	28.20	13.40	41.60	54.00	12.40
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11a (5 580 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(㎶)]	Factor [dB]	Result [dB(㎶/m)]	Limit [dB(㎶/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1375.38	1 000	V	54.30	-0.80	53.50	74.00	20.50
3720.44	1 000	V	43.20	8.70	51.90	74.00	22.10
Above 4 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1375.37	1 000	V	42.30	-0.80	41.50	54.00	12.50
3719.97	1 000	V	40.90	8.70	49.60	54.00	4.40
Above 4 000.00	Not Detected	-	-	-	-	-	-

802.11a (5 700 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(㎶)]	Factor [dB]	Result [dB(㎶/m)]	Limit [dB(㎶/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3800.19	1 000	V	45.80	8.90	54.70	74.00	19.30
5727.94	1 000	V	39.40	14.30	53.70	74.00	20.30
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3800.01	1 000	V	41.50	8.90	50.40	54.00	3.60
5727.94	1 000	V	28.20	14.30	42.50	54.00	11.50
Above 6 000.00	Not Detected	-	-	-	-	-	-

802.11n HT20 (5 500 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3666.81	1 000	V	42.20	8.60	50.80	74.00	23.20
# 5466.69	1 000	V	40.40	13.40	53.80	74.00	20.20
Above 5 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3666.81	1 000	V	38.60	8.60	47.20	54.00	6.80
# 5467.03	1 000	V	28.20	13.40	41.60	54.00	12.40
Above 5 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11n HT20 (5 580 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1374.00	1 000	V	53.20	-0.80	52.40	74.00	21.60
3720.44	1 000	V	42.60	8.70	51.30	74.00	22.70
Above 5 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1377.23	1 000	V	40.50	-0.70	39.80	54.00	14.20
3719.96	1 000	V	40.80	8.70	49.50	54.00	4.50
Above 5 000.00	Not Detected	-	-	-	-	-	-

802.11n HT20 (5 700 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3800.19	1 000	V	45.60	8.90	54.50	74.00	19.50
# 5732.06	1 000	V	39.30	14.30	53.60	74.00	20.40
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3799.92	1 000	V	25.60	8.90	34.50	54.00	19.50
# 5731.82	1 000	V	27.70	14.30	42.00	54.00	12.00
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11n HT40 (5 510 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3673.69	1 000	V	42.20	8.60	50.80	74.00	23.20
# 5468.75	1 000	V	54.20	13.40	67.60	74.00	6.40
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3673.28	1 000	V	38.80	8.60	47.40	54.00	6.60
# 5469.19	1 000	V	37.20	13.40	50.60	54.00	3.40
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11n HT40 (5 550 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
1348.56	1 000	V	50.20	-0.90	49.30	74.00	24.70
3700.50	1 000	V	42.70	8.70	51.40	74.00	22.60
bove 4 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
1348.12	1 000	V	37.90	-0.90	37.00	54.00	17.00
3700.02	1 000	V	40.20	8.70	48.90	54.00	5.10
Above 4 000.00	Not Detected	-	-	-	-	-	-

802.11n HT40 (5 670 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3780.25	1 000	V	46.30	8.90	55.20	74.00	18.80
# 5732.06	1 000	V	38.70	14.30	53.00	74.00	21.00
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3780.01	1 000	V	42.00	8.90	50.90	54.00	3.10
# 5731.94	1 000	V	27.10	14.30	41.40	54.00	12.60
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11ac VHT20 (5 500 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
# 5467.38	1 000	V	39.70	13.40	53.10	74.00	20.90
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
# 1294.94	1 000	V	28.30	13.40	41.70	54.00	12.30
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11ac VHT20 (5 580 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3720.44	1 000	V	43.30	8.70	52.00	74.00	22.00
Above 4 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3720.43	1 000	V	38.50	8.70	47.20	54.00	6.80
Above 4 000.00	Not Detected	-	-	-	-	-	-

802.11ac VHT20 (5 700 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3800.19	1 000	V	45.20	8.90	54.10	74.00	19.90
# 5725.19	1 000	V	39.20	14.30	53.50	74.00	20.50
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3800.18	1 000	V	41.40	8.90	50.30	54.00	3.70
# 5725.19	1 000	V	28.30	14.30	42.60	54.00	11.40
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11ac VHT40 (5 510 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3673.69	1 000	V	43.00	8.60	51.60	74.00	22.40
# 5465.31	1 000	V	57.70	13.40	71.10	74.00	2.90
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3673.39	1 000	V	38.50	8.60	47.10	54.00	6.90
# 5465.74	1 000	V	37.50	13.40	50.90	54.00	3.10
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11ac VHT40 (5 550 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3700.50	1 000	V	42.10	8.70	50.80	74.00	23.20
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3699.96	1 000	V	38.90	8.70	47.60	54.00	6.40
Above 6 000.00	Not Detected	-	-	-	-	-	-

802.11ac VHT40 (5 670 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3780.25	1 000	V	45.50	8.90	54.40	74.00	19.60
# 5734.13	1 000	V	38.50	14.30	52.80	74.00	21.20
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3780.01	1 000	V	41.90	8.90	50.80	54.00	3.20
# 5734.12	1 000	V	25.00	14.30	39.30	54.00	14.70
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11ac VHT80 (5 530 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3686.75	1 000	V	42.20	8.60	50.80	74.00	23.20
# 5468.75	1 000	V	54.10	13.40	67.50	74.00	6.50
# 5727.94	1 000	V	35.80	14.30	50.10	74.00	23.90
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3686.72	1 000	V	39.50	8.60	48.10	54.00	5.90
# 5468.57	1 000	V	37.40	13.40	50.80	54.00	3.20
# 5728.08	1 000	V	24.40	14.30	38.70	54.00	15.30
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

*** Above 1 ㎓ data_5725 Band**

802.11a (5 745 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(㎶)]	Factor [dB]	Result [dB(㎶/m)]	Limit [dB(㎶/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3830.44	1 000	V	46.60	9.00	55.60	74.00	18.40
# 5723.81	1 000	V	48.80	14.30	63.10	74.00	10.90
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3830.04	1 000	V	41.40	9.00	50.40	54.00	3.60
# 5723.82	1 000	V	35.90	14.30	50.20	54.00	3.80
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11a (5 785 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(㎶)]	Factor [dB]	Result [dB(㎶/m)]	Limit [dB(㎶/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3857.25	1 000	V	48.10	9.10	57.20	74.00	16.80
Above 4 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3856.72	1 000	V	41.40	9.10	50.50	54.00	3.50
Above 4 000.00	Not Detected	-	-	-	-	-	-

802.11a (5 825 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(㎶)]	Factor [dB]	Result [dB(㎶/m)]	Limit [dB(㎶/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3884.06	1 000	V	46.80	9.20	56.00	74.00	18.00
# 5854.44	1 000	V	40.20	14.80	55.00	74.00	19.00
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3883.31	1 000	V	41.70	9.20	50.90	54.00	3.10
# 5854.44	1 000	V	27.90	14.80	42.70	54.00	11.30
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11n HT20 (5 745 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3830.44	1 000	V	46.70	9.00	55.70	74.00	18.30
# 5724.50	1 000	V	53.30	14.30	67.60	74.00	6.40
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3829.98	1 000	V	41.80	9.00	50.80	54.00	3.20
# 5724.87	1 000	V	36.70	14.30	51.00	54.00	3.00
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11n HT20 (5 785 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3857.25	1 000	V	48.20	9.10	57.30	74.00	16.70
Above 4 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3856.67	1 000	V	41.80	9.10	50.90	54.00	3.10
Above 4 000.00	Not Detected	-	-	-	-	-	-

802.11n HT20 (5 825 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3884.06	1 000	V	46.90	9.20	56.10	74.00	17.90
# 5850.31	1 000	V	40.60	14.80	55.40	74.00	18.60
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3883.35	1 000	V	41.60	9.20	50.80	54.00	3.20
# 5850.32	1 000	V	29.80	14.80	44.60	54.00	9.40
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11n HT40 (5 755 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3836.63	1 000	V	46.20	9.00	55.20	74.00	18.80
# 5723.13	1 000	V	55.20	14.30	69.50	74.00	4.50
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3836.68	1 000	V	41.70	9.00	50.70	54.00	3.30
# 5723.84	1 000	V	36.30	14.30	50.60	54.00	3.40
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11n HT40 (5 795 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3864.13	1 000	V	47.80	9.10	56.90	74.00	17.10
# 5854.44	1 000	V	41.30	14.80	56.10	74.00	17.90
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3863.32	1 000	V	41.40	9.10	50.50	54.00	3.50
# 5854.30	1 000	V	29.90	14.80	44.70	54.00	9.30
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11ac VHT20 (5 745 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3830.44	1 000	V	46.60	9.00	55.60	74.00	18.40
# 5723.13	1 000	V	50.90	14.30	65.20	74.00	8.80
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3830.43	1 000	V	42.00	9.00	51.00	54.00	3.00
# 5723.12	1 000	V	36.60	14.30	50.90	54.00	3.10
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11ac VHT20 (5 785 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3857.25	1 000	V	47.70	9.10	56.80	74.00	17.20
Above 4 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3857.25	1 000	V	41.80	9.10	50.90	54.00	3.10
Above 4 000.00	Not Detected	-	-	-	-	-	-

802.11ac VHT20 (5 825 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3884.06	1 000	V	46.70	9.20	55.90	74.00	18.10
# 5852.38	1 000	V	40.30	14.80	55.10	74.00	18.90
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3884.06	1 000	V	38.90	9.20	48.10	54.00	5.90
# 5852.36	1 000	V	29.10	14.80	43.90	54.00	10.10
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11ac VHT40 (5 755 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3837.31	1 000	V	46.60	9.00	55.60	74.00	18.40
# 5716.94	1 000	V	55.10	14.30	69.40	74.00	4.60
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3836.67	1 000	V	41.80	9.00	50.80	54.00	3.20
# 5716.98	1 000	V	36.60	14.30	50.90	54.00	3.10
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11ac VHT40 (5 795 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3863.44	1 000	V	46.40	9.10	55.50	74.00	18.50
# 5853.06	1 000	V	40.30	14.80	55.10	74.00	18.90
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3863.22	1 000	V	41.60	9.10	50.70	54.00	3.30
# 5853.41	1 000	V	27.70	14.80	42.50	54.00	11.50
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

802.11ac VHT80 (5 775 ㎒)

Frequency [㎒]	Receiver Bandwidth [㎑]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
Peak DATA. Emissions above 1 ㎓							
3850.38	1 000	V	47.50	9.10	56.60	74.00	17.40
# 5722.44	1 000	V	53.70	14.30	68.00	74.00	6.00
# 5862.00	1 000	V	43.60	14.80	58.40	74.00	15.60
Above 6 000.00	Not Detected	-	-	-	-	-	-
Average DATA. Emissions above 1 ㎓							
3849.96	1 000	V	41.80	9.10	50.90	54.00	3.10
# 5722.37	1 000	V	36.50	14.30	50.80	54.00	3.20
# 5860.99	1 000	V	29.00	14.80	43.80	54.00	10.20
Above 6 000.00	Not Detected	-	-	-	-	-	-

This hash means Out of Band edge

5.7 Frequency Stability

5.7.1 Regulation

According to §15.407 (g) Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

5.7.2 Measurement Procedure

The frequency stability of the carrier frequency of the intentional radiator shall be maintained all conditions of normal operation as specified in the users manual. The frequency stability shall be maintained over a temperature variation of specified in the users manual at normal supply voltage, and over a variation in the primary supply voltage of specified in the users manual of the rated supply voltage at a temperature of 20 °C. For equipment that is capable only of operating from a battery, the frequency stability tests shall be performed using a new battery without any further requirement to vary supply voltage.

1. The EUT was placed inside the environmental test chamber.
2. The temperature was incremented by 10 °C intervals from lowest temperature.
3. Each increase step of temperature measured the frequency.
4. The test temperature was set 20°C and the supply voltage was then adjusted on the EUT from 85 % to 115% and the frequency record.

5.7.3 Test Result

-Complied

*802.11a/n_HT20/ac_VHT20_ 5 150 Band

Voltage (%)	Power (V)	Temp. (°C)	Reading Frequency (Hz)	Frequency Error (Hz)	Frequency Error (%)
100	14.4	-20	5210034325	34325	0.0007
		-10	5210036834	36834	0.0007
		0	5210030026	30026	0.0006
		10	5210018167	18167	0.0003
		20	5210003907	3907	0.0001
		30	5209992756	-7244	-0.0001
		40	5209989411	-10589	-0.0002
		50	5209996497	-3503	-0.0001
		60	5210019703	19703	0.0004
		70	5210059315	59315	0.0011
		Normal	5209989875	-10125	-0.0002
85	12.24	Normal	5209990034	-9966	-0.0002
115	16.56	Normal	5209989912	-10088	-0.0002

*802.11n_HT40/ac_VHT40_ 5 150 Band

Voltage (%)	Power (V)	Temp. (°C)	Reading Frequency (Hz)	Frequency Error (Hz)	Frequency Error (%)
100	14.4	-20	5290035154	35154	0.0007
		-10	5290037056	37056	0.0007
		0	5290029313	29313	0.0006
		10	5290017788	17788	0.0003
		20	5290005012	5012	0.0001
		30	5289993938	-6062	-0.0001
		40	5289989239	-10761	-0.0002
		50	5289995346	-4654	-0.0001
		60	5290018305	18305	0.0003
		70	5290063818	63818	0.0012
		Normal	5289989756	-10244	-0.0002
85	12.24	Normal	5289989642	-10358	-0.0002
115	16.56	Normal	5289989652	-10348	-0.0002

*802.11ac_VHT80 _ 5 150 Band

Voltage (%)	Power (V)	Temp. (°C)	Reading Frequency (㎐)	Frequency Error (㎐)	Frequency Error (%)
100	14.4	-20	5530036612	36612	0.0007
		-10	5530039529	39529	0.0007
		0	5530030608	30608	0.0006
		10	5530017491	17491	0.0003
		20	5530007057	7057	0.0001
		30	5529994565	-5435	-0.0001
		40	5529988772	-11228	-0.0002
		50	5529995936	-4064	-0.0001
		60	5530020190	20190	0.0004
		70	5530068155	68155	0.0012
		Normal	5529989321	-10679	-0.0002
85	16.56	Normal	5529989439	-10561	-0.0002
115	12.24	Normal	5529989259	-10741	-0.0002

5.8 DFS(Dynamic Frequency Selection)

5.8.1 Regulation

Transmit Power Control (TPC) and Dynamic Frequency Selection (DFS).

(1) Transmit power control (TPC). U-NII devices operating in the 5.25-5.35 ㎓ band and the 5.47-5.725 ㎓ band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 ㏈ below the mean EIRP value of 30 ㏈m. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 ㎽.

(2) Radar Detection Function of Dynamic Frequency Selection (DFS). U-NII devices operating with any part of its 26 dB emission bandwidth in the 5.25-5.35 ㎓ and 5.47-5.725 ㎓ bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems. Operators shall only use equipment with a DFS mechanism that is turned on when operating in these bands. The device must sense for radar signals at 100 percent of its emission bandwidth. The minimum DFS detection threshold for devices with a maximum e.i.r.p. of 200 ㎽ to 1 W is −64 ㏈m. For devices that operate with less than 200 ㎽ e.i.r.p. and a power spectral density of less than 10 ㏈m in a 1 MHz band, the minimum detection threshold is −62 ㏈m. The detection threshold is the received power averaged over 1 microsecond referenced to a 0 ㏈i antenna. For the initial channel setting, the manufacturers shall be permitted to provide for either random channel selection or manual channel selection.

(i) Operational Modes. The DFS requirement applies to the following operational modes:

(A) The requirement for channel availability check time applies in the master operational mode.

(B) The requirement for channel move time applies in both the master and slave operational modes.

(ii) Channel Availability Check Time. A U-NII device shall check if there is a radar system already operating on the channel before it can initiate a transmission on a channel and when it has to move to a new channel. The U-NII device may start using the channel if no radar signal with a power level greater than the interference threshold values listed in paragraph (h)(2) of this section, is detected within 60 seconds.

(iii) Channel Move Time. After a radar's presence is detected, all transmissions shall cease on the operating channel within 10 seconds. Transmissions during this period shall consist of normal traffic for a maximum of 200 ms after detection of the radar signal. In addition, intermittent management and control signals can be sent during the remaining time to facilitate vacating the operating channel.

(iv) Non-occupancy Period. A channel that has been flagged as containing a radar system, either by a channel availability check or in-service monitoring, is subject to a non-occupancy period of at least 30 minutes. The non-occupancy period starts at the time when the radar system is detected.

(i) Device Security. All U-NII devices must contain security features to protect against modification of software by unauthorized parties.

5.8.2 Measurement Procedure

The following table from FCC 06-96 lists the applicable requirements for the DFS testing.
The device evaluated in this report is considered a client device without radar detection capability.

5.8.3 Test Result

The UUT is a U-NII Device operating in Client mode without radar detection. The radar test signals are injected into the Master Device.

The highest power level within these bands in 9.54 dBm (8.99 ㎽) EIRP in the 5 250 ~ 5 350 ㎒ band and 9.51 dBm (8.93 ㎽) EIRP in the 5 470 ~ 5 650 ㎒ band.

The gain antenna assembly utilized with the master has a gain of 5.78 dBi.

The calibrated conducted DFS detection threshold level is set to 60.14dBm.((-64 + 1 + 5.78) = -57.22)

Channel Move Time

Frequency (㎒)	Channel Move Time (s)	Limit (s)
5 260	4.085	10
5 500	4.104	10
5 270	4.045	10
5 510	3.998	10
5 290	4.023	10
5 530	4.028	10

Channel Closing Time

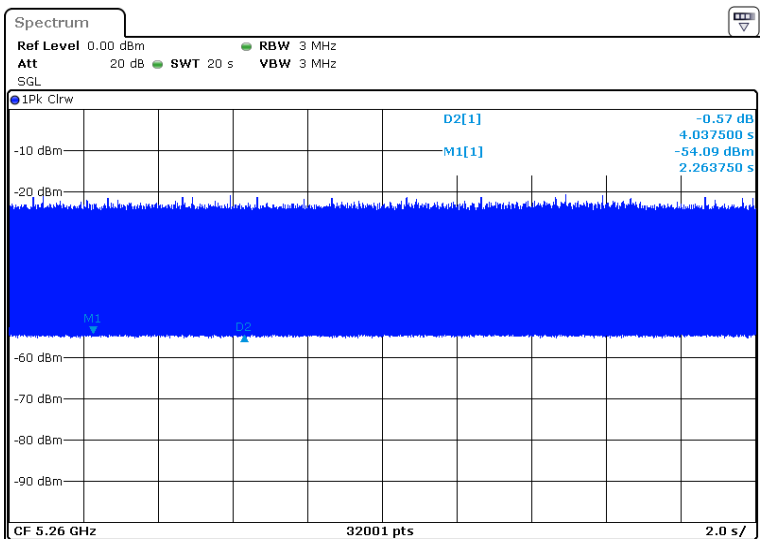
Frequency (㎒)	1 Signal	The Number	Channel Closing Time (㎳)	Limit (㎳)
5 260	0.076	33	2.508	60
5 500	0.075	34	2.550	60
5 270	0.072	37	2.664	60
5 510	0.071	38	2.698	60
5 290	0.075	37	2.775	60
5 530	0.075	36	2.700	60

Note. Channel Move Time = 1Signal x The Number

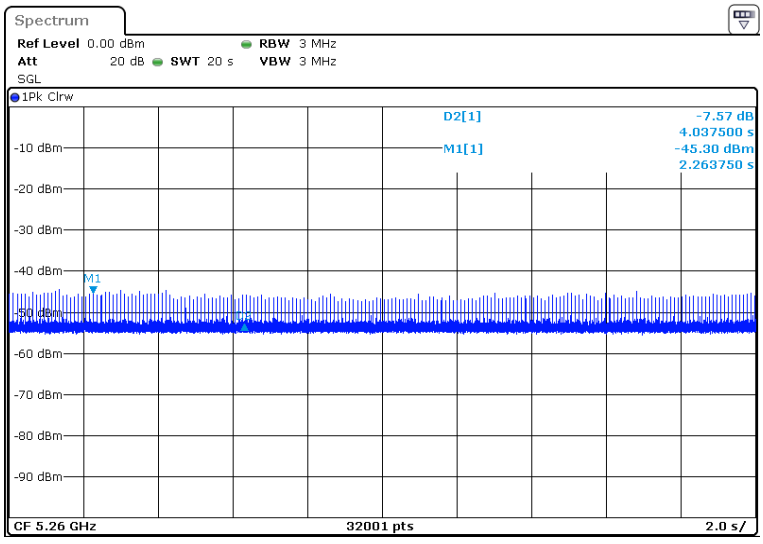
5.8.4 Test Plot

Figure 3. Plot of the DFS

No traffic signal(master signal)



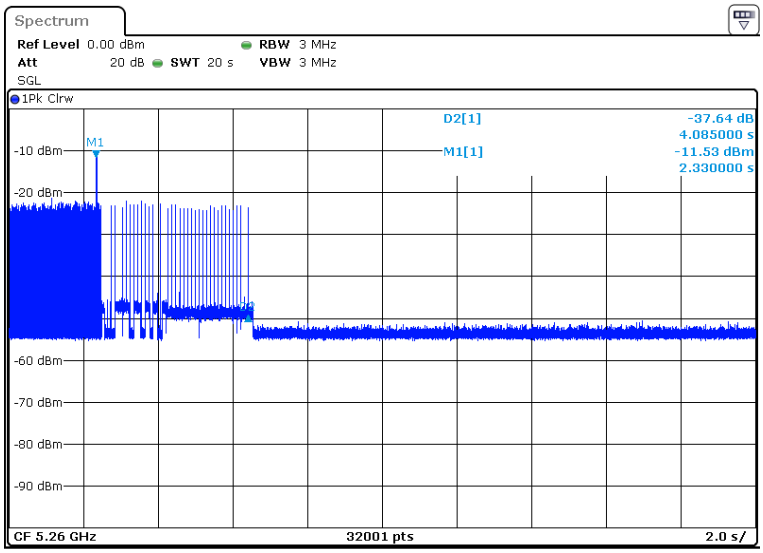
Client(EUT) Data Traffic Signal



Channel closing time and move time

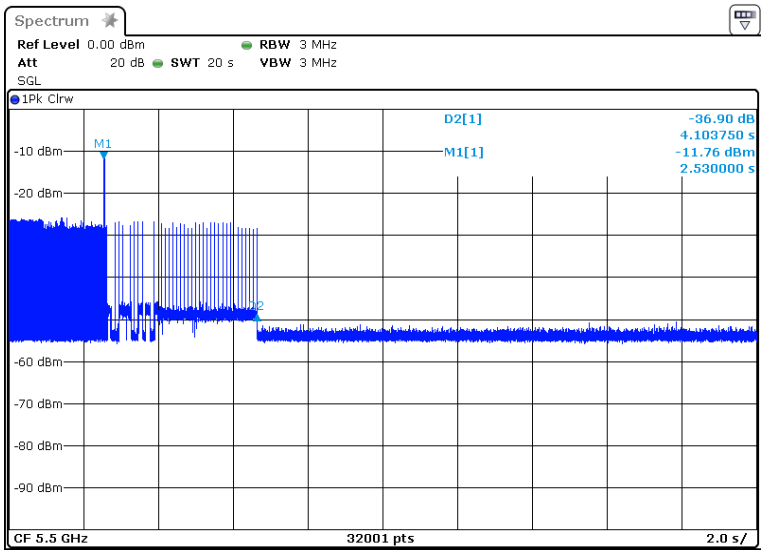
* 20 ㎒ BW

- 5 260 ㎒



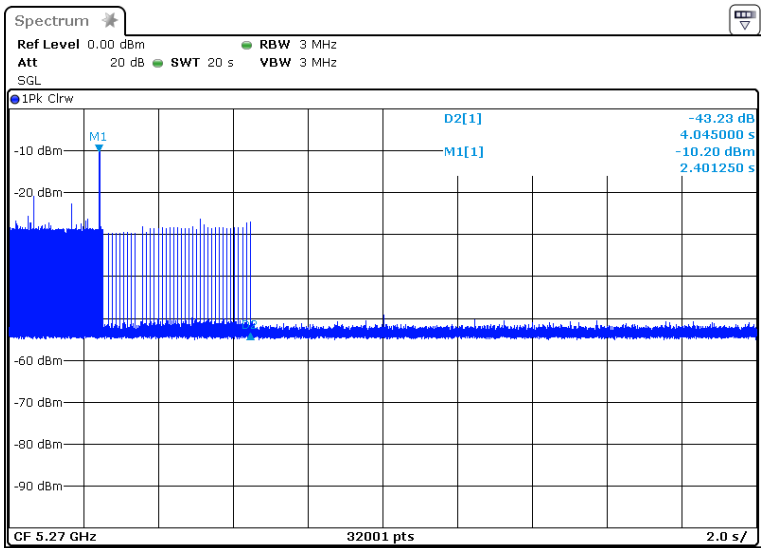
* 20 ㎒ BW

- 5 500 ㎒



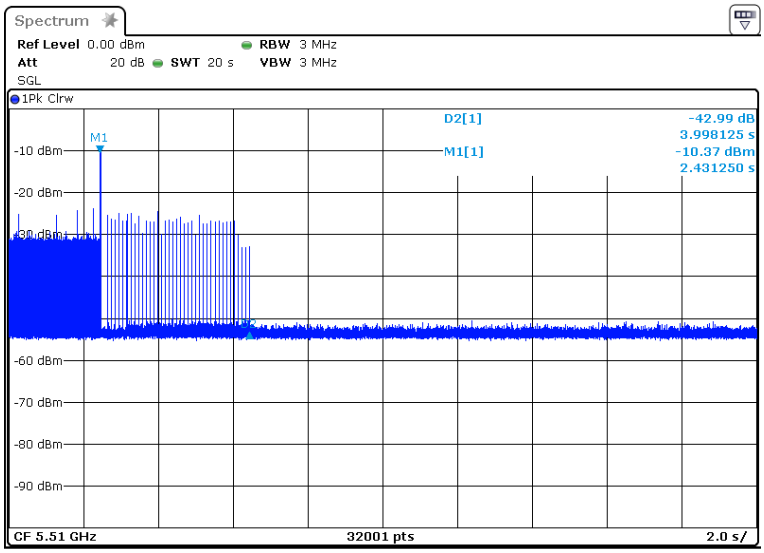
* 40 ㎒ BW

- 5 270 ㎒



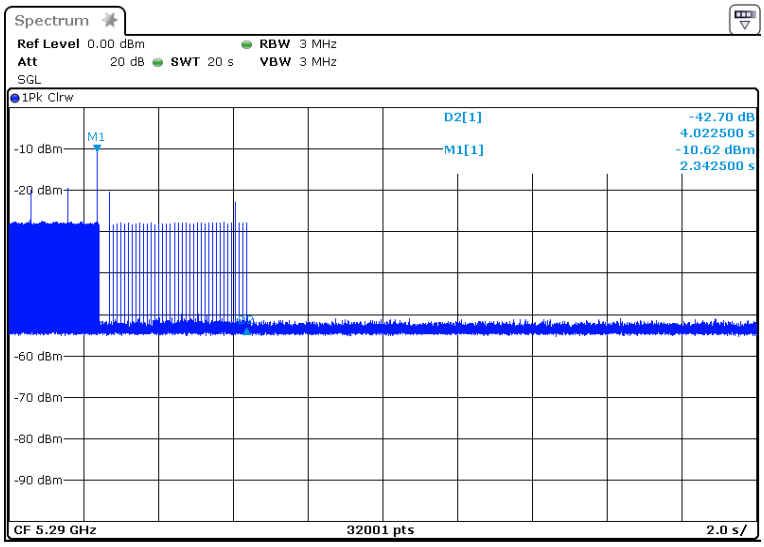
* 40 ㎒ BW

- 5 510 ㎒



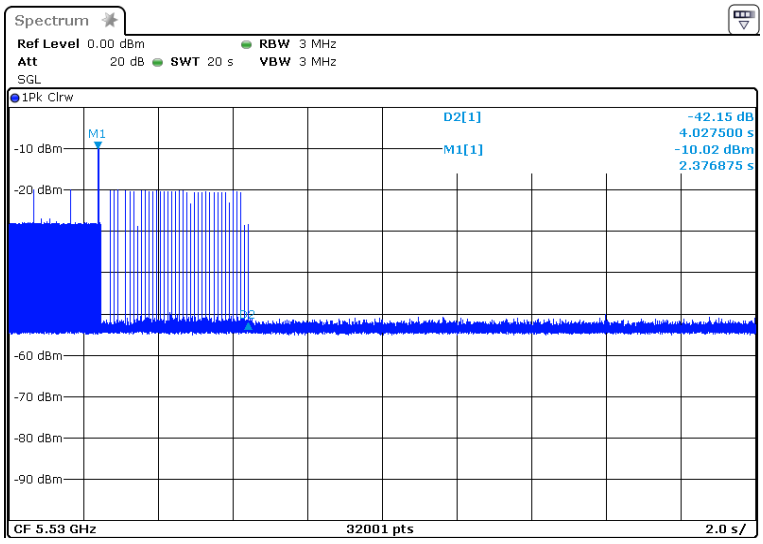
* 80 ㎒ BW

- 5 290 ㎒



* 80 ㎒ BW

- 5 530 ㎒



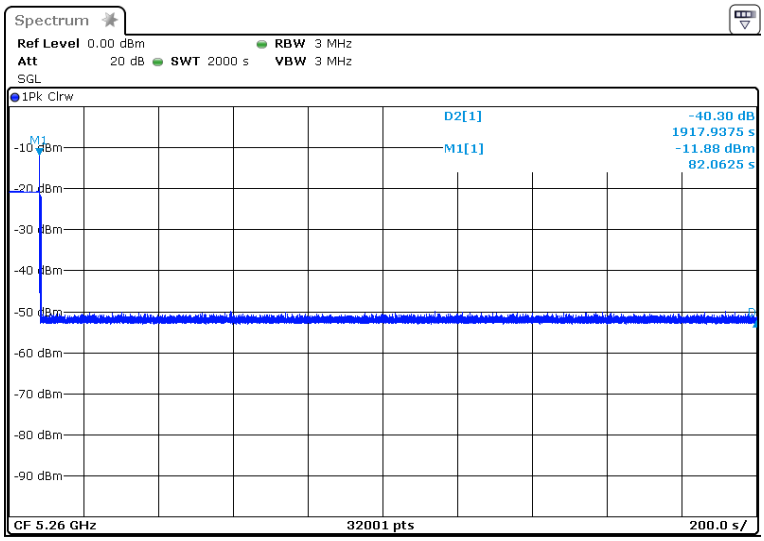
Non-Occupancy Period

Frequency (㎒)	Non-Occupancy Period (min)	Limit (min)
5 260	Over 30	> 30
5 500	Over 30	> 30
5 270	Over 30	> 30
5 510	Over 30	> 30
5 290	Over 30	> 30
5 530	Over 30	> 30

Non-Occupancy Period

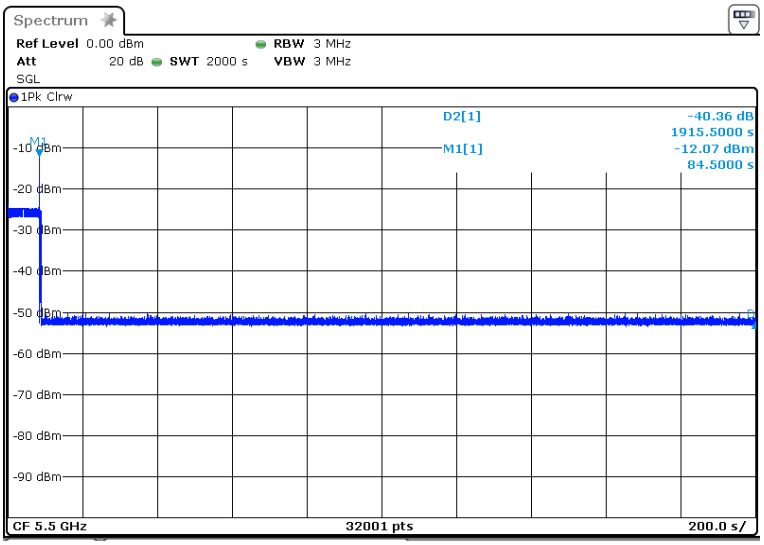
* 20 ㎒ BW

- 5 260 ㎒



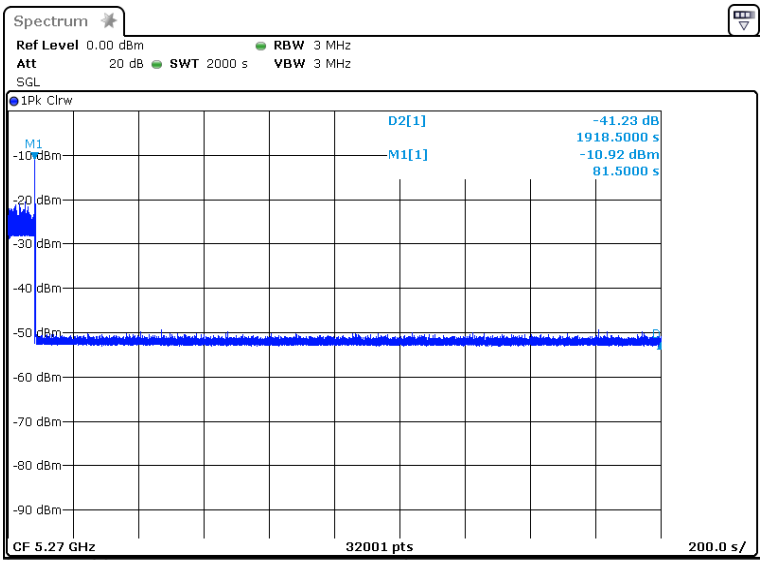
* 20 ㎒ BW

- 5 500 ㎒



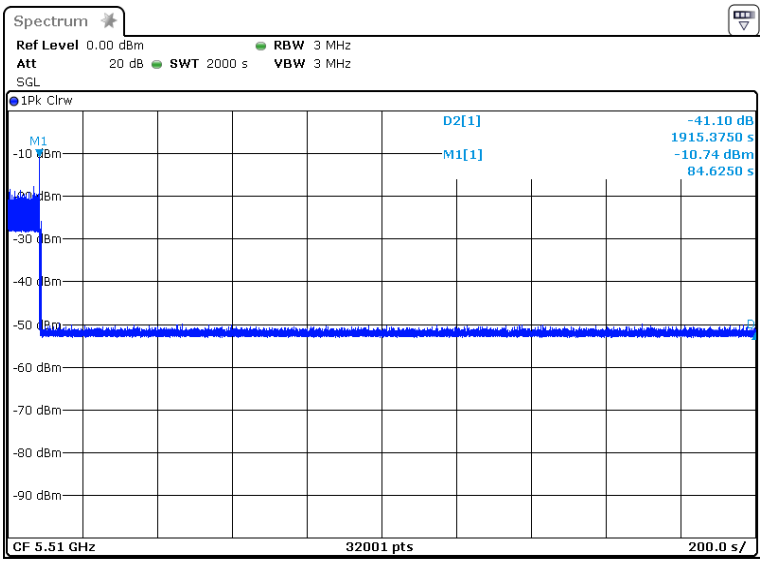
* 40 ㎒ BW

- 5 270 ㎒



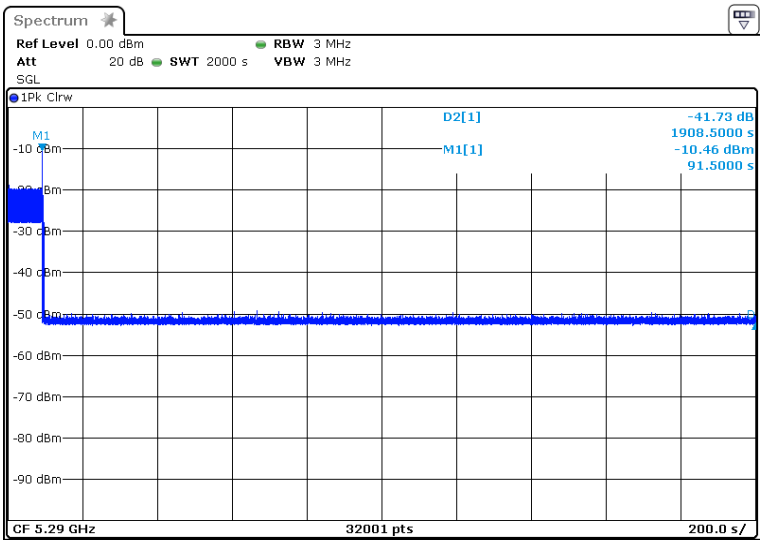
* 40 ㎒ BW

- 5 510 ㎒



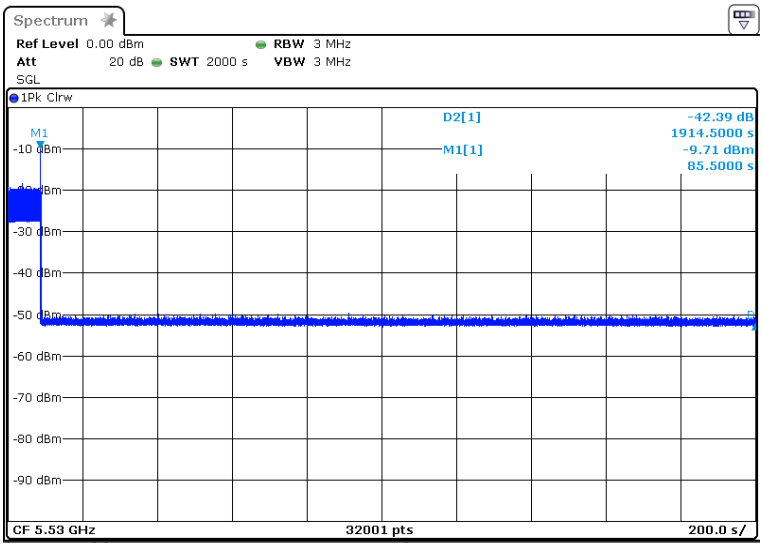
* 80 ㎒ BW

- 5 290 ㎒



* 80 ㎒ BW

- 5 530 ㎒



6. Test equipment used for test

	Description	Manufacturer	Model No.	Serial No.	Next Cal Date.
■	Temp & humidity chamber	ESPEC CORP.	SH-641	92005476	15.12.26
■	Spectrum Analyzer	R&S	FSV40	100988	16.01.26
■	Wideband Power Sensor	R&S	NRP-Z81	102398	15.11.27
■	DC Power Supply	AGILENT	E3632A	MY40004399	16.01.06
■	Loop Antenna	R&S	HFH2-Z2	861971/003	17.03.03
■	Bi-Log Antenna	SCHWARZBECK	VULB9163	552	16.06.14
■	Horn Antenna	SCHWARZBECK	3117	155787	16.02.05
■	Horn Antenna	ETS.lindgren	3116	86632	15.10.20
■	Amplifier	SONOMA INSTRUMENT	310	293004	15.09.25
■	Emi Test Receiver	R&S	ESCI	101078	16.02.16
■	Vector Signal Generator	R&S	SMBV100A	257566	16.01.06
■	Broadband Preamplifier	SCHWARZBECK	BBV9721	2	16.05.19
■	Broadband Preamplifier	SCHWARZBECK	BBV9718	233	16.04.13
■	Power Divider	Aeroflex/ Weinschel,Inc	1580-1	NX375	15.10.14
■	Power Divider	Aeroflex/ Weinschel,Inc	1580-1	RM986	16.04.08
■	Attenuator	HP	8494A	2631A09825	15.10.14
■	Attenuator	HP	8496A	3308A16640	15.10.14
■	Antenna Mast	Innco Systems	MA4000-EP	-	-
■	Turn Table	Innco Systems	DT2000	-	-
■	Highpass Filter	Wainwright Instruments GmbH	WHKX3.0 /18G-12SS	44	16.02.02
■	Highpass Filter	Wainwright Instruments GmbH	WHKX6.5 /18G-8SS	2	16.06.15
■	Bluetooth Tester	TESCOM	TC-3000A	3000A310047	16.04.06
■	SPIRAL ANTENNA	COBHAM	PSA-75301R/170	406827-0001	-