TEST REPORT

Part 15 Subpart E 15.407

Equipment under test HOME CAMERA

Model name SNH-V6430BNH

FCC ID NLMSNHV6430BNH

Applicant Hanwha Techwin Co., Ltd.

Manufacturer Tianjin Samsung Techwin Opto-Electronic Co., Ltd.

Date of test(s) 2016.07.14 ~ 2016.09.09

Date of issue 2016.09.09

Issued to
Hanwha Techwin Co., Ltd.
1204, Changwon-daero, Seongsan-gu, Changwon-si,
Gyeongsangnam-do, South Korea
Tel: +82-70-7147-8361 / Fax: +82-31-8108-3717

Issued by
KES Co., Ltd.
C-3701, 40, Simin-daero 365beon-gil, Dongan-gu, Anyang-si,
Gyeonggi-do, Korea
473-29, Gayeo-ro, Yeoju-si, Gyeonggi-do, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450

Test and report completed by :	Report approval by :
	
Kwon-se Kim Test engineer	Jeff Do Technical manager

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Revision history

Revision	Date of issue	Test report No.	Description
-	2016.09.07	KES-RF-16T0071	Initial
R1	2016.09.08	KES-RF-16T0071-R1	Retest a 99% Occupied bandwidth and Added data and plots of ac VHT20, VHT 40 mode
R1	2016.09.09	KES-RF-16T0071-R2	Retest a 99% Occupied bandwidth

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1. General information

Applicant:	Hanwha Techwin Co., Ltd.
Applicant address:	1204, Changwon-daero, Seongsan-gu, Changwon-si Gyeongsangnam-do, South Korea
Test site:	KES Co., Ltd.
Test site address:	C-3701, 40, Simin-daero 365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 473-29, Gayeo-ro, Yeoju-si, Gyeonggi-do, Korea
FCC rule part(s):	15.407
FCC ID:	NLMSNHV6430BNH
Test device serial No.:	☒ Production ☐ Pre-production ☐ Engineering

1.1. EUT description

Equipment under test	HOME CAMERA	
Frequency range		2 412 ㎒ ~ 2 462 ㎒ (11b/g/n_HT20)
		2 422 ㎒ ~ 2 452 ㎒ (11n_HT40)
	UNII-1	5 180 ㎒ ~ 5 240 ㎒ (11a/n_HT20, 11ac_VHT20)
		5 190 ㎒ ~ 5 230 ㎒ (11n_HT40, 11ac_VHT40)
		5 210 ㎒ (11ac_VHT80)
	UNII-2A	5 260 ㎒ ~ 5 320 ㎒ (11a/n_HT20, 11ac_VHT20)
		5 270 ㎒ ~ 5 310 ㎒ (11n_HT40, 11ac_VHT40)
		5 290 ㎒ (11ac_VHT80)
	UNII-2C	5 500 ㎒ ~ 5 720 ㎒ (11a/n_HT20, 11ac_VHT20)
		5 510 ㎒ ~ 5 710 ㎒ (11n_HT40, 11ac_VHT40)
		5 530 ㎒ ~ 5 690 ㎒ (11ac_VHT80)
	UNII-3	5 745 ㎒ ~ 5 825 ㎒ (11a/n_HT20, 11ac_VHT20)
		5 755 ㎒ ~ 5 795 ㎒ (11n_HT40, 11ac_VHT40)
		5 775 ㎒ (11ac_VHT80)
Model:	SNH-V6430BNH	
Modulation technique	OFDM	
Number of channels	2 412 ㎒ ~ 2 462 ㎒ : 11ch , 2 422 ㎒ ~ 2 452 ㎒ : 7 ch	
	5 180 ㎒ ~ 5 240 ㎒ : 4ch , 5 190 ㎒ ~ 5 230 ㎒ : 2ch , 5 210 ㎒ : 1ch	
	5 260 ㎒ ~ 5 320 ㎒ : 4ch , 5 270 ㎒ ~ 5 310 ㎒ : 2ch , 5 290 ㎒ : 1ch	
	5 500 ㎒ ~ 5 720 ㎒ : 12ch , 5 510 ㎒ ~ 5 710 ㎒ : 6ch , 5 530 ㎒ ~ 5 690 ㎒ : 3ch	
	5 745 ㎒ ~ 5 825 ㎒ : 5ch , 5 755 ㎒ ~ 5795 ㎒ : 2ch , 5 775 ㎒ : 1ch	
Antenna specification	11b/g/n_HT20/40	: Chip antenna & 2.74 ㏈i
	UNII-1	: Chip antenna & 1.39 ㏈i
	UNII2A	: Chip antenna & 1.95 ㏈i
	UNII2C	: Chip antenna & 3.91 ㏈i
	UNII-3	: Chip antenna & 3.39 ㏈i
Power source	DC 48 V Adapter (Input : AC 120V / 60㎐,0.6A)	

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1.2. Test configuration

The **Hanwha Techwin Co., Ltd. HOME CAMERA FCC ID: NLMSNHV6430BNH** was tested per the guidance of KDB 789033 D02 v01r03 and KDB 644545 D03 v01. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing

This report contains the worst case data from the following mode of the test in 20/40/80 MHz signal bandwidth.

1.3. Device modifications

N/A

1.4. Derivation model information

N/A

1.5. Frequency/channel operations

UNII-1		UNII-2A		UNII-2C		UNII-3	
Ch.	Frequency (㎒)	Ch.	Frequency (㎒)	Ch.	Frequency (㎒)	Ch.	Frequency (㎒)
36	5 180	52	5 260	100	5 500	149	5 745
44	5 220	56	5 280	116	5 580	157	5 785
48	5 240	64	5 320	144	5 720	165	5 825

Table 1.7-1. 802.11a/n/ac_HT20/VHT20 mode

UNII-1		UNII-2A		UNII-2C		UNII-3	
Ch.	Frequency (㎒)	Ch.	Frequency (㎒)	Ch.	Frequency (㎒)	Ch.	Frequency (㎒)
38	5 190	54	5 270	102	5 510	151	5 755
46	5 230	62	5 310	118	5 590	159	5 795
				142	5 710		

Table 1.7-2. 802.11a/n/ac_HT40/VHT40 mode

UNII-1		UNII-2A		UNII-2C		UNII-3	
Ch.	Frequency (㎒)	Ch.	Frequency (㎒)	Ch.	Frequency (㎒)	Ch.	Frequency (㎒)
42	5 210	58	5 290	106	5 530	155	5 775
				122	5 610		
				138	5 690		

Table 1.7-3. 802.11ac_VHT80 mode

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1.6. Maximum average output power

Refer to the average output power.

Note.

1. Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.
2. Worst-case data rates as provided by the client were:

UNII-1 a : **6 Mbps** , n/ac_HT20/40/VHT20/40/80 : **MCS0**
UNII-2A a : **6 Mbps** , n/ac_HT20/40/VHT20/40/80 : **MCS0**
UNII-2C a : **6 Mbps** , n/ac_HT20/40/VHT20/40/80 : **MCS0**
UNII-3 a : **6 Mbps** , n/ac_HT20/40/VHT20/40/80 : **MCS0**

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2. Summary of tests

Reference	Parameter	Test results
15.407(a)	26 dB bandwidth & 99 % Occupied Bandwidth	Pass
15.407(e)	6 dB bandwidth	Pass
15.407(a)	Maximum conducted output power	Pass
15.407(a)	Power spectral density	Pass
15.407(g)	Frequency stability	Pass
15.205 15.209	Radiated restricted band and emission	Pass
15.407(d)	General field strength limit (Restricted bands and radiated emission limit)	Pass
15.207	AC power line conducted emissions	Pass

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3. Test results

3.1. 26 dB bandwidth & 99% Occupied Bandwidth

Test procedure

26 dB bandwidth

KDB 789033 D02 v01r03– Section C.1, KDB 644545 D03 v01

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
6. In case of band crossing channels 138, 142 and 144, the measurement is complied with section D of KDB 644545_D03 v01

Limit

N/A

99 % bandwidth

KDB 789033 D02 v01r03– Section D

1. Set span = 1.5 times to 5.0 times the OBW.
2. Set RBW = 1% to 5% of the OBW
3. Set the VBW > 3 x RBW.
4. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak bandwidth function of the instrument (if available).
5. Use the 99% power bandwidth function of the instrument (if available).
6. If the instrument does not have a 99% power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

In the result,

-DFS requirements are not applicable in the 5 150 ㎒ ~ 5 250 ㎒.

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Test results

Band	Frequency(㎒)	Mode	26 dB bandwidth(㎒)	99 % bandwidth(㎒)
UNII-1	5 180	a	20.622	-
	5 220		20.984	-
	5 240		20.912	16.787
UNII-2A	5 260		20.984	16.779
	5 280		20.912	-
	5 320		21.056	-
UNII-2C	5 500		20.622	-
	5 580		20.839	-
	5 720		20.478	-
UNII-3	5 745		20.622	-
	5 785		20.333	-
	5 825		20.839	-
UNII-1	5 180	HT20	21.201	-
	5 220		21.056	-
	5 240		21.129	17.873
UNII-2A	5 260		21.129	17.842
	5 280		21.129	-
	5 320		20.984	-
UNII-2C	5 500		21.274	-
	5 580		21.056	-
	5 720		20.984	-
UNII-3	5 745		21.056	-
	5 785		21.056	-
	5 825		21.129	-
UNII-1	5 190	HT40	44.110	-
	5 230		44.230	37.048
UNII-2A	5 270		44.230	37.345
	5 310		43.880	-
UNII-2C	5 510		44.340	-
	5 590		44.340	-
	5 710		44.460	-
UNII-3	5 755		44.230	-
	5 795		44.110	-

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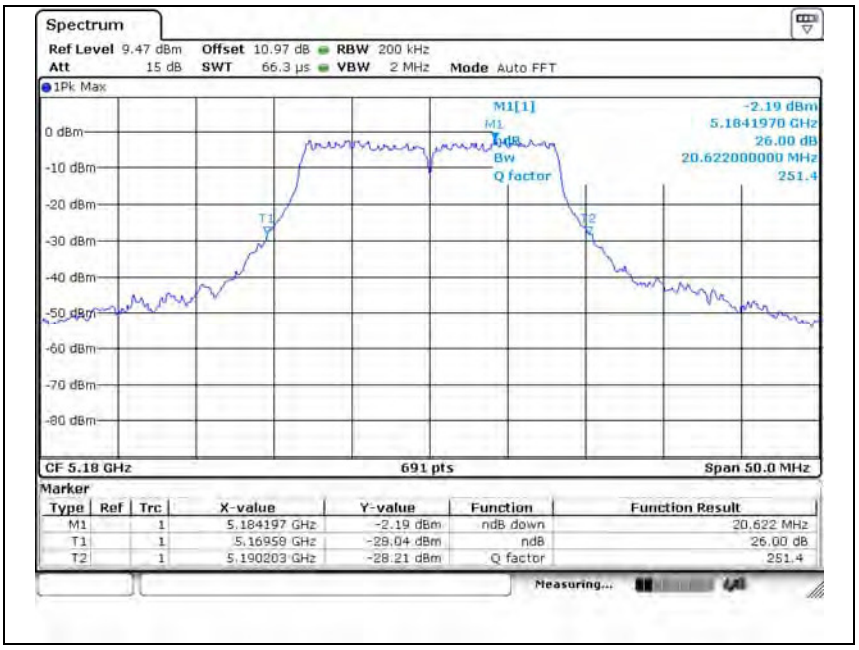
Band	Frequency(㎒)	Mode	26 dB bandwidth(㎒)	99 % bandwidth(㎒)
UNII-1	5 180	VHT20	21.129	-
	5 220		21.129	-
	5 240		21.129	17.945
UNII-2A	5 260		20.984	17.848
	5 280		21.129	-
	5 320		21.056	-
UNII-2C	5 500		20.984	-
	5 580		21.129	-
	5 720		21.129	-
UNII-3	5 745		20.912	-
	5 785		21.129	-
	5 825		20.984	-
UNII-1	5 190	VHT40	44.110	-
	5 230		43.880	37.048
UNII-2A	5 270		43.990	37.155
	5 310		43.880	-
UNII-2C	5 510		44.110	-
	5 590		44.110	-
	5 710		44.230	-
UNII-3	5 755		44.340	-
	5 795		43.990	-
UNII-1	5 210	VHT80	82.660	75.253
UNII-2A	5 290		82.490	74.991
UNII-2C	5 530		82.840	-
	5 610		83.010	-
	5 690		82.490	-
UNII-3	5 775		82.840	-
UNII-2C (Band-crossing channel)	5 720	a	15.564	-
	5 720	HT20	15.854	-
	5 710	HT40	36.420	-
	5 720	VHT20	15.926	-
	5 710	VHT40	37.000	-
	5 690	VHT80	75.030	-

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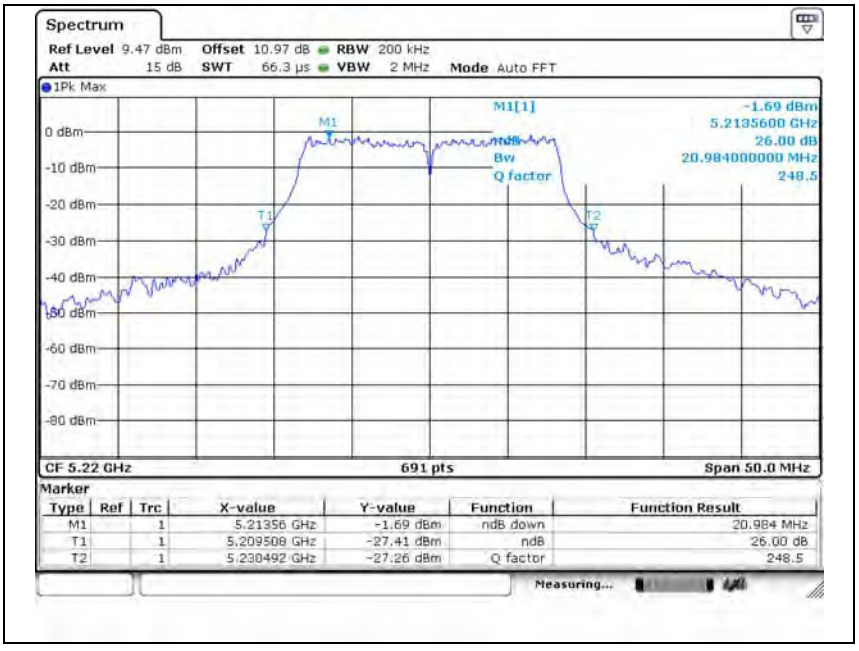
26 dB bandwidth

802.11a

Channel 36

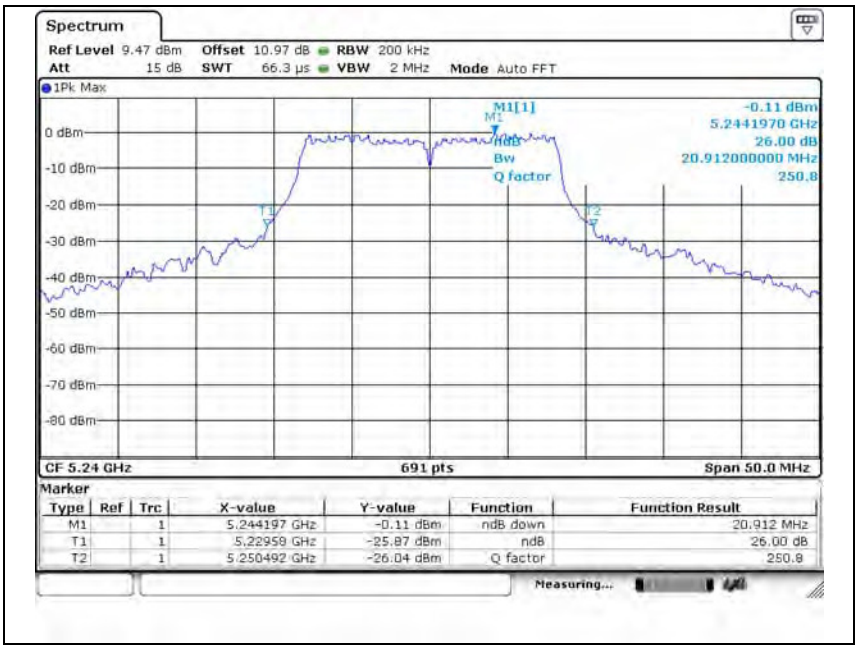


Channel 44

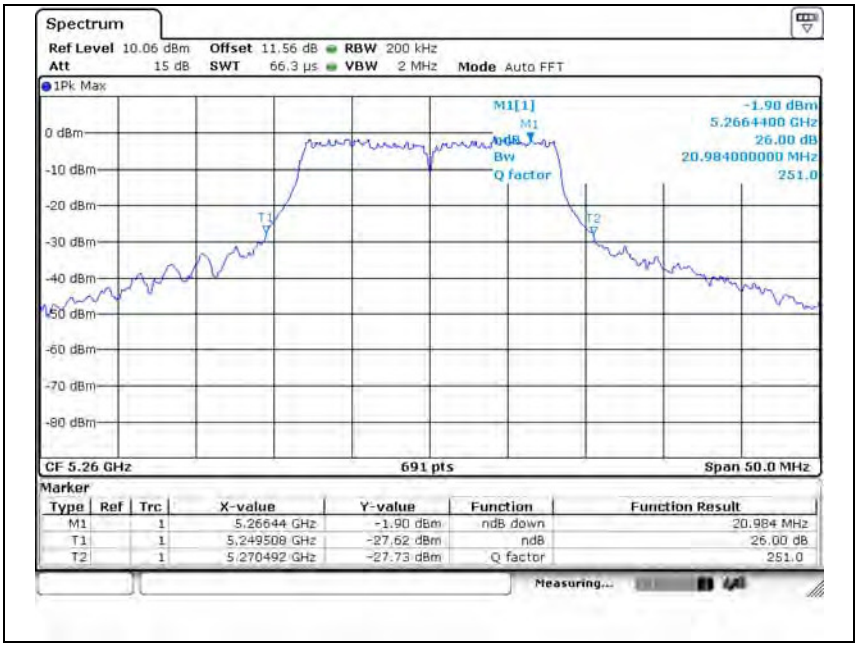


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Channel 48

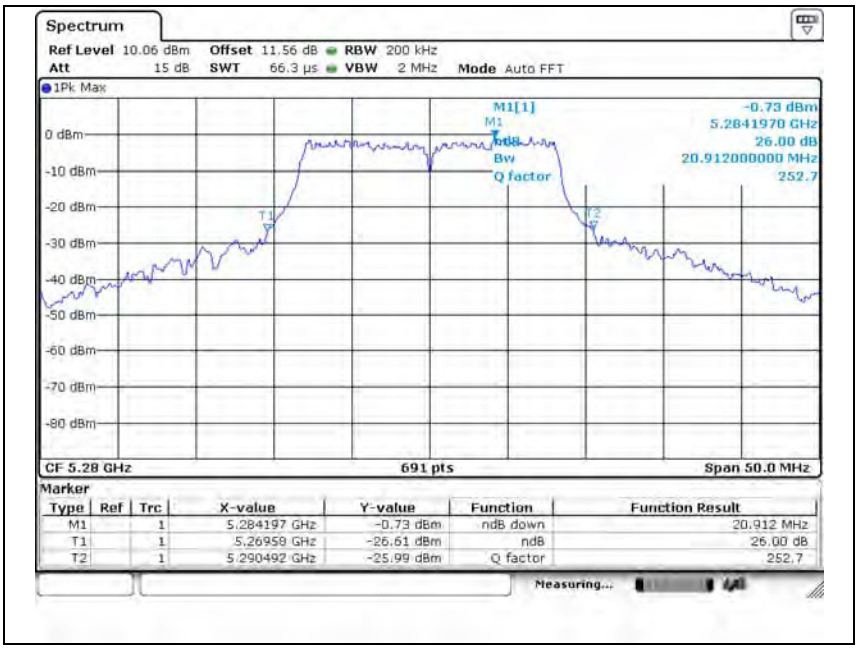


Channel 52

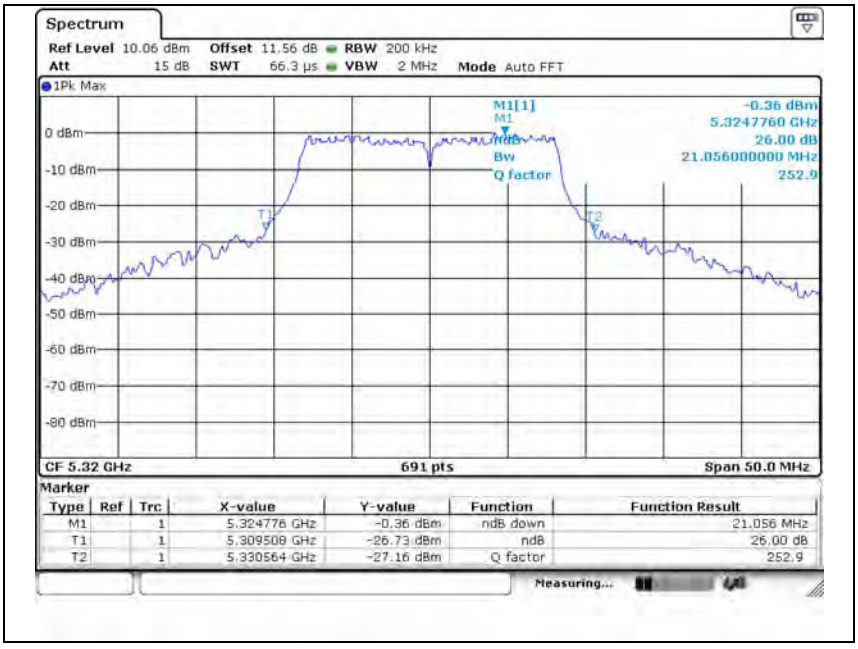


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Channel 56

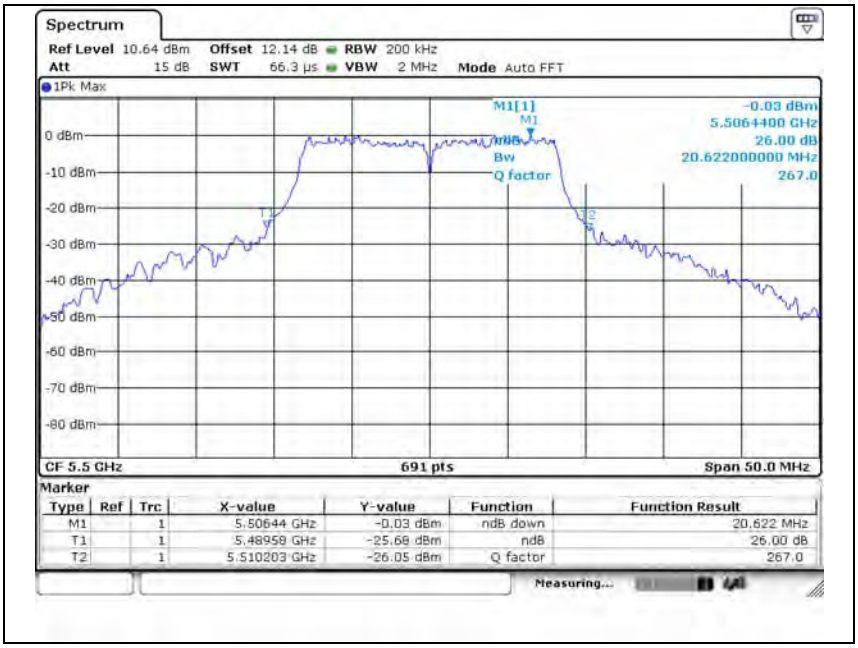


Channel 64

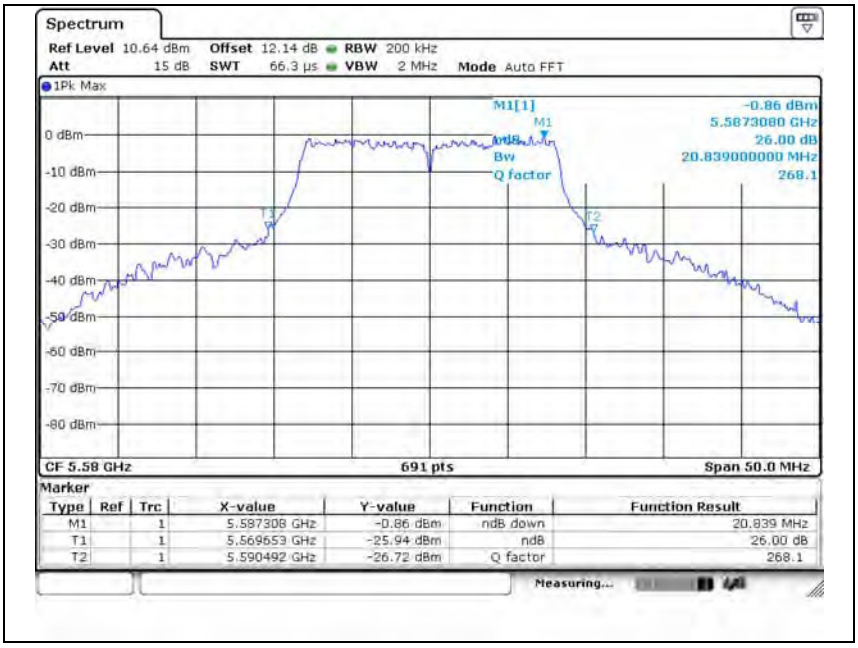


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Channel 100

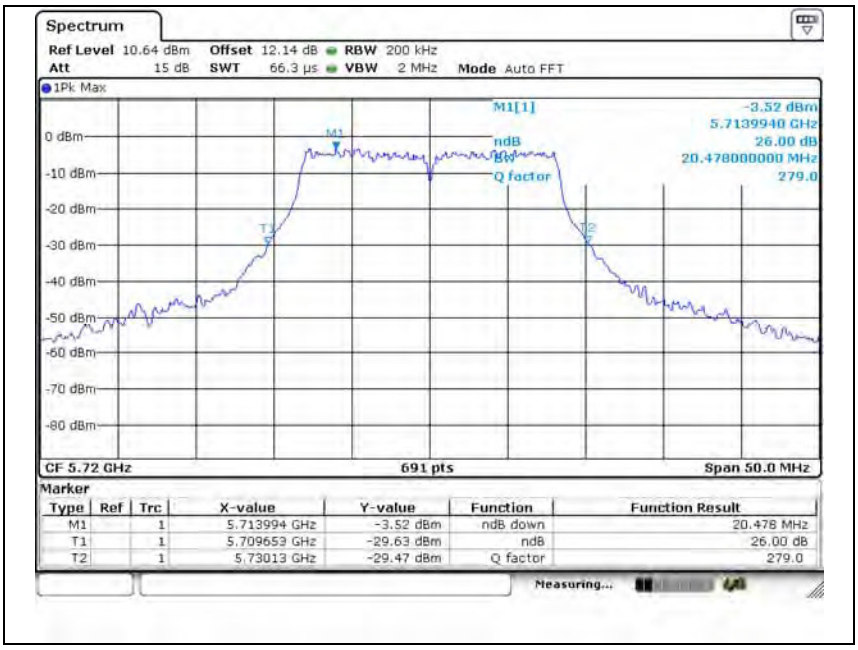


Channel 116

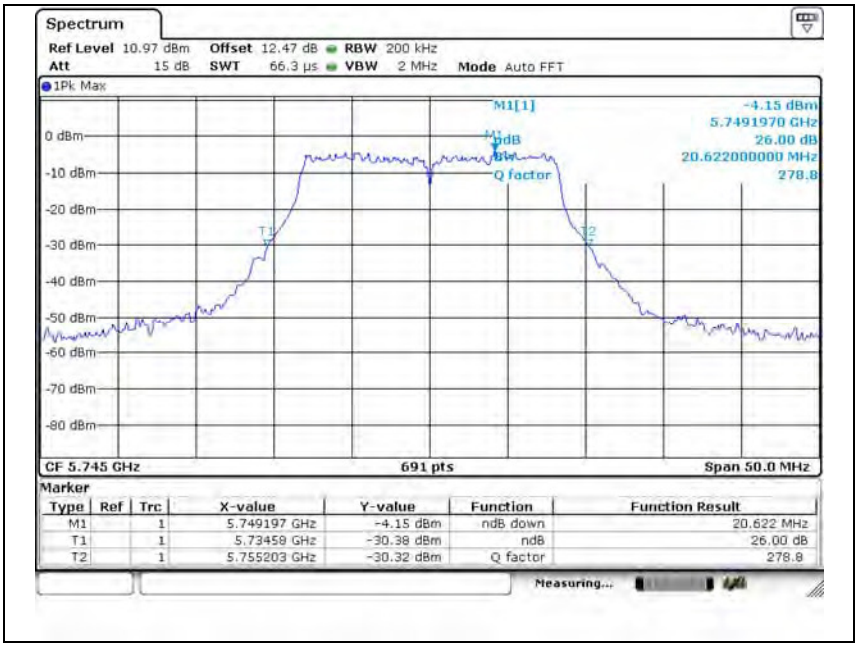


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Channel 144



Channel 149

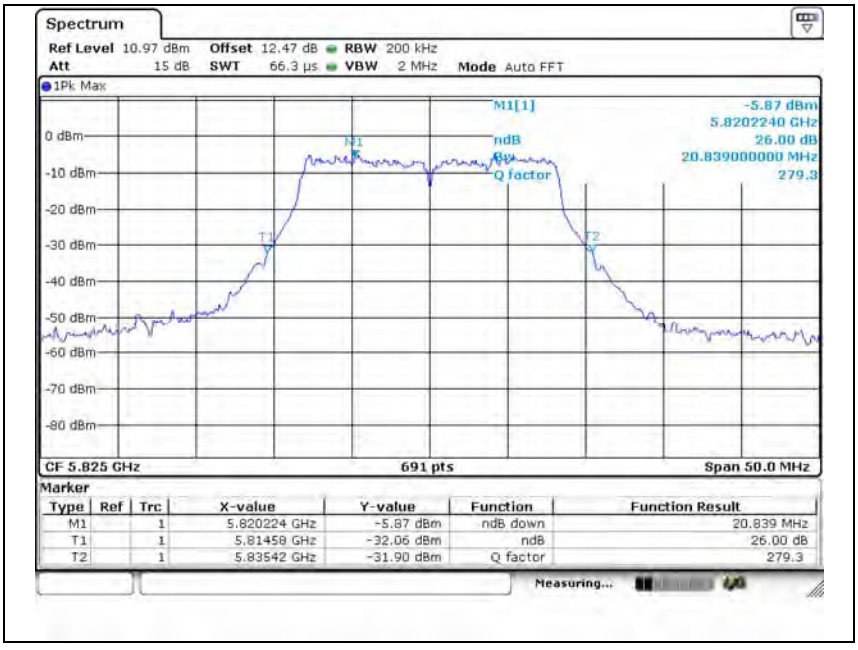


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Channel 157



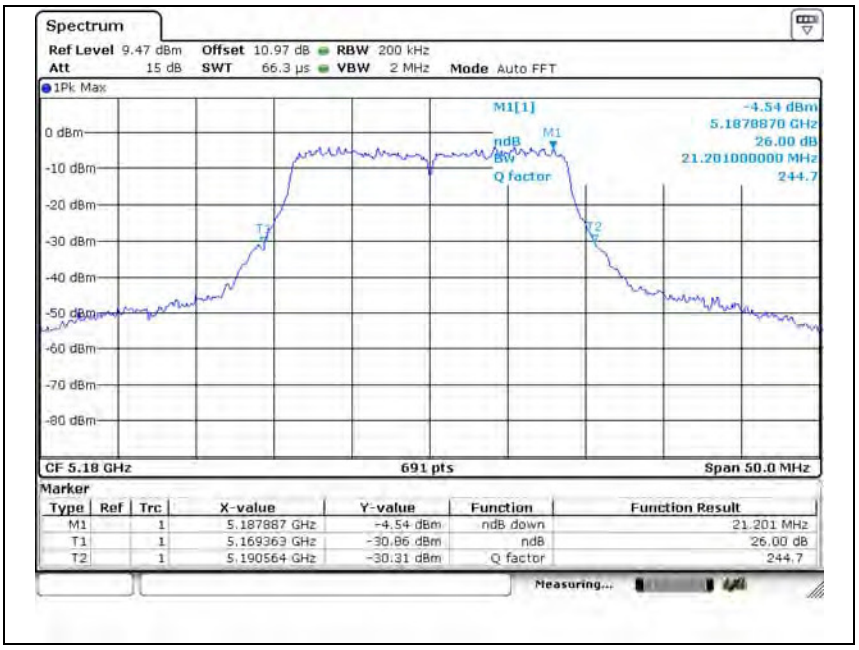
Channel 165



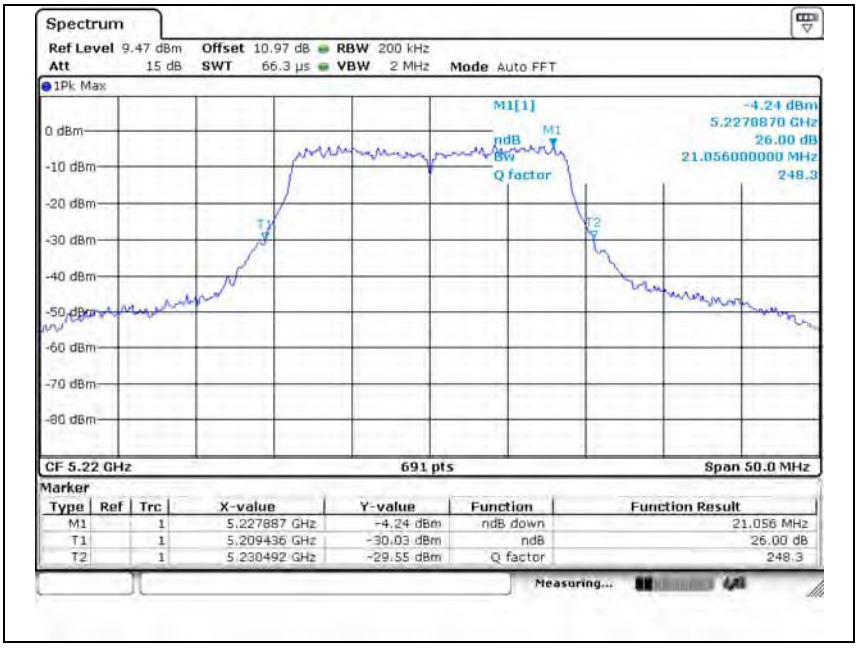
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802.11n_HT20

Channel 36

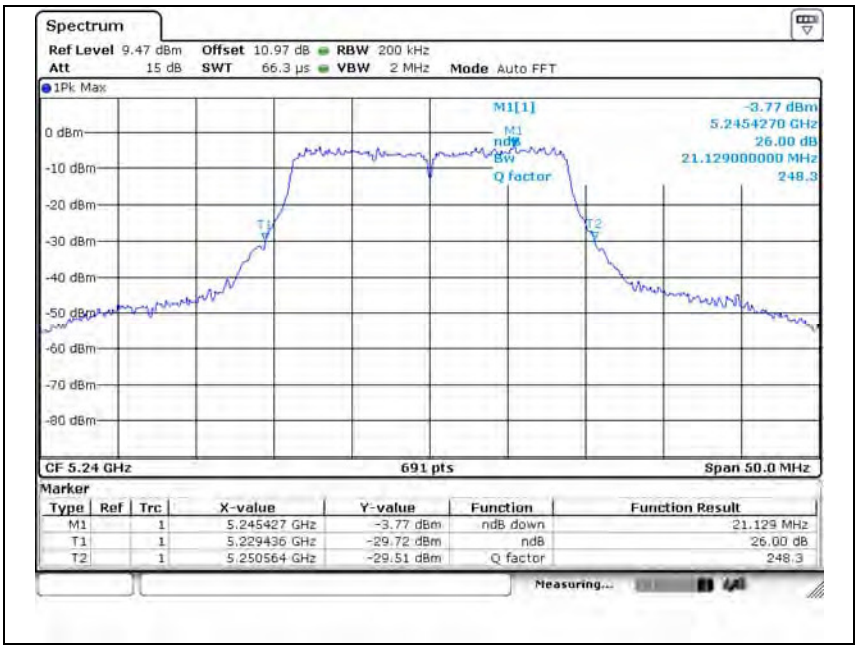


Channel 44

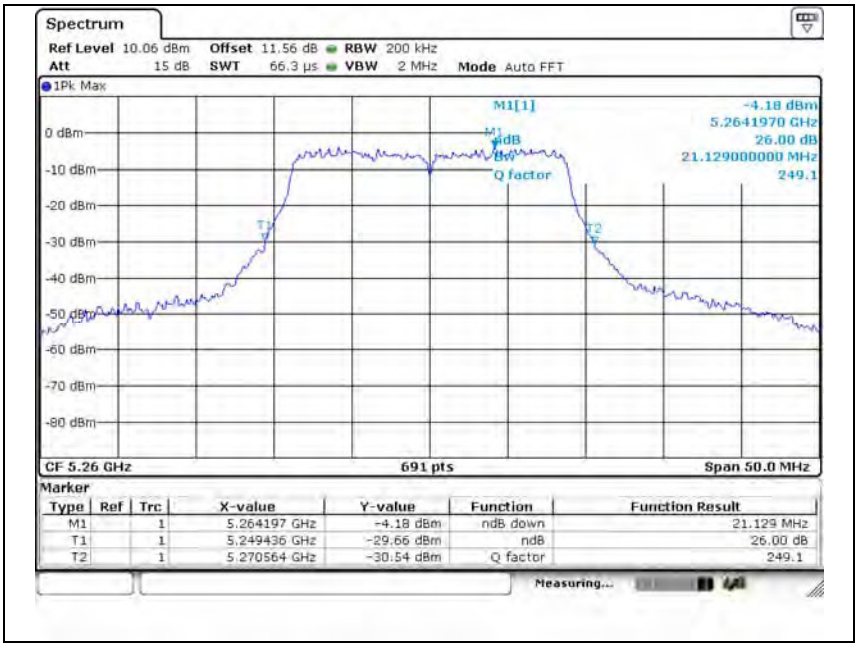


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Channel 48



Channel 52

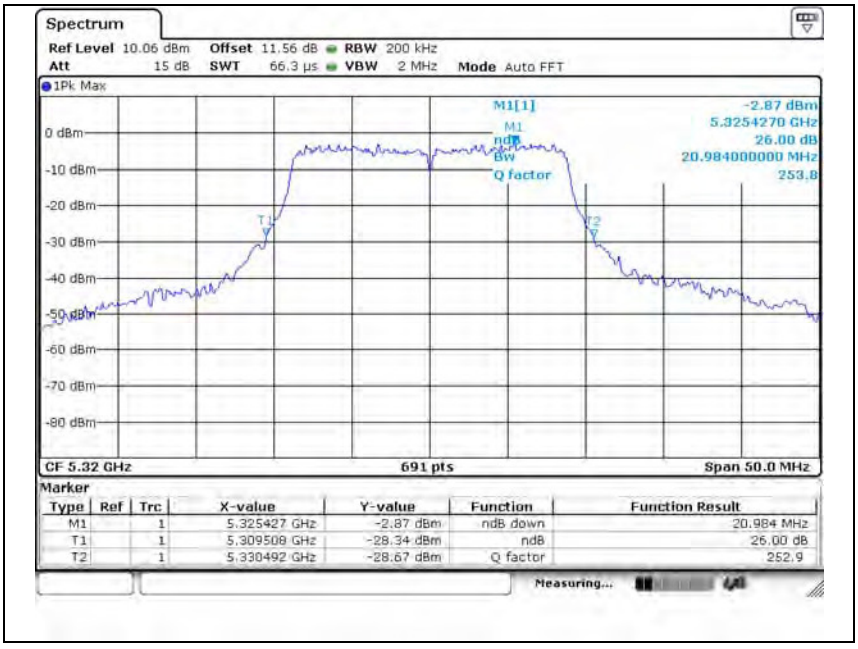


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Channel 56

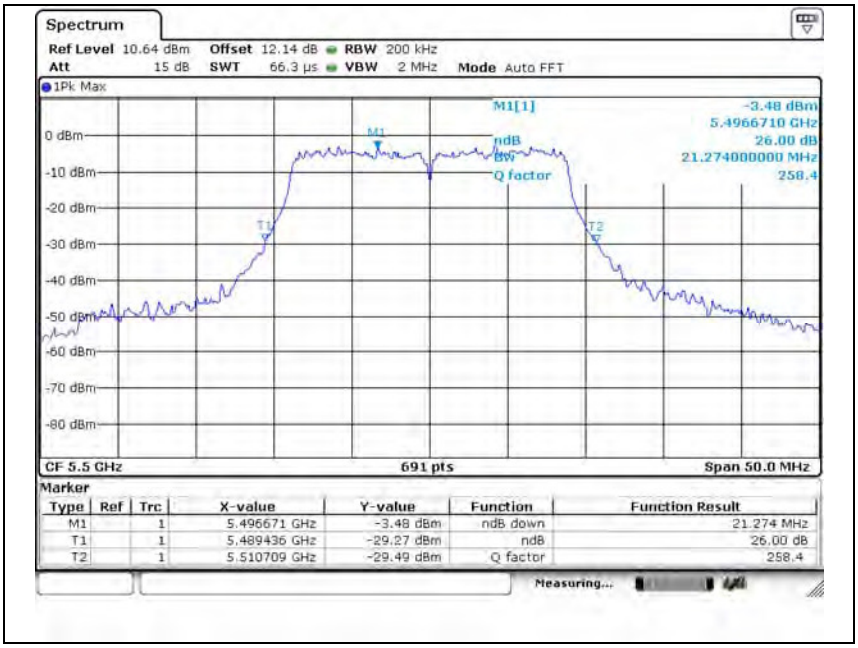


Channel 64

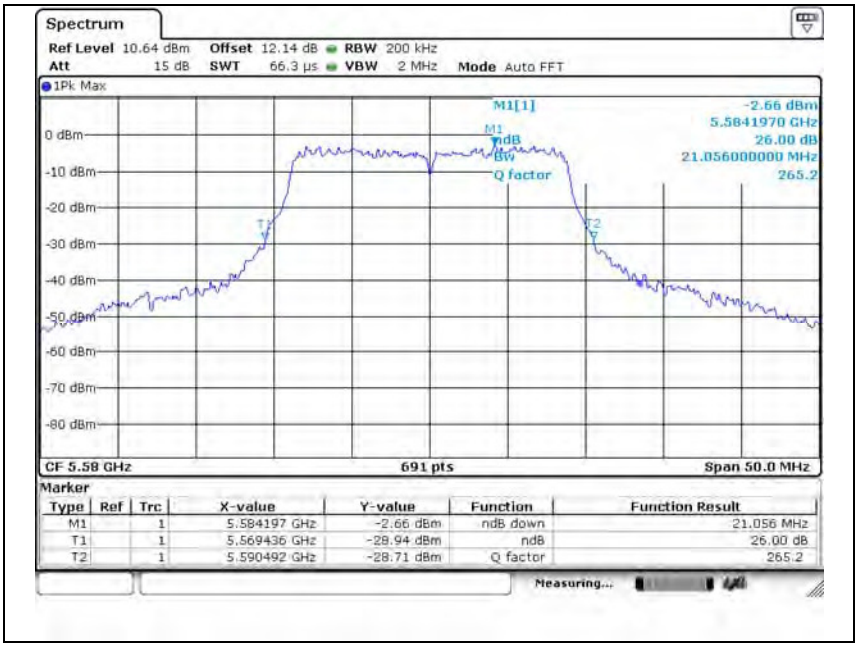


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Channel 100

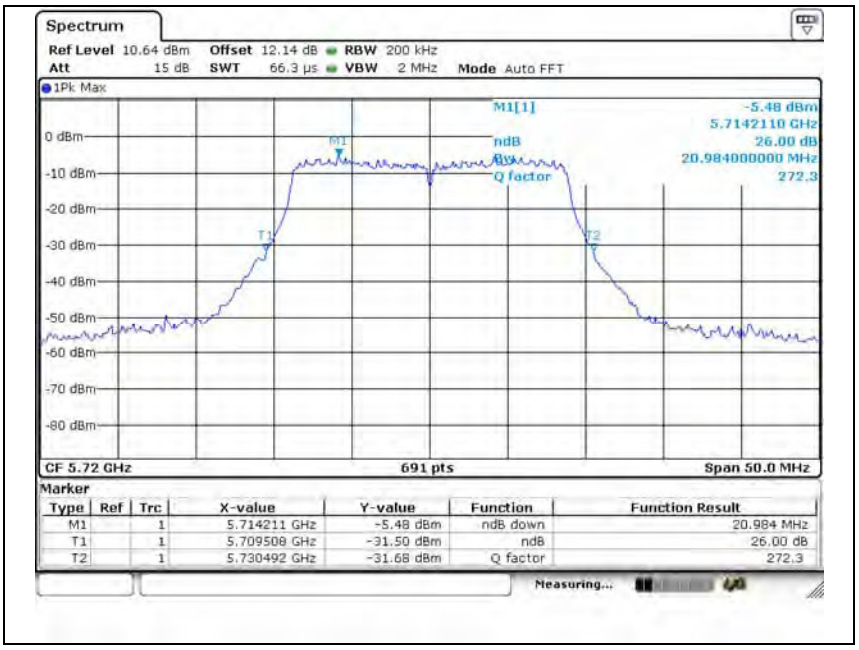


Channel 116

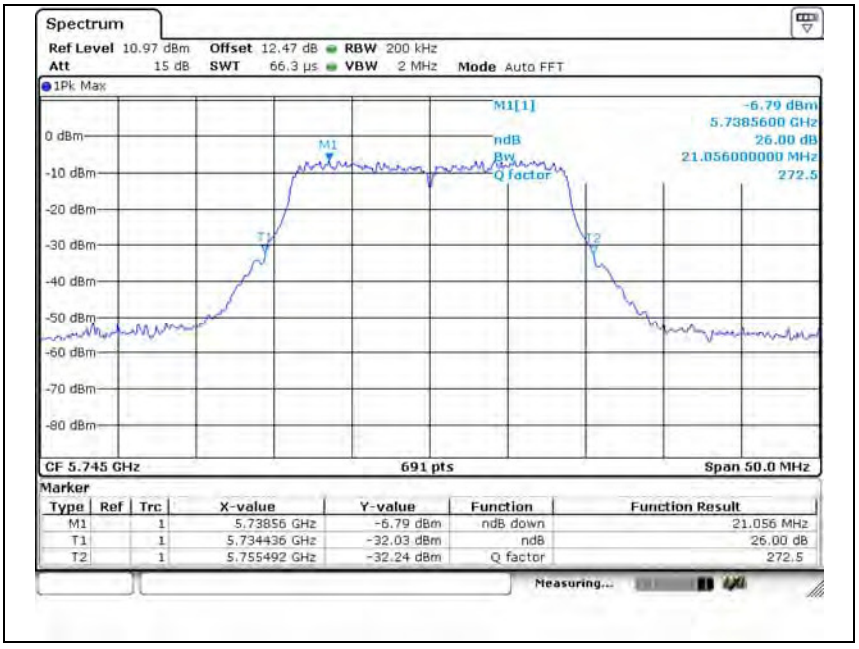


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Channel 144

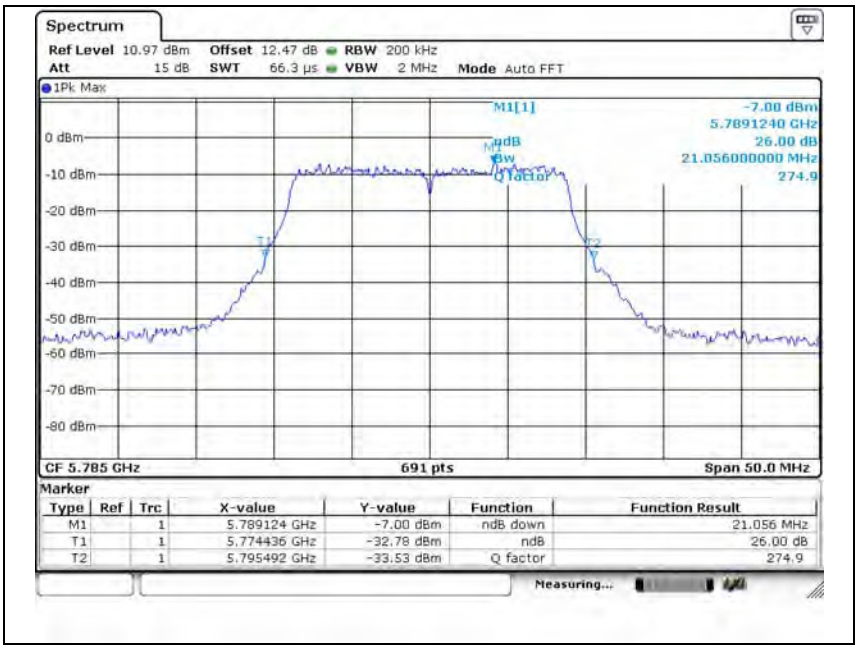


Channel 149

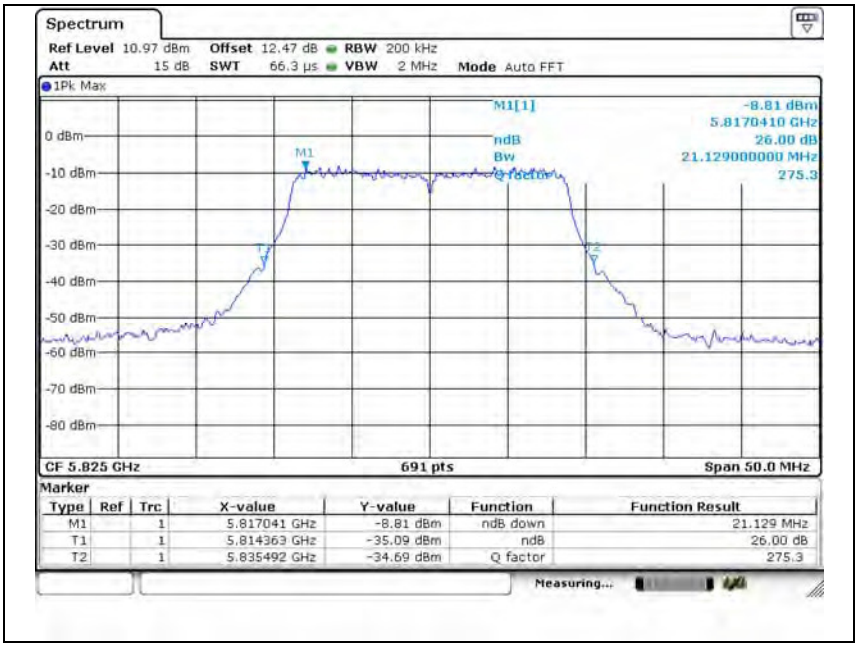


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Channel 157



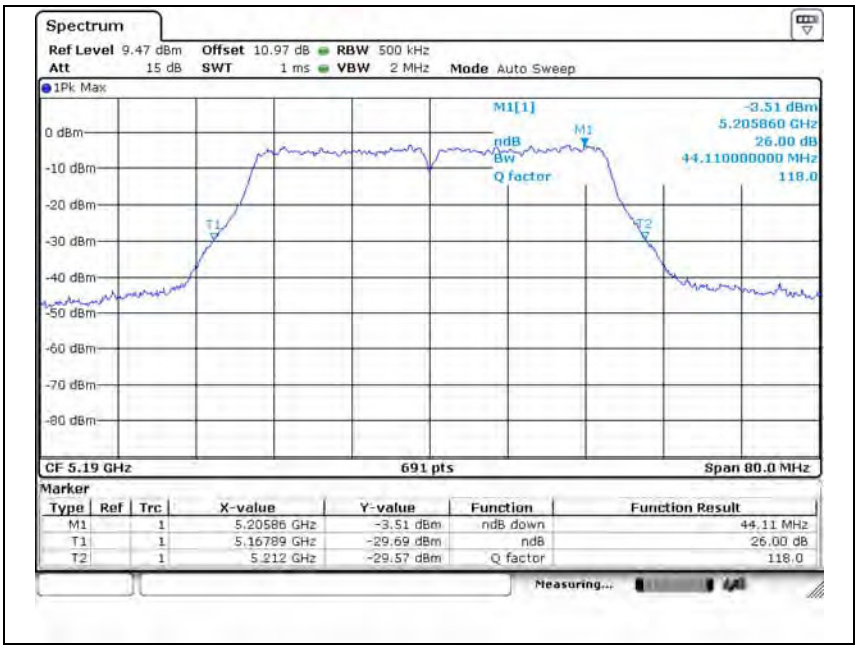
Channel 165



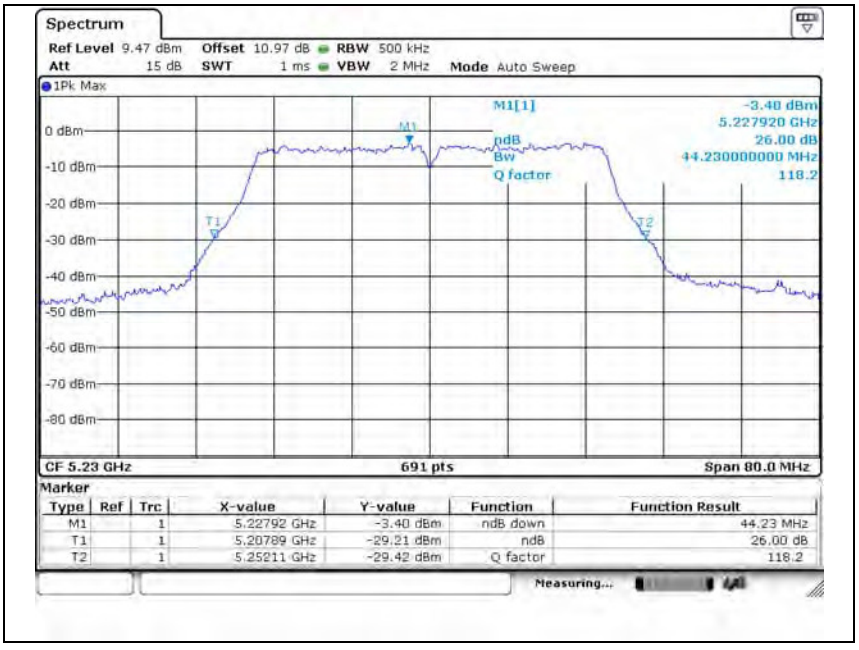
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802.11n_HT40

Channel 38

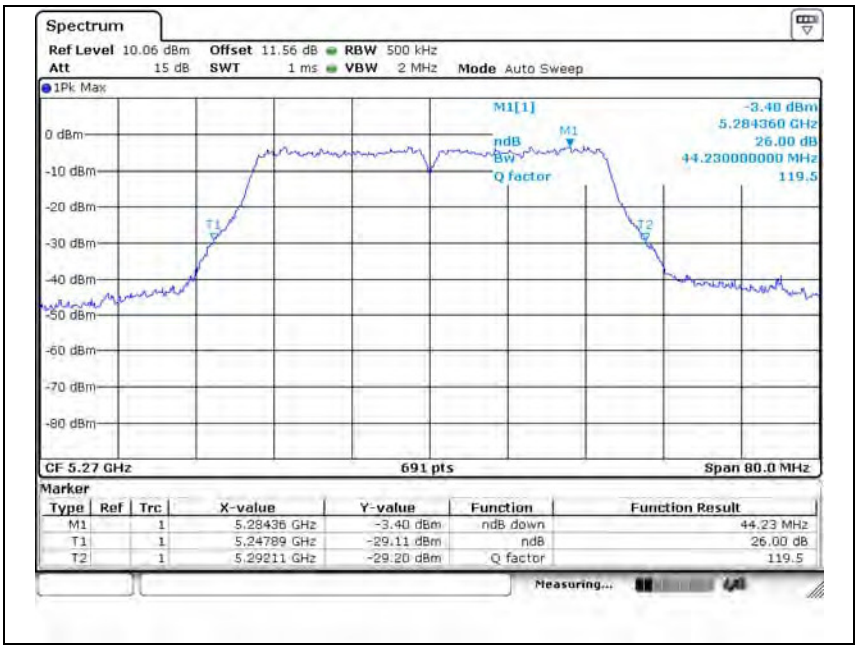


Channel 46

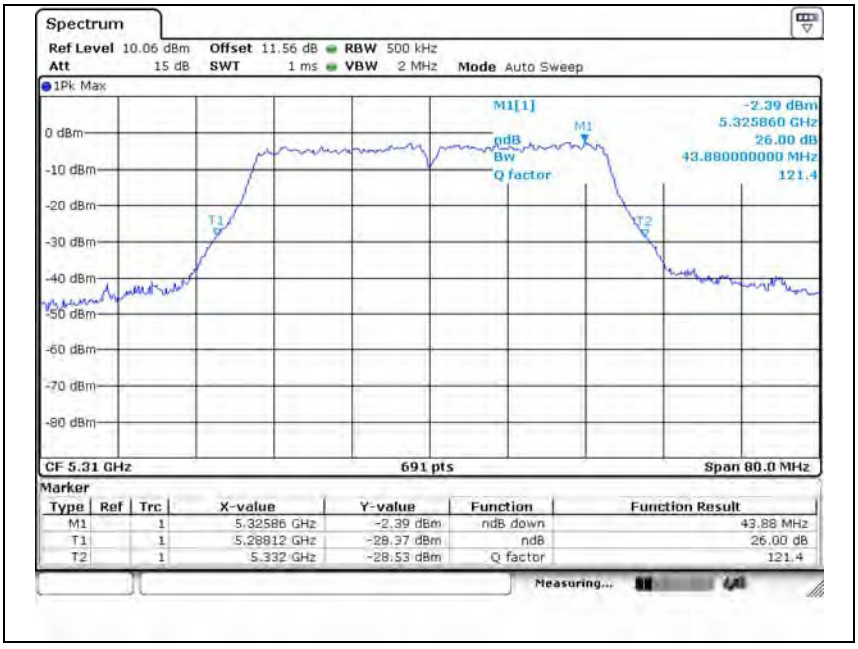


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The test results in the report only apply to the tested sample.

Channel 54

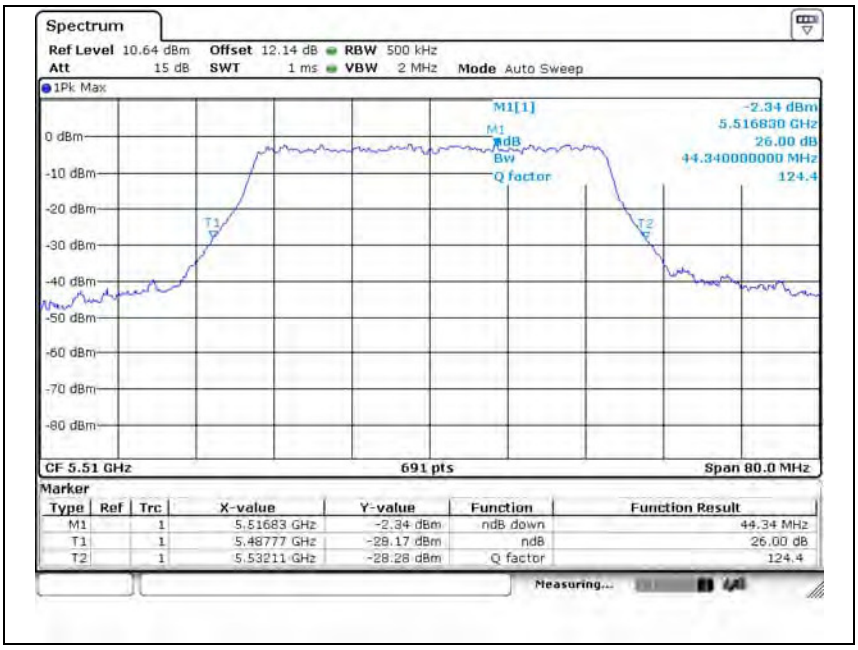


Channel 62

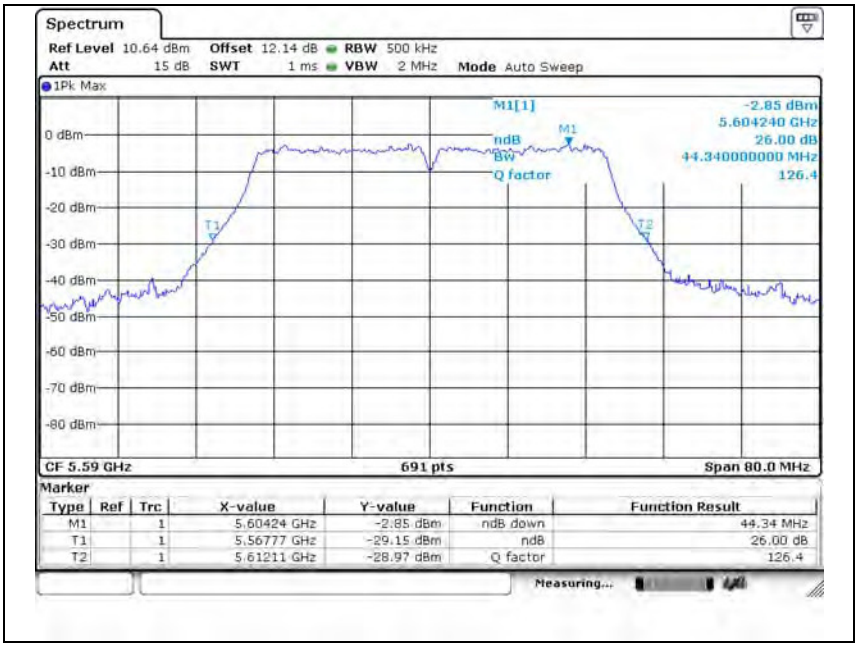


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The test results in the report only apply to the tested sample.

Channel 102

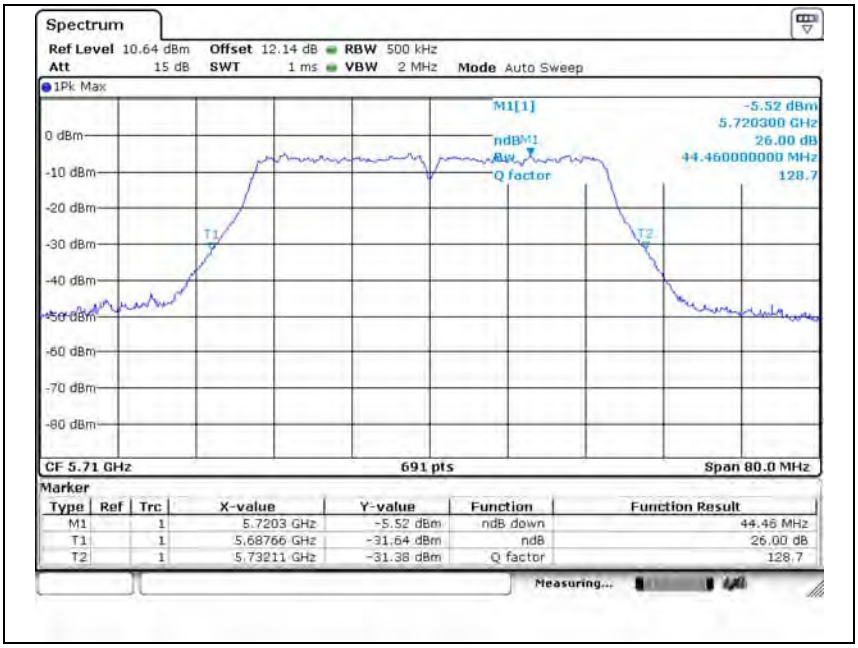


Channel 118

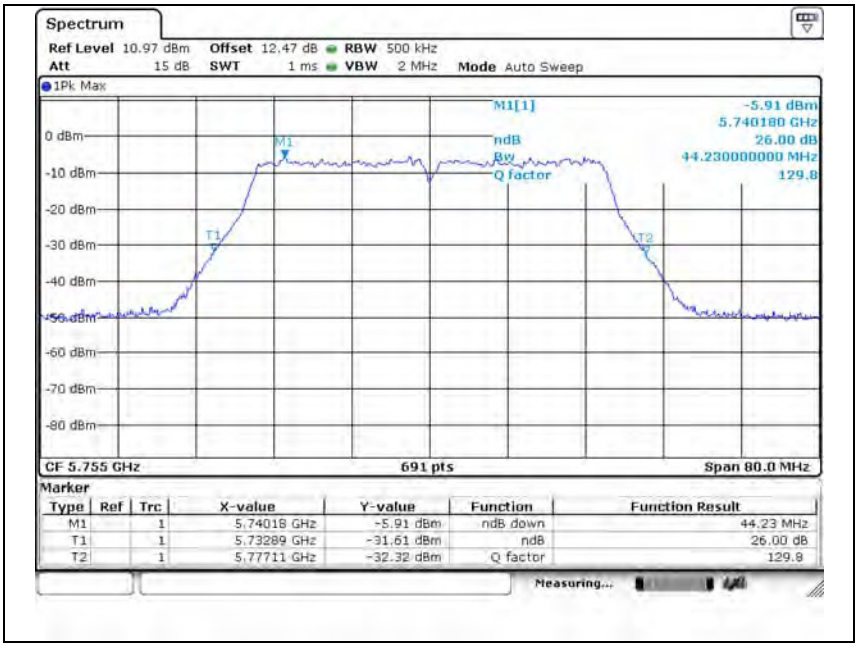


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The test results in the report only apply to the tested sample.

Channel 142

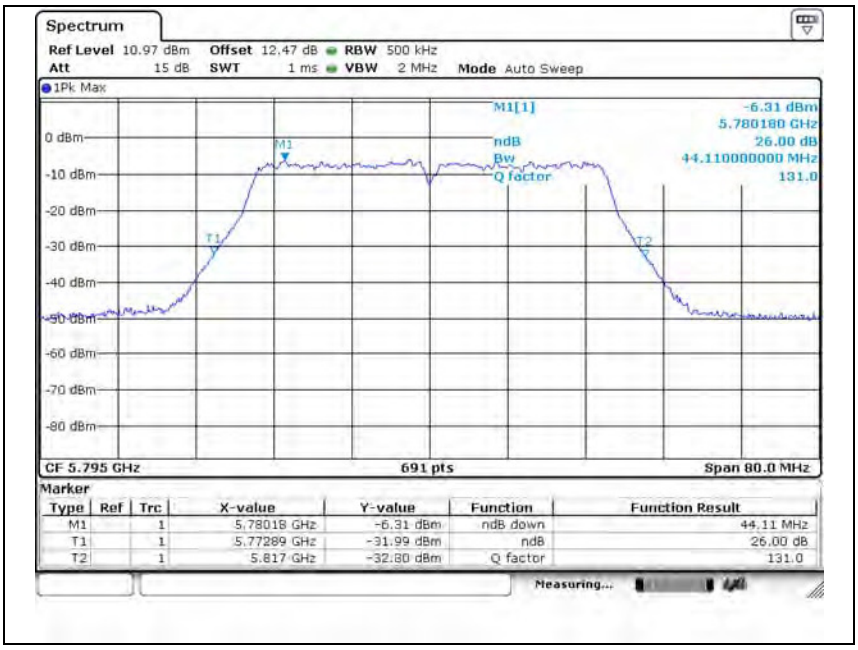


Channel 151



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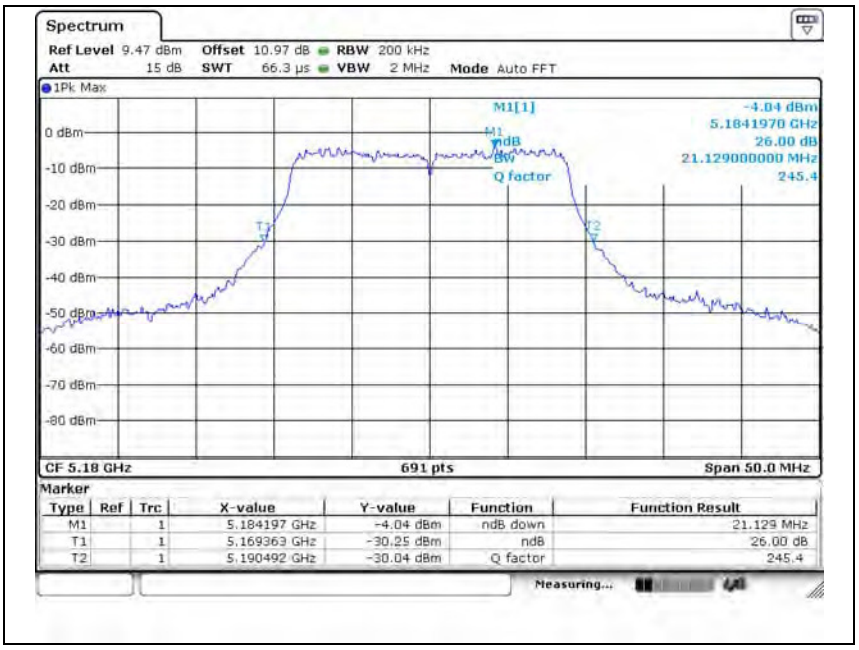
Channel 159



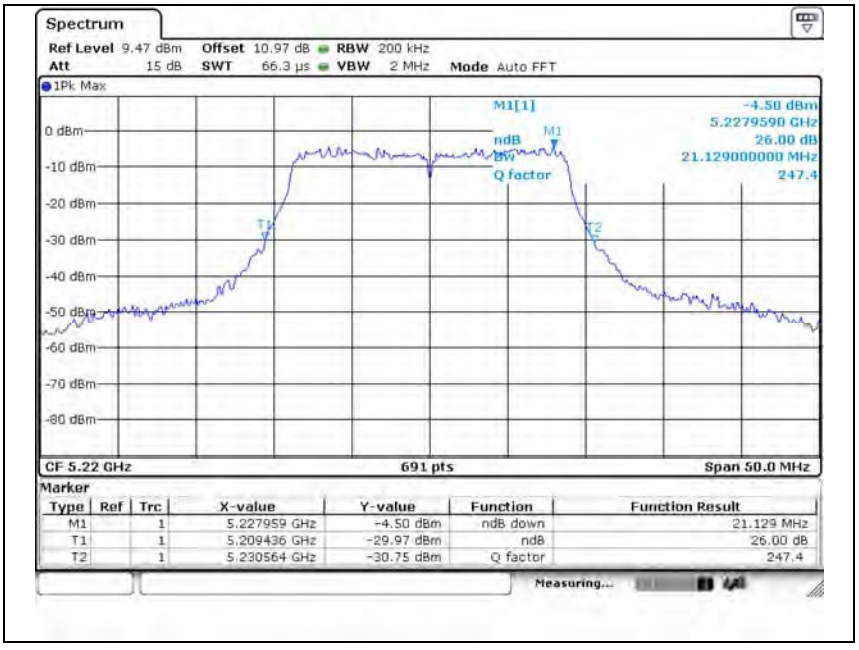
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802.11ac_VHT20

Channel 36

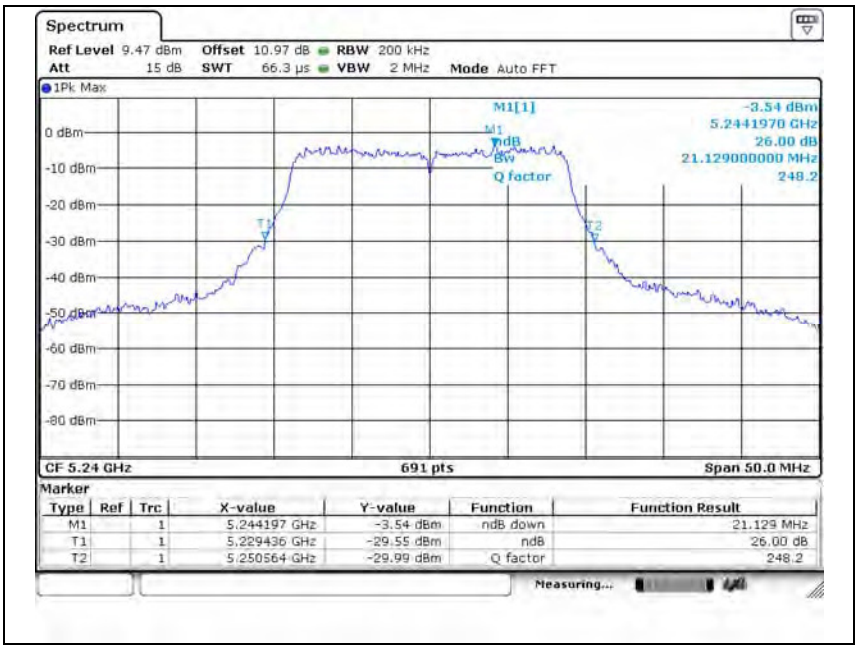


Channel 44

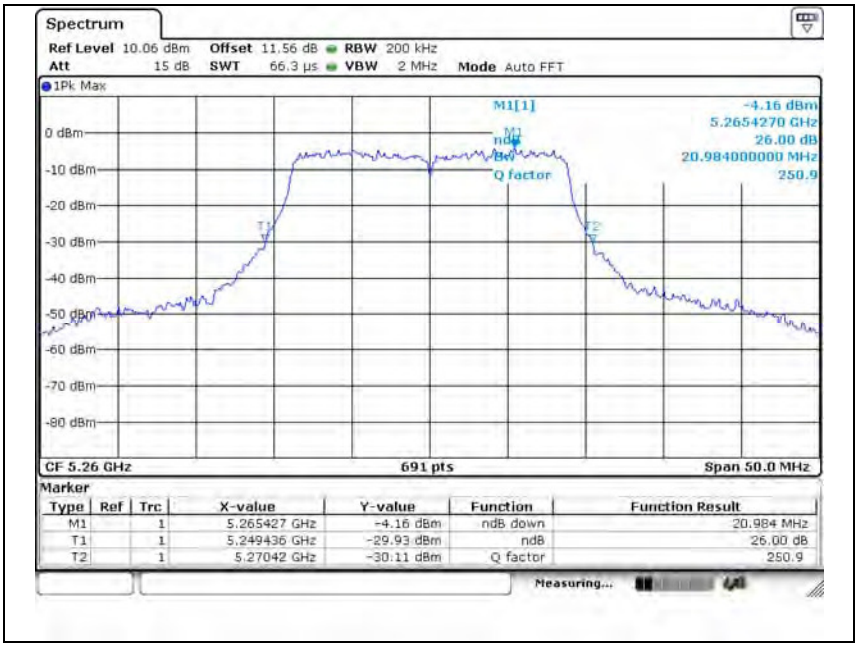


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Channel 48

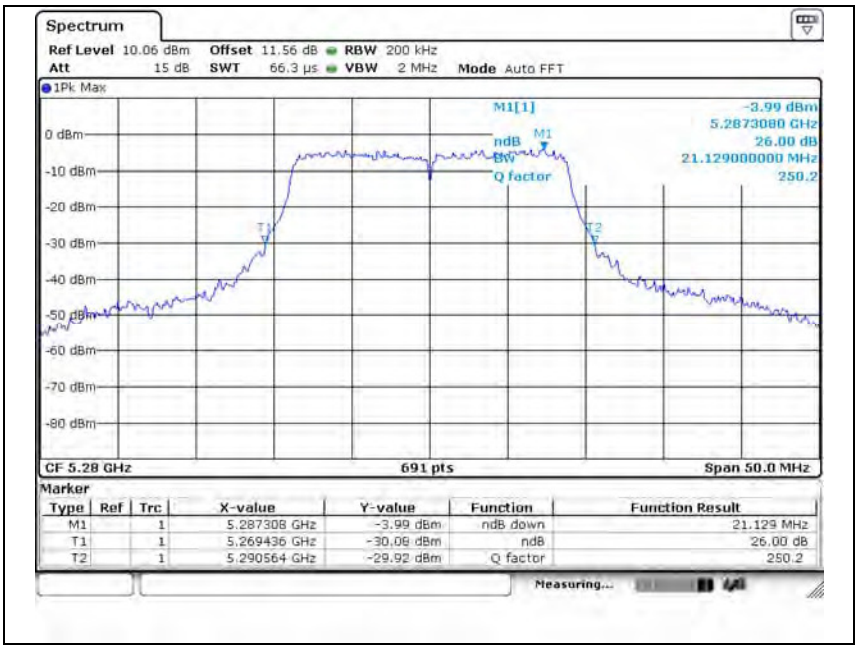


Channel 52

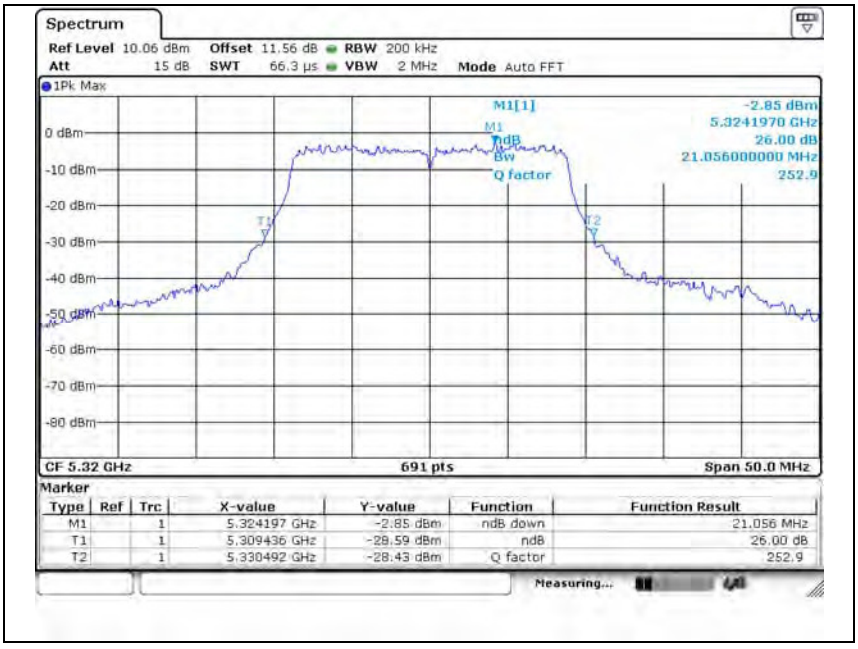


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The test results in the report only apply to the tested sample.

Channel 56

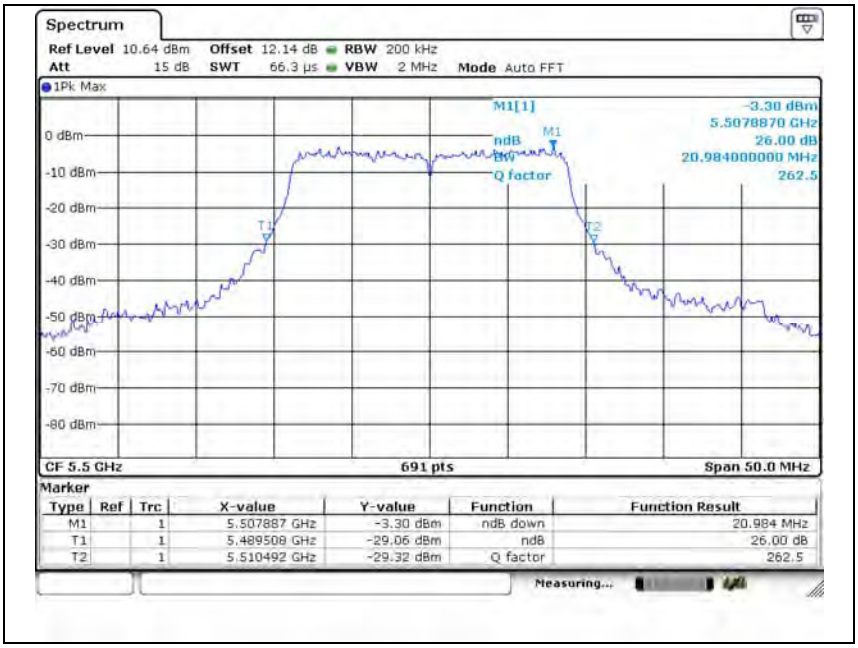


Channel 64

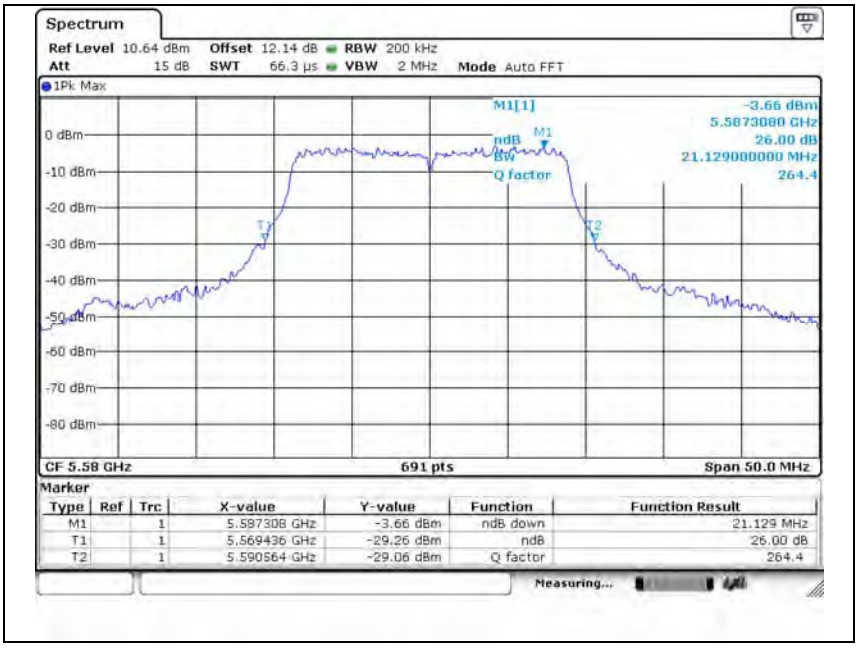


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Channel 100

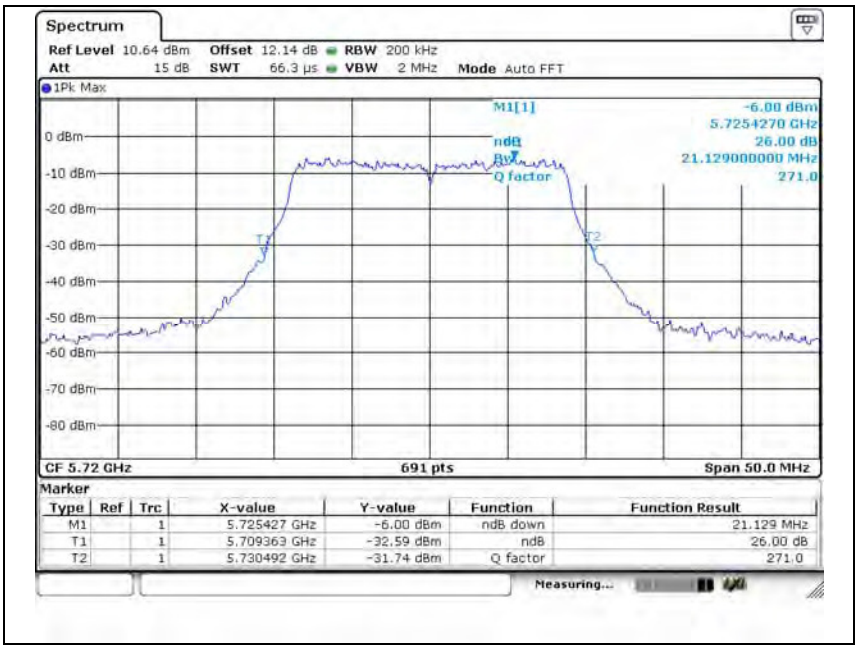


Channel 116

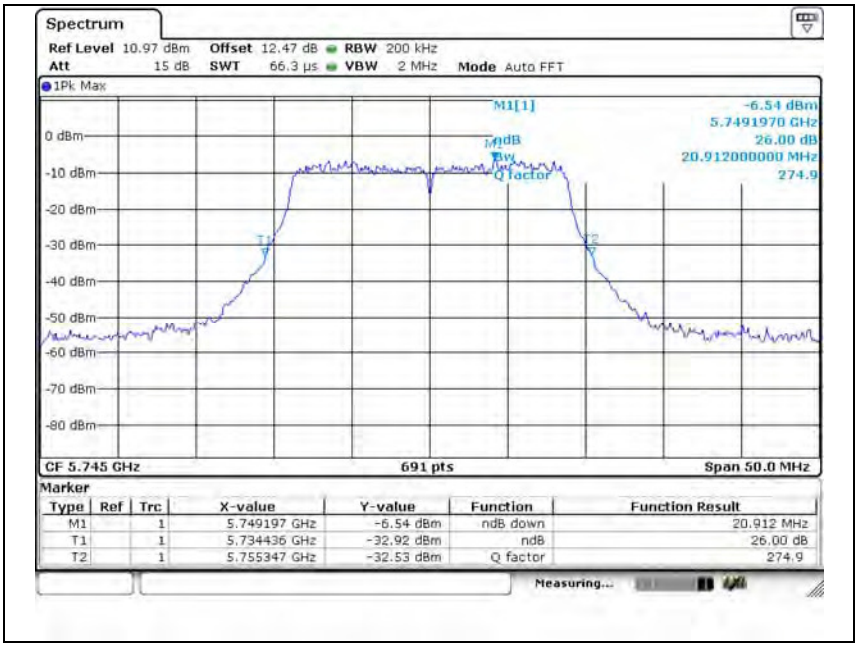


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The test results in the report only apply to the tested sample.

Channel 144

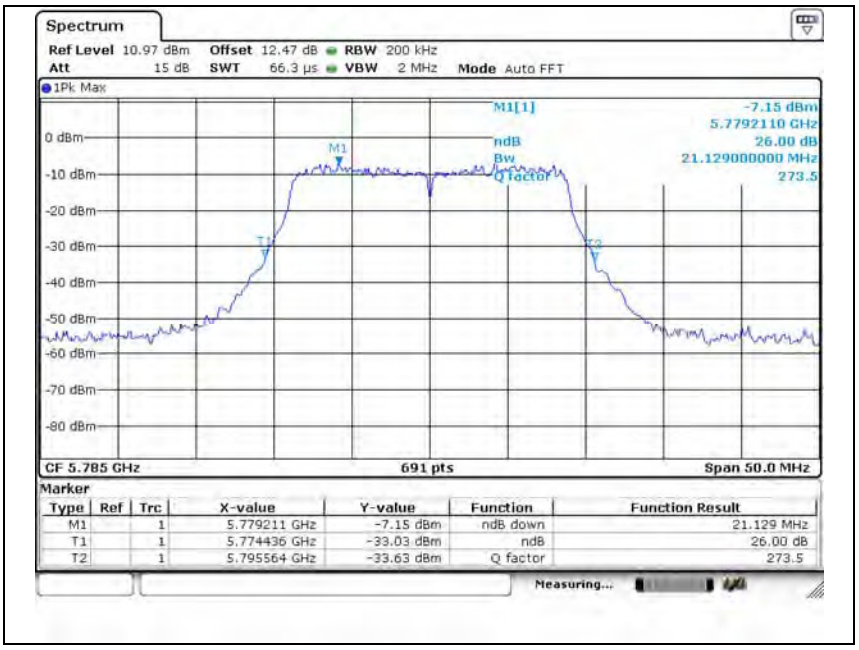


Channel 149

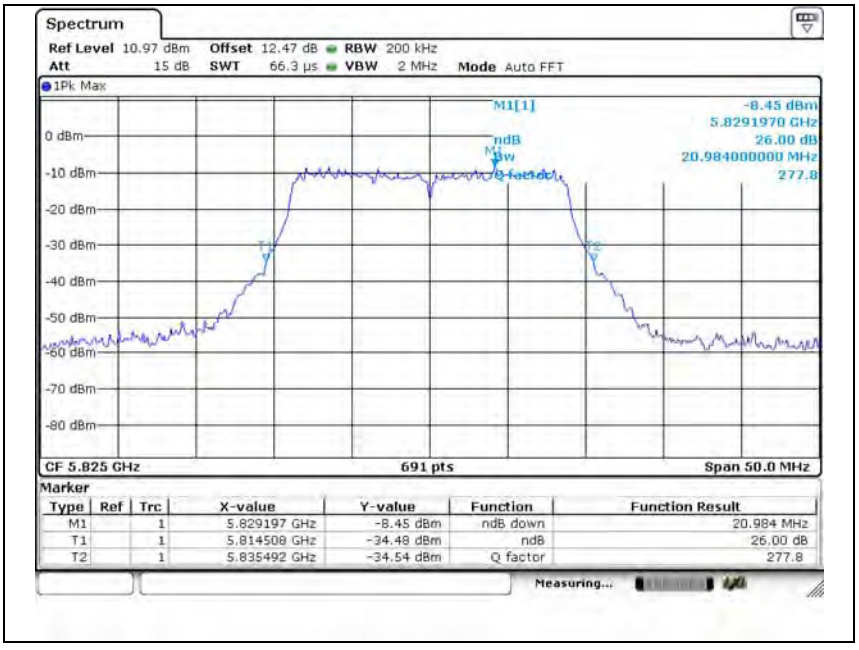


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Channel 157



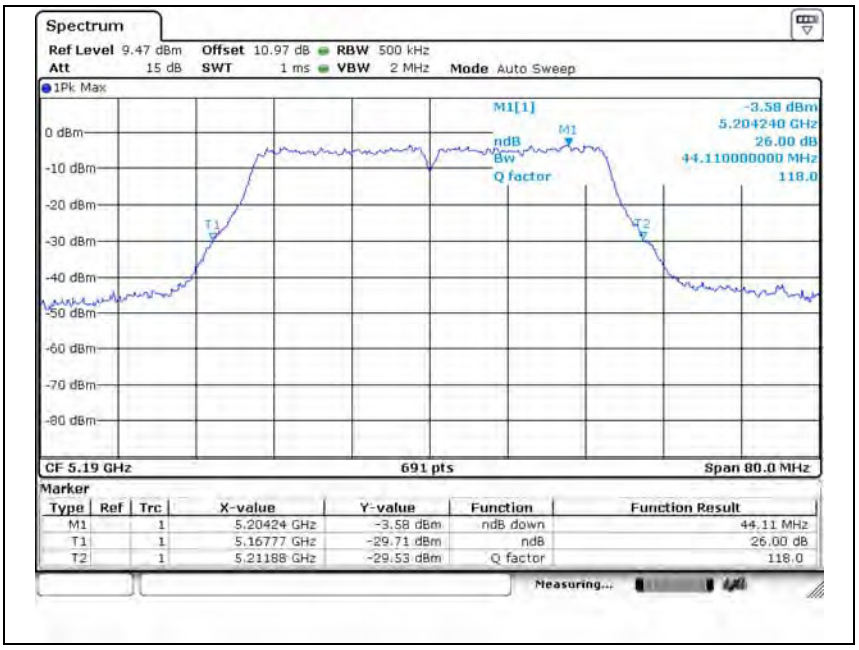
Channel 165



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The test results in the report only apply to the tested sample.

802.11ac_VHT40

Channel 38

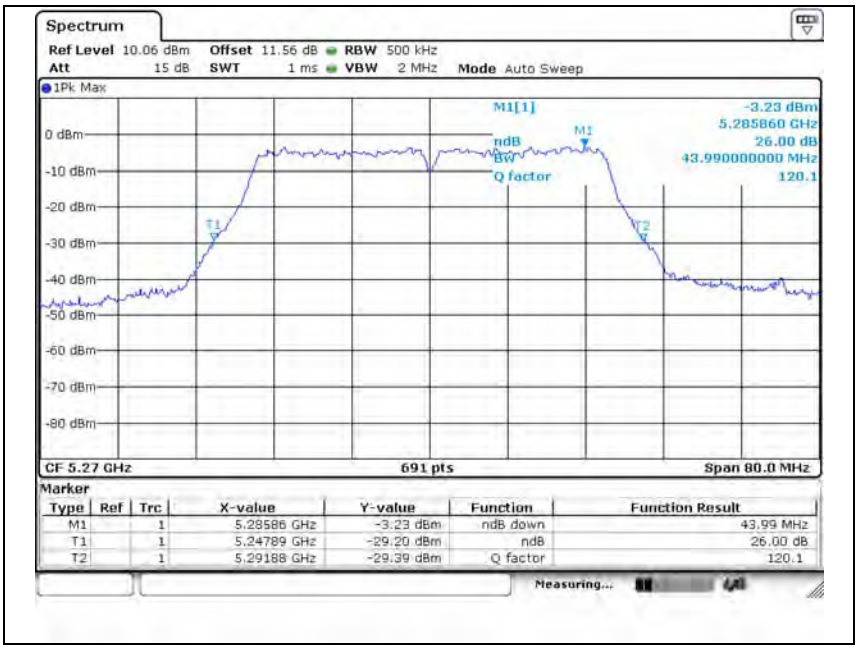


Channel 46

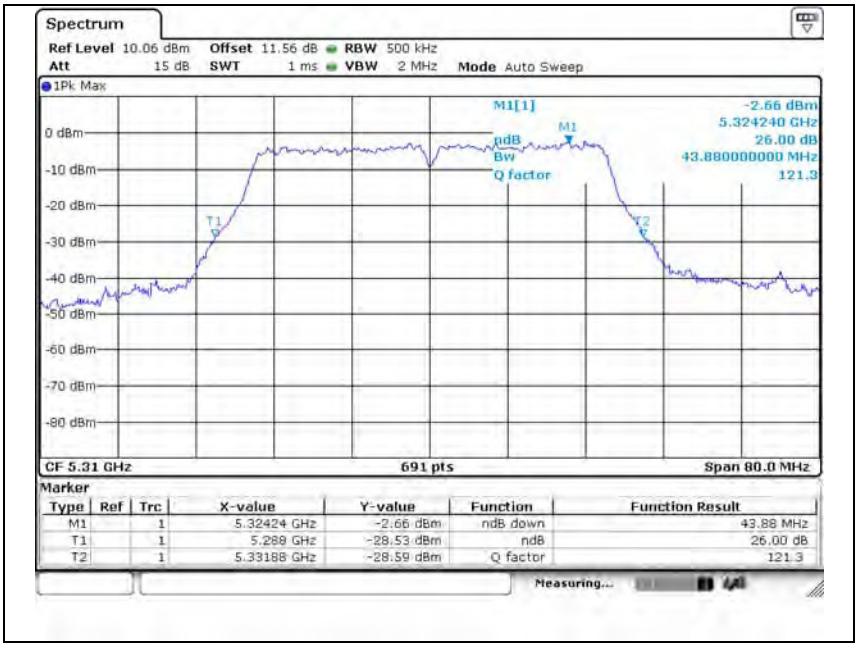


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The test results in the report only apply to the tested sample.

Channel 54

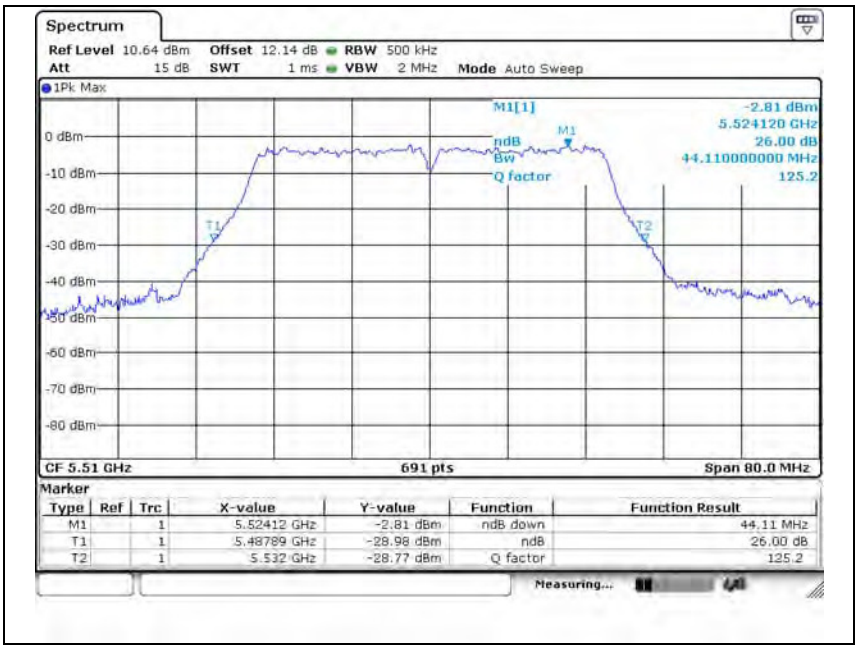


Channel 62

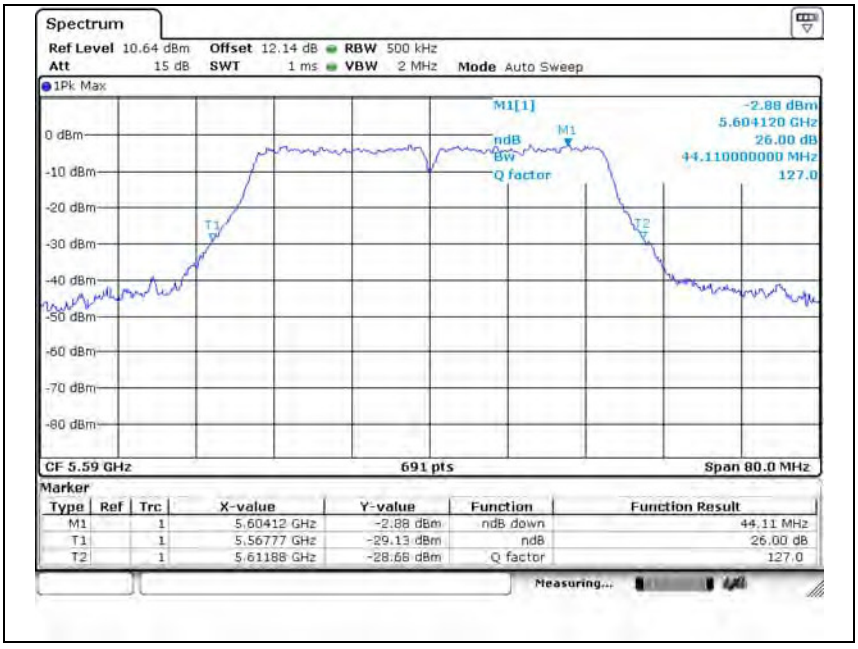


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The test results in the report only apply to the tested sample.

Channel 102

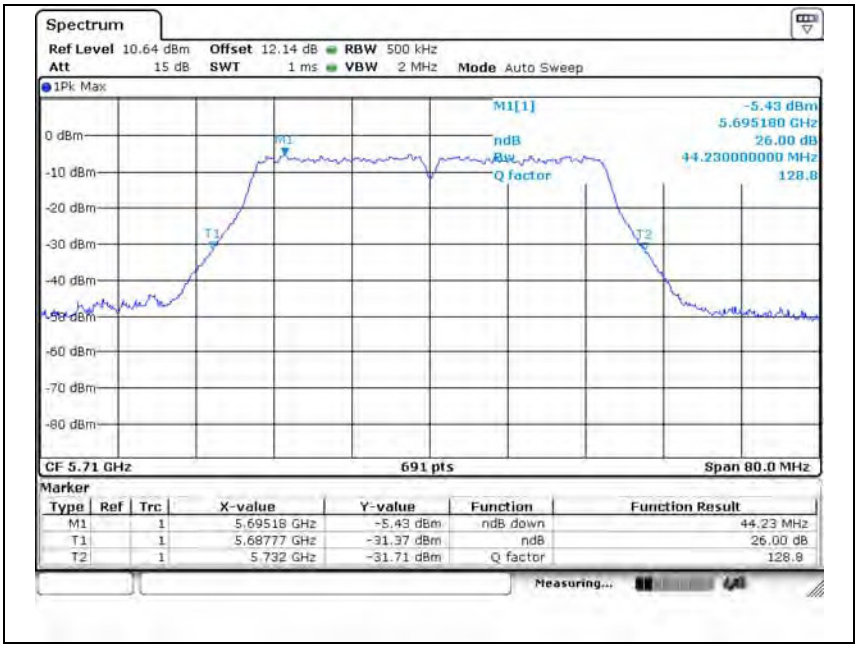


Channel 118

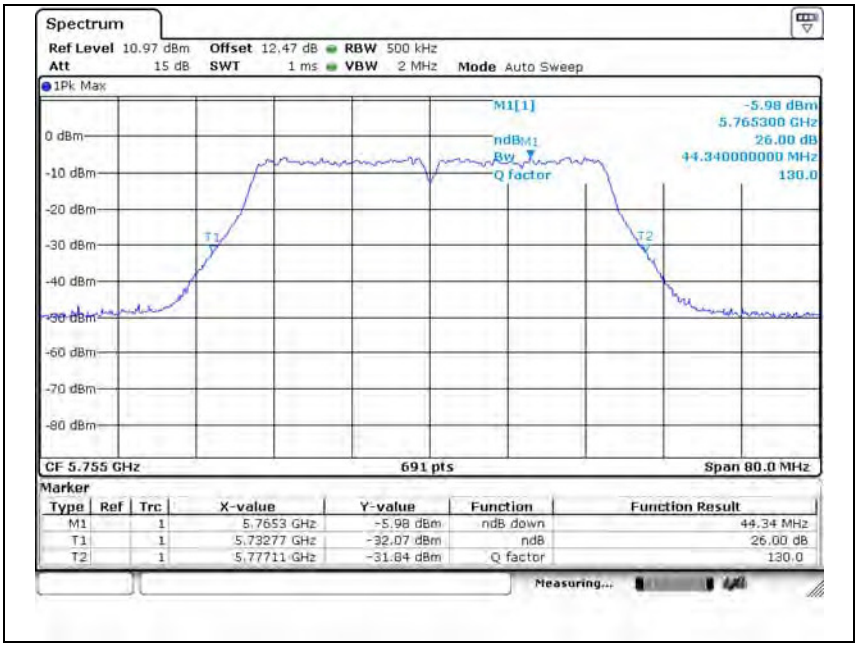


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The test results in the report only apply to the tested sample.

Channel 142

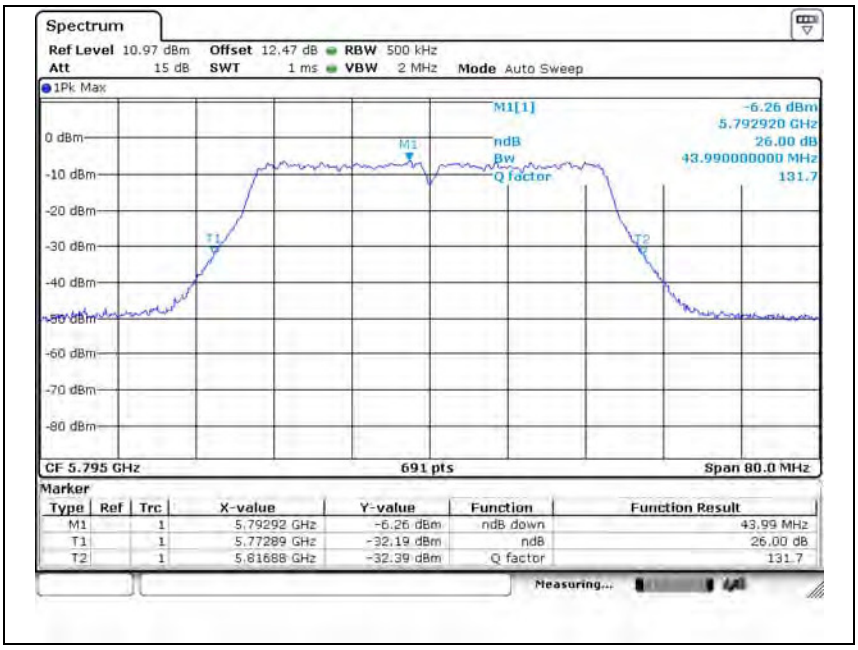


Channel 151



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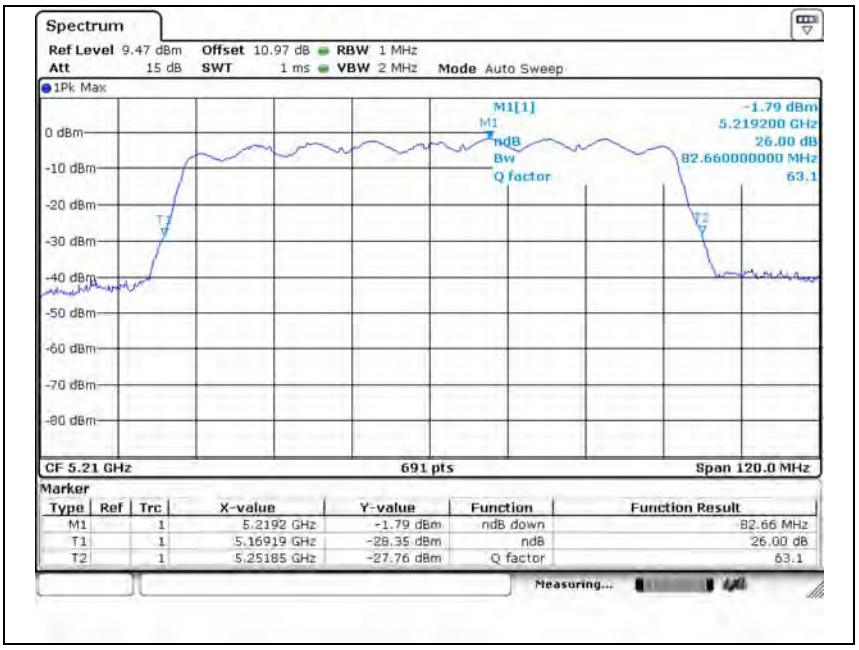
Channel 159



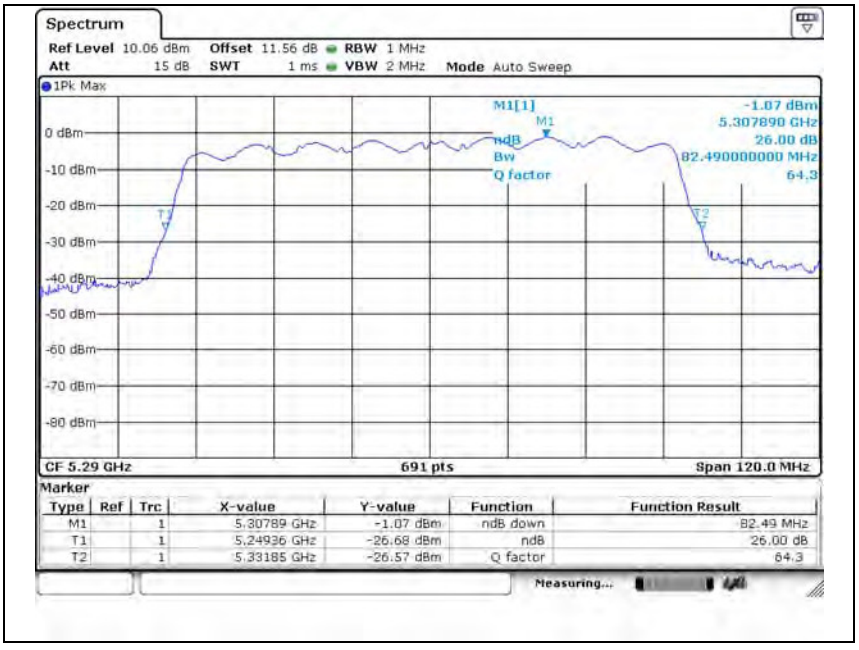
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The test results in the report only apply to the tested sample.

802.11ac_VHT80

Channel 42

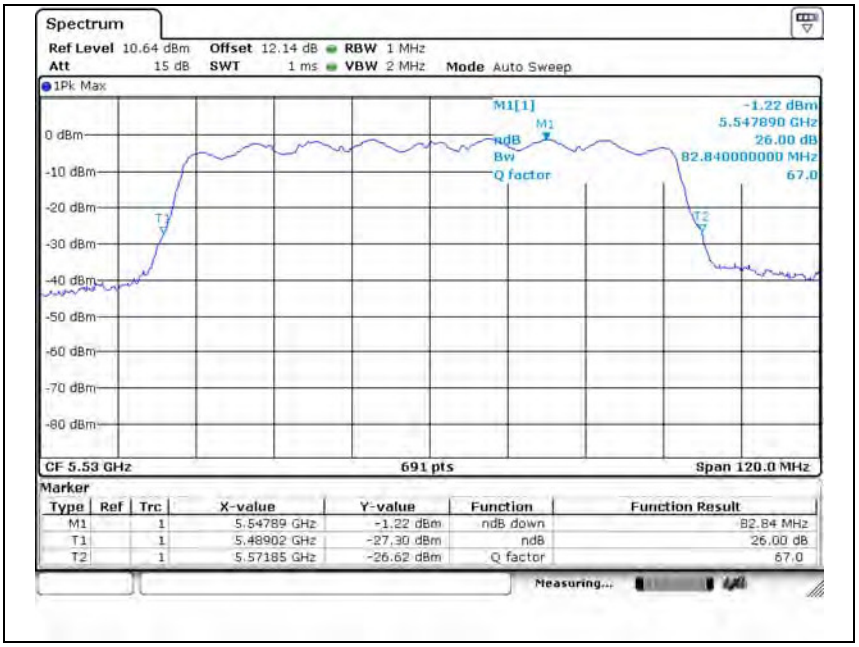


Channel 58

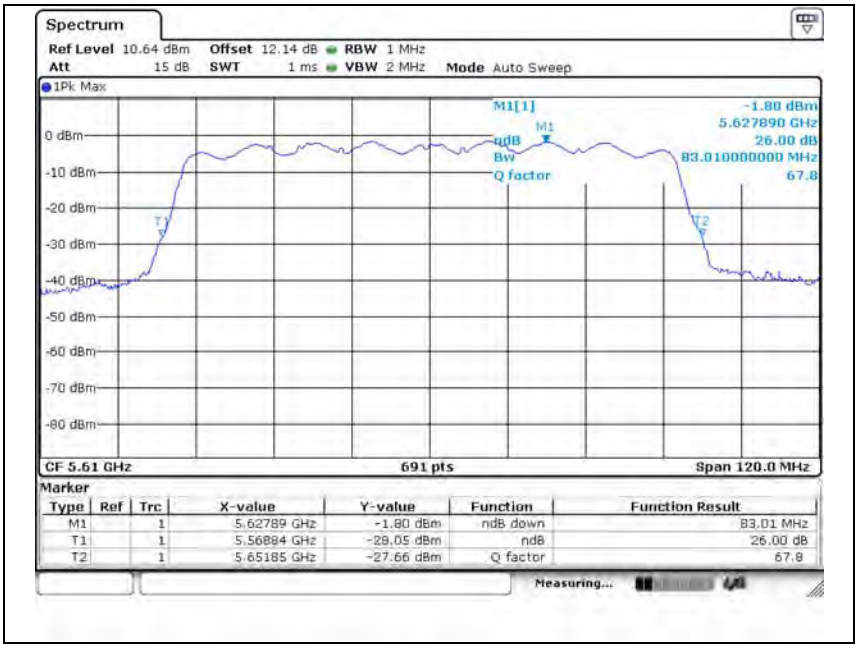


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The test results in the report only apply to the tested sample.

Channel 106

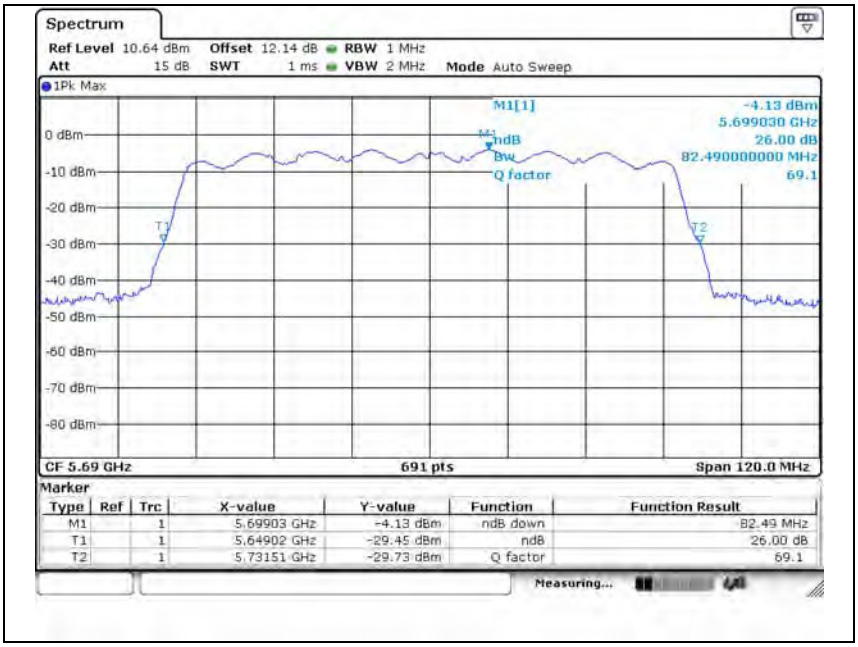


Channel 122

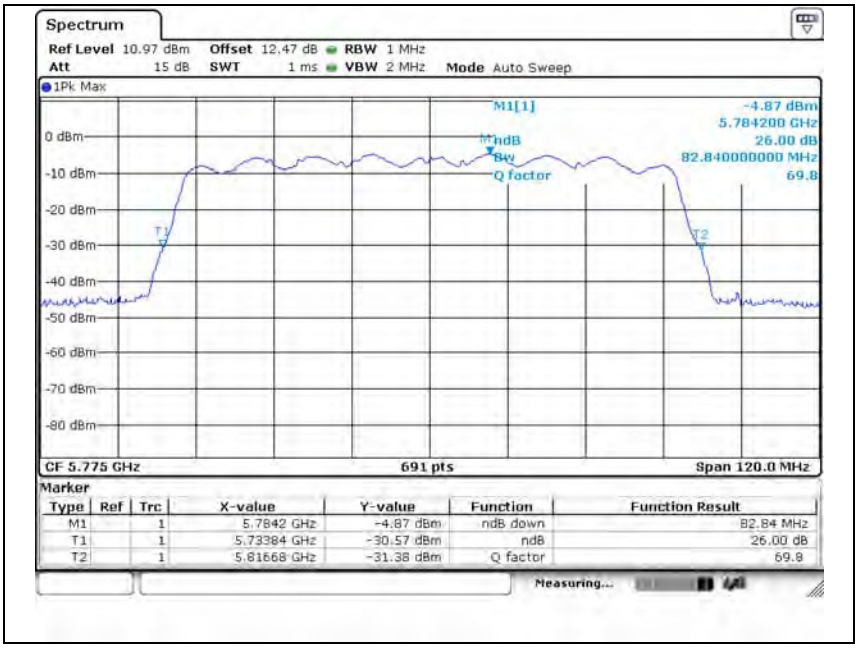


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The test results in the report only apply to the tested sample.

Channel 138



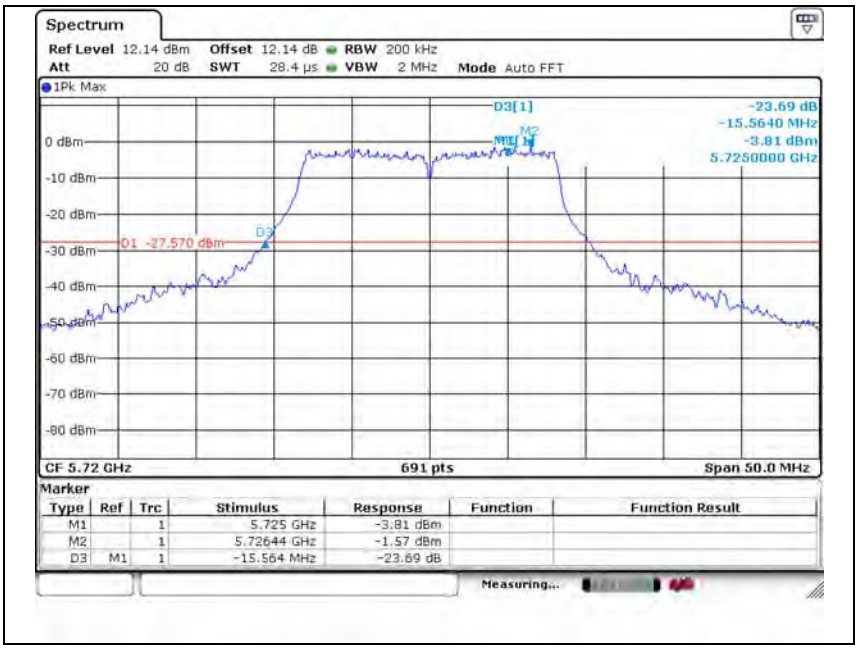
Channel 155



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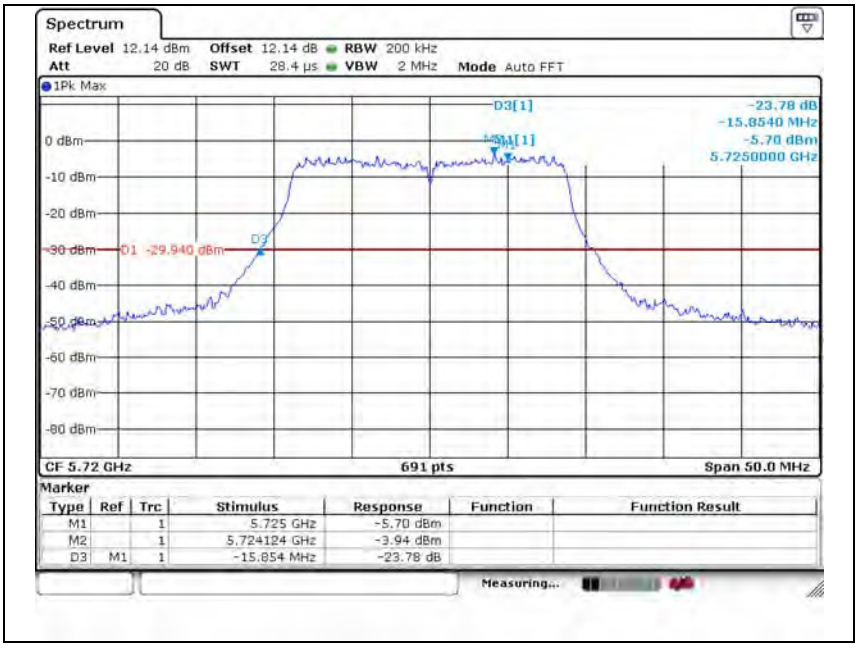
Band-crossing channels
802.11a

Channel 144



802.11n_HT20

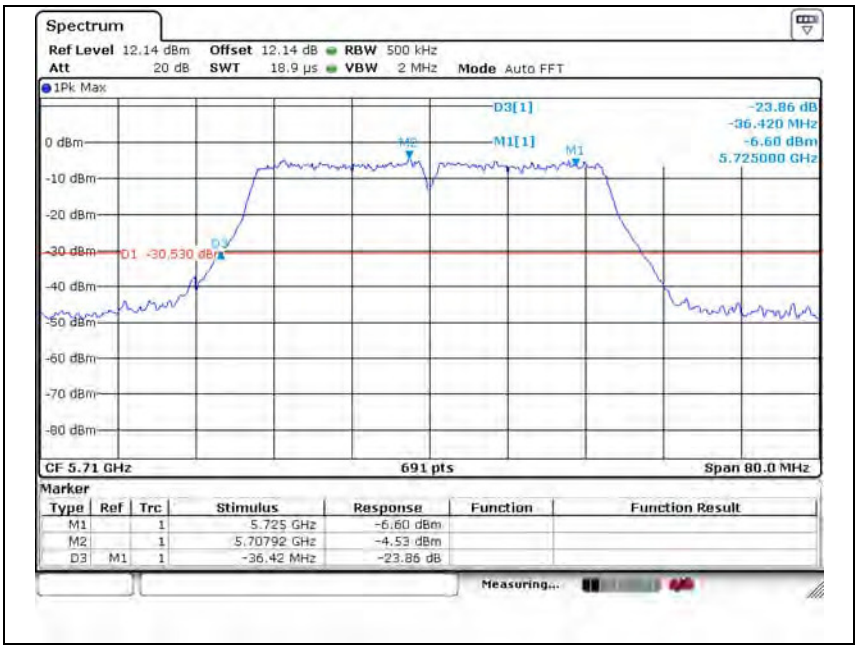
Channel 144



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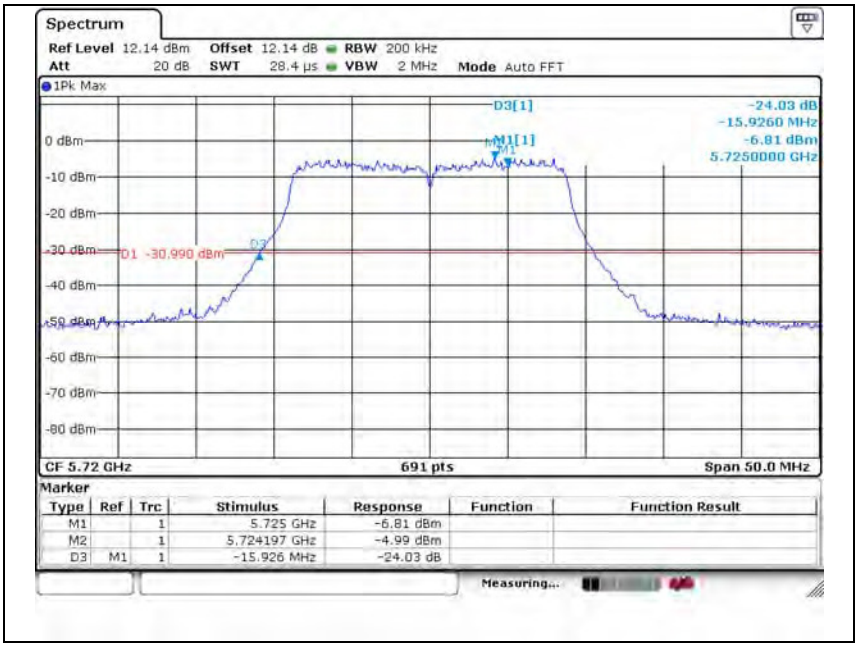
802.11n_HT40

Channel 142



802.11ac_VHT20

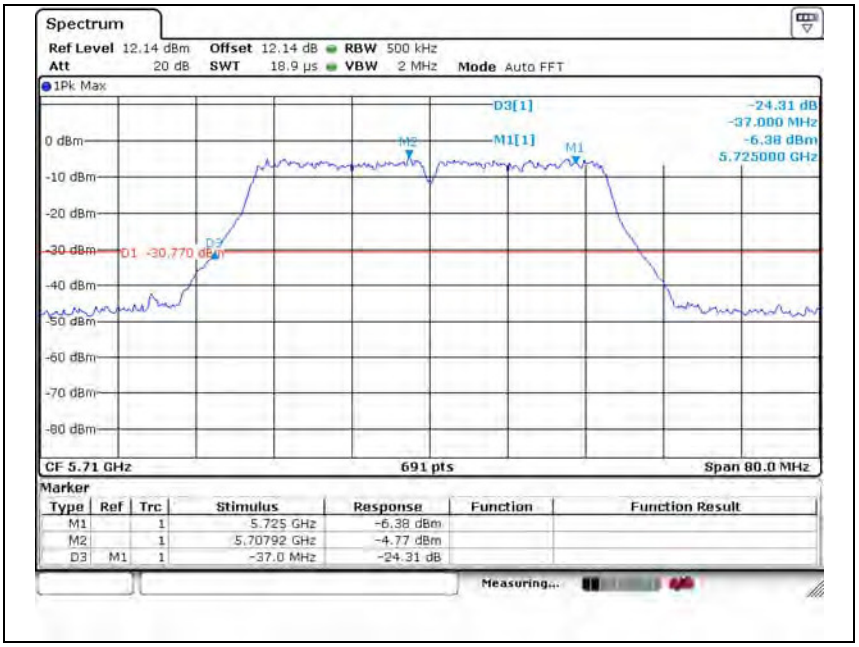
Channel 144



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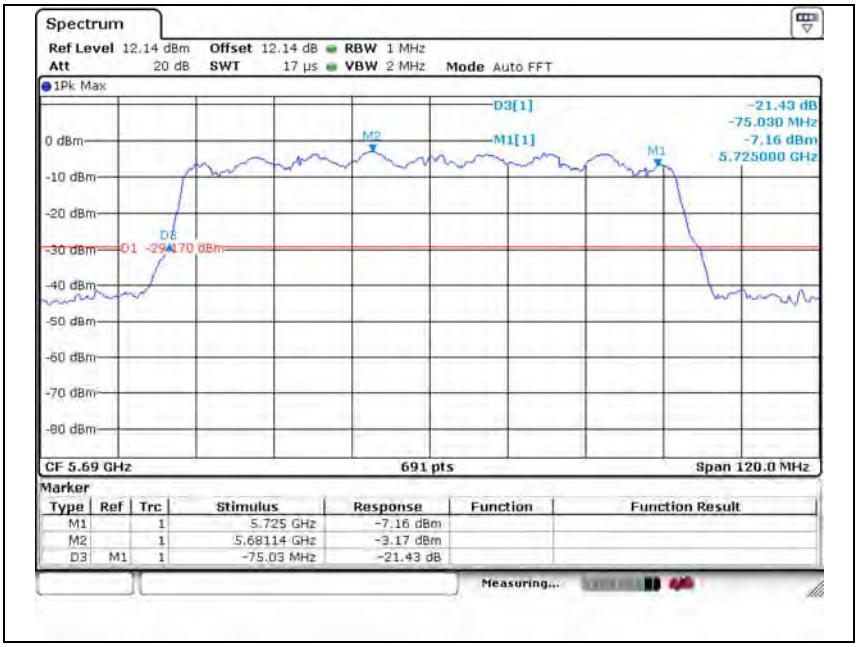
802.11ac_VHT40

Channel 142



802.11ac_VHT80

Channel 138

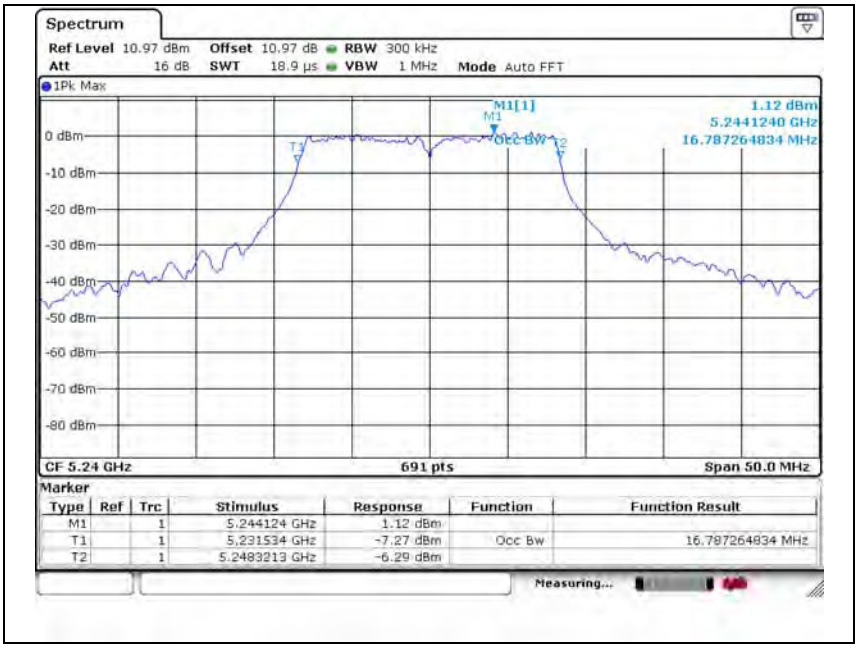


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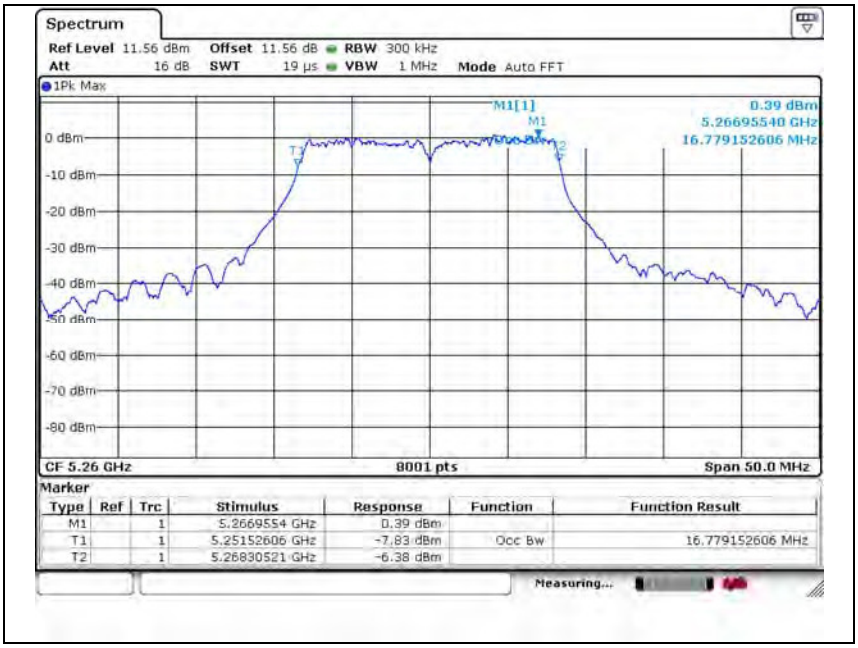
99 % bandwidth

802.11a

Channel 48



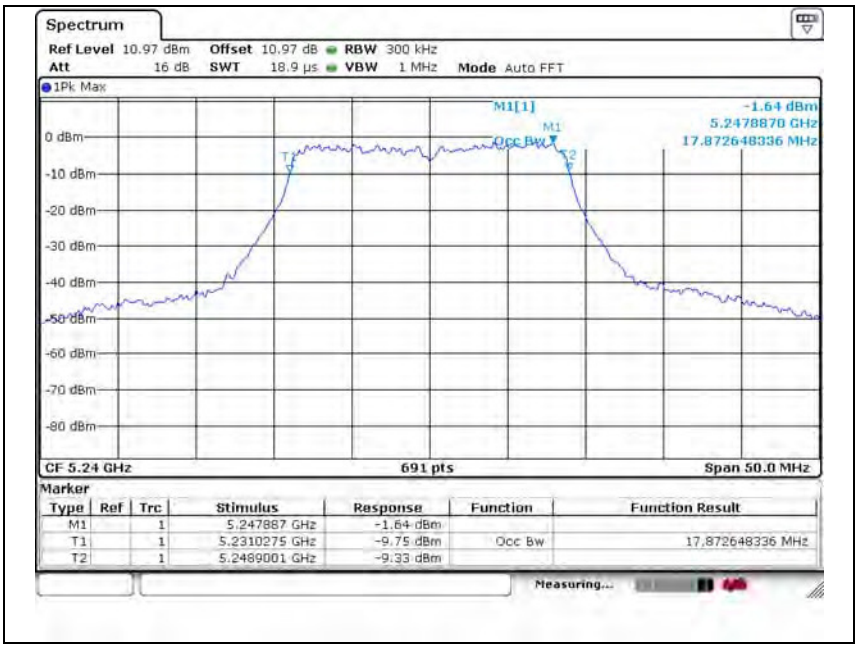
Channel 52



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802.11n_HT20

Channel 48



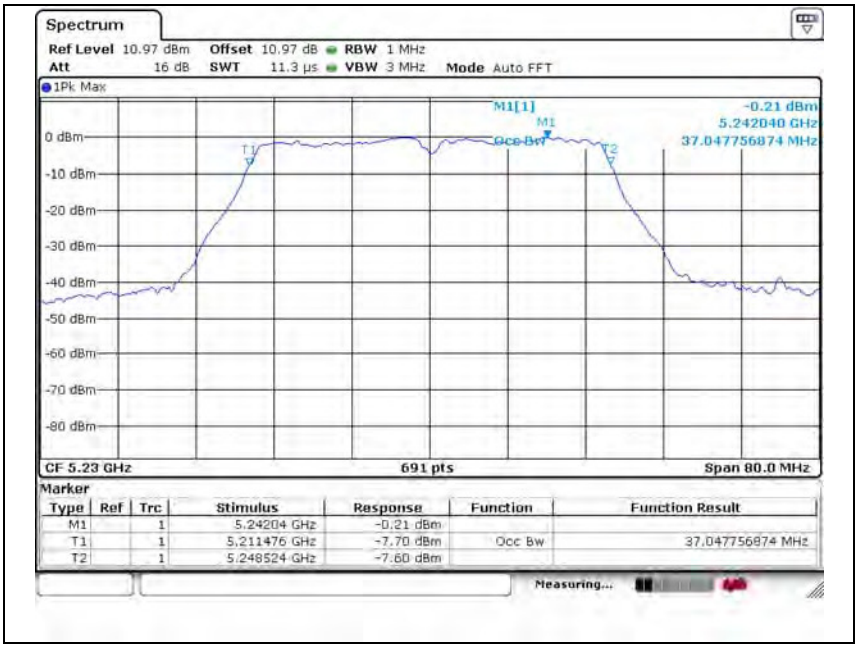
Channel 52



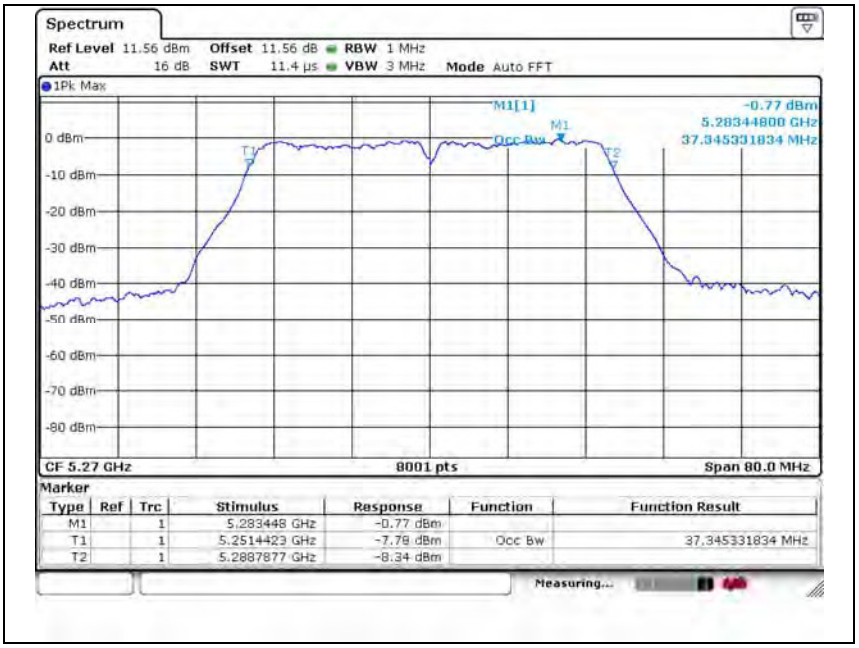
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802.11n_HT40

Channel 46



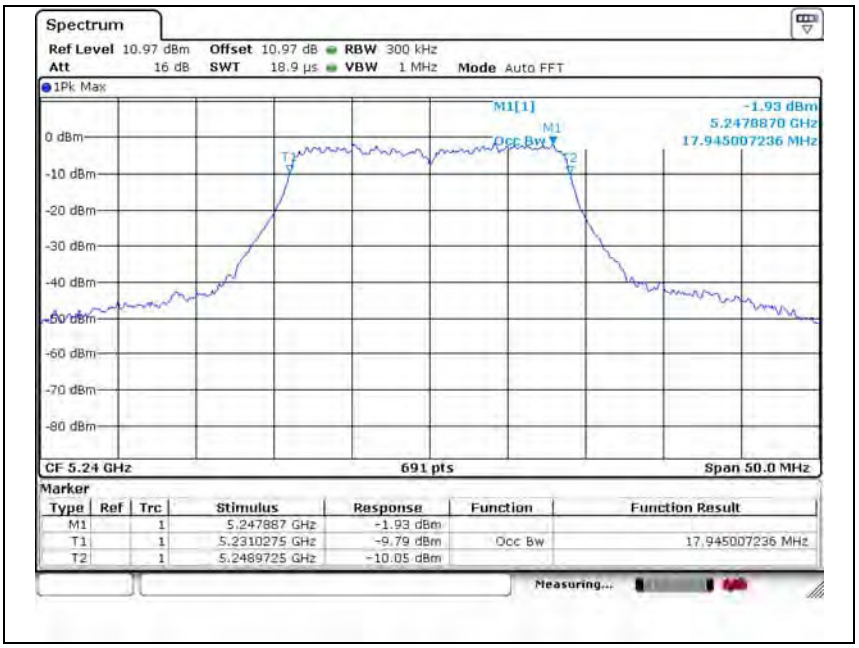
Channel 54



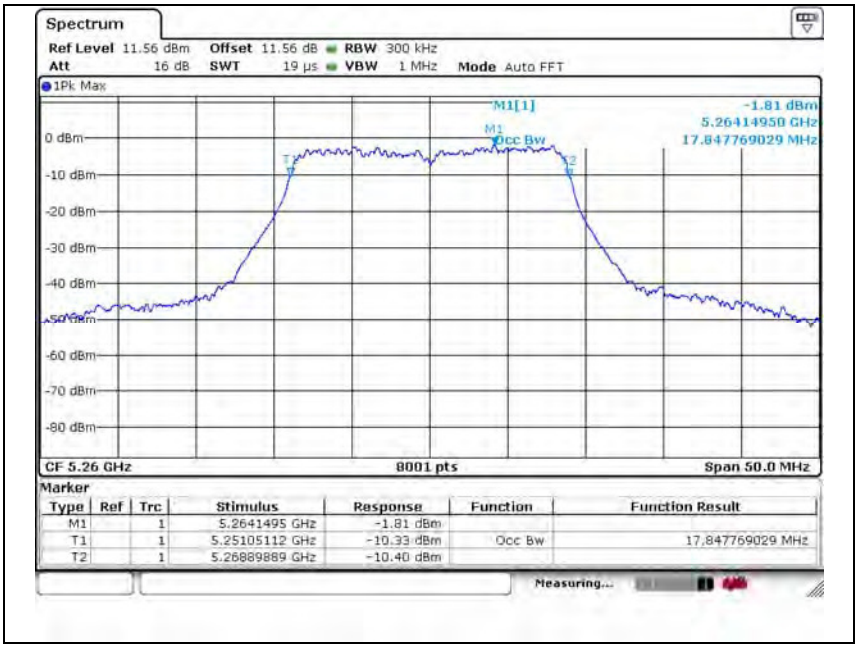
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802.11ac_VHT20

Channel 48



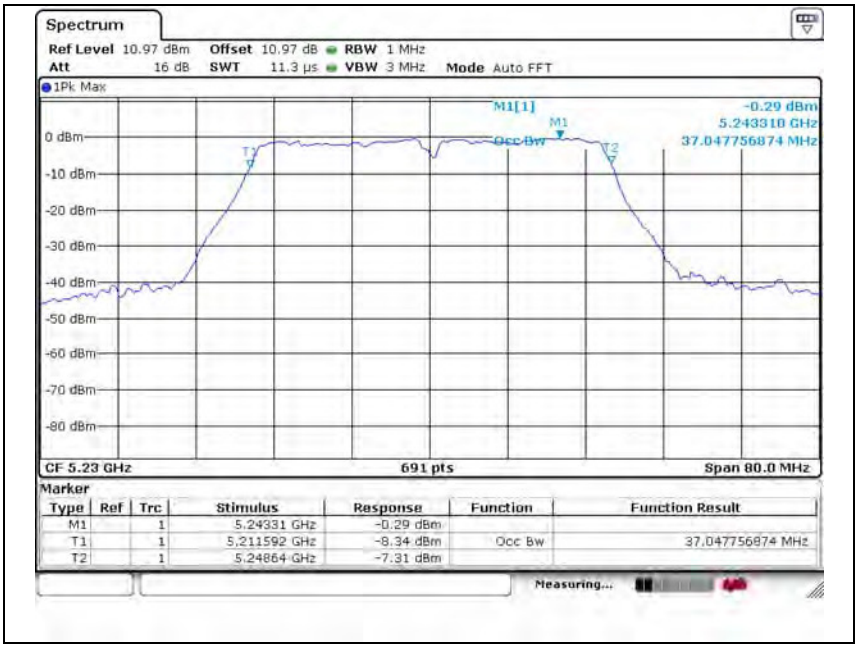
Channel 52



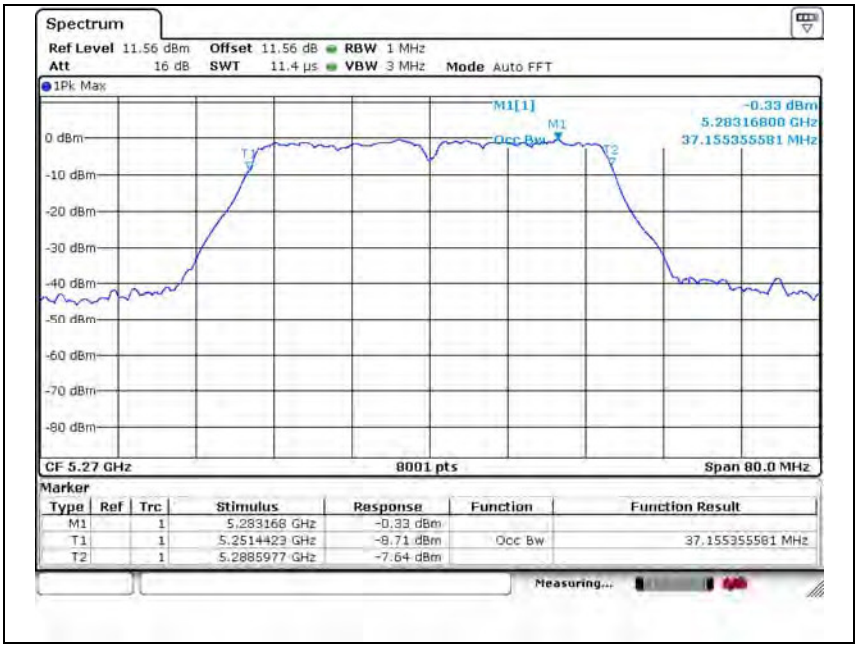
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802.11ac_VHT40

Channel 46



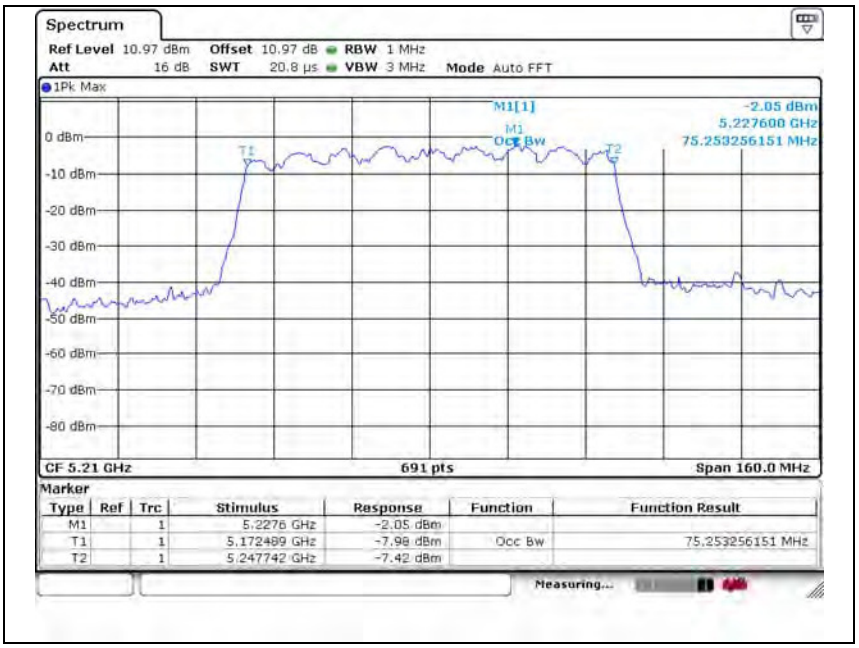
Channel 54



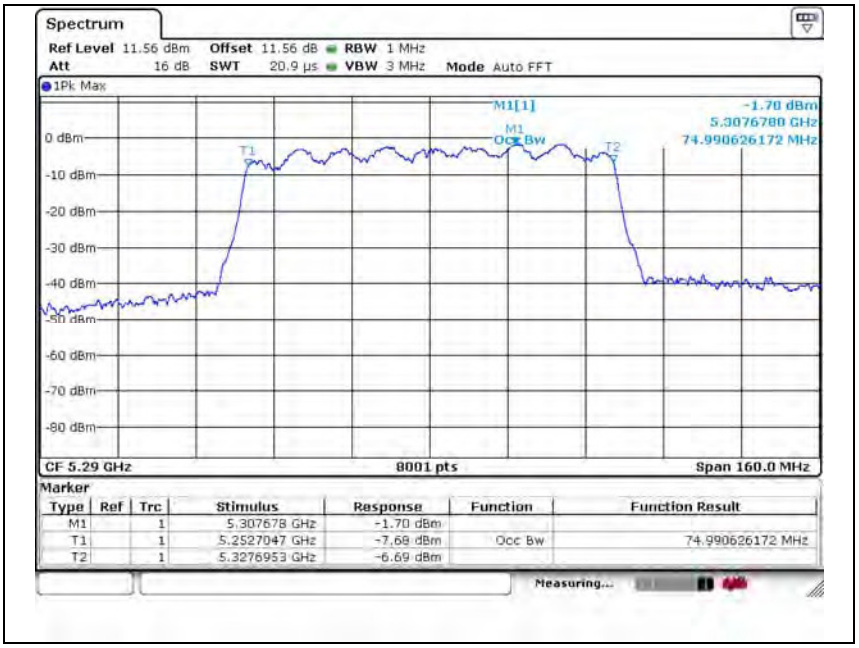
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802.11ac_VHT80

Channel 42



Channel 58



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3.2. 6 dB bandwidth

Test procedure

KDB 789033 D02 v01r03– Section C.2, KDB 644545 D03 v01

1. Set RBW = 100 ㎑
2. Set the video bandwidth (VBW) ≥ 3 × RBW.
3. Detector = peak.
4. Sweep = auto couple.
5. Allow the trace to stabilize
6. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
7. In case of band crossing channels 138, 142 and 144, the measurement is complied with section D of KDB 644545_D03 v01.

Limit

Within the 5.725-5.85 ㎓ band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 ㎑.

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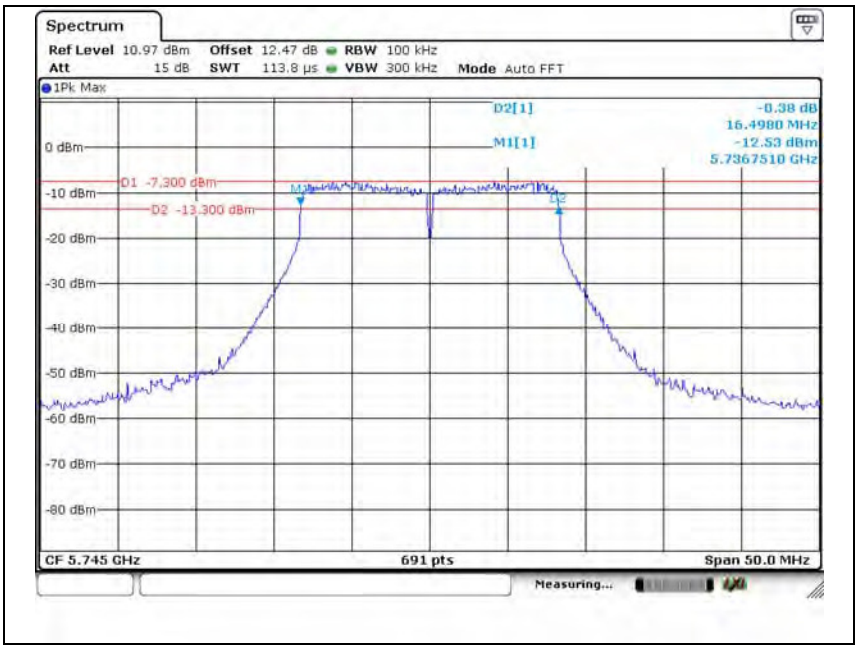
Test results

Band	Frequency(㎒)	Mode	6 dB bandwidth(㎒)
UNII-3	5 745	a	16.498
	5 785		16.498
	5 825		16.498
	5 745	HT20	17.656
	5 785		17.728
	5 825		17.656
	5 755	HT40	36.580
	5 795		36.470
	5 745	VHT20	17.728
	5 785		17.656
	5 825		17.656
	5 755	VHT40	36.580
	5 795		36.580
	5 775	VHT80	75.540
UNII-3 (Band-crossing channels)	5 720	a	3.249
	5 720	HT20	3.828
	5 710	HT40	3.290
	5 720	VHT20	3.799
	5 710	VHT40	3.340
	5 690	VHT80	2.810

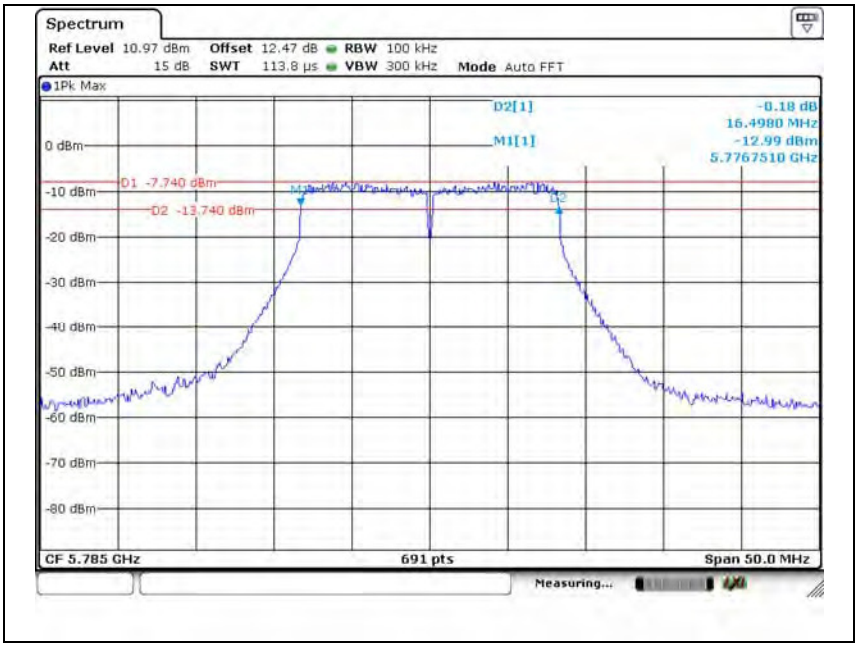
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802.11a

Channel 149

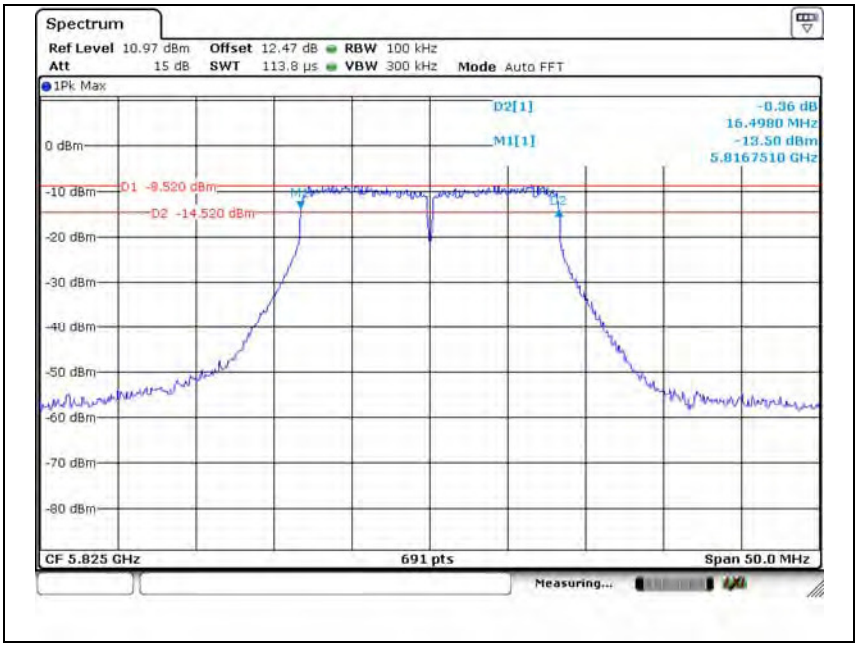


Channel 157



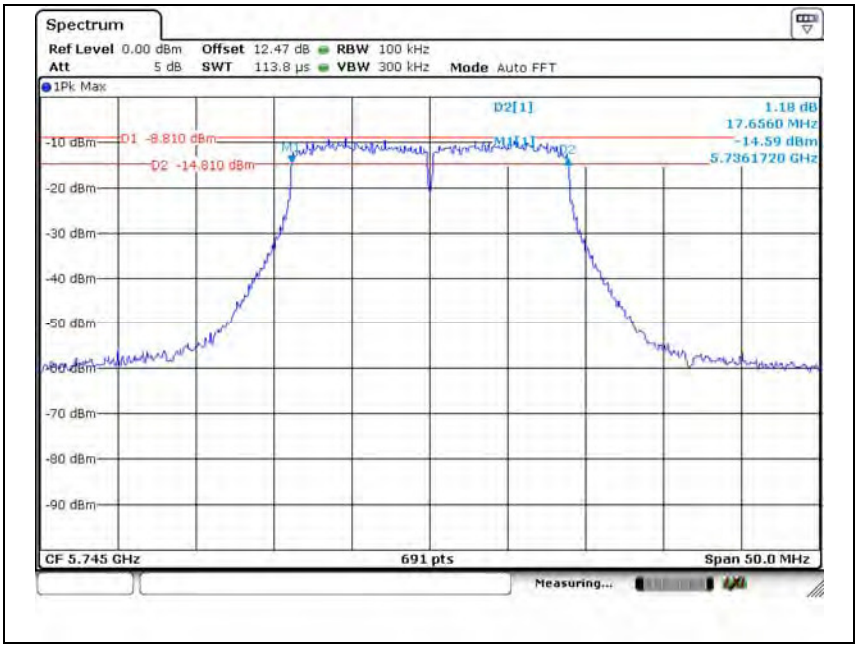
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Channel 165



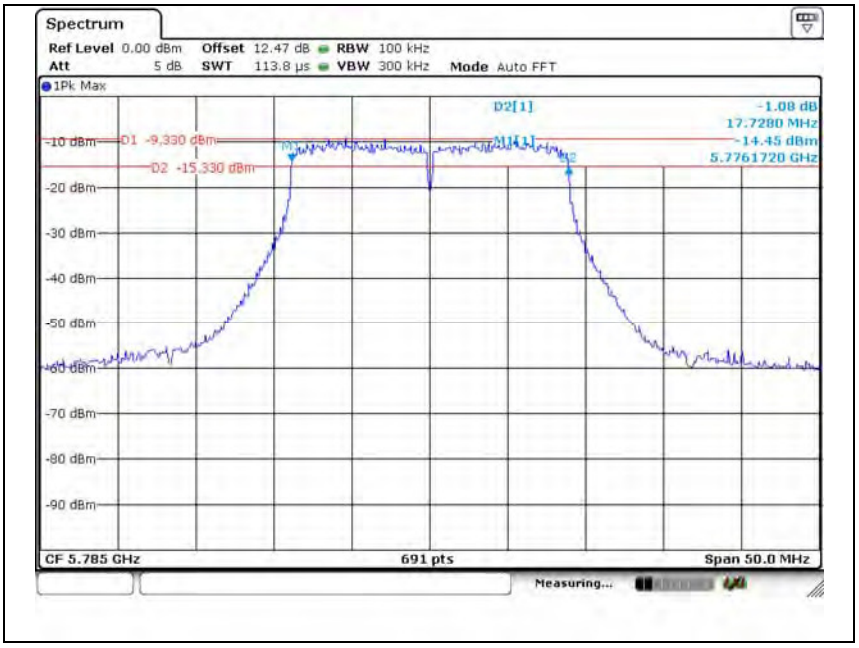
802.11n_HT20

Channel 149

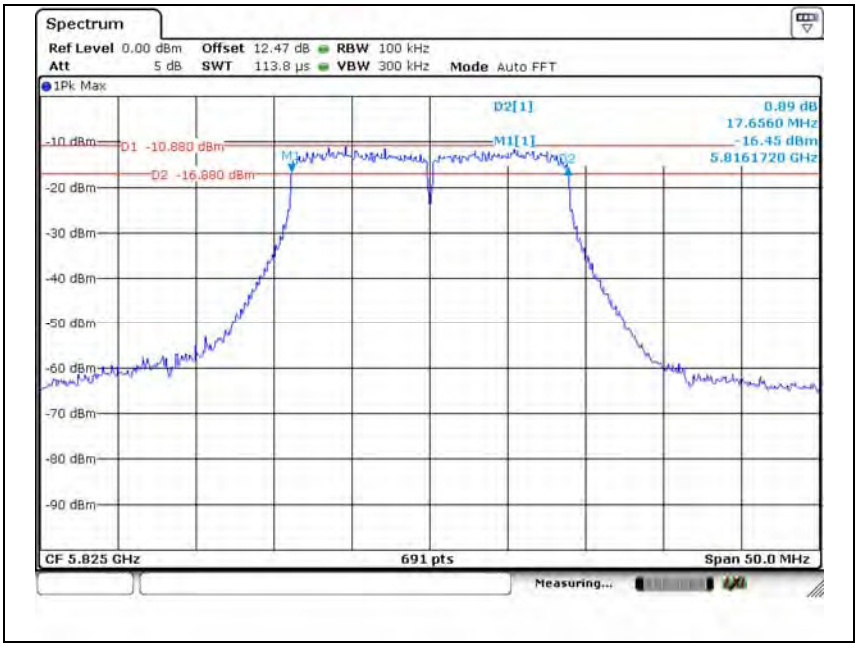


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Channel 157



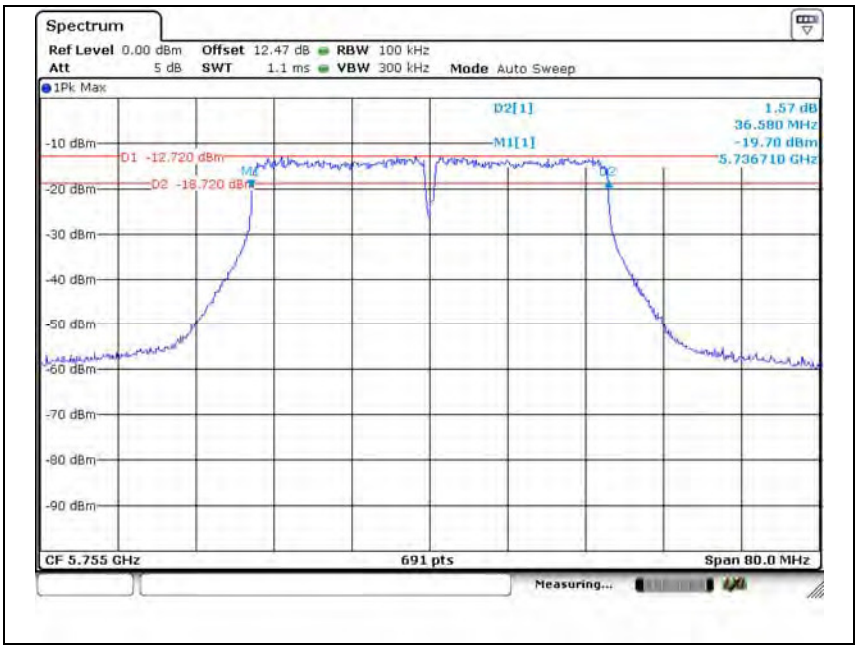
Channel 165



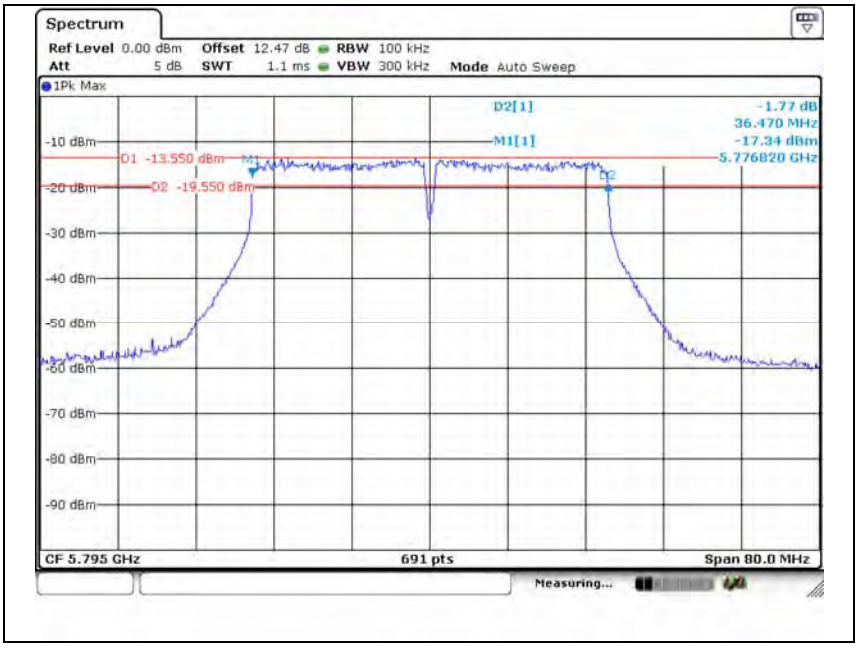
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802.11n_HT40

Channel 151



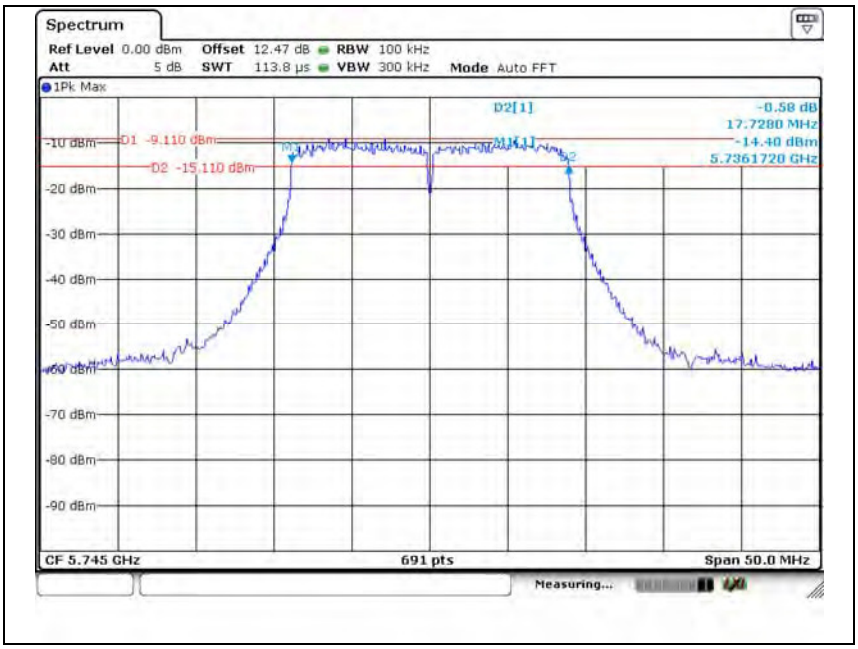
Channel 159



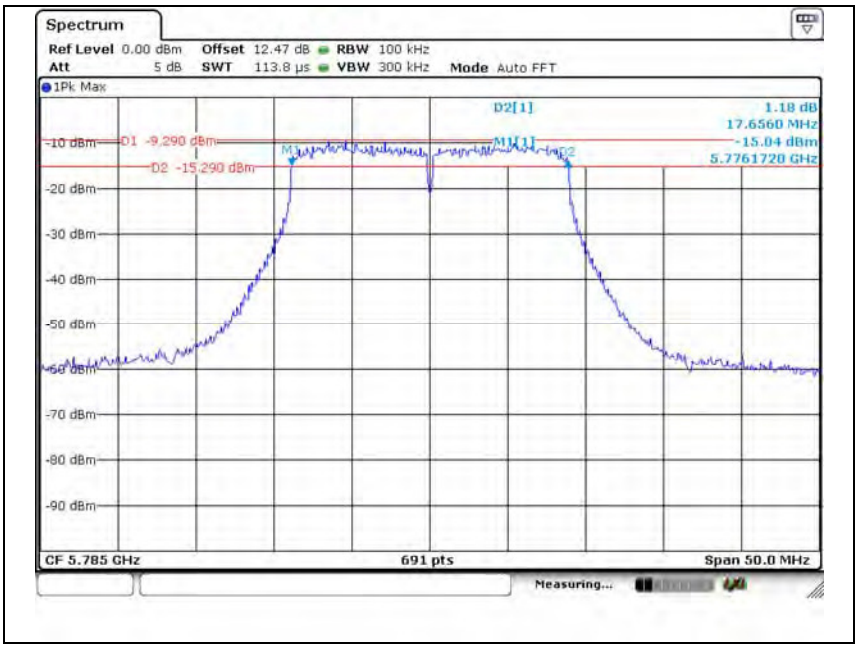
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802.11ac_VHT20

Channel 149

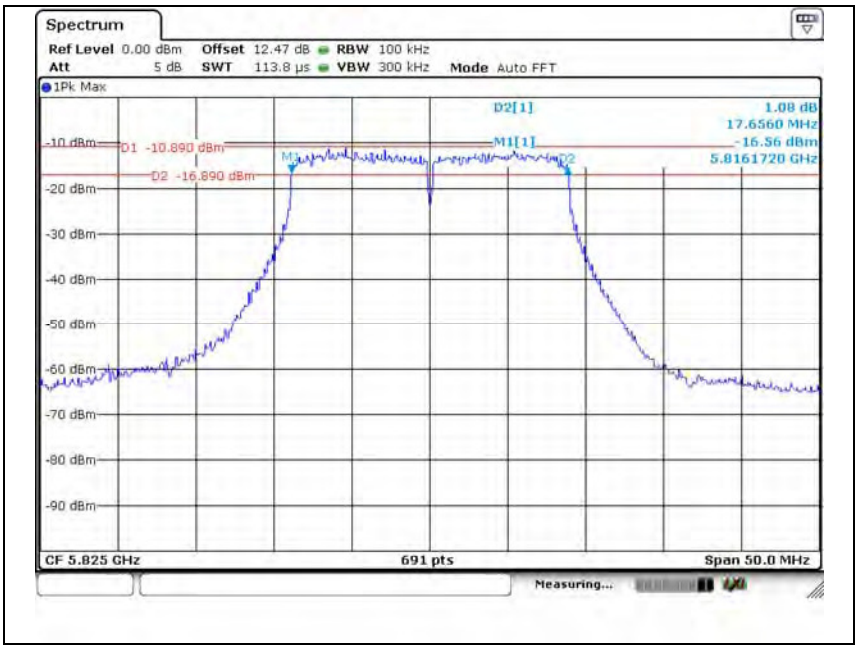


Channel 157



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Channel 165



802.11ac_VHT40

Channel 151



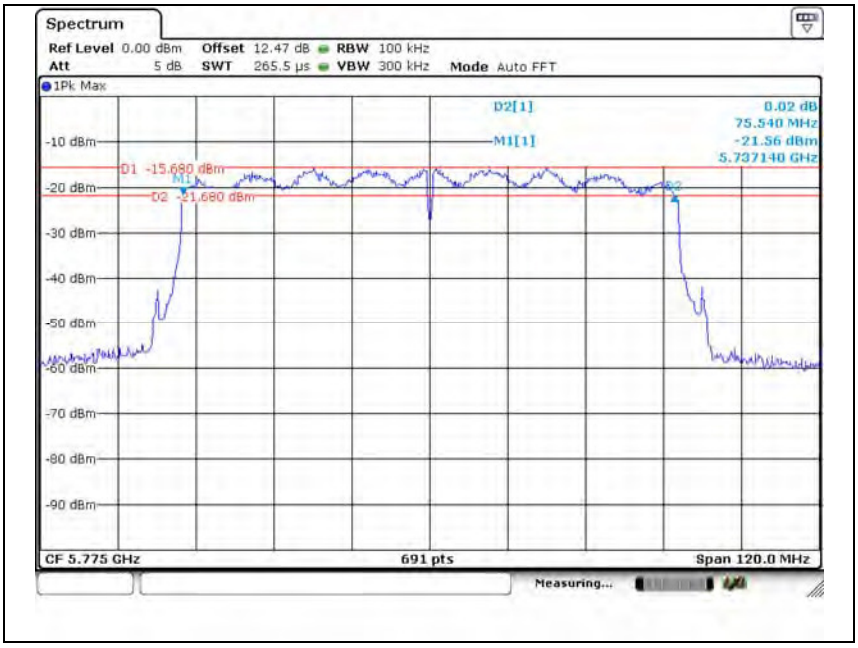
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Channel 159



802.11ac_VHT80

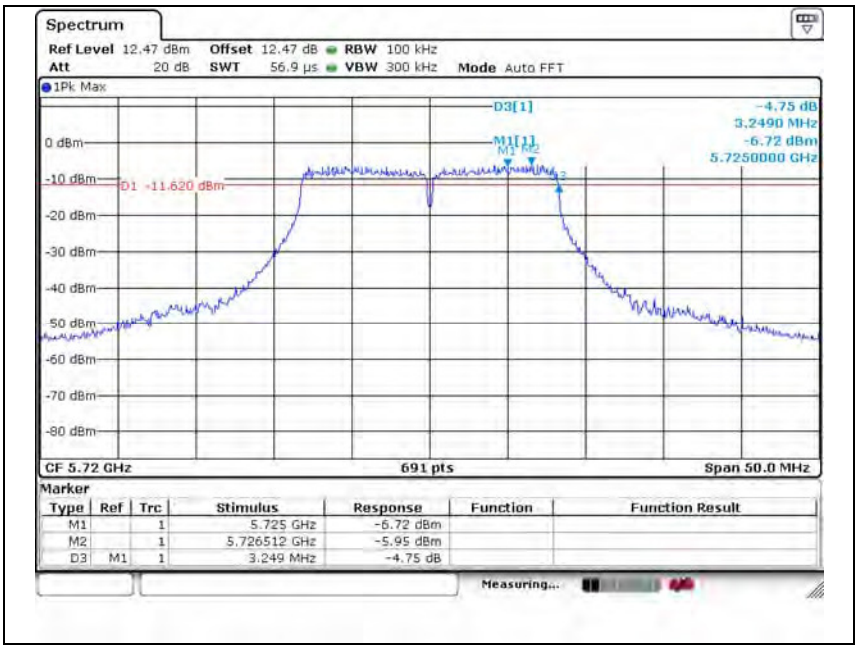
Channel 155



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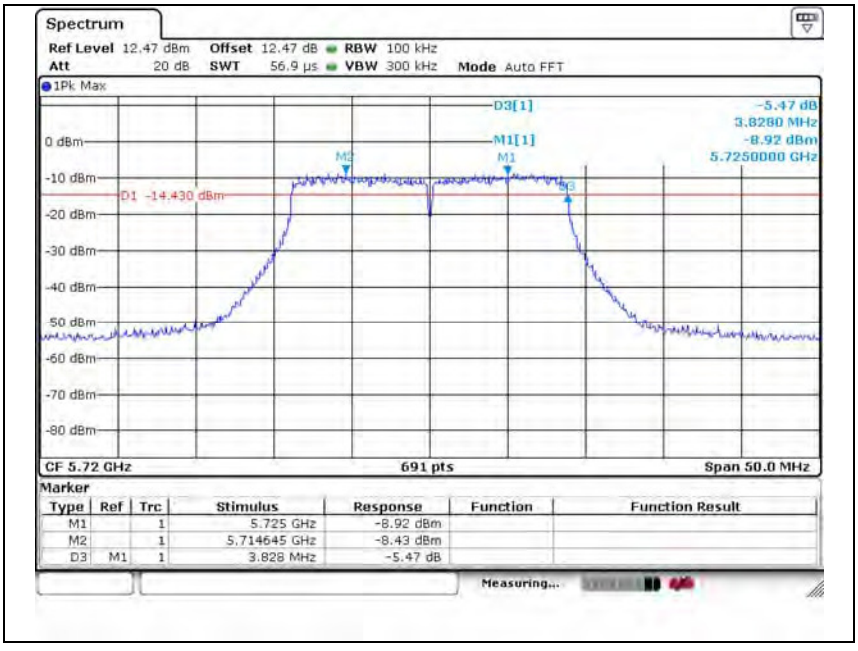
Band-crossing channels
802.11a

Channel 144



802.11n_HT20

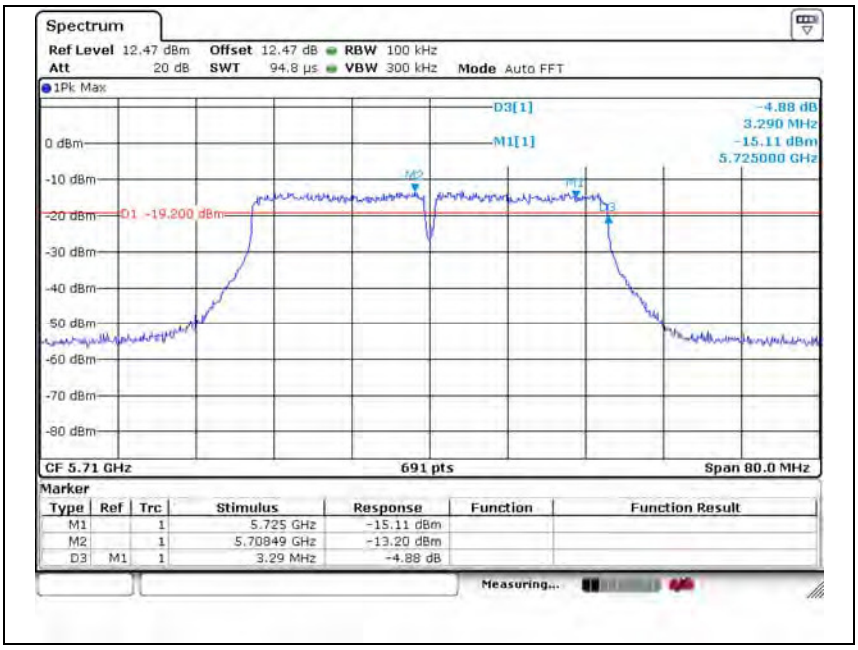
Channel 144



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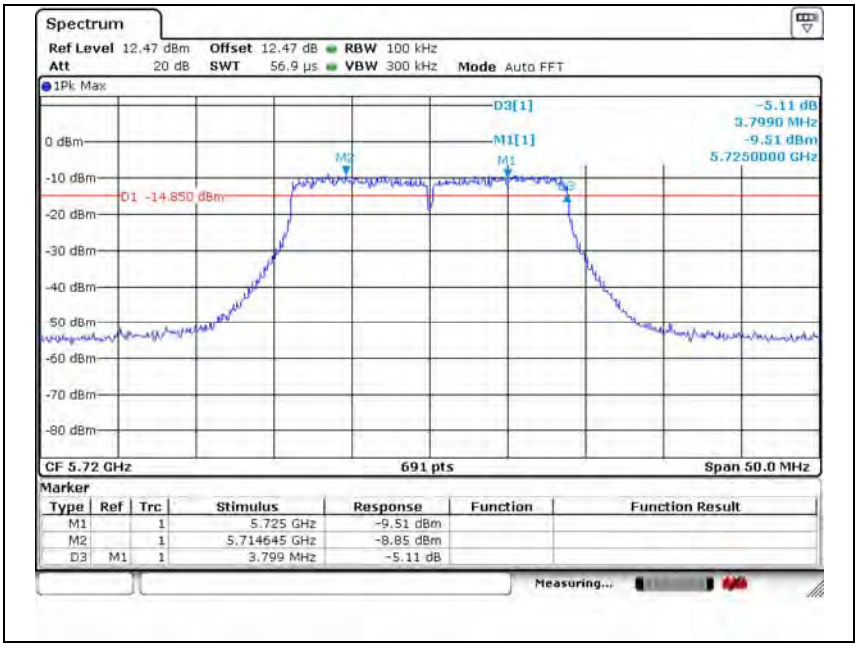
802.11n_HT40

Channel 142



802.11ac_VHT20

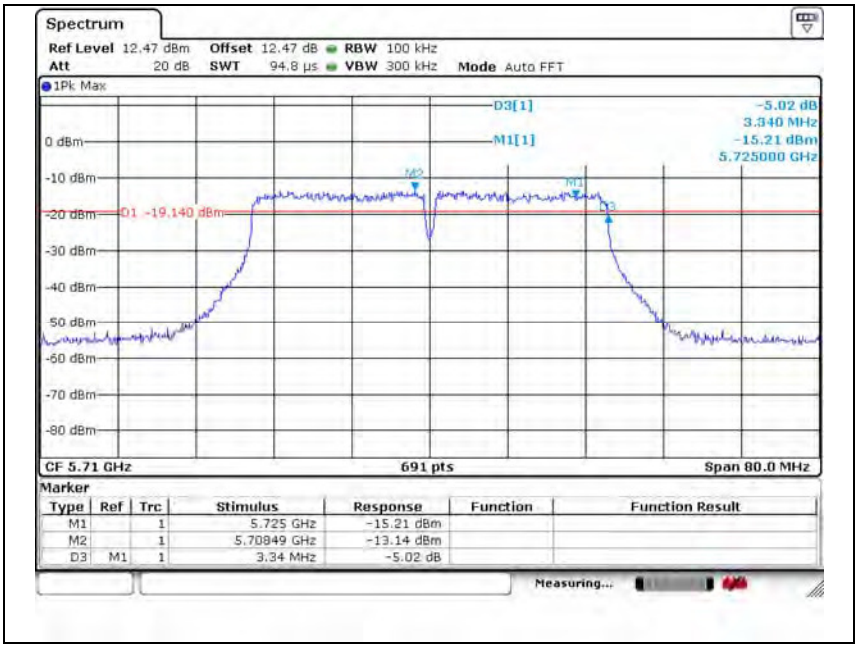
Channel 144



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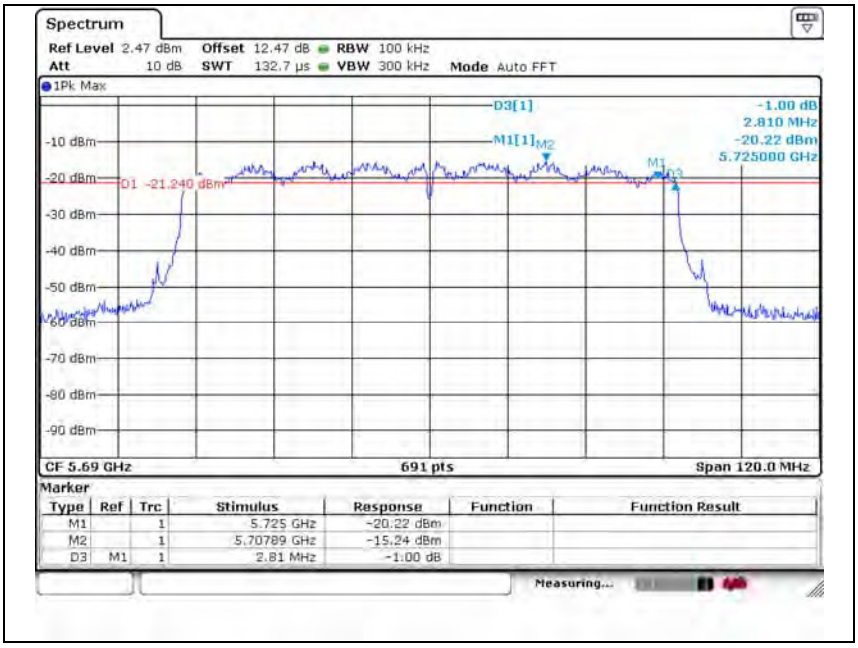
802.11ac_VHT40

Channel 142



802.11ac_VHT80

Channel 138



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3.3. Maximum conducted output power

Test procedure

KDB 789033 D02 v01r03– Section E.3.a) or b), KDB 644545 D03 v01

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 %).

v. In case of band crossing channels 138, 142 and 144, the measurement is complied with section E.2.d of KDB 644545_D03 v01

Method PM-G (Measurement using a gated RF average power meter):

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Limit

Band	EUT Category		Limit
UNII-1		Outdoor access point	1 W (30 dBm)
		Indoor access point	
		Fixed point-to-point access point	
	✓	Mobile and portable client device	250 mW(24 dBm)
UnII-2A	✓		250 mW or 11 dBm + 10logB*
UNII-2C	✓		250 mW or 11 dBm + 10logB*
UNII-3	✓		1 W (30 dBm)

Note.

1. B is the 26 dB emission bandwidth.

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Test results

Band	Frequency (㎒)	Mode	Detector mode	DCF Note1	Output power(dBm)	Limit (dBm)
UNII-1	5 180	a	AV	-	11.03	24.00
	5 220		AV		11.12	
	5 240		AV		11.57	
UNII-2A	5 260		AV	-	11.77	24.00
	5 280		AV		12.10	
	5 320		AV		12.20	
UNII-2C	5 500		AV	-	12.01	24.00
	5 580		AV		12.37	
	5 720		AV		11.44	
UNII-3	5 745		AV	-	9.89	30.00
	5 785		AV		9.50	
	5 825		AV		8.61	

Band	Frequency (㎒)	Mode	Detector mode	DCF Note1	Output power(dBm)	Limit (dBm)
UNII-1	5 180	HT20	AV	-	8.60	24.00
	5 220		AV		8.85	
	5 240		AV		9.20	
UNII-2A	5 260		AV	-	9.15	24.00
	5 280		AV		9.41	
	5 320		AV		9.59	
UNII-2C	5 500		AV	-	10.02	24.00
	5 580		AV		10.44	
	5 720		AV		9.75	
UNII-3	5 745		AV	-	7.40	30.00
	5 785		AV		7.11	
	5 825		AV		6.47	

Note.

1. Refer to the page 87 on this report.

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Band	Frequency (㎒)	Mode	Detector mode	DCF Note1	Output power(dBm)	Limit (dBm)
UNII-1	5 190	HT40	AV	-	8.08	24.00
	5 230		AV		8.37	
UNII-2A	5 270		AV	-	8.59	24.00
	5 310		AV		9.01	
UNII-2C	5 510		AV	-	9.21	24.00
	5 590		AV		10.05	
	5 710		AV		9.03	
UNII-3	5 755		AV	-	6.98	30.00
	5 795		AV		6.40	

Band	Frequency (㎒)	Mode	Detector mode	DCF Note1	Output power(dBm)	Limit (dBm)
UNII-1	5 180	VHT20	AV	-	9.10	24.00
	5 220		AV		9.21	
	5 240		AV		9.59	
UNII-2A	5 260		AV	-	9.01	24.00
	5 280		AV		9.40	
	5 320		AV		10.00	
UNII-2C	5 500		AV	-	10.05	24.00
	5 580		AV		10.60	
	5 720		AV		9.79	
UNII-3	5 745		AV	-	7.47	30.00
	5 785		AV		7.28	
	5 825		AV		6.33	

Note.

1. Refer to the page 87 on this report.

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Band	Frequency (㎒)	Mode	Detector mode	DCF Note1	Output power(dBm)	Limit (dBm)
UNII-1	5 190	VHT40	AV	-	8.22	24.00
	5 230		AV		8.47	
UNII-2A	5 270		AV	-	8.70	24.00
	5 310		AV		8.95	
UNII-2C	5 510		AV	-	9.44	24.00
	5 590		AV		9.78	
	5 710		AV		8.69	
UNII-3	5 755		AV	-	6.81	30.00
	5 795		AV		6.51	

Band	Frequency (㎒)	Mode	Detector mode	DCF Note1	Output power(dBm)	Limit (dBm)
UNII-1	5 210	VHT80	AV	-	8.71	24.00
UNII-2A	5 290		AV	-	8.85	24.00
UNII-2C	5 530		AV	-	9.41	24.00
	5 610		AV		9.70	
	5 590		AV		8.06	
UNII-3	5 775		AV	-	6.49	30.00

Note.

1. Refer to the page 87 on this report.

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Band-crossing channels

Band	Frequency (㎒)	Mode	Detector mode	DCF Note1	Output power(dBm)	Limit (dBm)
UNII-2C	5 720	a	AV	-	6.96	22.92
	5 720	HT20	AV		5.47	23.00
	5 710	HT40	AV		5.21	30.00
	5 720	VHT20	AV		5.26	23.02
	5 710	VHT40	AV		5.06	30.00
	5 690	VHT80	AV		5.72	30.00
UNII-3	5 720	a	AV	-	1.20	30.00
	5 720	HT20	AV		-0.04	
	5 710	HT40	AV		-5.08	
	5 720	VHT20	AV		-0.06	
	5 710	VHT40	AV		-5.36	
	5 690	VHT80	AV		-10.27	

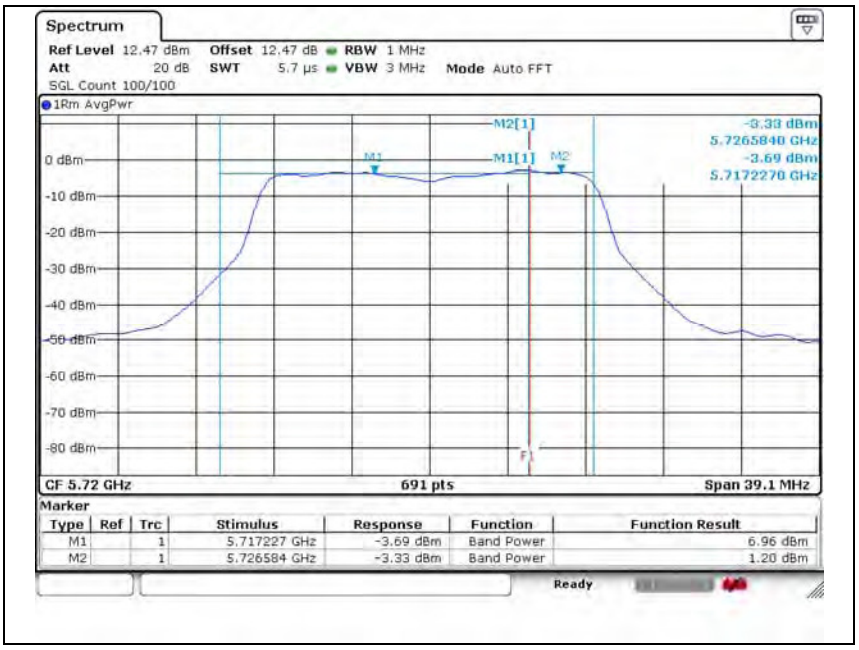
Note.

1. Refer to the page 87 on this report.

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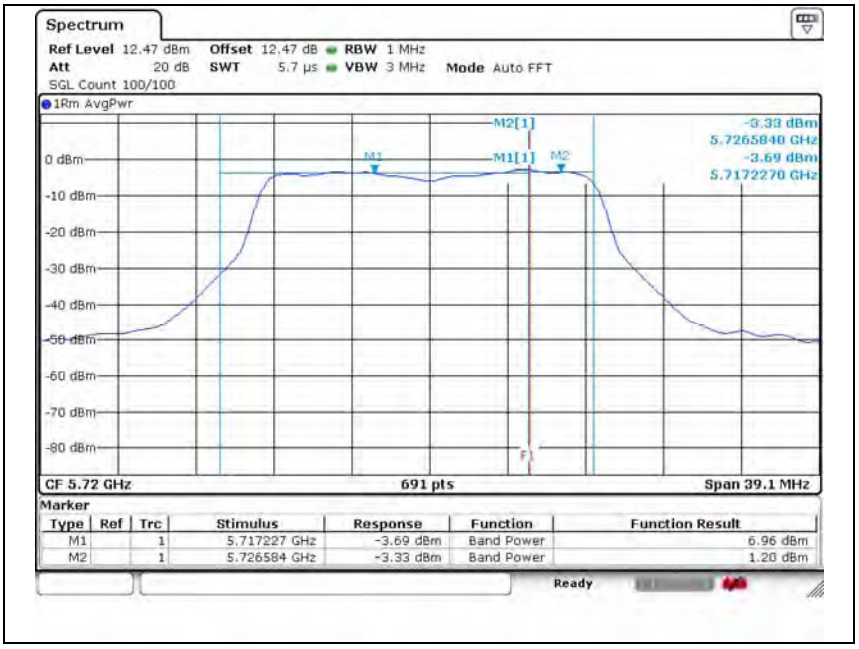
802.11a (UNII-2C)

Channel 144



802.11a (UNII-3)

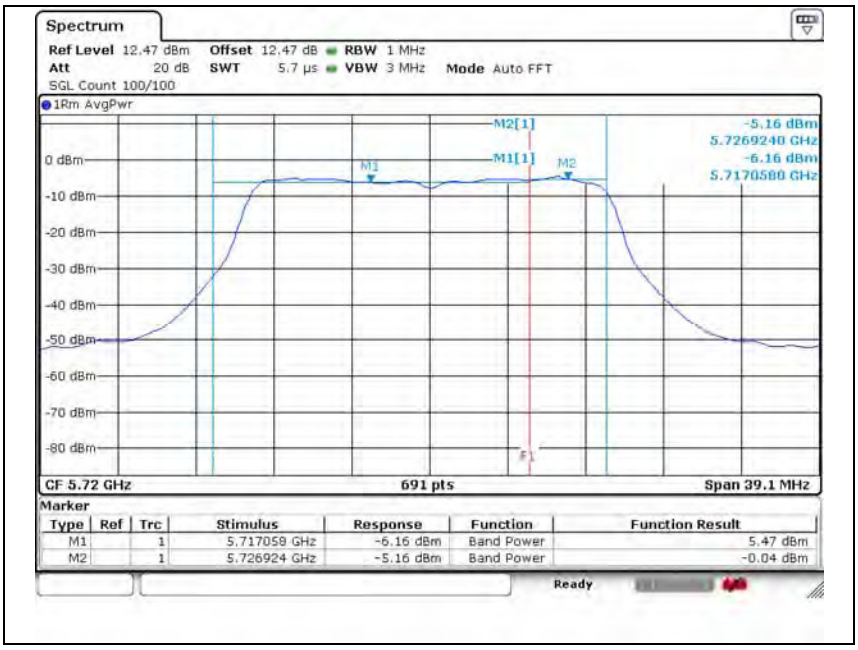
Channel 144



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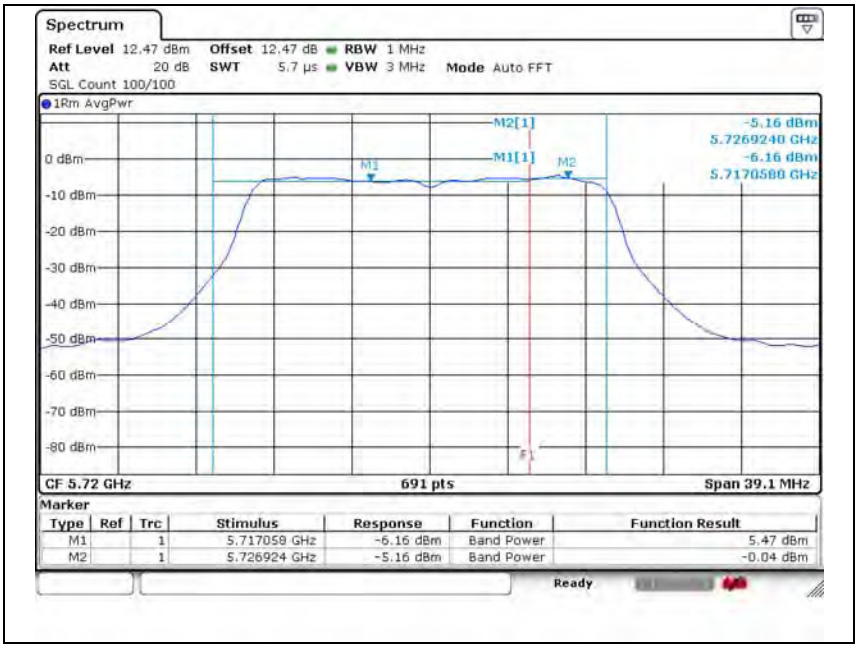
802.11n_HT20 (UNII-2C)

Channel 144



802.11n_HT20 (UNII-3)

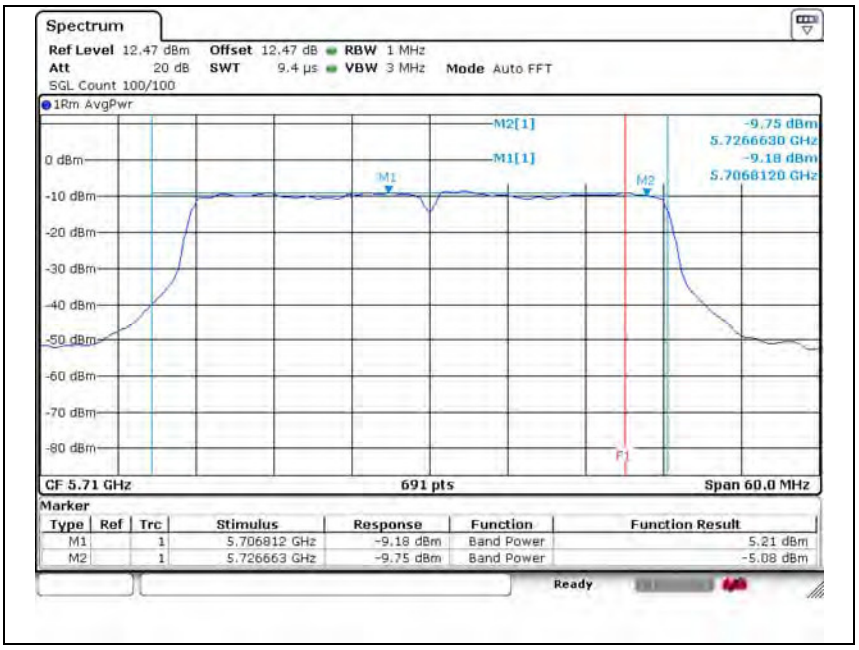
Channel 144



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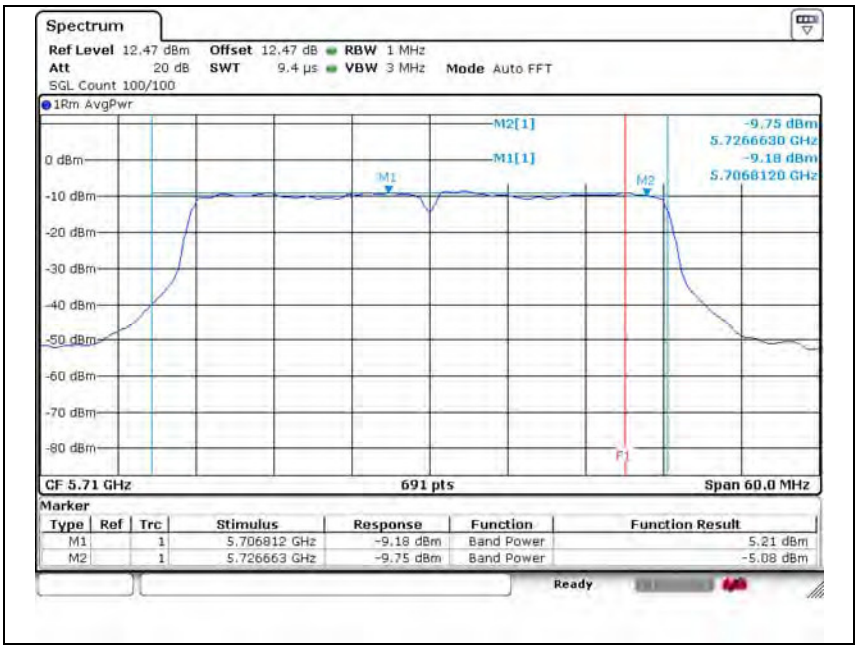
802.11n_HT40 (UNII-2C)

Channel 142



802.11n_HT40 (UNII-3)

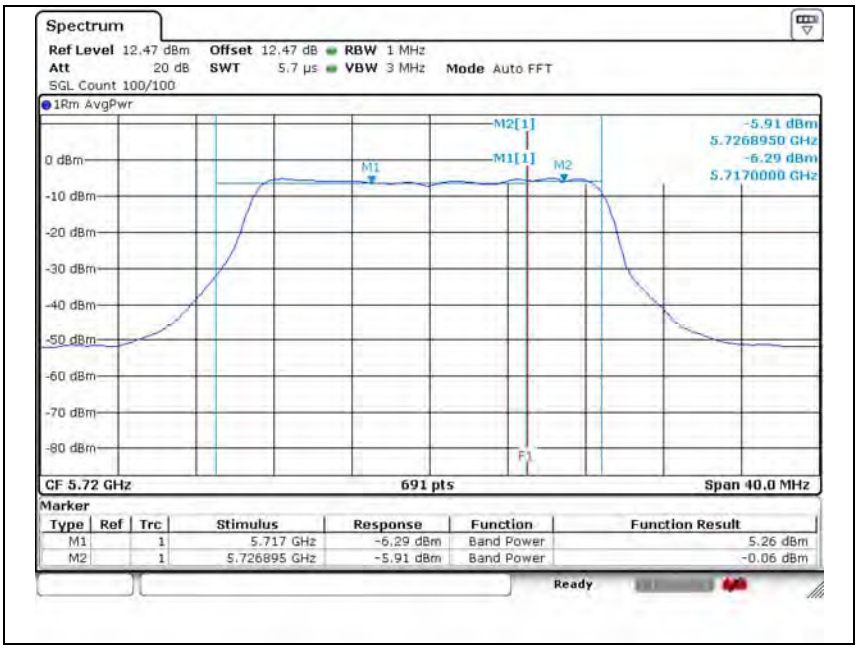
Channel 142



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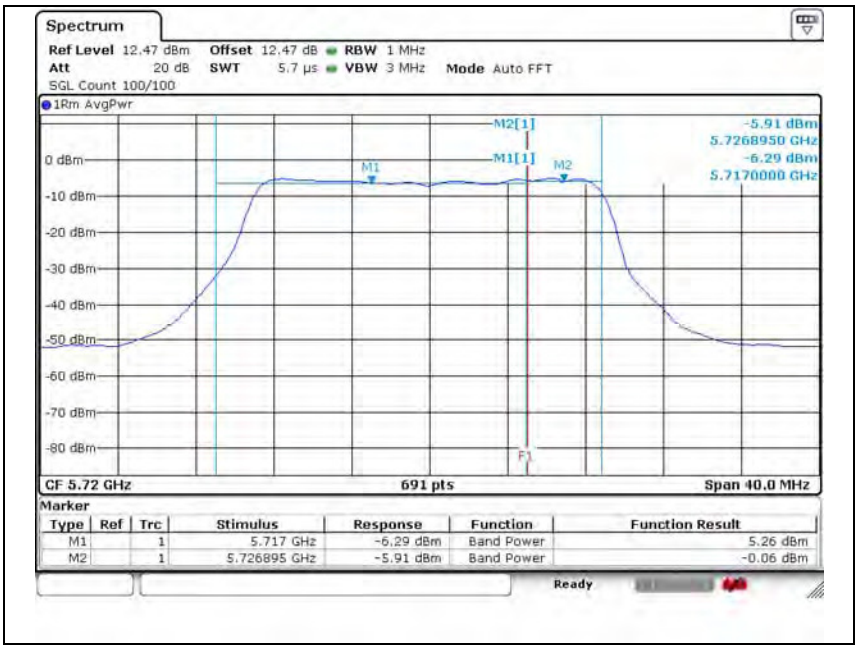
802.11n_VHT20 (UNII-2C)

Channel 144



802.11n_VHT20 (UNII-3)

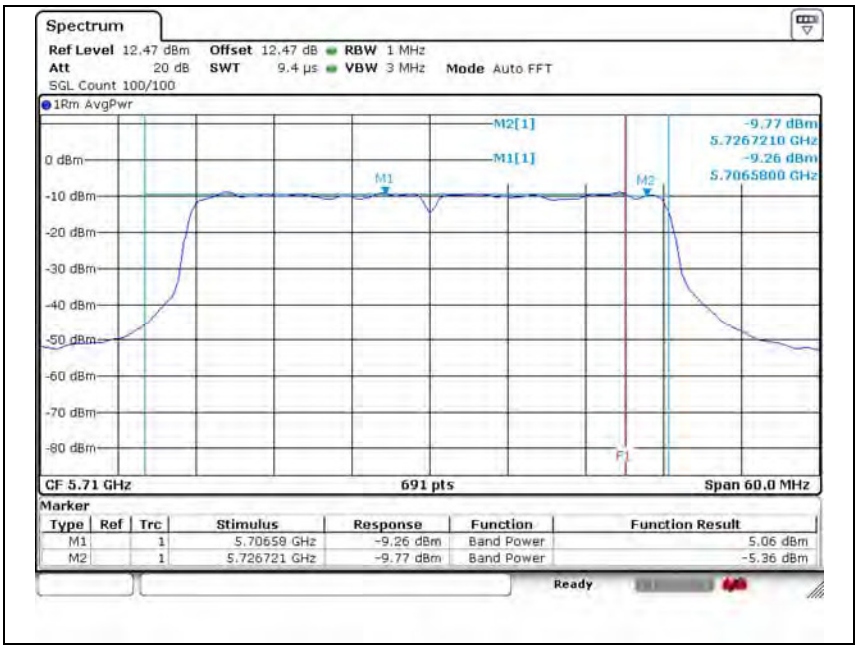
Channel 144



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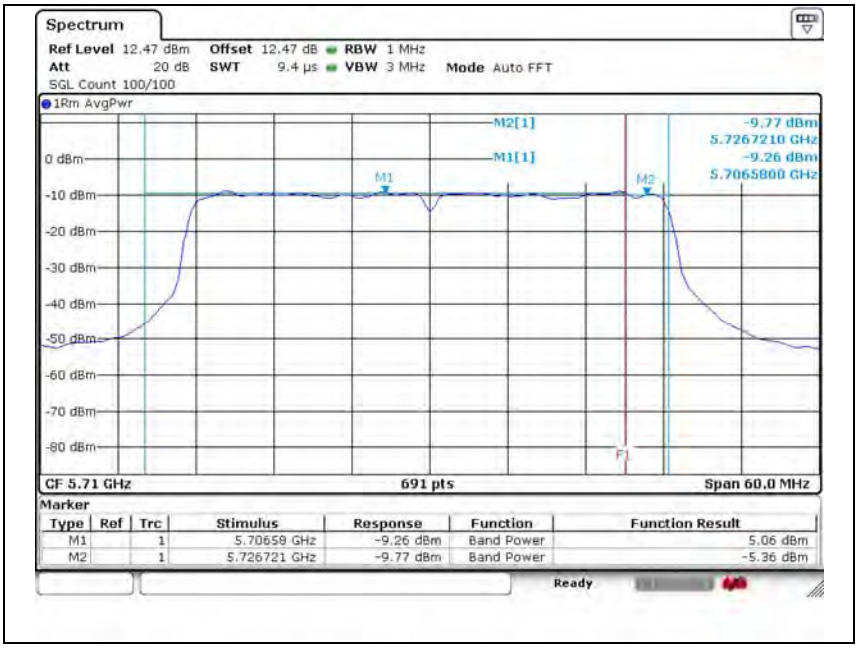
802.11n_VHT40 (UNII-2C)

Channel 142



802.11n_VHT40 (UNII-3)

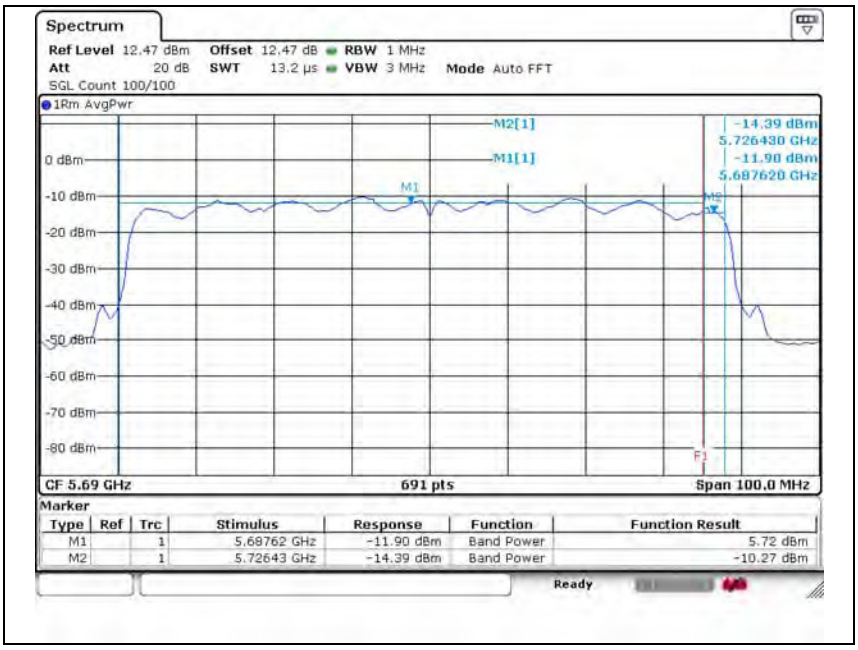
Channel 142



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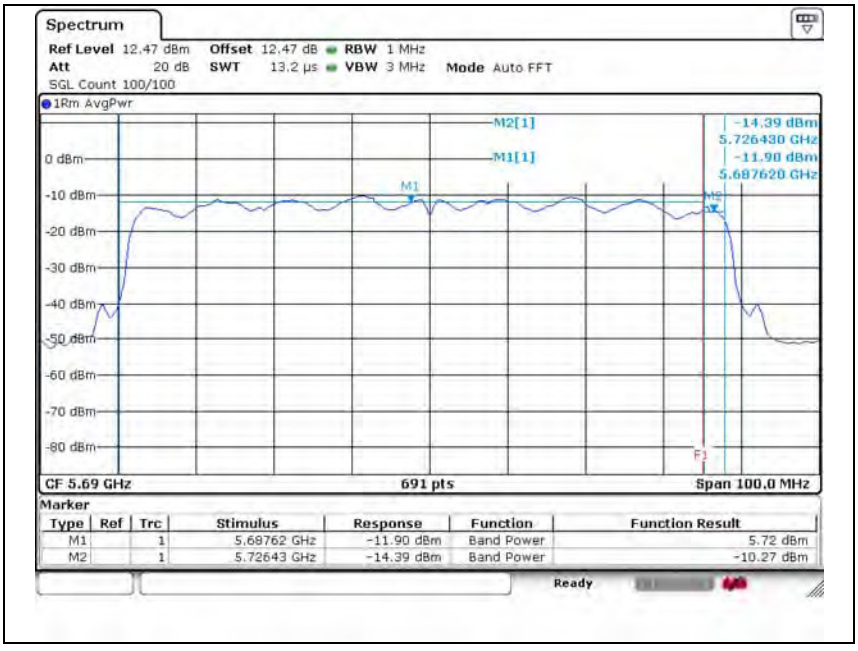
802.11n_VHT80 (UNII-2C)

Channel 138



802.11n_VHT80 (UNII-3)

Channel 138



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3.4. Power spectral density

Test procedure

KDB 789033 D02 v01r03 – Section F, KDB 644545 D03 v01

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)
   b) Set VBW ≥ 3 RBW.
   c) If measurement bandwidth of Maximum PSD is specified in 500 ㎑, add 10 log (500 ㎑/RBW) to the measured result, whereas RBW (< 500 ㎑) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
   d) If measurement bandwidth of Maximum PSD is specified in 1 ㎒, add 10 log (1 ㎒/RBW) to the measured result, whereas RBW (< 1 ㎒) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
   e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.
6. In case of band crossing channels 138, 142 and 144, the measurement is complied with section D of KDB 644545_D03 v01.

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.

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Limit

Band	EUT Category		Limit
UNII-1		Outdoor access point	17 dBm/㎒
		Indoor access point	
		Fixed point-to-point access point	
	✓	Mobile and portable client device	11 dBm/㎒
UNII-2A	✓		11 dBm/㎒
UNII-2C	✓		11 dBm/㎒
UNII-3	✓		30 dBm/500 ㎑

Test results

Band	Frequency (㎒)	Mode	PSD(dBm)	RBWF Note1	DCF Note2	Sum Note3
UNII-1	5 180	a	-1.77	-	-	-1.77
	5 220		-1.39	-		-1.39
	5 240		-0.78	-		-0.78
UNII-2A	5 260		-0.84	-	-	-0.84
	5 280		-0.36	-		-0.36
	5 320		0.15	-		0.15
UNII-2C	5 500		-0.25	-	-	-0.25
	5 580		-0.26	-		-0.26
	5 720		-2.11	-		-2.11
UNII-3	5 745		-5.46	-	-	-5.46
	5 785		-5.72	-		-5.72
	5 825		-6.54	-		-6.54

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Band	Frequency (㎒)	Mode	PSD(dBm)	RBWF Note1	DCF Note2	Sum Note3
UNII-1	5 180	HT20	-4.23	-	-	-4.23
	5 220		-4.12	-		-4.12
	5 240		-3.59	-		-3.59
UNII-2A	5 260		-3.31	-	-	-3.31
	5 280		-3.00	-		-3.00
	5 320		-0.97	-		-0.97
UNII-2C	5 500		-2.34	-	-	-2.34
	5 580		-1.88	-		-1.88
	5 720		-3.88	-		-3.88
UNII-3	5 745		-8.01	-	-	-8.01
	5 785		-8.38	-		-8.38
	5 825		-10.14	-		-10.14

Band	Frequency (㎒)	Mode	PSD(dBm)	RBWF Note1	DCF Note2	Sum Note3
UNII-1	5 190	HT40	-7.80	-	-	-7.80
	5 230		-7.57	-		-7.57
UNII-2A	5 270		-7.12	-	-	-7.12
	5 310		-6.42	-		-6.42
UNII-2C	5 510		-6.19	-	-	-6.19
	5 590		-5.78	-		-5.78
	5 710		-7.60	-		-7.60
UNII-3	5 755		-11.53	-	-	-11.53
	5 795		-11.96	-		-11.96

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Band	Frequency (㎒)	Mode	PSD(dBm)	RBWF Note1	DCF Note2	Sum Note3
UNII-1	5 180	VHT20	-3.76	-	-	-3.76
	5 220		-2.39	-		-2.39
	5 240		-3.47	-		-3.47
UNII-2A	5 260		-3.45	-	-	-3.45
	5 280		-3.00	-		-3.00
	5 320		-2.22	-		-2.22
UNII-2C	5 500		-2.33	-	-	-2.33
	5 580		-1.92	-		-1.92
	5 720		-3.62	-		-3.62
UNII-3	5 745		-8.18	-	-	-8.18
	5 785		-8.70	-		-8.70
	5 825		-10.35	-		-10.35

Band	Frequency (㎒)	Mode	PSD(dBm)	RBWF Note1	DCF Note2	Sum Note3
UNII-1	5 190	VHT40	-7.37	-	-	-7.37
	5 230		-7.31	-		-7.31
UNII-2A	5 270		-6.94	-	-	-6.94
	5 310		-5.09	-		-5.09
UNII-2C	5 510		-6.20	-	-	-6.20
	5 590		-3.79	-		-3.79
	5 710		-3.05	-		-3.05
UNII-3	5 755		-11.45	-	-	-11.45
	5 795		-12.23	-		-12.23

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Band	Frequency (㎒)	Mode	PSD(dBm)	RBWF Note1	DCF Note2	Sum Note3
UNII-1	5 210	VHT80	-8.86	-	-	-8.86
UNII-2A	5 290		-8.17	-	-	-8.17
UNII-2C	5 530		-8.02	-	-	-8.02
	5 610		-4.67	-		-4.67
	5 690		-10.19	-		-10.19
UNII-3	5 775		-14.17	-	-	-14.17

Band-crossing channels

Band	Frequency (㎒)	Mode	PSD(dBm)	RBWF Note1	DCF Note2	Sum Note3
UNII-2C	5 720	a	-2.15	-	-	-2.15
	5 720	HT20	-4.11	-		-4.11
	5 710	HT40	-8.19	-		-8.19
	5 720	VHT20	-4.47	-		-4.47
	5 710	VHT40	-8.26	-		-8.26
	5 690	VHT80	-9.94	-		-9.94
UNII-3	5 720	a	-5.15	-	-	-5.15
	5 720	HT20	-6.56	-		-6.56
	5 710	HT40	-11.74	-		-11.74
	5 720	VHT20	-6.84	-		-6.84
	5 710	VHT40	-12.52	-		-12.52
	5 690	VHT80	-15.09	-		-15.09

Note.

1. UNII-1 = 10log(1 ㎒/1 ㎒)
   UNII-2A = 10log(1 ㎒/1 ㎒)
   UNII-2C = 10log(1 ㎒/1 ㎒)
   UNII-3 = 10log(500 ㎑ /500 ㎑)
2. Refer to the page 87 on this report.
3. Sum(dBm) = PSD(dBm) + RBWF + Duty correction factor (dB)

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802.11a

Channel 36

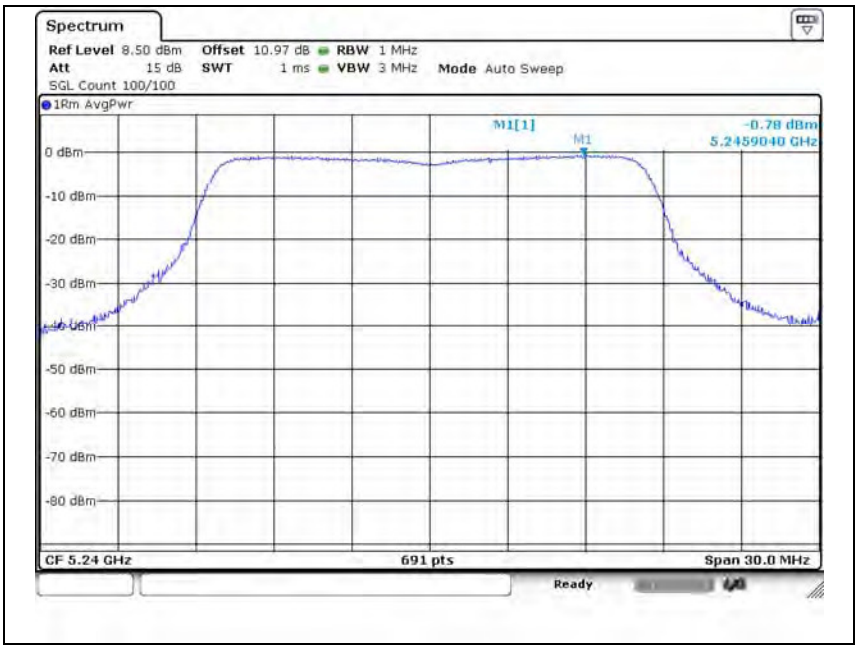


Channel 44



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Channel 48



Channel 52

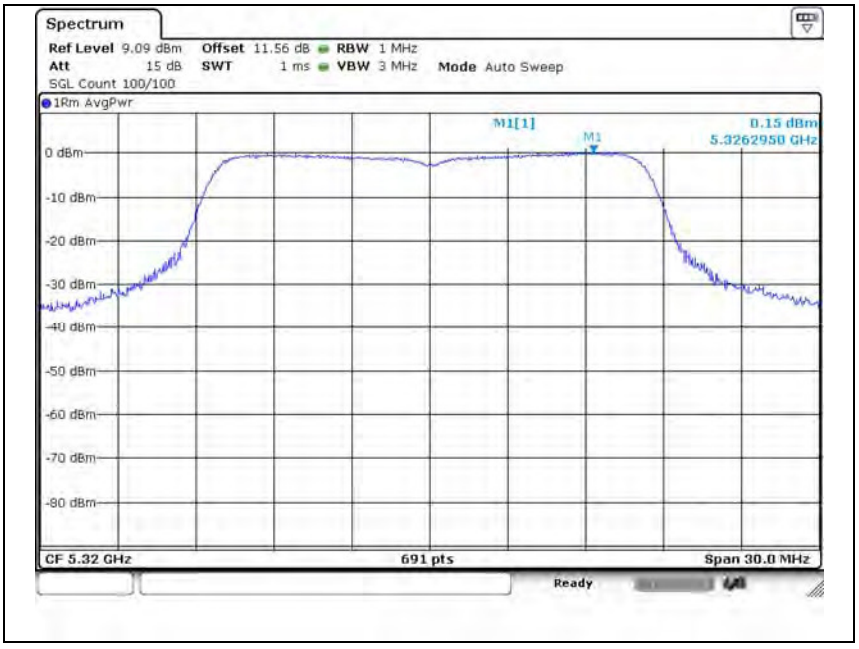


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Channel 56



Channel 64



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Channel 100

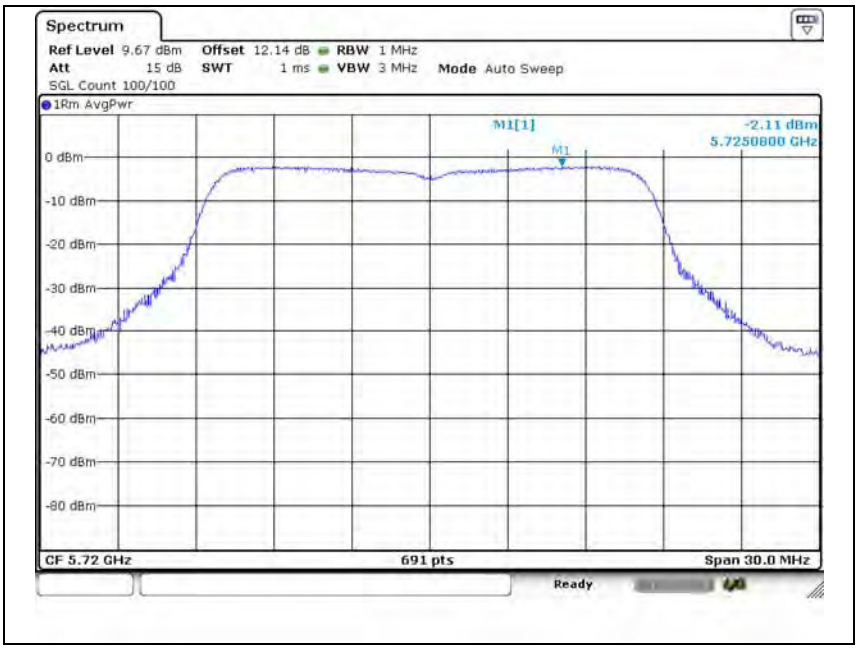


Channel 116



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Channel 144



Channel 149



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Channel 157



Channel 165



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802.11n_HT20

Channel 36

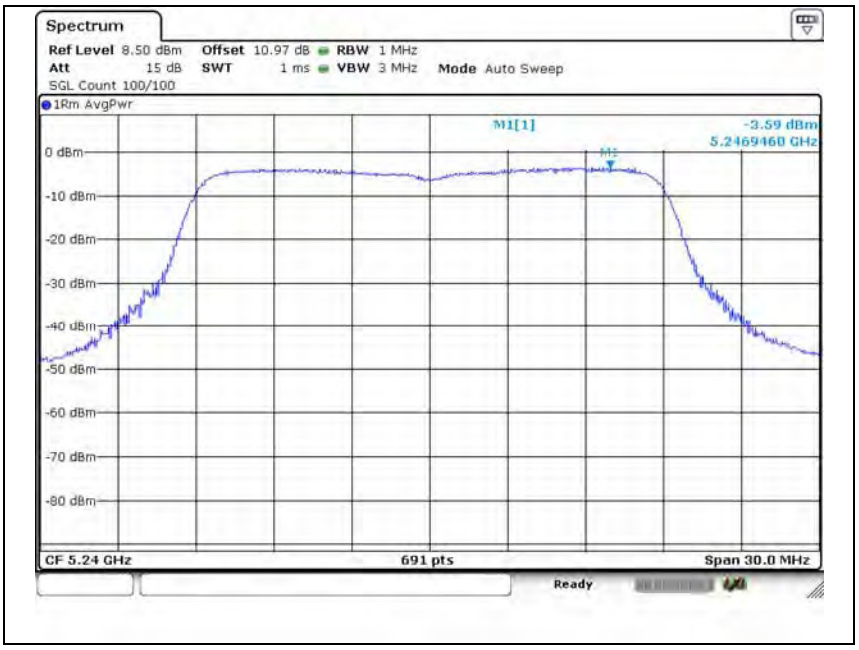


Channel 44



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Channel 52



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Channel 56

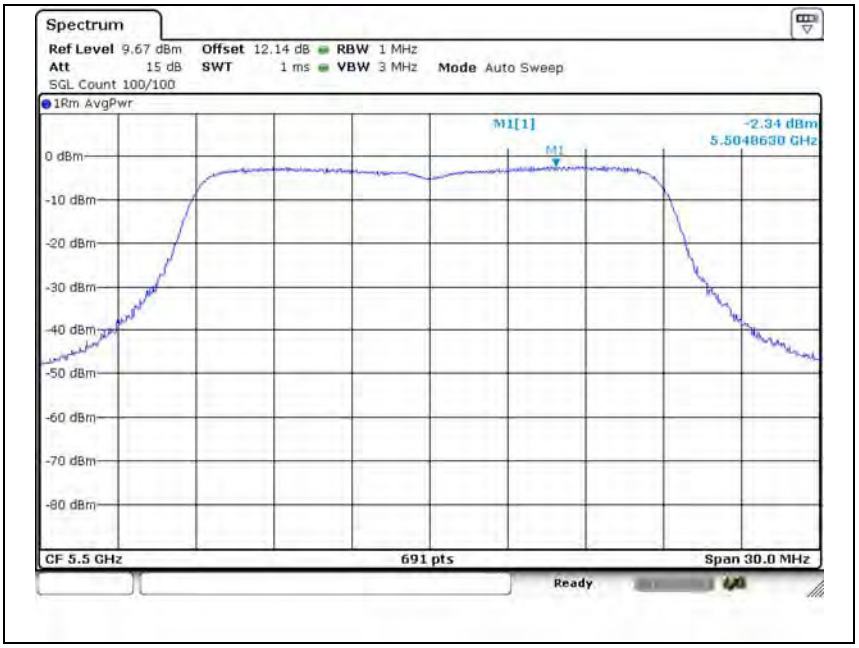


Channel 64



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Channel 100

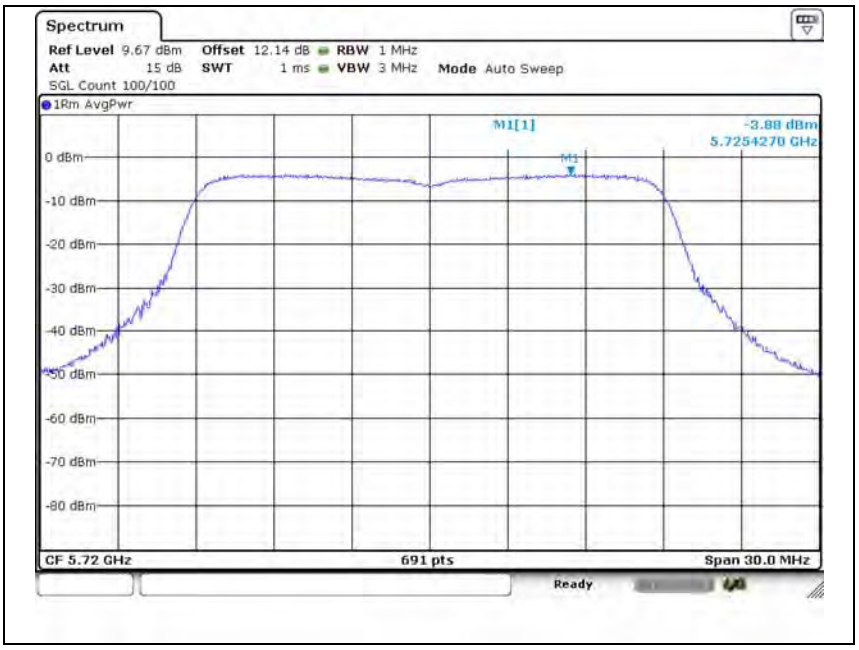


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Channel 149



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Channel 157



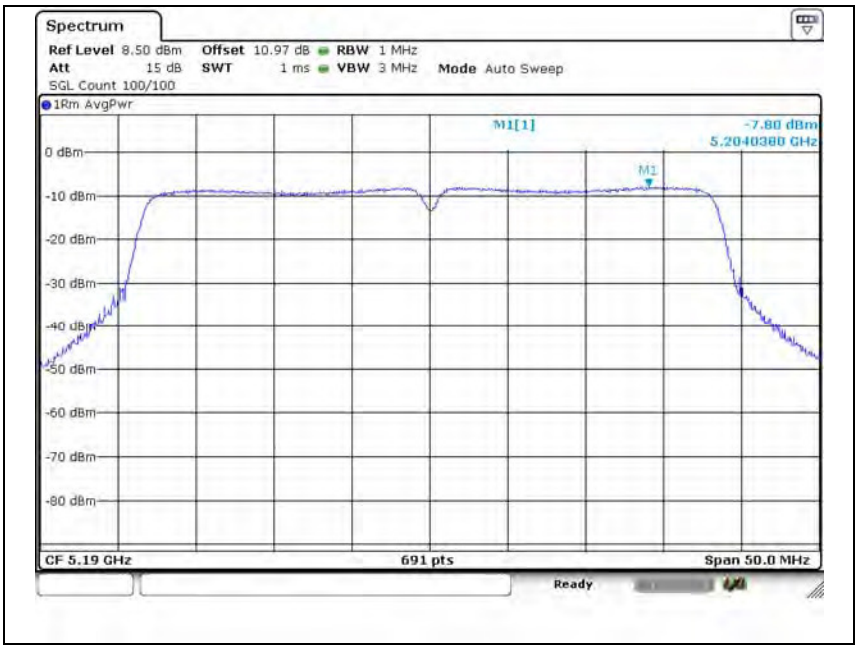
Channel 165



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802.11n_HT40

Channel 38



Channel 46



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Channel 54

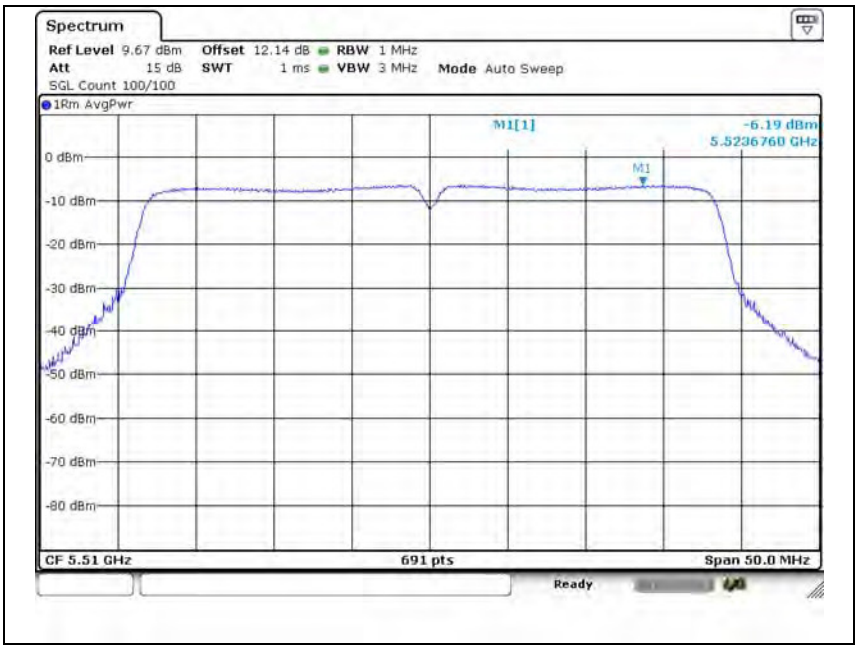


Channel 62



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Channel 102



Channel 118



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Channel 142



Channel 151



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Channel 159



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802.11ac_VHT20

Channel 36



Channel 44



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Channel 48



Channel 52



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Channel 56



Channel 64

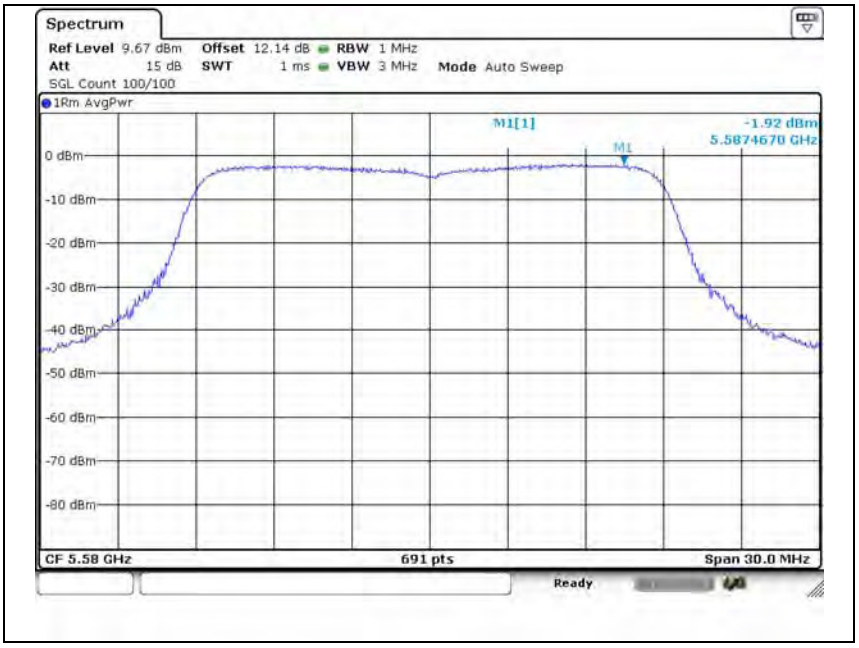


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Channel 100

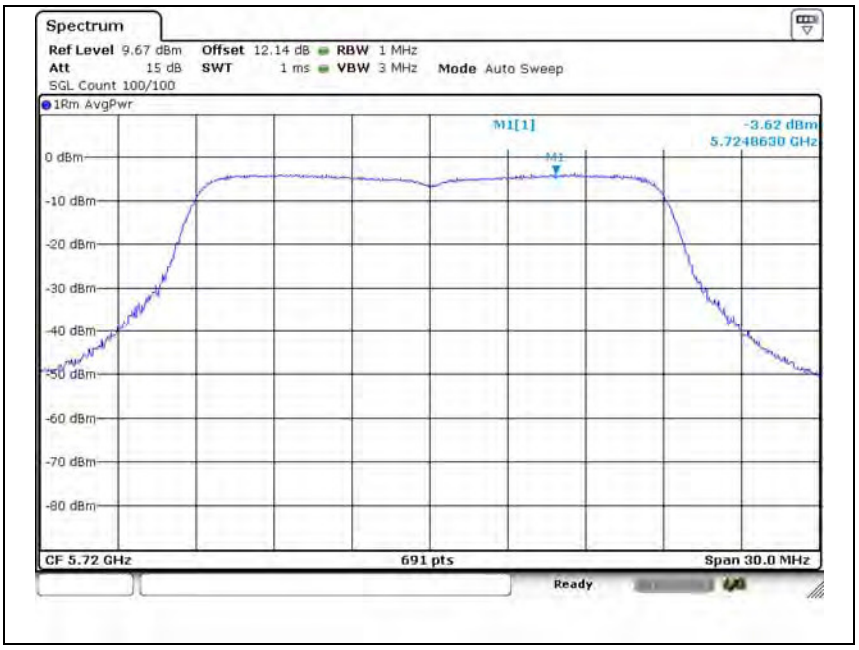


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Channel 144



Channel 149



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Channel 157



Channel 165



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802.11ac_VHT40

Channel 38

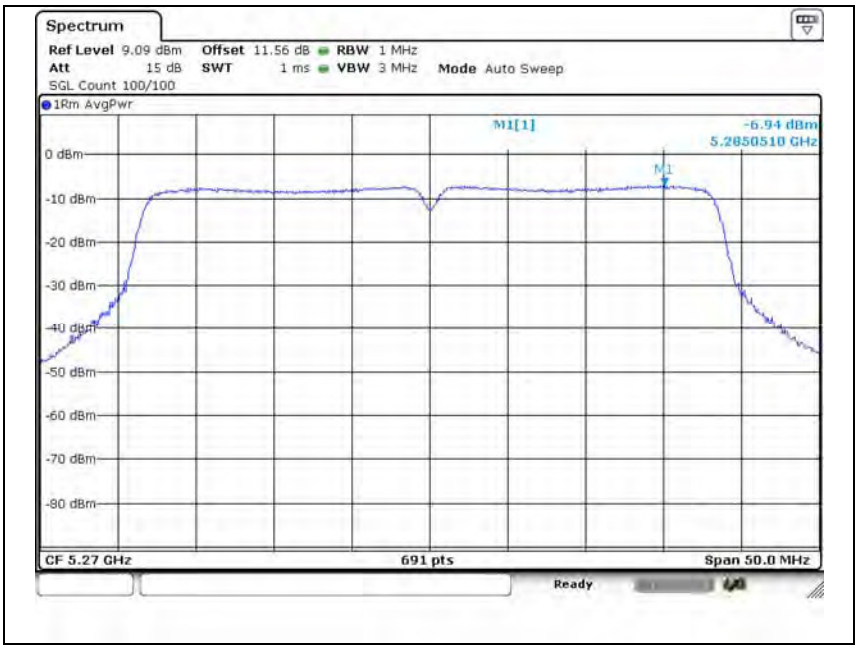


Channel 46



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Channel 54



Channel 62



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Channel 102

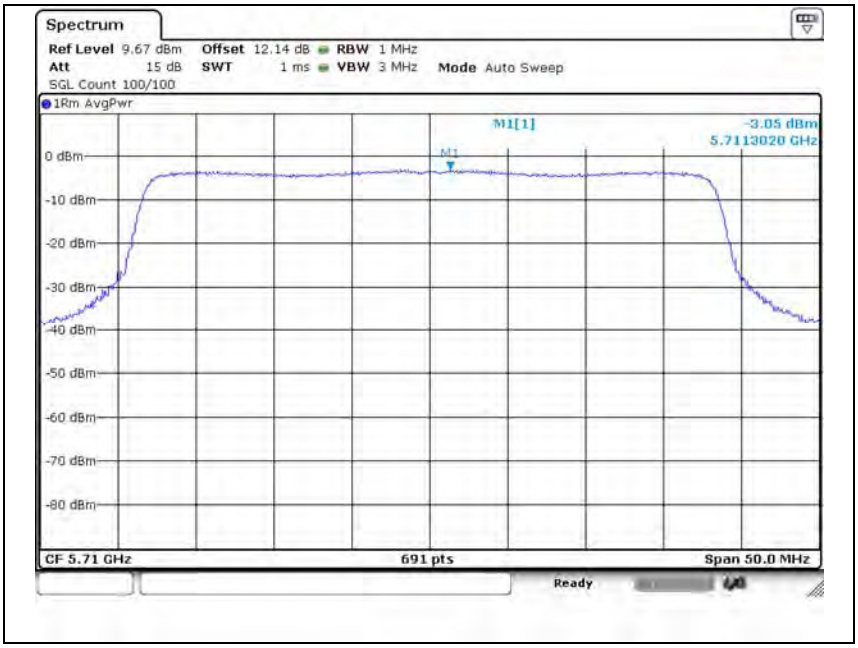


Channel 118



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Channel 142



Channel 151



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Channel 159



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802.11ac_VHT80

Channel 42



Channel 58

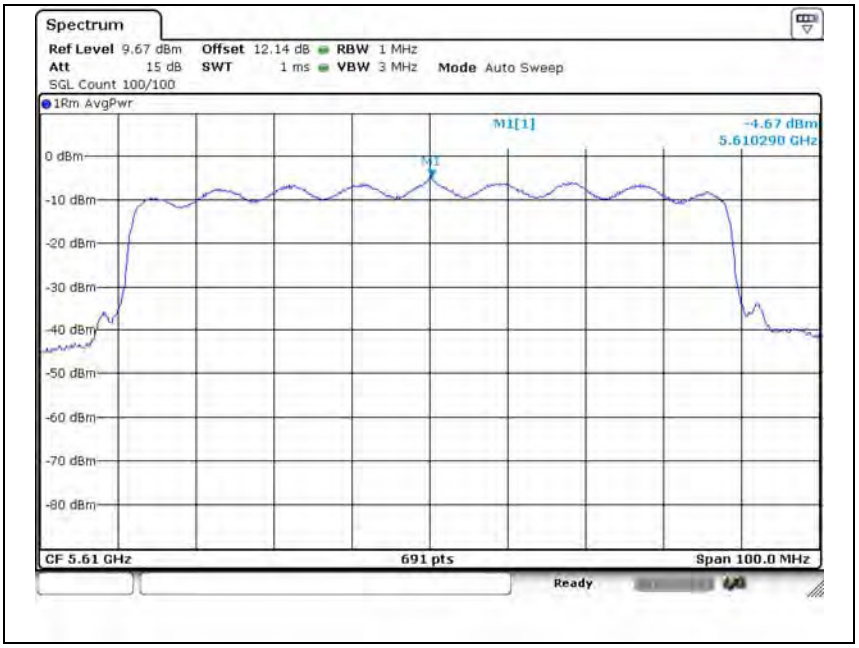


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Channel 106

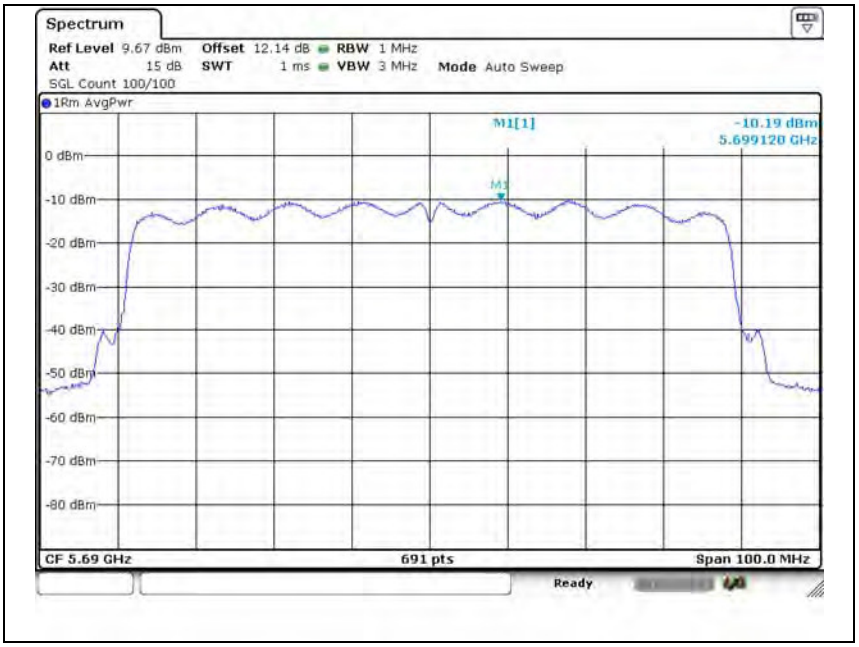


Channel 122

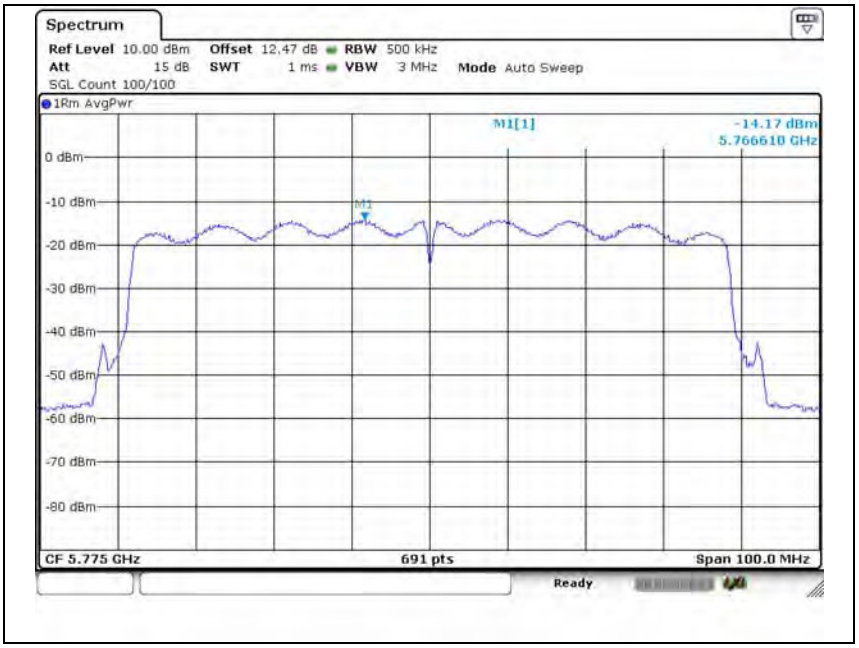


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Channel 138



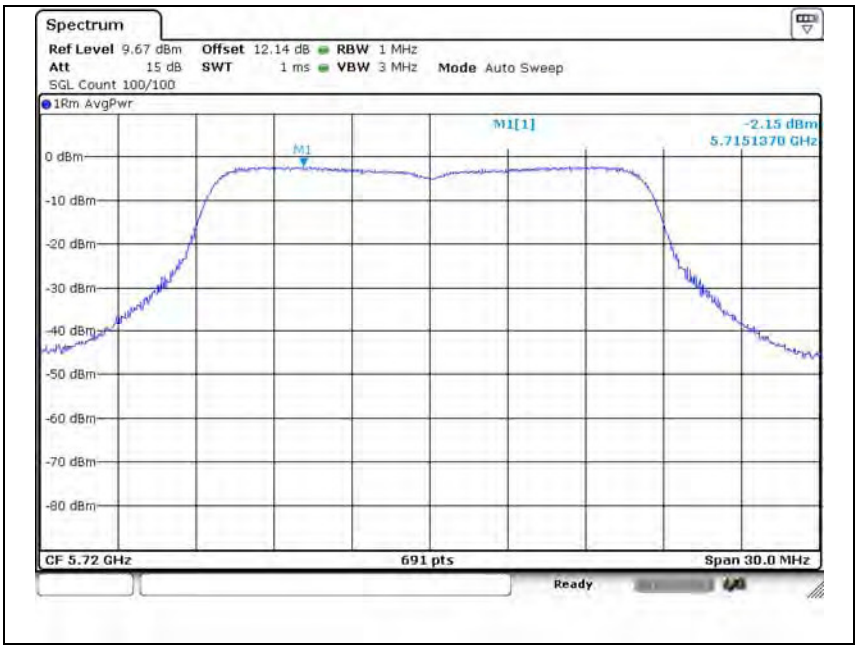
Channel 155



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Band-crossing channels
802.11a (UNII-2C)

Channel 144



802.11a (UNII-3)

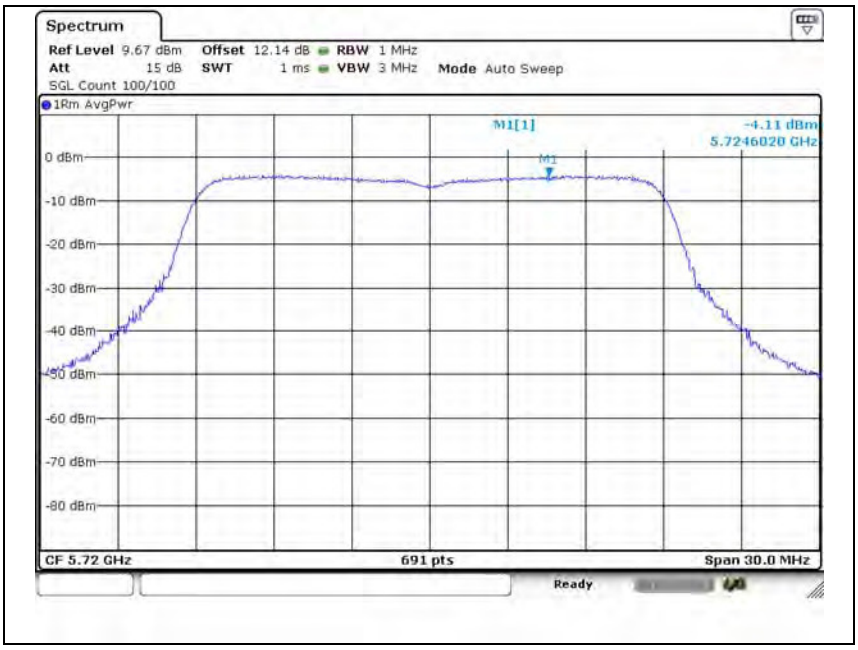
Channel 144



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802.11n_HT20 (UNII-2C)

Channel 144



802.11n_HT20 (UNII-3)

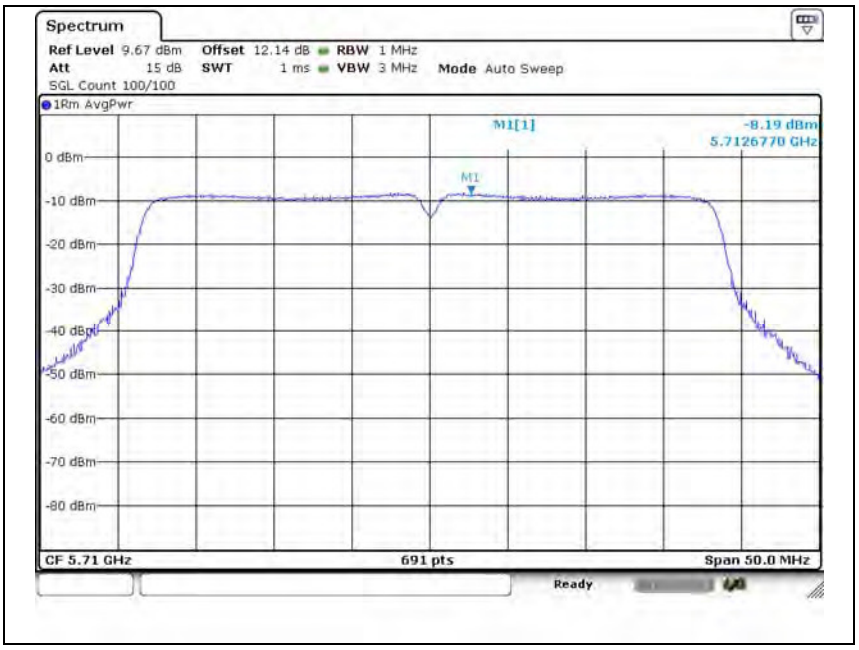
Channel 144



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802.11n_HT40 (UNII-2C)

Channel 142



802.11n_HT40 (UNII-3)

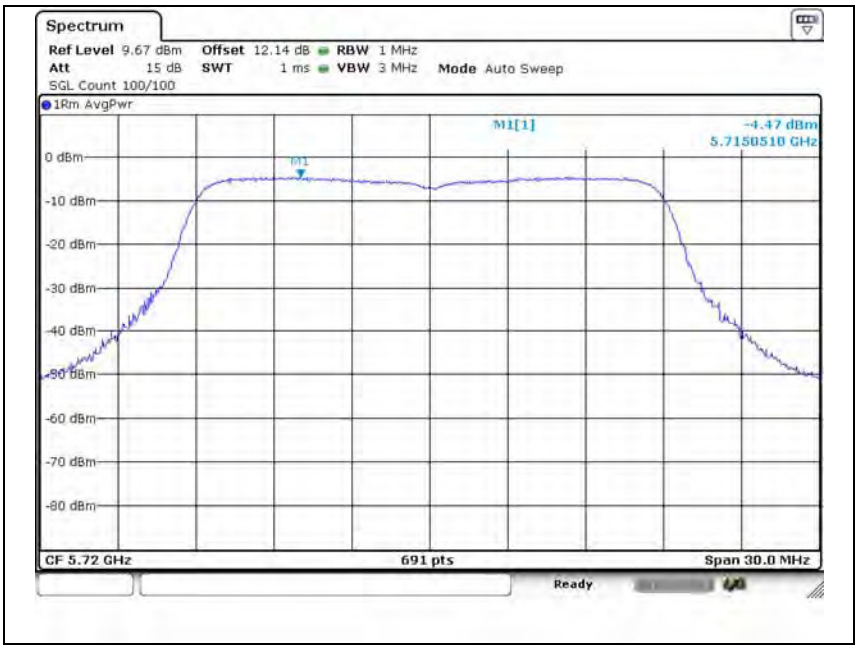
Channel 142



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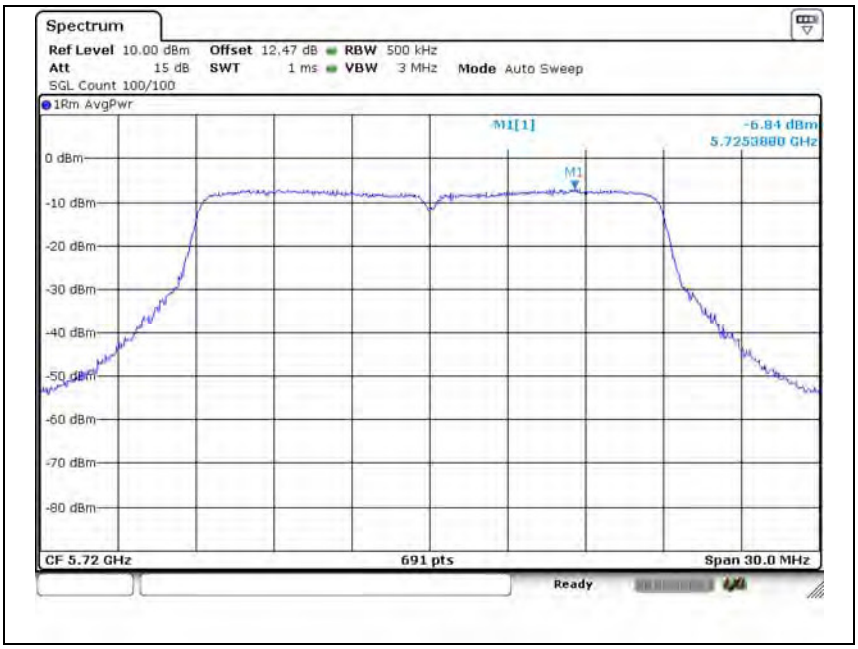
802.11ac_VHT20 (UNII-2C)

Channel 144



802.11ac_VHT20 (UNII-3)

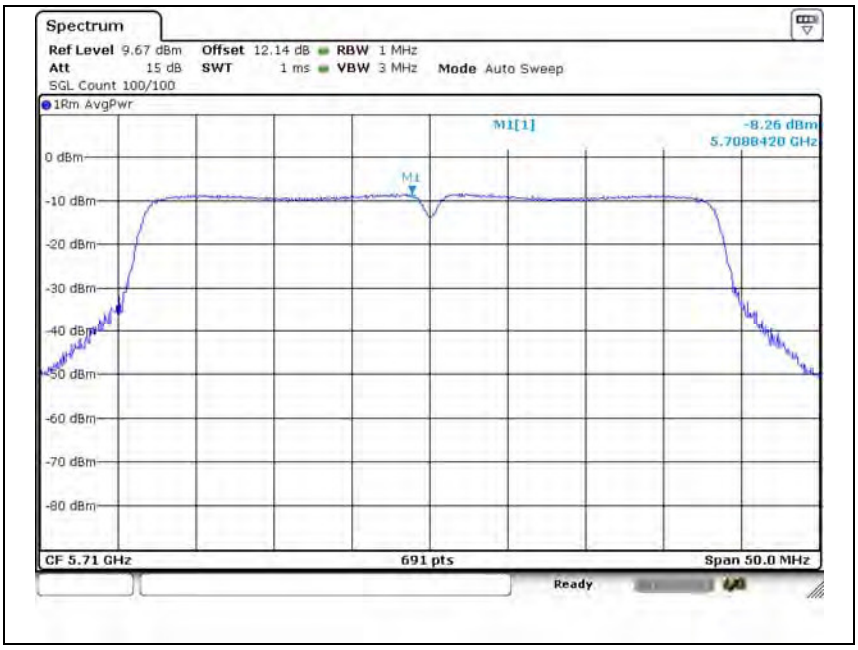
Channel 144



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802.11ac_VHT40 (UNII-2C)

Channel 142



802.11ac_VHT40 (UNII-3)

Channel 142



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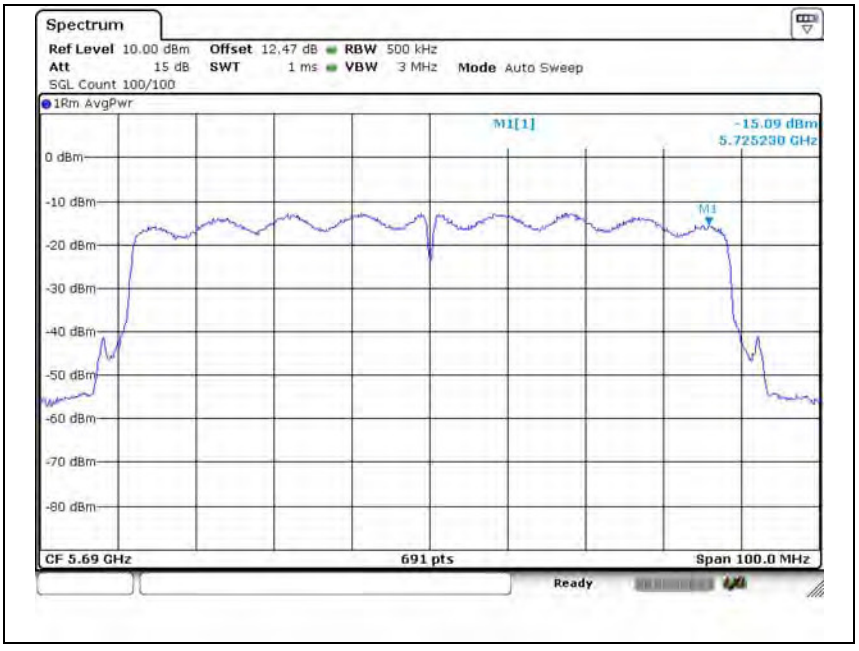
802.11n_VHT80 (UNII-2C)

Channel 138



802.11n_VHT80 (UNII-3)

Channel 138



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3.5. Frequency Stability

Test procedure

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

Limit
N/A

Test results

Mode: UNII-1

Operating frequency: 5 180 ㎒

Test voltage (%)	Test voltage (V)	Temperature (℃)	Measure frequency (㎒)	Frequency deviation (㎐)	Deviation (%)
100 %	DC 48.0	-20	5 180.034 217	34 217	0.000 661
100 %		-10	5 180.019 540	19 540	0.000 377
100 %		0	5 180.004 201	4 201	0.000 081
100 %		10	5 180.008 420	8 420	0.000 163
100 %		20	5 180.003 557	3 557	0.000 069
100 %		28	5 180.021 435	21 435	0.000 414
100 %		30	5 180.022 447	22 447	0.000 433
100 %		40	5 180.056 258	56 258	0.001 086
100 %		50	5 180.070 669	70 669	0.001 364
85 %	DC 40.8	28	5 180.032 556	32 556	0.000 628
115 %	DC 55.2	28	5 180.040 574	40 574	0.000 783

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Mode: UNII-2A

Operating frequency: 5 260 ㎒

Test voltage (%)	Test voltage (V)	Temperature (℃)	Measure frequency (㎒)	Frequency deviation (㎐)	Deviation (%)
100 %	DC 48.0	-20	5 260.028 155	28 155	0.000 535
100 %		-10	5 260.021 433	21 433	0.000 407
100 %		0	5 260.003 775	3 775	0.000 072
100 %		10	5 260.008 044	8 044	0.000 153
100 %		20	5 260.003 987	3 987	0.000 076
100 %		28	5 260.035 548	35 548	0.000 676
100 %		30	5 260.029 536	29 536	0.000 562
100 %		40	5 260.056 117	56 117	0.001 067
100 %		50	5 260.088 566	88 566	0.001 684
85 %	DC 40.8	28	5 260.044 321	44 321	0.000 843
115 %	DC 55.2	28	5 260.051 157	51 157	0.000 973

Mode: UNII-2C

Operating frequency: 5500 ㎒

Test voltage (%)	Test voltage (V)	Temperature (℃)	Measure frequency (㎒)	Frequency deviation (㎐)	Deviation (%)
100 %	DC 48.0	-20	5 500.026 432	26 432	0.000 481
100 %		-10	5 500.018 369	18 369	0.000 334
100 %		0	5 500.008 427	8 427	0.000 153
100 %		10	5 500.014 255	14 255	0.000 259
100 %		20	5 500.019 733	19 733	0.000 359
100 %		28	5 500.028 894	28 894	0.000 525
100 %		30	5 500.026 311	26 311	0.000 478
100 %		40	5 500.065 457	65 457	0.001 190
100 %		50	5 500.083 262	83 262	0.001 514
85 %	DC 40.8	28	5 500.039 206	39 206	0.000 713
115 %	DC 55.2	28	5 500.045 119	45 119	0.000 820

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Mode: UNII-3

Operating frequency: 5 745 ㎒

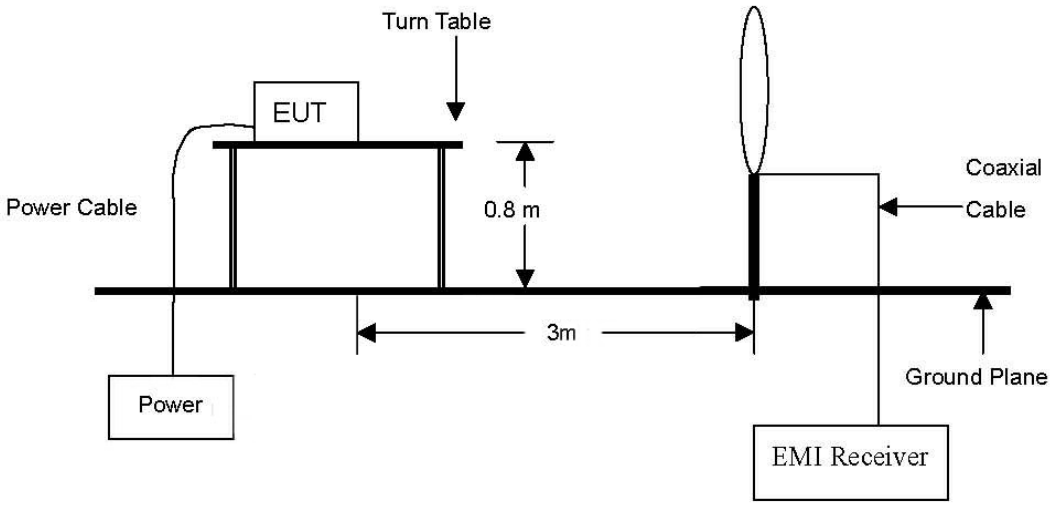
Test voltage (%)	Test voltage (V)	Temperature (℃)	Measure frequency (㎒)	Frequency deviation (㎐)	Deviation (%)
100 %	DC 48.0	-20	5 745.028 006	28 006	0.000 487
100 %		-10	5 745.016 438	16 438	0.000 286
100 %		0	5 745.007 134	7 134	0.000 124
100 %		10	5 745.018 035	18 035	0.000 314
100 %		20	5 745.003 991	3 991	0.000 069
100 %		28	5 745.016 948	16 948	0.000 295
100 %		30	5 745.012 433	12 433	0.000 216
100 %		40	5 745.066 217	66 217	0.001 153
100 %		50	5 745.057 536	57 536	0.001 001
85 %	DC 40.8	28	5 745.017 344	17 344	0.000 302
115 %	DC 55.2	28	5 745.020 158	20 158	0.000 351

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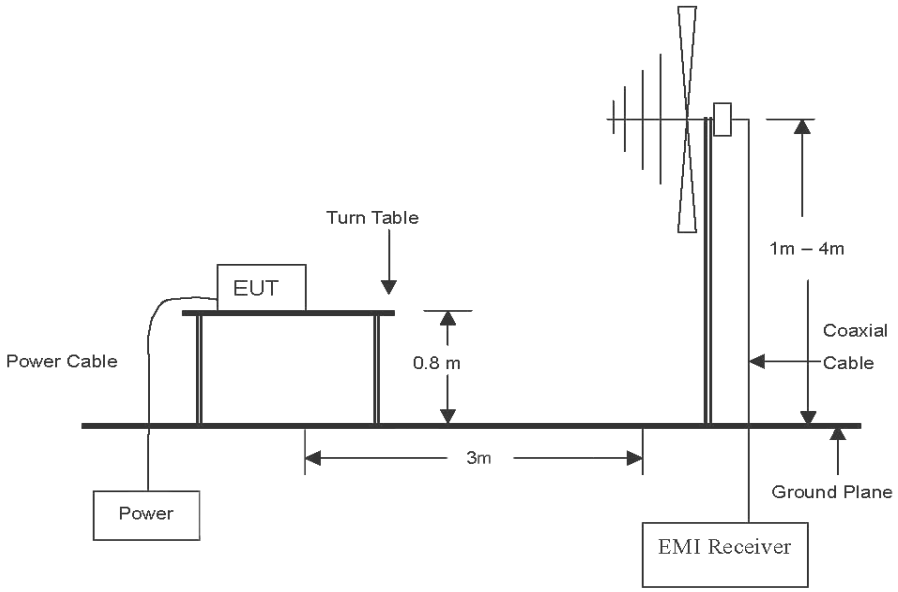
3.6. Radiated restricted band and emissions

Test setup

The diagram below shows the test setup that is utilized to make the measurements for emission from 9 ㎑ to 30 ㎒ Emissions.

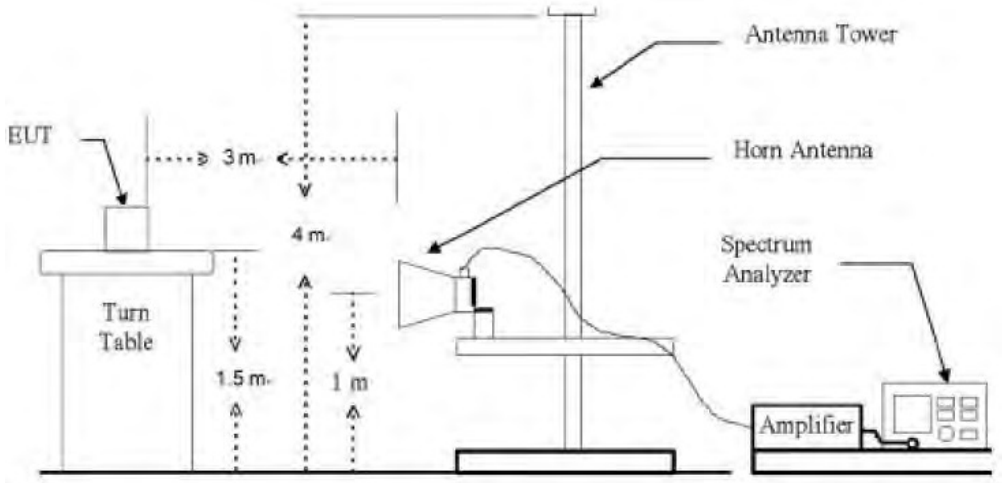


The diagram below shows the test setup that is utilized to make the measurements for emission from 30 ㎒ to 1 ㎓ emissions.



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The diagram below shows the test setup that is utilized to make the measurements for emission from 1 ㎓ to the tenth harmonic of the highest fundamental frequency or to 40 ㎓ emissions, whichever is lower.



Test procedure below 30 ㎒

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
2. Then antenna is a loop antenna is fixed at one meter above the ground to determine the maximum value of the field strength. Both parallel and perpendicular of the antenna are set to make the measurement.
3. For each suspected emission, the EUT was arranged to its worst case and then the table was turned from 0 degrees to 360 degrees to find the maximum reading.
4. The test-receiver system was set to average or quasi peak detect function and Specified Bandwidth with Maximum hold mode.

Test procedure above 30 ㎒

1. Spectrum analyzer settings for f < 1 ㎓:
   ① Span = wide enough to fully capture the emission being measured
   ② RBW = 120 ㎑
   ③ VBW ≥ RBW
   ④ Detector = quasi peak
   ⑤ Sweep time = auto
   ⑥ Trace = max hold
2. Spectrum analyzer settings for f ≥1 ㎓: Peak
   ① Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
   ② RBW = 1 ㎒
   ③ VBW = 3 ㎒ (≥ 3 x RBW)
   ④ Detector = peak
   ⑤ Sweep time = auto
   ⑥ Trace = max hold
   ⑦ Trace was allowed to stabilize

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3. Spectrum analyzer settings for $f \geq 1$ ㎓: Average
   ① Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
   ② RBW = 1 ㎒
   ③ VBW = 3 ㎒ (≥ 3 x RBW)
   ④ Averaging type = power averaging (rms)
   ⑤ Detector function = power averaging (rms)
   ⑥ Sweep = auto
   ⑦ Trace = max hold
   ⑧ Trace was averaged over 100 sweeps.

Note.

1. f<30 ㎒, extrapolation factor of 40 ㏈/decade of distance. $F_d = 40\log(D_m/Ds)$
   $f \geq$30 ㎒, extrapolation factor of 20 ㏈/decade of distance. $F_d = 20\log(D_m/Ds)$
   Where:
   F_d = Distance factor in ㏈
   D_m = Measurement distance in meters
   D_s = Specification distance in meters
2. CF(Correction factors(㏈)) = Antenna factor(㏈/m) + Cable loss(㏈) + or Amp. gain(㏈) + or F_d(㏈)
3. "*" means the restricted band.
4. Field strength(㏈㎶/m) = Level(㏈㎶) + Correction factors(㏈)
5. Margin(㏈) = Limit(㏈㎶/m) - Field strength(㏈㎶/m)
6. Emissions below 18 ㎓ were measured at a 3 meter test distance while emissions above 18 ㎓ were measured at a 1 meter test distance with the application of a distance correction factor.
7. The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z, it was determined that **Y orientation** was worst-case orientation; therefore, all final radiated testing was performed with the EUT in **Y orientation.**
8. The worst-case emissions are reported however emissions whose levels were not within 20 ㏈ of respective limits were not reported.

Limit

According to 15.209(a), for an intentional radiator devices, the general required of field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values :

Frequency (㎒)	Distance (Meters)	Radiated (㎶/m)
0.009 ~ 0.490	300	2 400 / F(㎑)
0.490 ~ 1.705	30	24 000 / F(㎑)
1.705 ~ 30.0	30	30
30 ~ 88	3	100**
88 ~ 216	3	150**
216 ~ 960	3	200**
Above 960	3	500

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54 ~ 72 ㎒, 76 ~ 88 ㎒, 174 ~ 216 ㎒ or 470 ~ 806 ㎒. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

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According to 15.407(b), (b) Undesirable emission limits: Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(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 e.i.r.p of –27 ㏈m/㎒.
(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band:
i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.
(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 ㎒.
A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 ㎒.
(6) Unwanted emissions below 1 ㎓ must comply with the general field strength limits set forth in § 15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in § 15.207.
(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 band edges as the design of the equipment permits.

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Duty cycle

Regarding to KDB 558074 D01_v03r05, 6.0, the maximum duty cycles of all modes were investigated and set the spectrum analyzer as below.

Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100.

For the band 5.15-5.25 GHz

Test mode	T_{on} time (㎳)	Period (㎳)	Duty cycle (Linear)	Duty cycle (%)	Duty cycle correction factor (dB)
802.11a	10.00	10.00	1	100	0
802.11n_HT20	10.00	10.00	1	100	0
802.11n_HT40	10.00	10.00	1	100	0
802.11n_VHT20	10.00	10.00	1	100	0
802.11n_VHT40	10.00	10.00	1	100	0
802.11n_VHT80	10.00	10.00	1	100	0

For the band 5.250-5.350 GHz

Test mode	T_{on} time (㎳)	Period (㎳)	Duty cycle (Linear)	Duty cycle (%)	Duty cycle correction factor (dB)
802.11a	10.00	10.00	1	100	0
802.11n_HT20	10.00	10.00	1	100	0
802.11n_HT40	10.00	10.00	1	100	0
802.11n_VHT20	10.00	10.00	1	100	0
802.11n_VHT40	10.00	10.00	1	100	0
802.11n_VHT80	10.00	10.00	1	100	0

For the band 5.470-5.725 GHz

Test mode	T_{on} time (㎳)	Period (㎳)	Duty cycle (Linear)	Duty cycle (%)	Duty cycle correction factor (dB)
802.11a	10.00	10.00	1	100	0
802.11n_HT20	10.00	10.00	1	100	0
802.11n_HT40	10.00	10.00	1	100	0
802.11n_VHT20	10.00	10.00	1	100	0
802.11n_VHT40	10.00	10.00	1	100	0
802.11n_VHT80	10.00	10.00	1	100	0

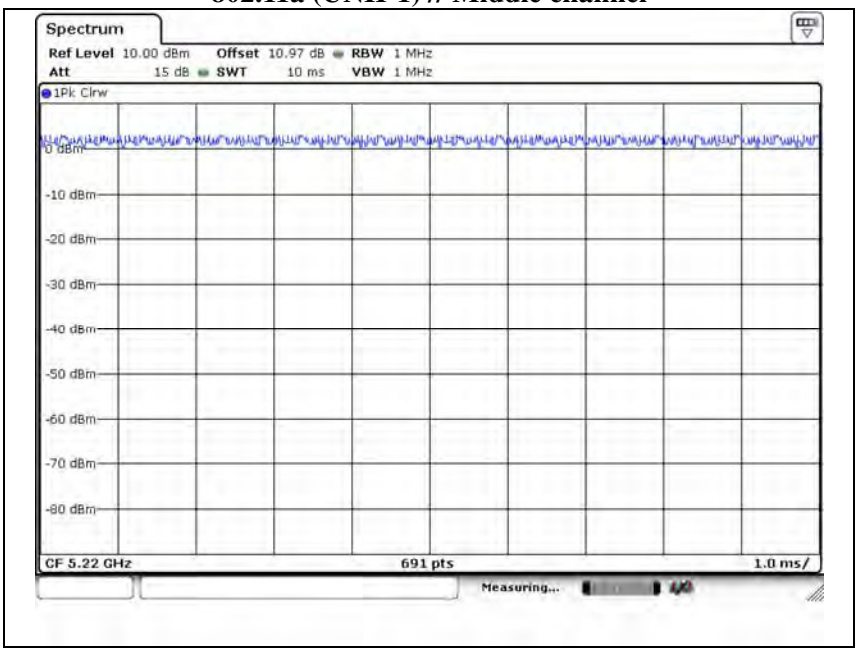
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For the band 5.725-5.85 GHz

Test mode	T_{on} time (㎳)	Period (㎳)	Duty cycle (Linear)	Duty cycle (%)	Duty cycle correction factor (㏈)
802.11a	10.00	10.00	1	100	0
802.11n_HT20	10.00	10.00	1	100	0
802.11n_HT40	10.00	10.00	1	100	0
802.11n_VHT20	10.00	10.00	1	100	0
802.11n_VHT40	10.00	10.00	1	100	0
802.11n_VHT80	10.00	10.00	1	100	0

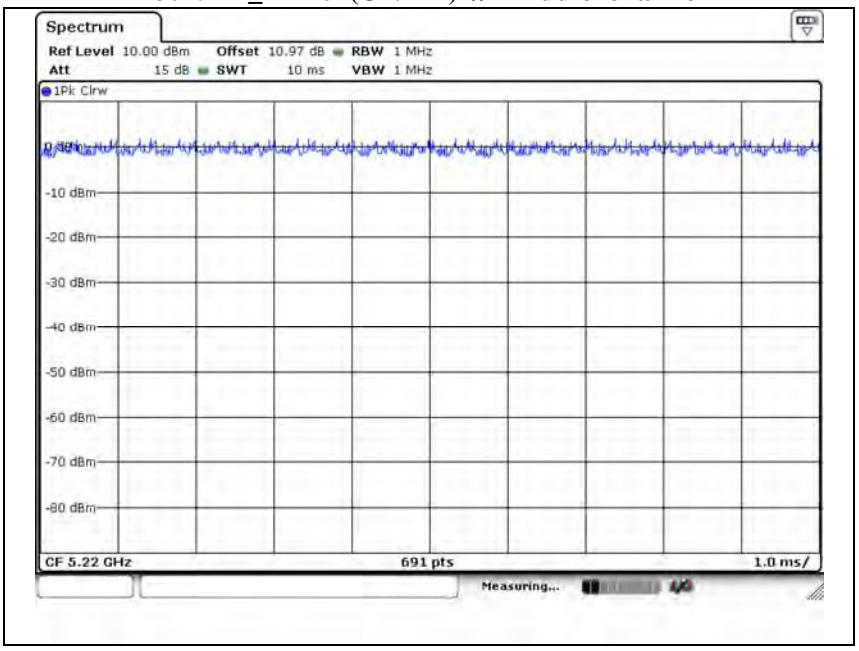
Note:
Duty cycle (Linear) = T_{on} time/Period
Minimum VBW(㎑) = 1/T_{on}, where T is on time in second
Duty cycle correction factor (㏈) = 10log(1/duty cycle)

802.11a (UNII-1) // Middle channel

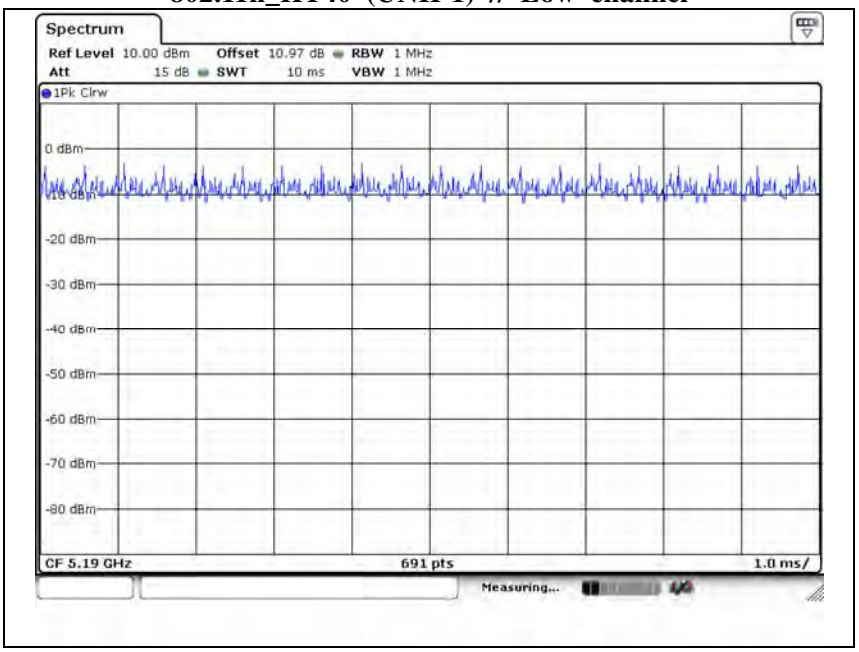


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802.11n_HT20 (UNII-1) // Middle channel

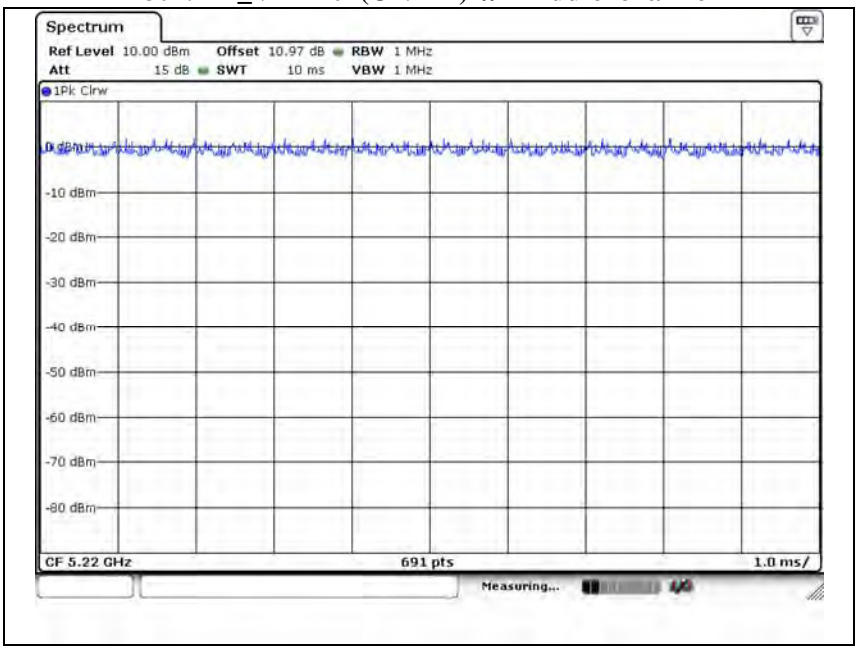


802.11n_HT40 (UNII-1) // Low channel

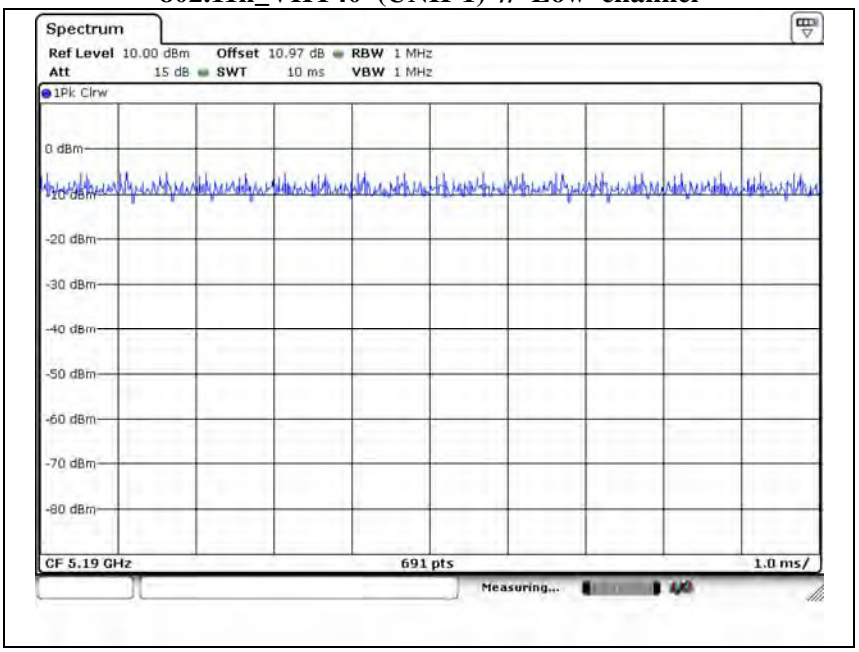


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802.11n_VHT20 (UNII-1) // Middle channel

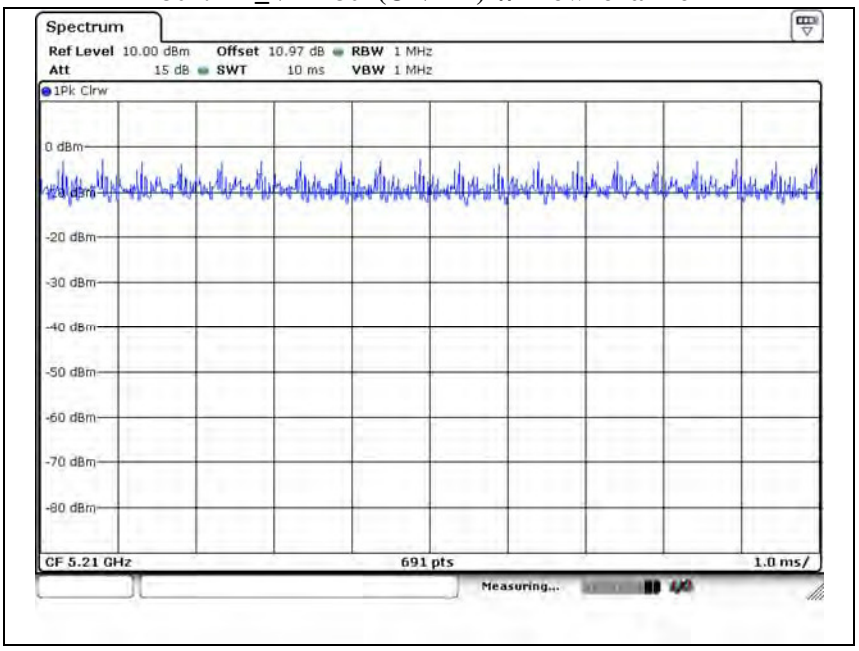


802.11n_VHT40 (UNII-1) // Low channel

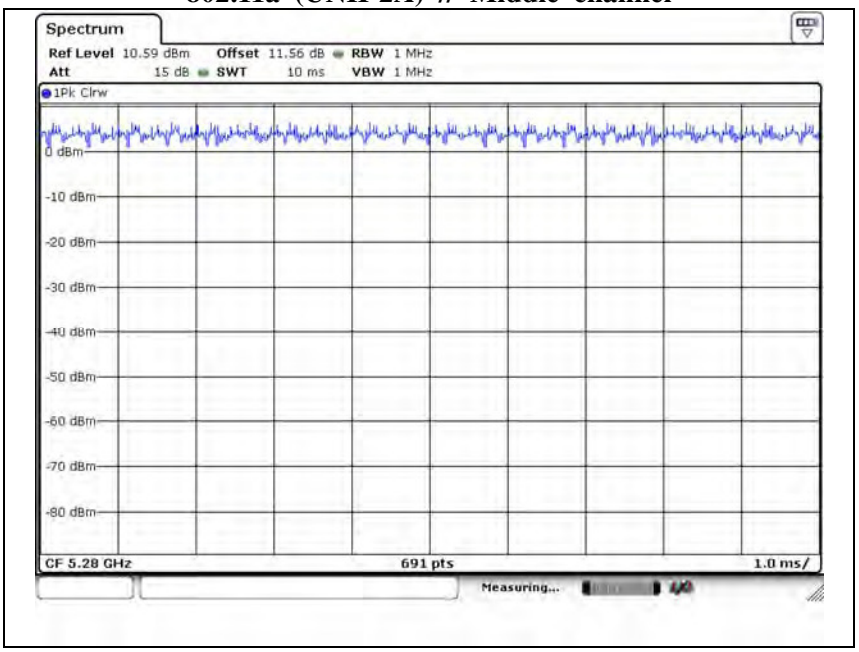


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802.11n_VHT80 (UNII-1) // Low channel

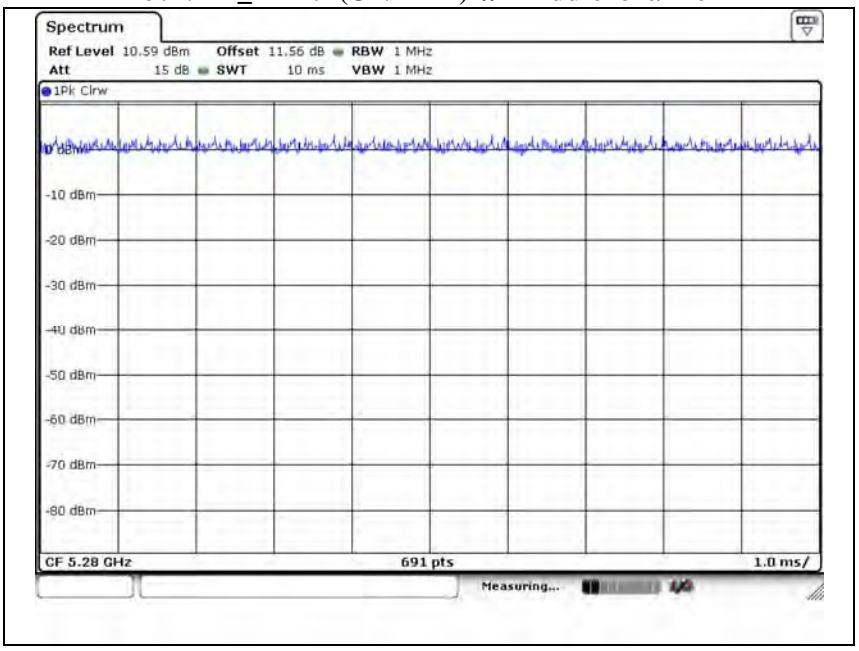


802.11a (UNII-2A) // Middle channel

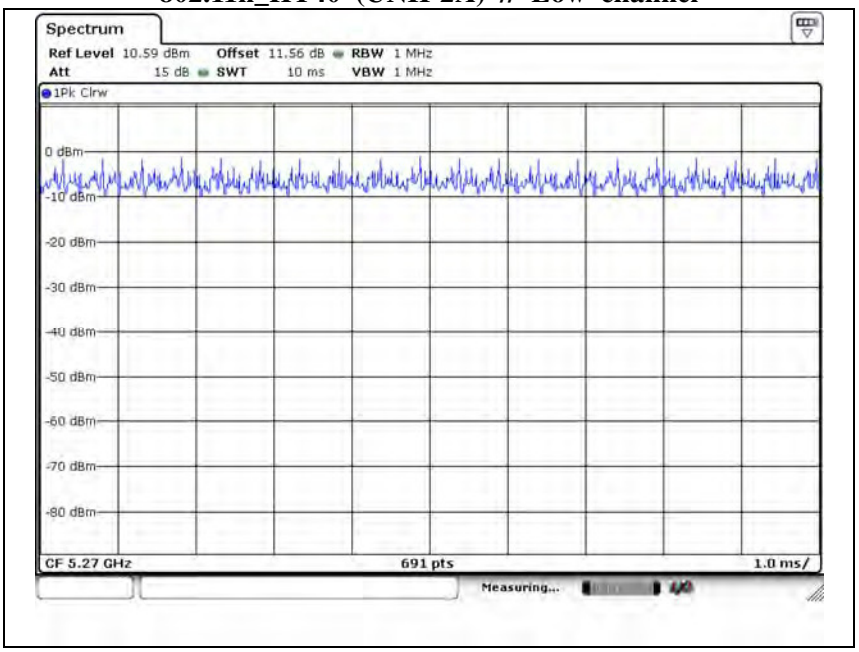


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802.11n_HT20 (UNII-2A) // Middle channel

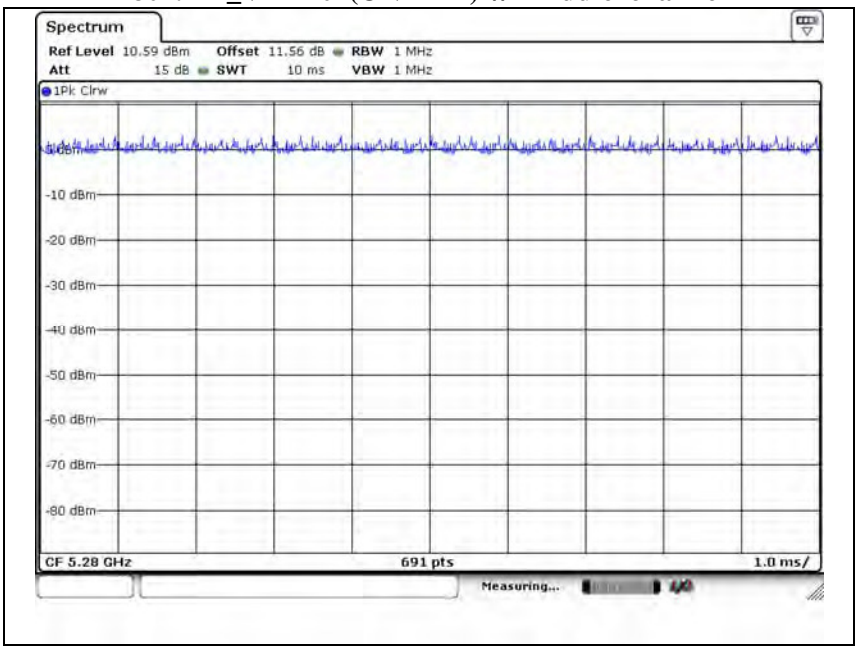


802.11n_HT40 (UNII-2A) // Low channel

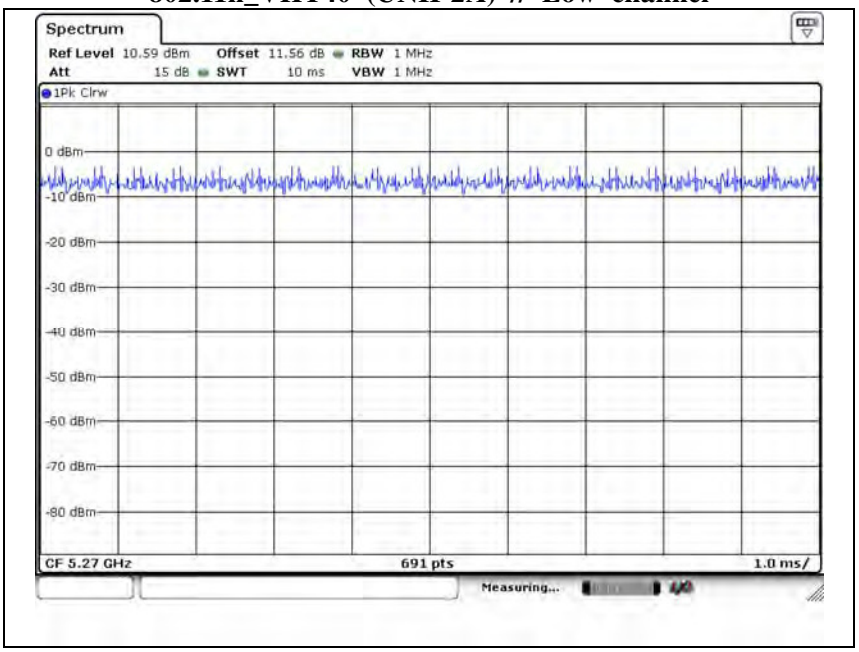


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802.11n_VHT20 (UNII-2A) // Middle channel

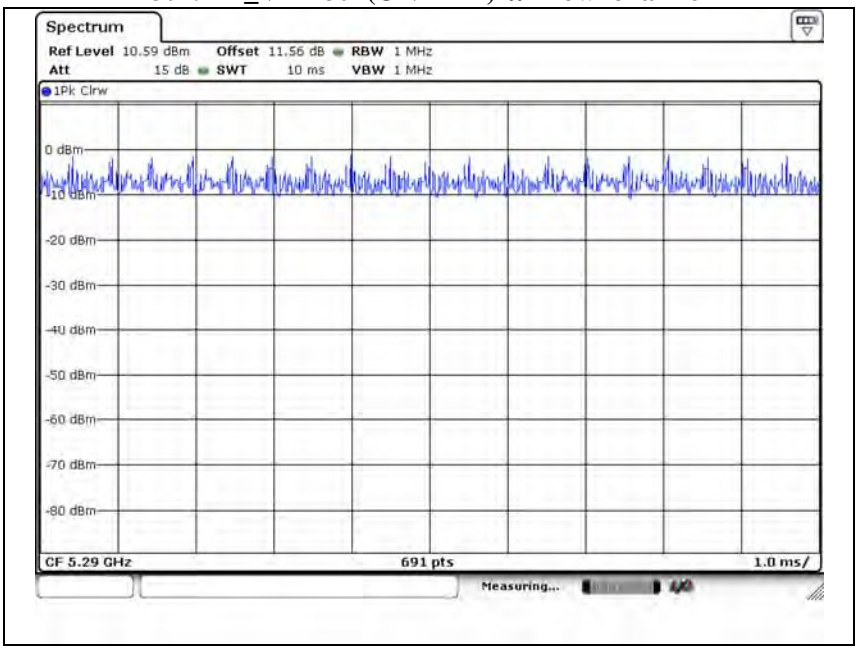


802.11n_VHT40 (UNII-2A) // Low channel

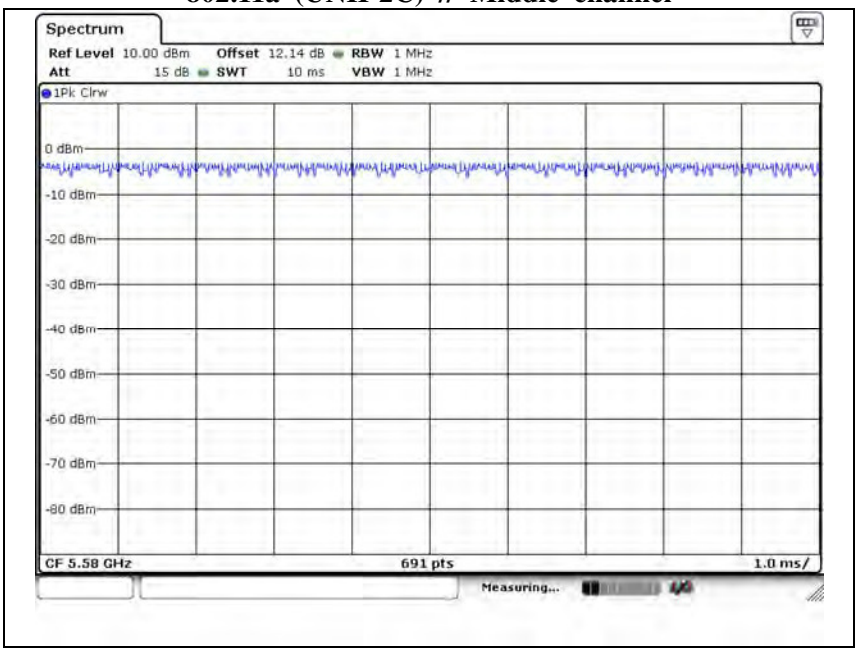


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802.11n_VHT80 (UNII-2A) // Low channel

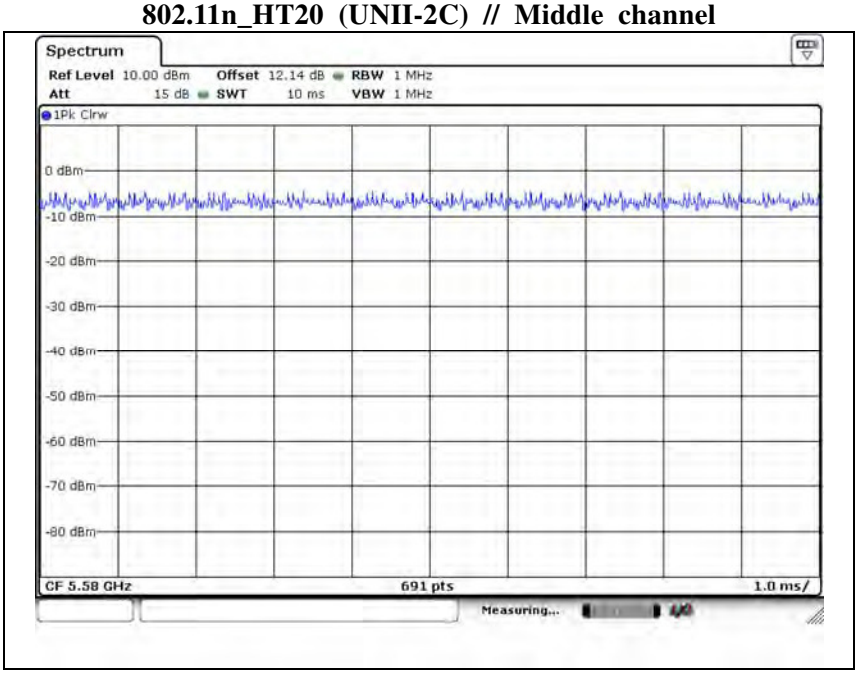


802.11a (UNII-2C) // Middle channel

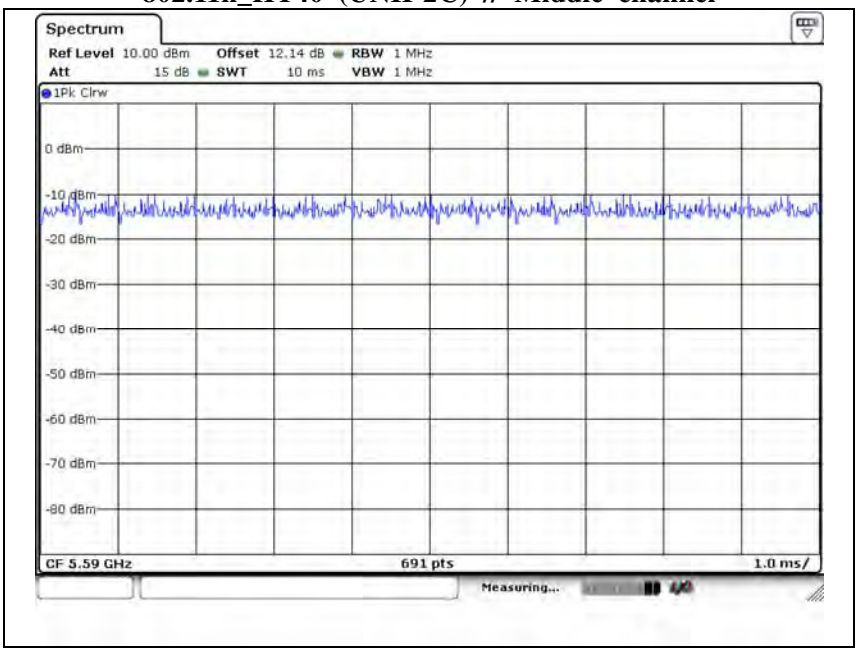


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802.11n_HT20 (UNII-2C) // Middle channel

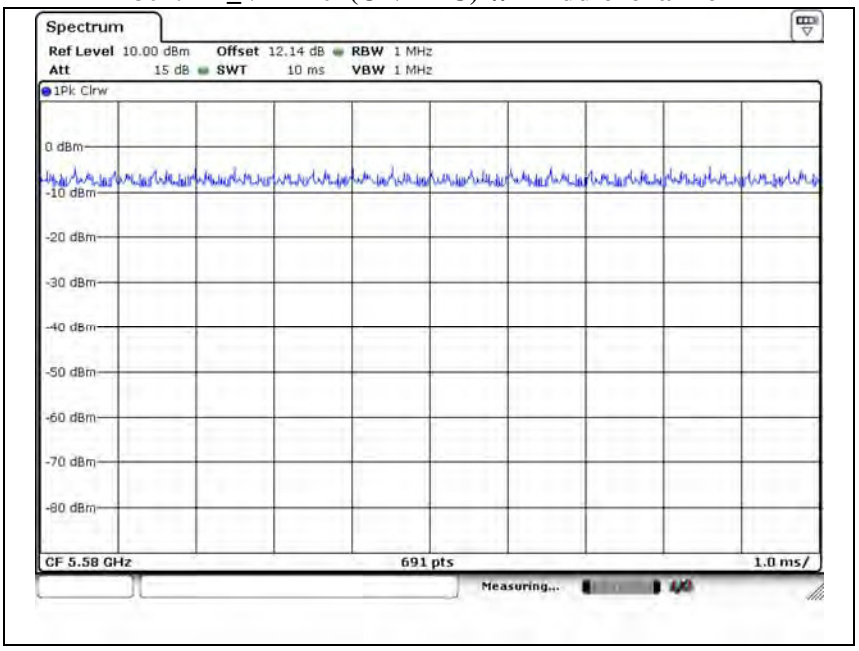


802.11n_HT40 (UNII-2C) // Middle channel

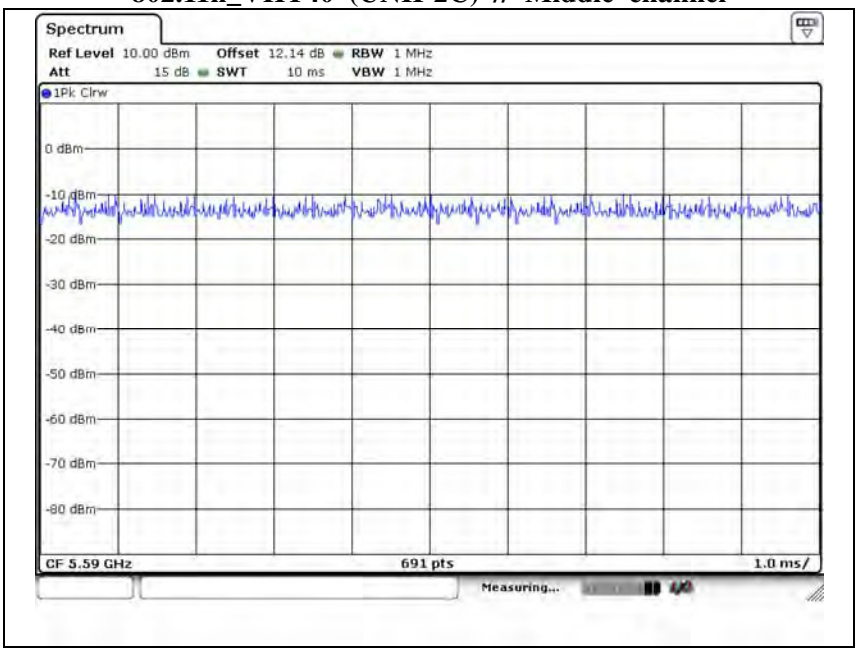


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802.11n_VHT20 (UNII-2C) // Middle channel

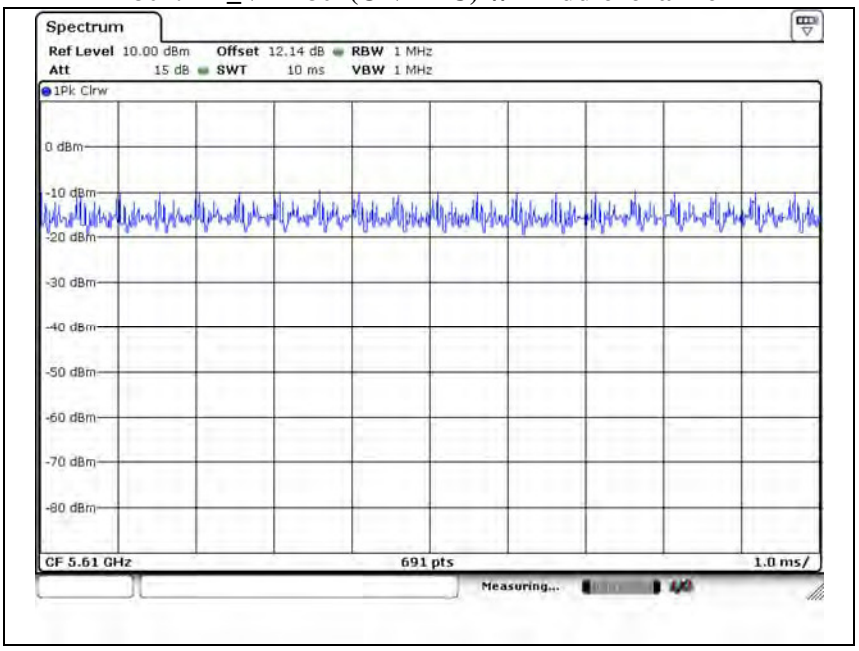


802.11n_VHT40 (UNII-2C) // Middle channel

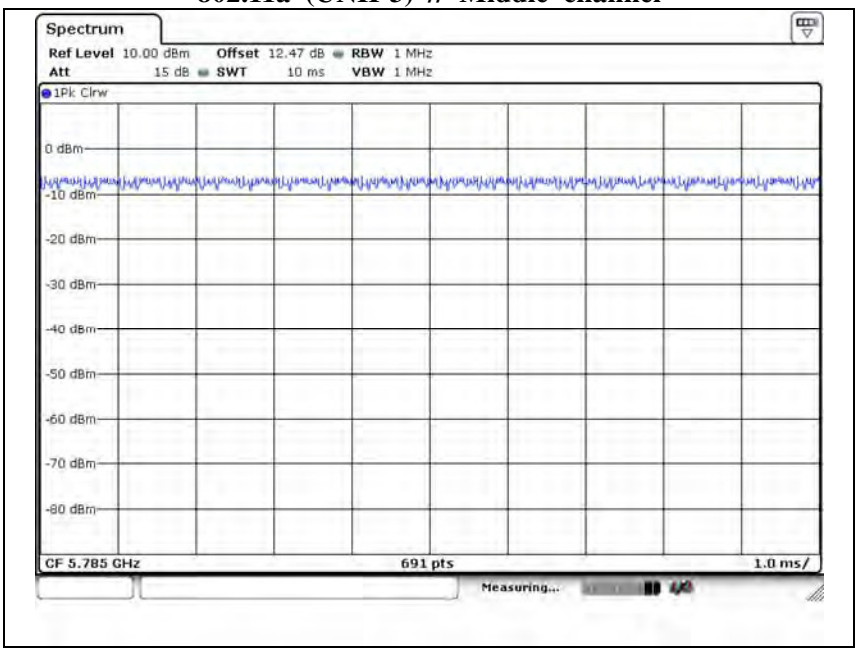


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802.11n_VHT80 (UNII-2C) // Middle channel

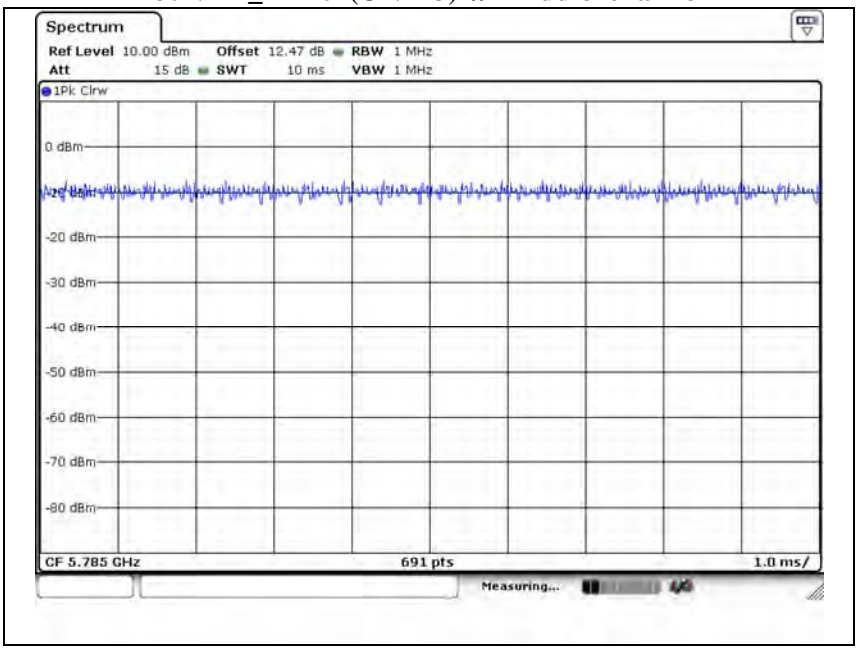


802.11a (UNII-3) // Middle channel

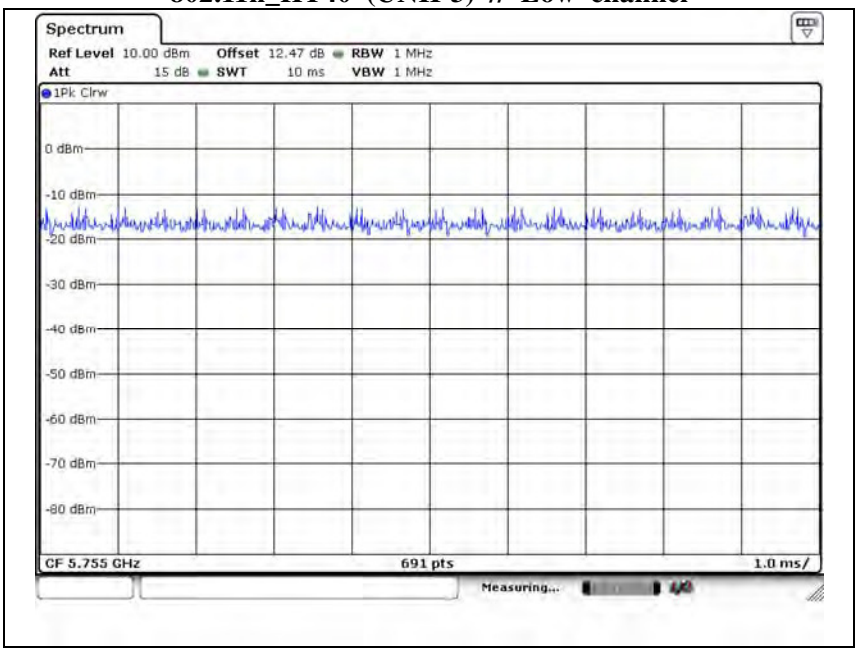


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802.11n_HT20 (UNII-3) // Middle channel

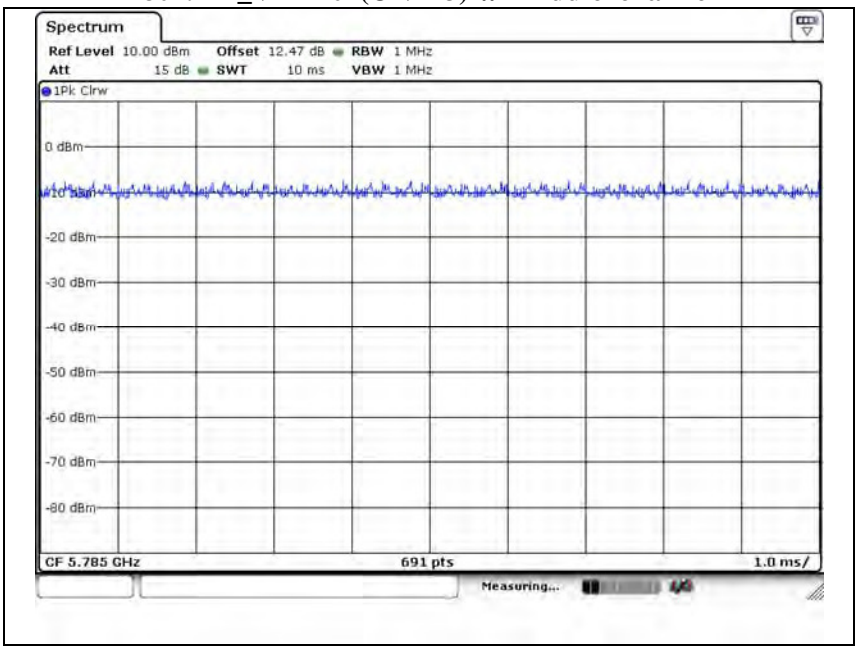


802.11n_HT40 (UNII-3) // Low channel

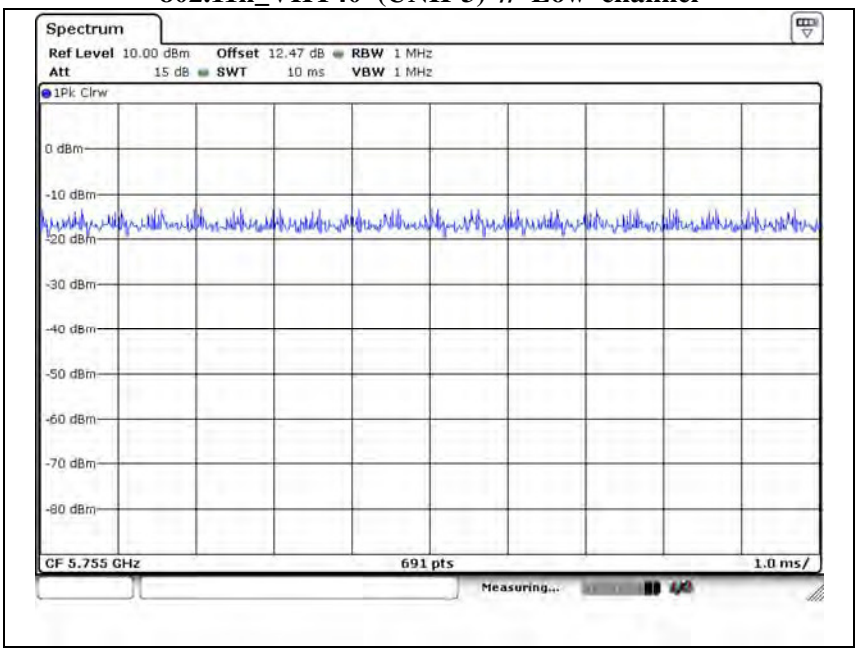


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802.11n_VHT20 (UNII-3) // Middle channel

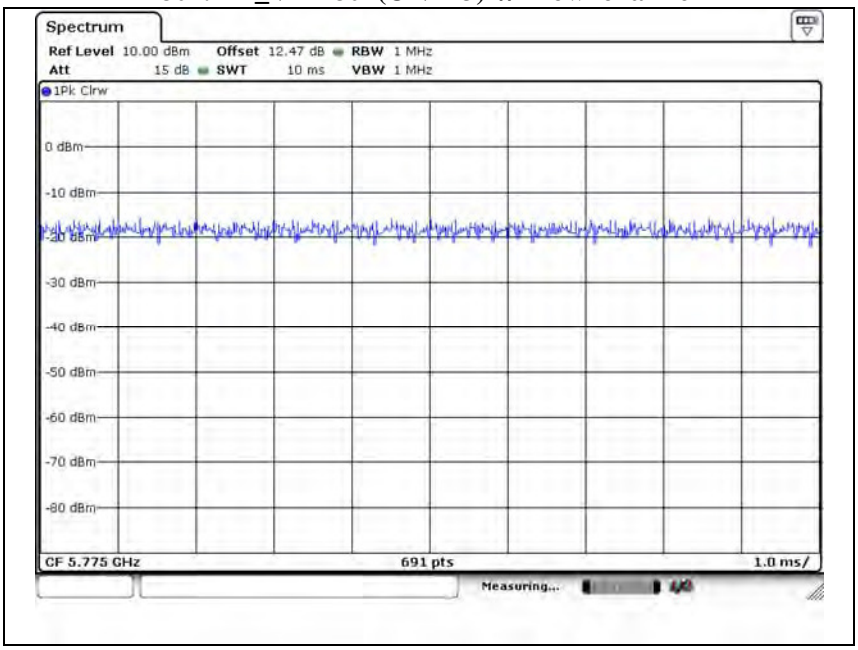


802.11n_VHT40 (UNII-3) // Low channel



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802.11n_VHT80 (UNII-3) // Low channel



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The test results in the report only apply to the tested sample.

Test results (Below 30 ㎒)

Mode:	UNII-2C
Transfer rate:	6 Mbps
Distance of measurement:	3 meter
Channel:	116 (Worst case)

Frequency (㎒)	Level (dB㎶)	Ant. Pol. (H/V)	CF (dB)	F_d (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 ㏈ of the limit							

Test results (Below 1 000 ㎒)

Mode:	UNII-2C
Transfer rate:	6 Mbps
Distance of measurement:	3 meter
Channel:	116 (Worst case)

Frequency (㎒)	Level (dB㎶)	Ant. Pol (H/V)	CF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
50.37	20.80	V	14.13	34.93	40.00	5.07
155.13	16.21	V	13.77	29.98	43.50	13.52
250.19	29.57	H	12.96	42.53	46.00	3.47
283.17	23.79	H	14.34	38.13	46.00	7.87
350.10	20.61	H	16.06	36.67	46.00	9.33
550.89	20.08	H	20.93	41.01	46.00	4.99

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The test results in the report only apply to the tested sample.

Test results (Above 1 000 ㎒)

Mode: UNII-1

Transfer rate: 6Mbps

Distance of measurement: 3 meter

Channel: 36

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5477.00	51.12	Peak	H	-3.52	-	47.60	74.00	26.40
*4989.20	52.97	Peak	V	-3.47	-	49.50	74.00	24.50

Mode: UNII-1

Transfer rate: 6Mbps

Distance of measurement: 3 meter

Channel: 44

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 ㏈ of the limit								

Mode: UNII-1

Transfer rate: 6Mbps

Distance of measurement: 3 meter

Channel: 48

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 ㏈ of the limit								

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The test results in the report only apply to the tested sample.

Mode: UNII-2A
Transfer rate: 6Mbps
Distance of measurement: 3 meter
Channel: 52

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-2A
Transfer rate: 6Mbps
Distance of measurement: 3 meter
Channel: 56

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-2A
Transfer rate: 6Mbps
Distance of measurement: 3 meter
Channel: 64

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5404.49	52.74	Peak	H	-3.62	-	49.12	74.00	24.88
*5354.78	51.84	Peak	V	-3.58	-	48.26	74.00	25.74

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The test results in the report only apply to the tested sample.

Mode: UNII-2C
Transfer rate: 6Mbps
Distance of measurement: 3 meter
Channel: 100

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5457.92	52.94	Peak	H	-3.55	-	49.39	74.00	24.61
*5454.21	52.50	Peak	V	-3.55	-	48.95	74.00	25.05

Mode: UNII-2C
Transfer rate: 6Mbps
Distance of measurement: 3 meter
Channel: 116

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-2C
Transfer rate: 6Mbps
Distance of measurement: 3 meter
Channel: 144

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

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Mode: UNII-3
Transfer rate: 6Mbps
Distance of measurement: 3 meter
Channel: 149

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5698.59	52.86	Peak	H	-2.59	-	50.27	68.23	17.96
5653.46	52.69	Peak	V	-2.75	-	49.94	68.23	18.29
5725.00	52.37	Peak	H	-2.49	-	49.88	110.83	60.95
5725.00	50.48	Peak	V	-2.49	-	47.99	110.83	62.84

Mode: UNII-3
Transfer rate: 6Mbps
Distance of measurement: 3 meter
Channel: 157

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-3
Transfer rate: 6Mbps
Distance of measurement: 3 meter
Channel: 165

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5850.00	49.51	Peak	H	-2.07	-	47.44	110.83	63.39
5850.00	52.11	Peak	V	-2.07	-	50.04	110.83	60.79
5863.13	52.39	Peak	H	-2.03	-	50.36	105.23	54.87
5863.39	52.33	Peak	V	-2.03	-	50.30	105.23	54.93

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The test results in the report only apply to the tested sample.

Mode: UNII-1 (HT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 36

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5123.00	52.34	Peak	H	-3.42	-	48.92	74.00	25.08
*5147.00	51.49	Peak	V	-3.42	-	48.07	74.00	25.93

Mode: UNII-1 (HT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 44

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-1 (HT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 48

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

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The test results in the report only apply to the tested sample.

Mode: UNII-2A (HT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 52

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-2A (HT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 56

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-2A (HT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 64

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5357.38	51.24	Peak	H	-3.59	-	47.65	74.00	26.35
*5386.90	51.91	Peak	V	-3.62	-	48.29	74.00	25.71

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The test results in the report only apply to the tested sample.

Mode: UNII-2C (HT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 100

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5459.10	52.64	Peak	H	-3.55	-	49.09	74.00	24.91
*5452.00	52.19	Peak	V	-3.56	-	48.63	74.00	25.37

Mode: UNII-2C (HT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 116

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-2C (HT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 144

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

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Mode: UNII-3 (HT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 149

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5712.11	52.06	Peak	H	-2.54	-	49.52	105.23	55.71
5705.16	52.24	Peak	V	-2.56	-	49.68	105.23	55.55
5725.00	53.61	Peak	H	-2.49	-	51.12	110.83	59.71
5725.00	49.92	Peak	V	-2.49	-	47.43	110.83	63.40

Mode: UNII-3 (HT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 157

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-3 (HT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 165

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5850.00	49.89	Peak	H	-2.07	-	47.82	110.83	63.01
5850.00	50.34	Peak	V	-2.07	-	48.27	110.83	62.56
5861.82	53.02	Peak	H	-2.03	-	50.99	105.23	54.24
5862.08	52.81	Peak	V	-2.03	-	50.78	105.23	54.45

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Mode: UNII-1 (HT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 38

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5115.60	51.68	Peak	H	-3.42	-	48.26	74.00	25.74
*5084.00	51.31	Peak	V	-3.43	-	47.88	74.00	26.12

Mode: UNII-1 (HT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 46

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-2A (HT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 54

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

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Mode: UNII-2A (HT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 62

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5357.64	52.12	Peak	H	-3.59	-	48.53	74.00	25.47
*5376.99	52.58	Peak	V	-3.61	-	48.97	74.00	25.03

Mode: UNII-2C (HT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 102

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5449.18	51.82	Peak	H	-3.56	-	48.26	74.00	25.74
*5457.05	52.33	Peak	V	-3.55	-	48.78	74.00	25.22

Mode: UNII-2C (HT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 118

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

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Mode: UNII-2C (HT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 142

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-3 (HT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 151

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5694.16	52.84	Peak	H	-2.60	-	50.24	68.23	17.99
5584.61	53.68	Peak	V	-3.03	-	50.65	68.23	17.58
5725.00	50.87	Peak	H	-2.49	-	48.38	110.83	62.45
5725.00	50.79	Peak	V	-2.49	-	48.30	110.83	62.53

Mode: UNII-3 (HT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 159

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5850.00	49.89	Peak	H	-2.07	-	47.82	110.83	63.01
5850.00	50.01	Peak	V	-2.07	-	47.94	110.83	62.89
5902.00	52.14	Peak	H	-1.92	-	50.22	68.23	18.01
5880.54	51.66	Peak	V	-1.98	-	49.68	68.23	18.55

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The test results in the report only apply to the tested sample.

Mode: UNII-1 (VHT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 36

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5092.10	51.94	Peak	H	-3.43	-	48.51	74.00	25.49
*5089.10	51.25	Peak	V	-3.43	-	47.82	74.00	26.18

Mode: UNII-1 (VHT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 44

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-1 (VHT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 48

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

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Mode: UNII-2A (VHT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 52

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-2A (VHT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 56

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-2A (VHT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 64

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5352.60	51.08	Peak	H	-3.58	-	47.50	74.00	26.50
*5366.50	52.48	Peak	V	-3.59	-	48.89	74.00	25.11

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Mode: UNII-2C (VHT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 100

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5453.29	52.95	Peak	H	-3.56	-	49.39	74.00	24.61
*5452.59	52.75	Peak	V	-3.56	-	49.19	74.00	24.81

Mode: UNII-2C (VHT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 116

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-2C (VHT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 144

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

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Mode: UNII-3 (VHT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 149

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5646.43	52.65	Peak	H	-2.78	-	49.87	68.23	18.36
5702.11	51.93	Peak	V	-2.57	-	49.36	105.23	55.87
5725.00	50.22	Peak	H	-2.49	-	47.73	110.83	63.10
5725.00	50.15	Peak	V	-2.49	-	47.66	110.83	63.17

Mode: UNII-3 (VHT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 157

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-3 (VHT20)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 165

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5850.00	50.15	Peak	H	-2.07	-	48.08	110.83	62.75
5850.00	50.08	Peak	V	-2.07	-	48.01	110.83	62.82
5896.41	52.12	Peak	H	-1.93	-	50.19	68.23	18.04
5864.02	51.90	Peak	V	-2.08	-	49.82	105.23	55.41

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Mode: UNII-1 (VHT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 38

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5026.40	52.42	Peak	H	-3.43	-	48.99	74.00	25.01
*4997.00	52.24	Peak	V	-3.44	-	48.80	74.00	25.20

Mode: UNII-1 (VHT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 46

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-2A (VHT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 54

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

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Mode: UNII-2A (VHT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 62

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5373.62	52.96	Peak	H	-3.60	-	49.36	74.00	24.64
*5353.24	52.16	Peak	V	-3.58	-	48.58	74.00	25.42

Mode: UNII-2C (VHT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 102

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5451.14	53.30	Peak	H	-3.56	-	49.74	74.00	24.26
*5449.18	51.68	Peak	V	-3.56	-	48.12	74.00	25.88

Mode: UNII-2C (VHT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 118

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

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Mode: UNII-2C (VHT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 142

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-3 (VHT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 151

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5710.20	51.63	Peak	H	-2.54	-	49.09	105.23	56.14
5621.91	54.55	Peak	V	-2.87	-	51.68	68.23	16.55
5725.00	50.12	Peak	H	-2.49	-	47.63	110.83	63.20
5725.00	50.02	Peak	V	-2.49	-	47.53	110.83	63.30

Mode: UNII-3 (VHT40)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 159

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5850.00	50.08	Peak	H	-2.07	-	48.01	110.83	62.82
5850.00	51.29	Peak	V	-2.07	-	49.22	110.83	61.61
5880.54	51.48	Peak	H	-1.98	-	49.5	68.23	18.73
5869.02	51.09	Peak	V	-2.01	-	49.08	105.23	56.15

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Mode: UNII-1 (VHT80)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 42

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5049.30	51.94	Peak	H	-3.43	-	48.51	74.00	25.49
*5126.40	52.18	Peak	V	-3.42	-	48.76	74.00	25.24

Mode: UNII-2A (VHT80)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 58

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5354.17	53.26	Peak	H	-3.58	-	49.68	74.00	24.32
*5362.76	52.62	Peak	V	-3.59	-	49.03	74.00	24.97

Mode: UNII-2C (VHT80)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 106

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*5458.08	51.92	Peak	H	-3.55	-	48.37	74.00	25.63
*5452.30	52.97	Peak	V	-3.56	-	49.41	74.00	24.59

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Mode: UNII-2C (VHT80)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 122

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

Mode: UNII-2C (VHT80)
Transfer rate: MCS0
Distance of measurement: 3 meter
Channel: 138

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No spurious emissions were detected within 20 dB of the limit								

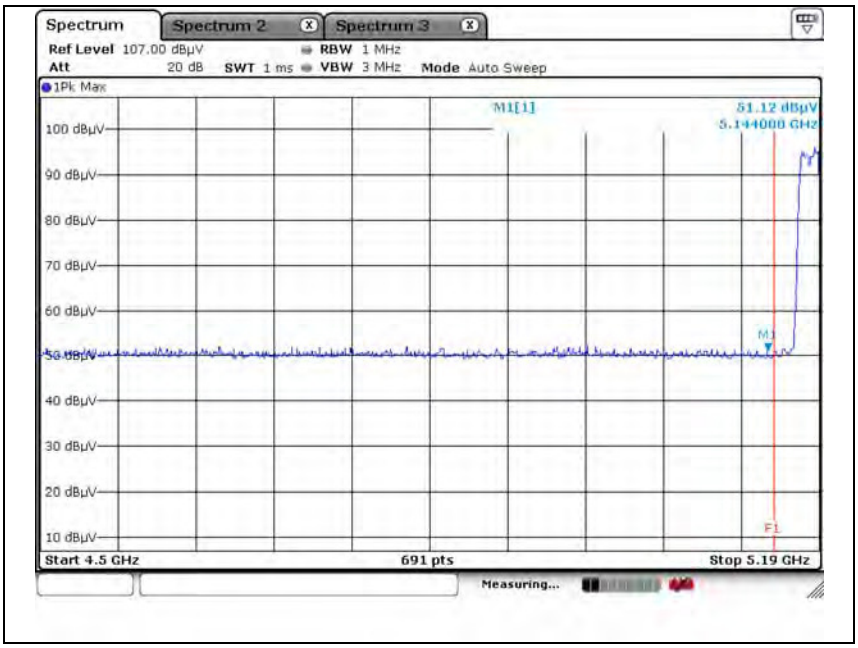
Mode: UNII-3 (VHT80)
Transfer rate: MCS9
Distance of measurement: 3 meter
Channel: 155

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5704.19	51.53	Peak	H	-2.57	-	48.96	105.23	56.27
5680.17	52.86	Peak	V	-1.98	-	50.88	68.23	17.35
5725.00	50.29	Peak	H	-2.49	-	47.8	110.83	63.03
5725.00	49.88	Peak	V	-2.49	-	47.39	110.83	63.44
5850.00	50.87	Peak	H	-2.07	-	48.80	110.83	62.03
5850.00	50.17	Peak	V	-2.07	-	48.10	110.83	62.73
5887.33	51.79	Peak	H	-1.96	-	49.83	68.23	18.40
5885.20	51.88	Peak	V	-1.97	-	49.91	68.23	18.32

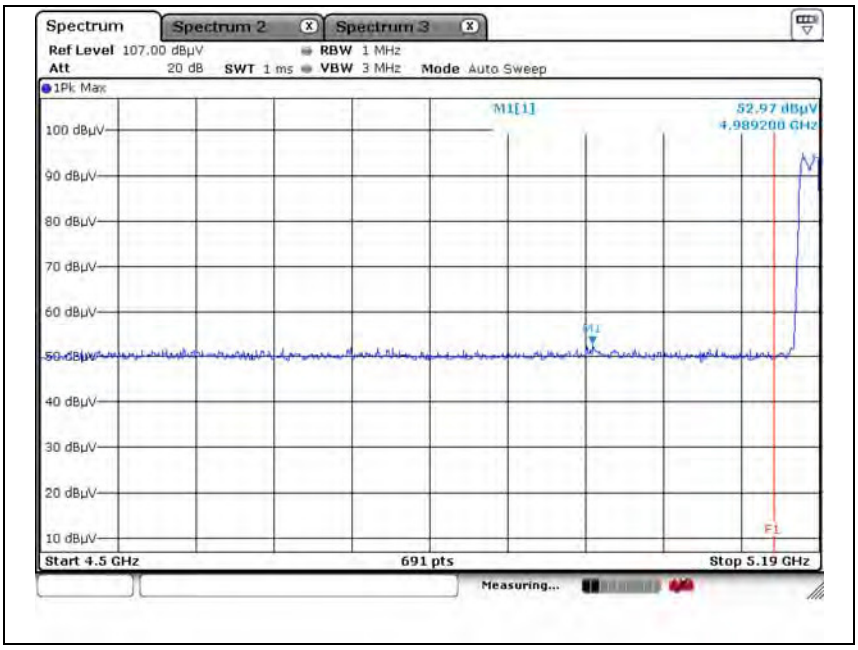
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Test plots (Worst case)

Mode:	UNII-1
Transfer rate:	6 Mbps
Distance of measurement:	3 meter
Channel:	36
Detected mode:	Peak, Hor

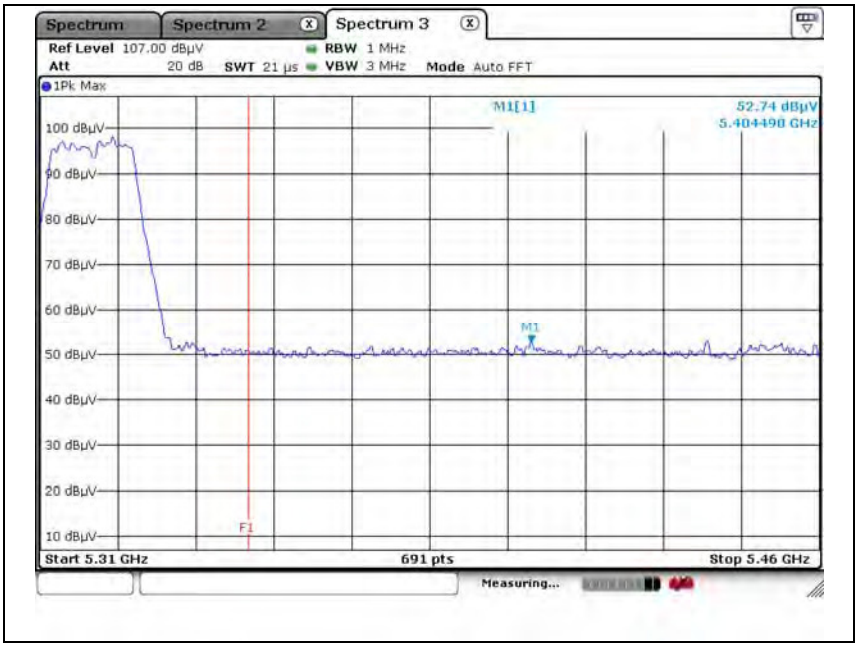


Detected mode:	Peak, Ver

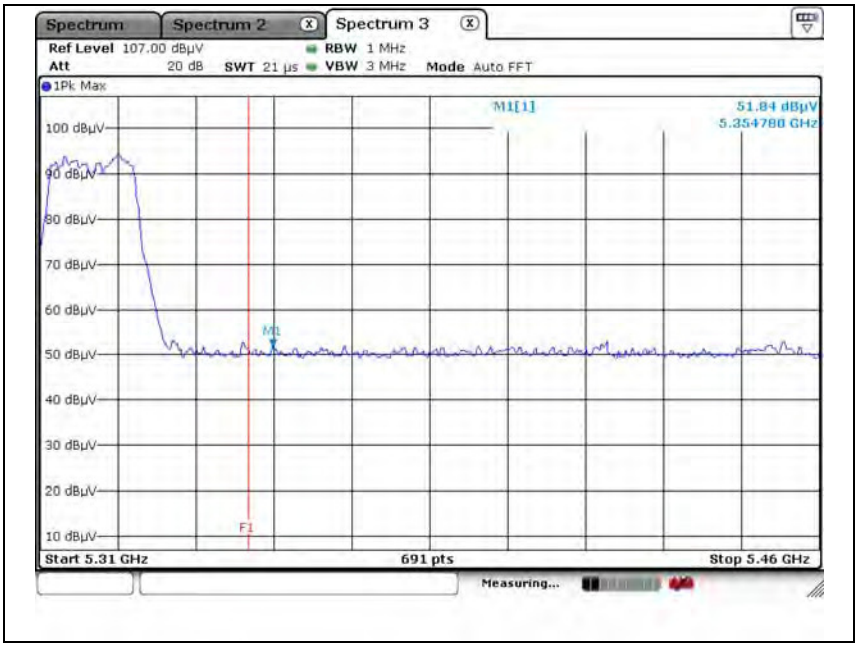


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The test results in the report only apply to the tested sample.

Mode:	UNII-2A
Transfer rate:	6 Mbps
Distance of measurement:	3 meter
Channel:	64
Detected mode:	Peak, Hor

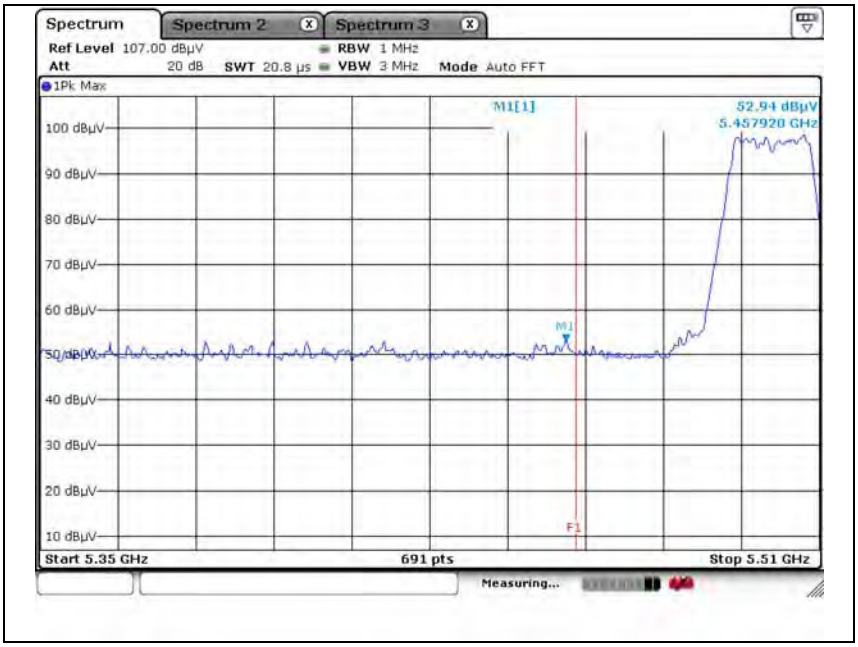


Detected mode:	Peak, Ver

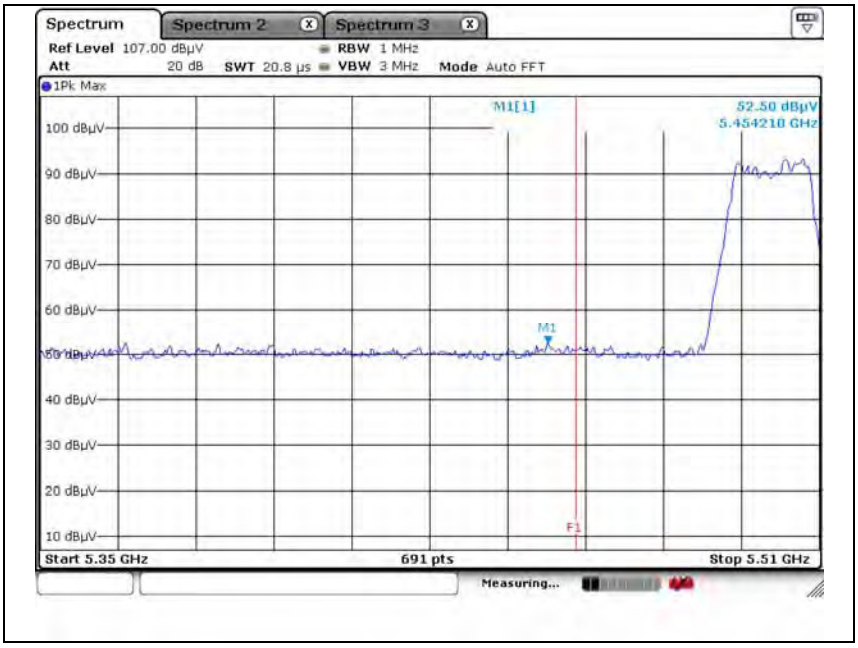


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Mode:	UNII-2C
Transfer rate:	6 Mbps
Distance of measurement:	3 meter
Channel:	100
Detected mode:	Peak, Hor

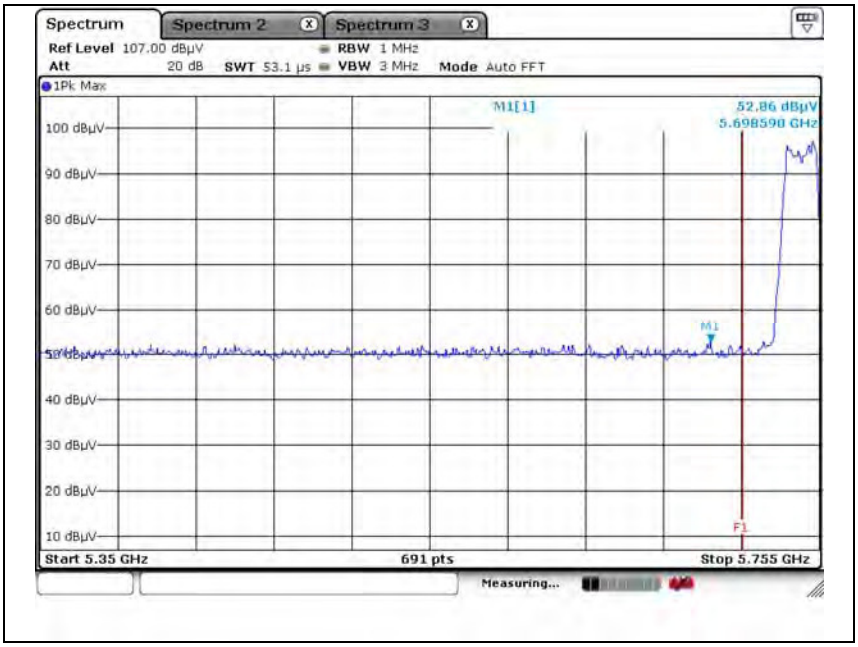


Detected mode:	Peak, Ver

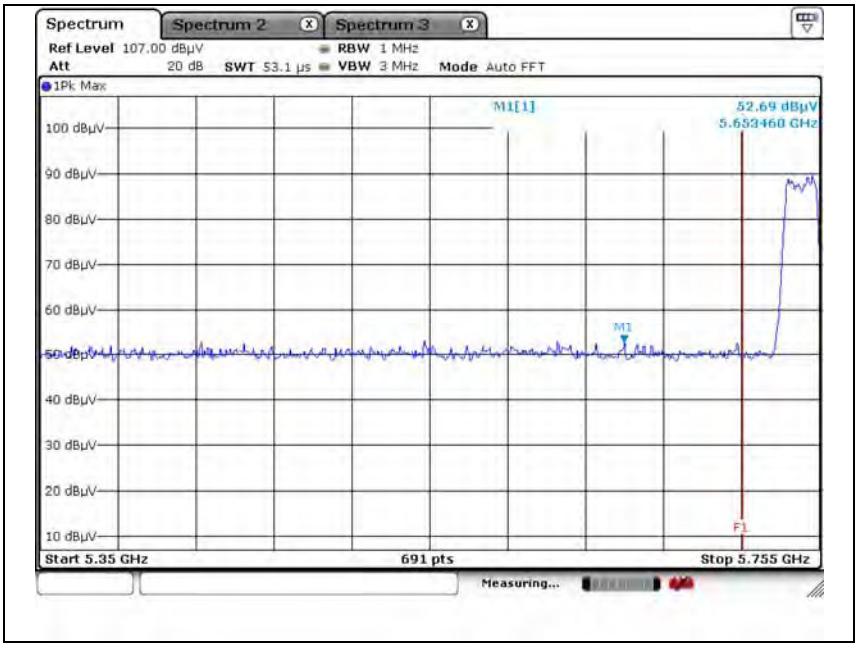


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Mode:	UNII-3 (1)
Transfer rate:	6 Mbps
Distance of measurement:	3 meter
Channel:	149
Detected mode:	Peak, Hor

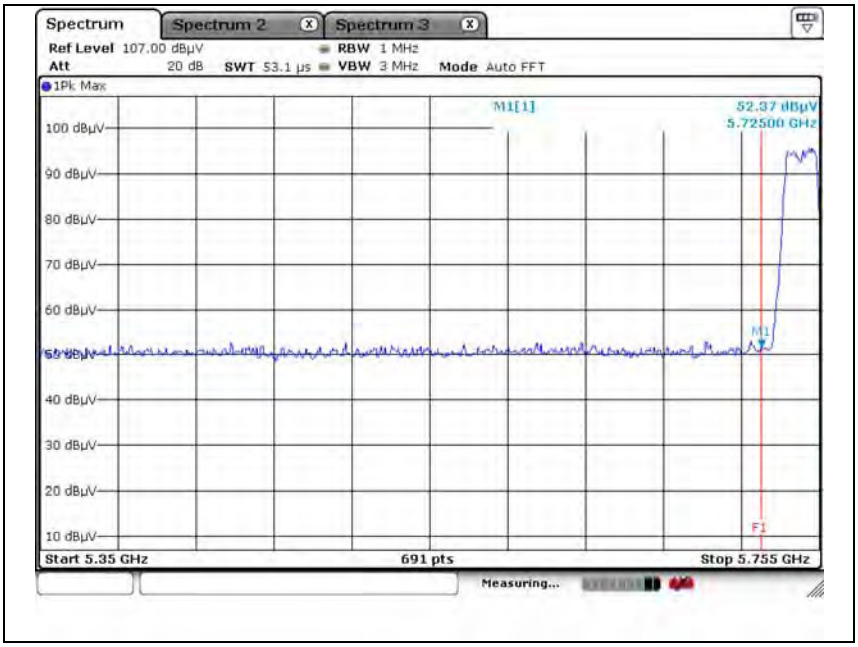


Detected mode:	Peak, Ver

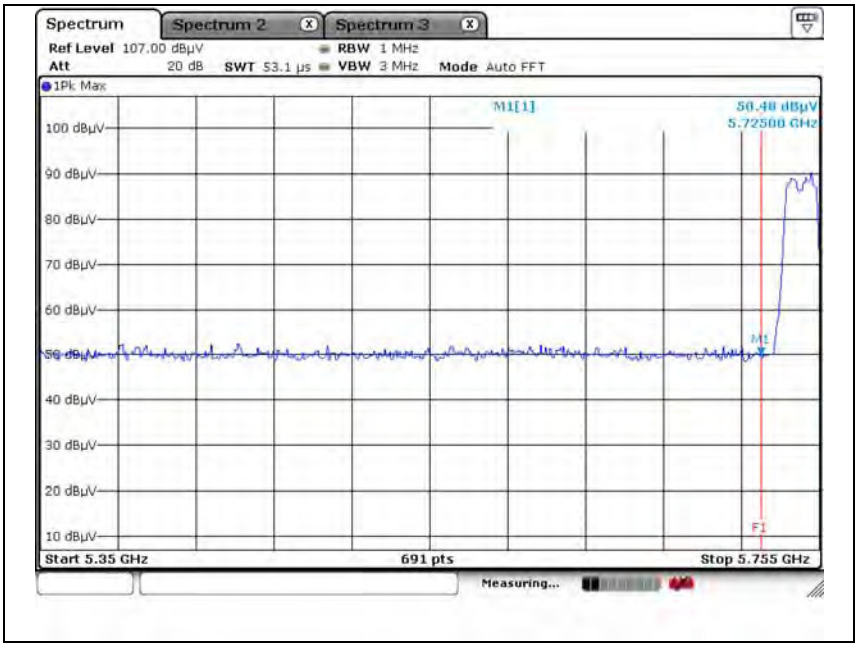


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The test results in the report only apply to the tested sample.

Mode:	UNII-3 (2)
Transfer rate:	6 Mbps
Distance of measurement:	3 meter
Channel:	149
Detected mode:	Peak, Hor

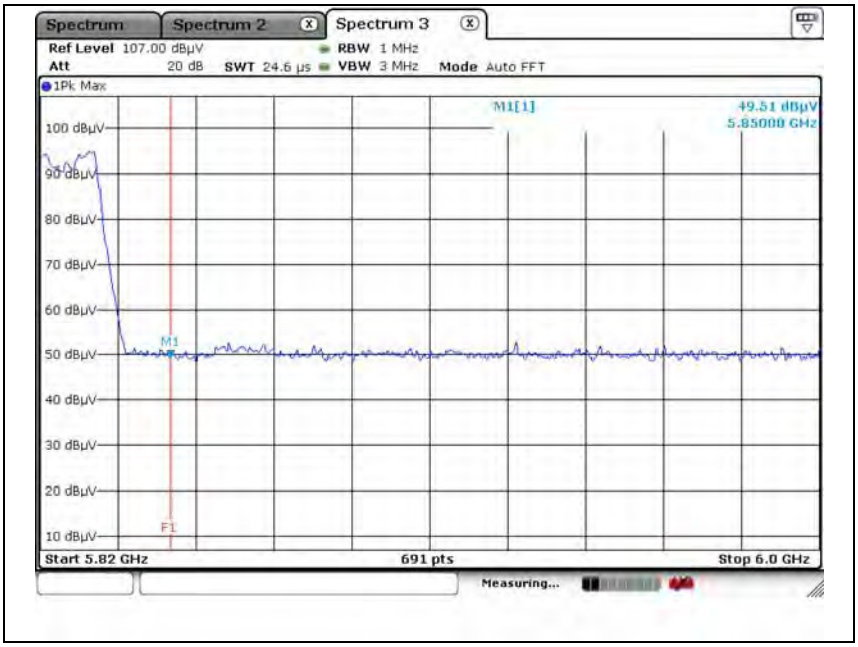


Detected mode:	Peak, Ver

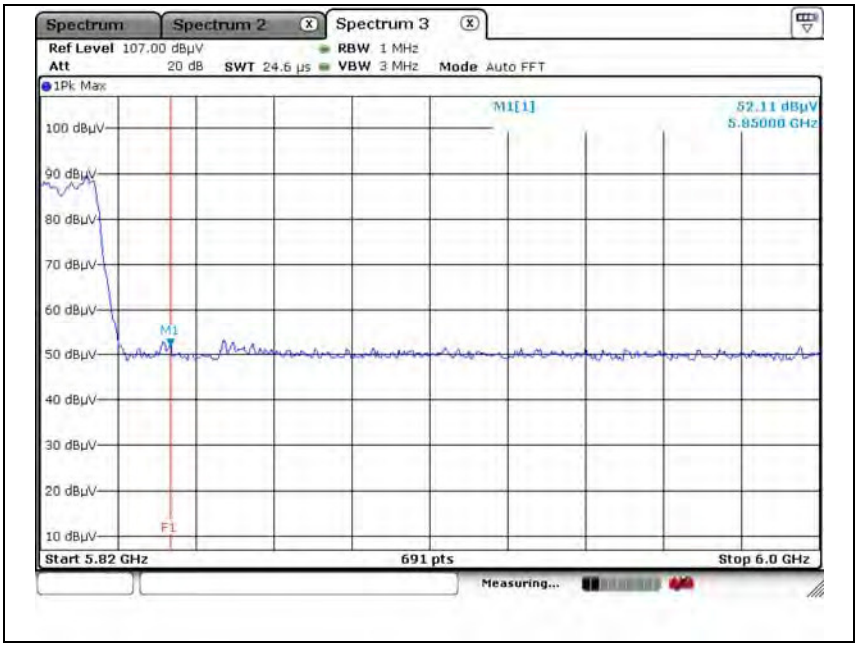


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Mode:	UNII-3 (1)
Transfer rate:	6 Mbps
Distance of measurement:	3 meter
Channel:	165
Detected mode:	Peak, Hor

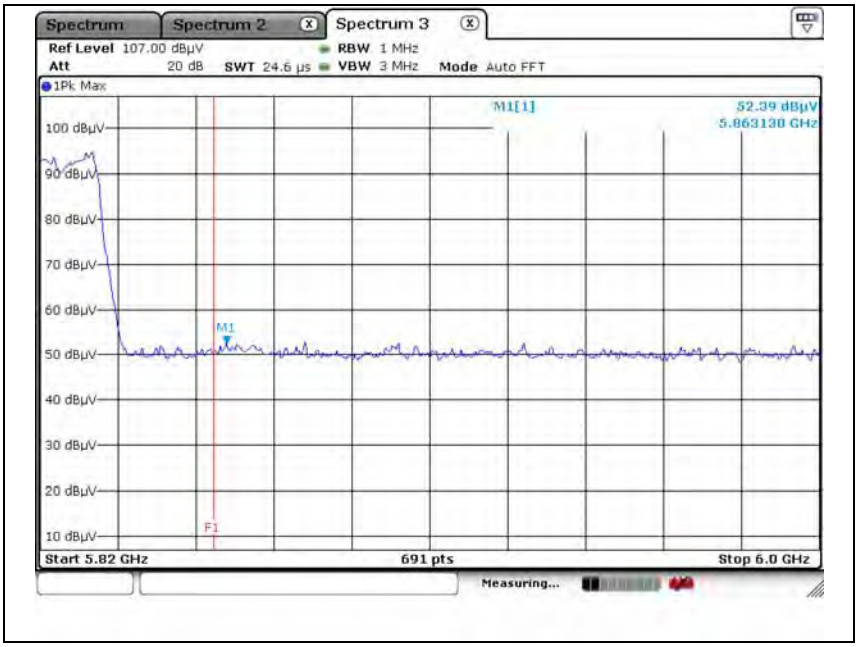


Detected mode:	Peak, Ver

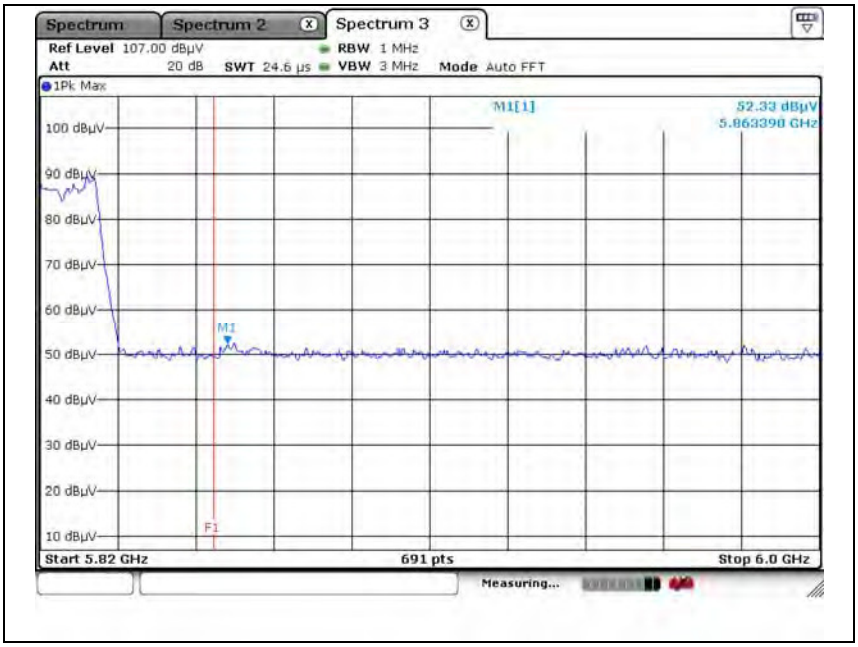


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Mode:	UNII-3 (2)
Transfer rate:	6 Mbps
Distance of measurement:	3 meter
Channel:	165
Detected mode:	Peak, Hor

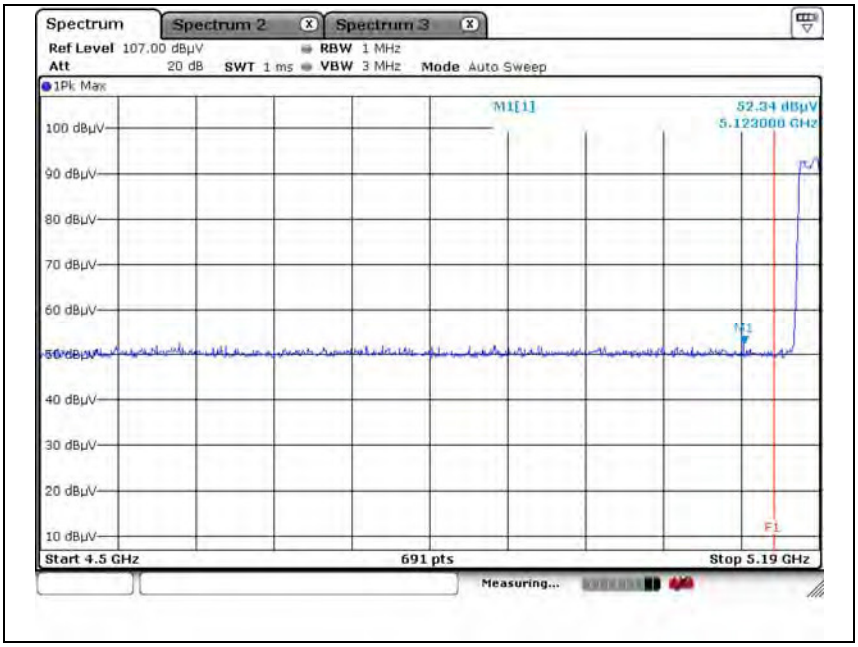


Detected mode: Peak, Ver

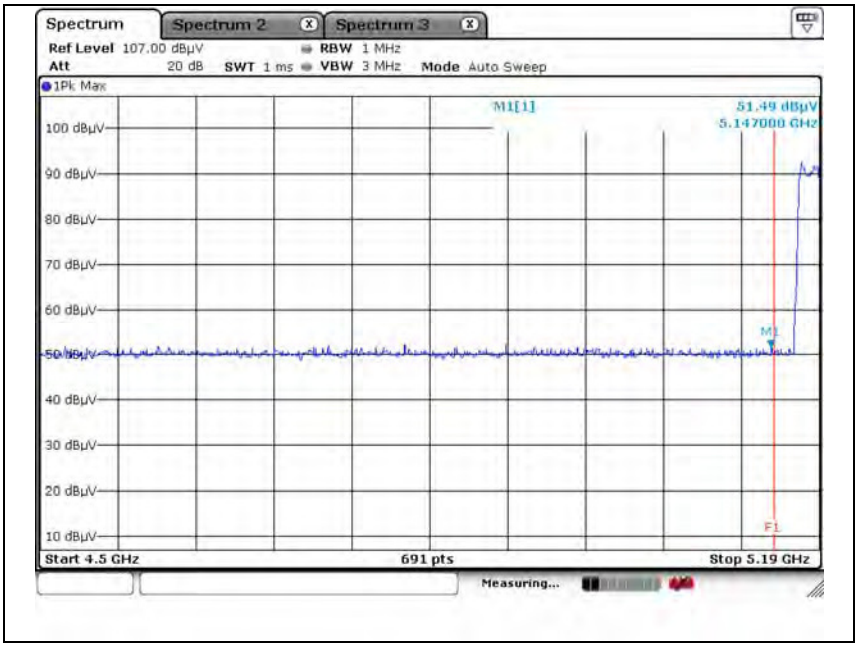


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Mode:	UNII-1 (HT20)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	36
Detected mode:	Peak, Hor

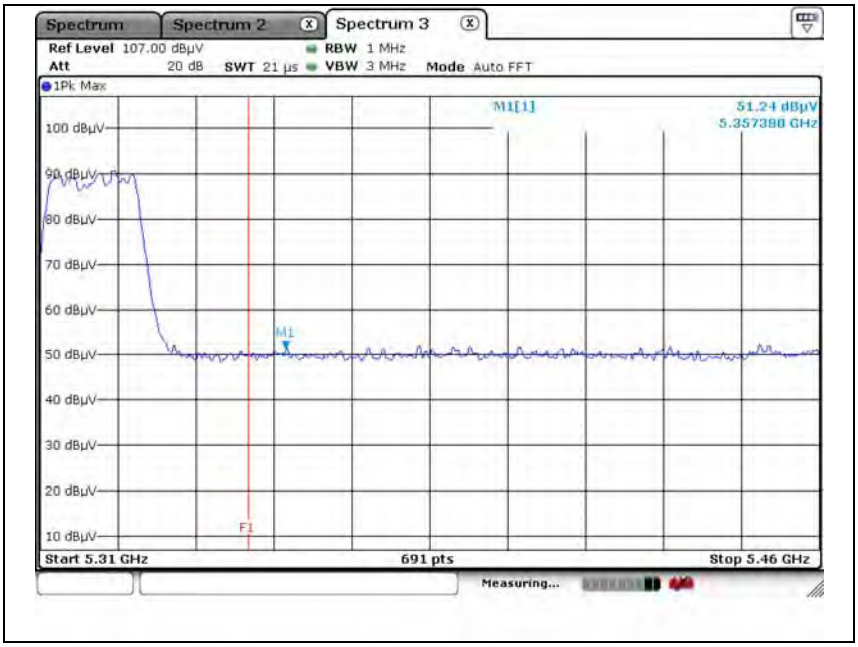


Detected mode:	Peak, Ver

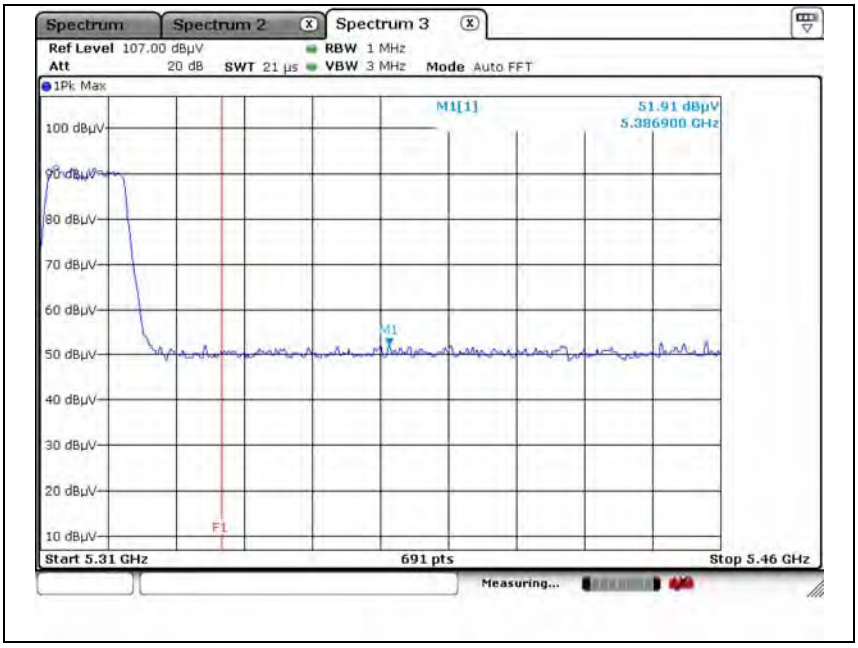


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Mode:	UNII-2A (HT20)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	64
Detected mode:	Peak, Hor

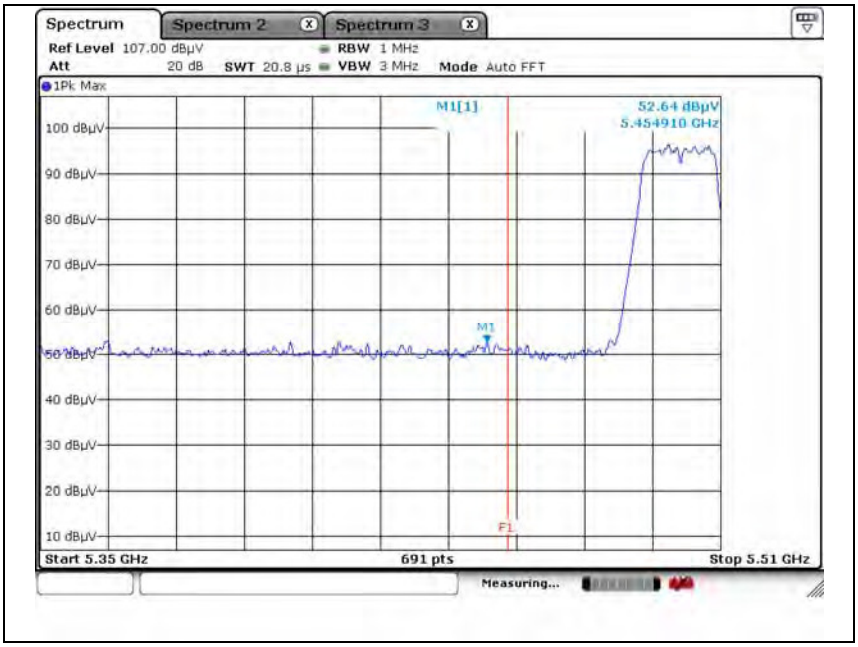


Detected mode:	Peak, Ver

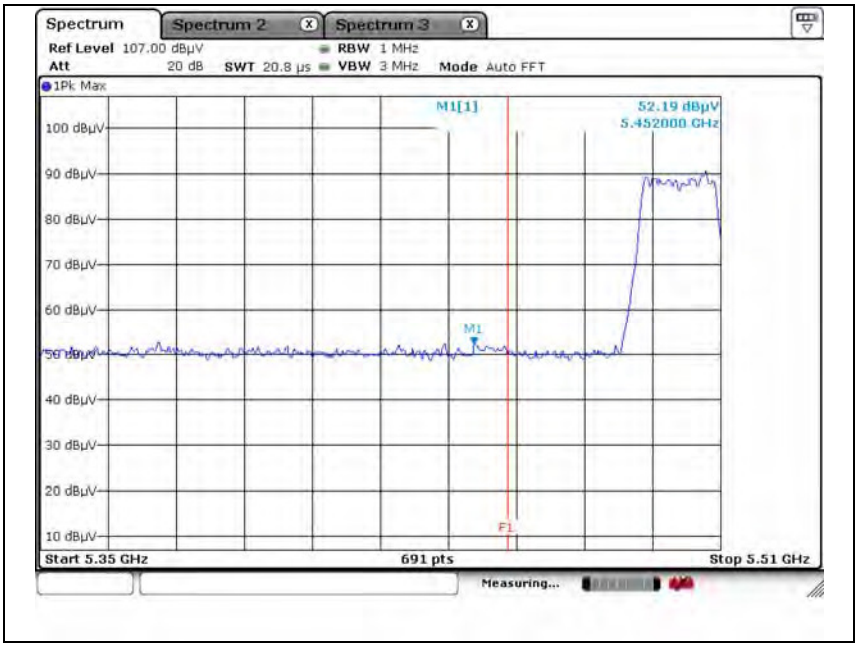


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Mode:	UNII-2C (HT20)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	100
Detected mode:	Peak, Hor

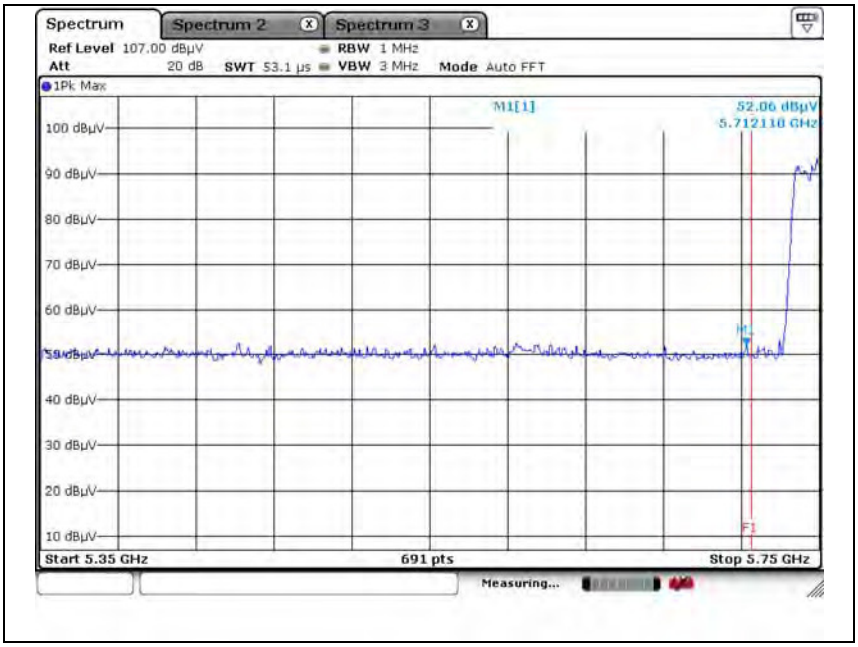


Detected mode:	Peak, Ver

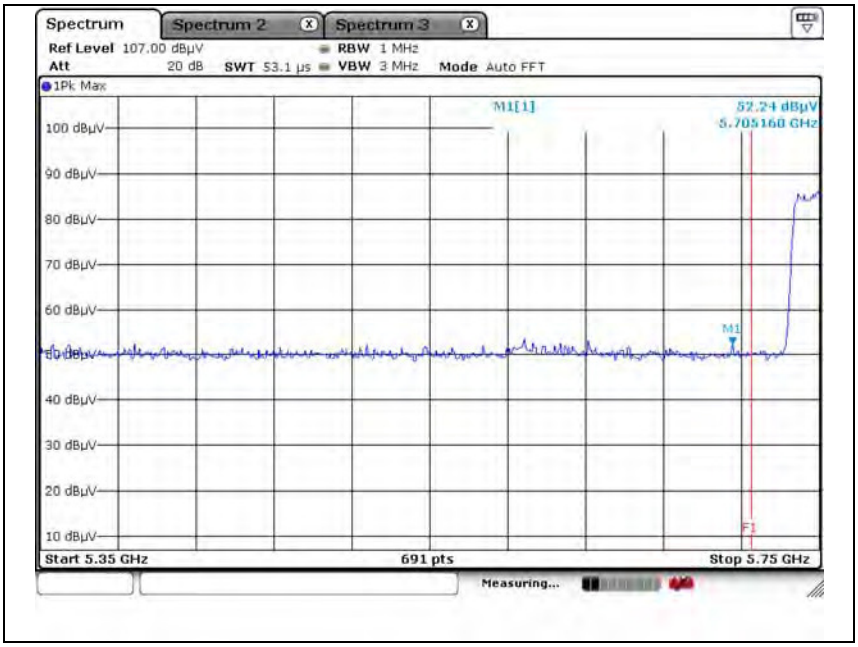


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Mode:	UNII-3 (HT20) (1)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	149
Detected mode:	Peak, Hor

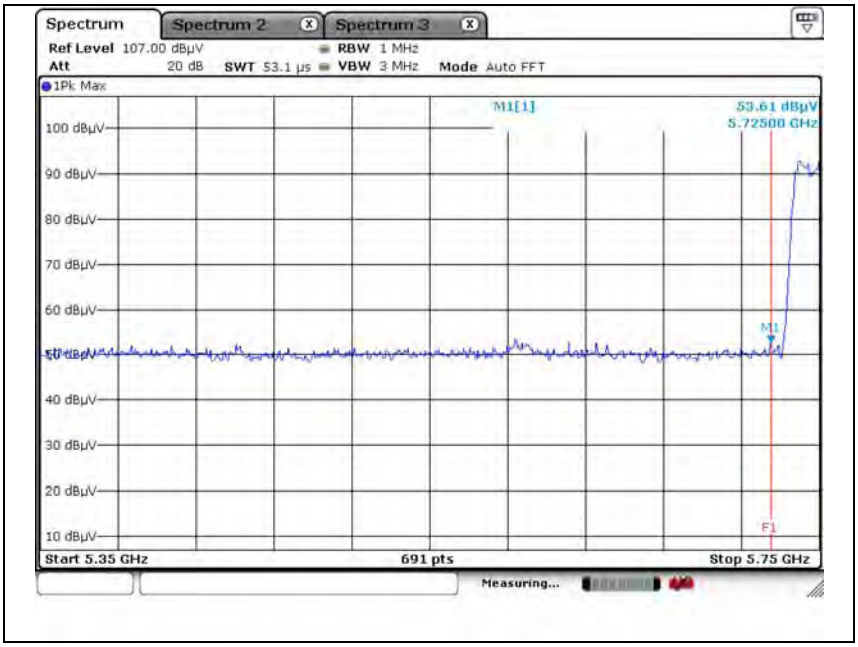


Detected mode: Peak, Ver

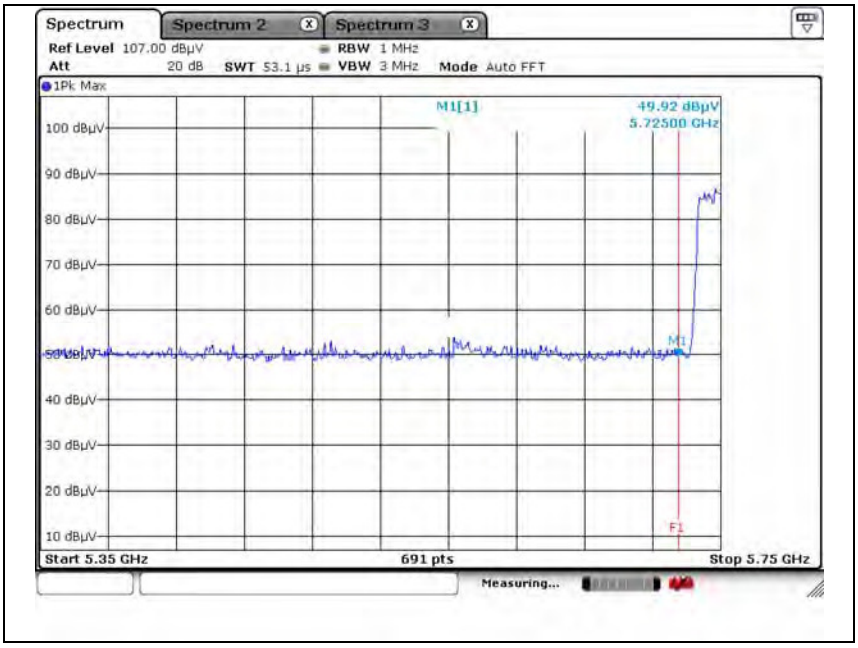


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The test results in the report only apply to the tested sample.

Mode:	UNII-3 (HT20) (2)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	149
Detected mode:	Peak, Hor

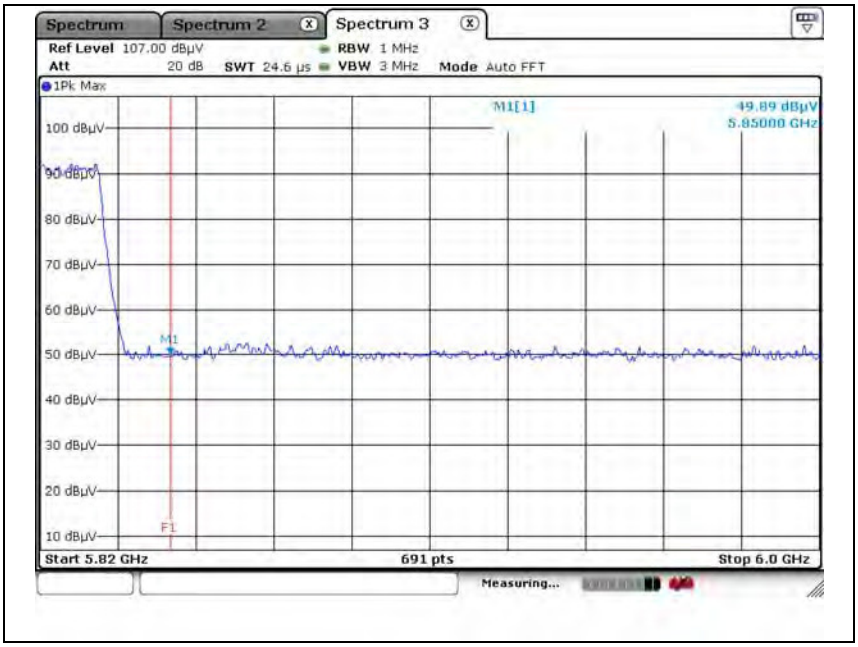


Detected mode:	Peak, Ver

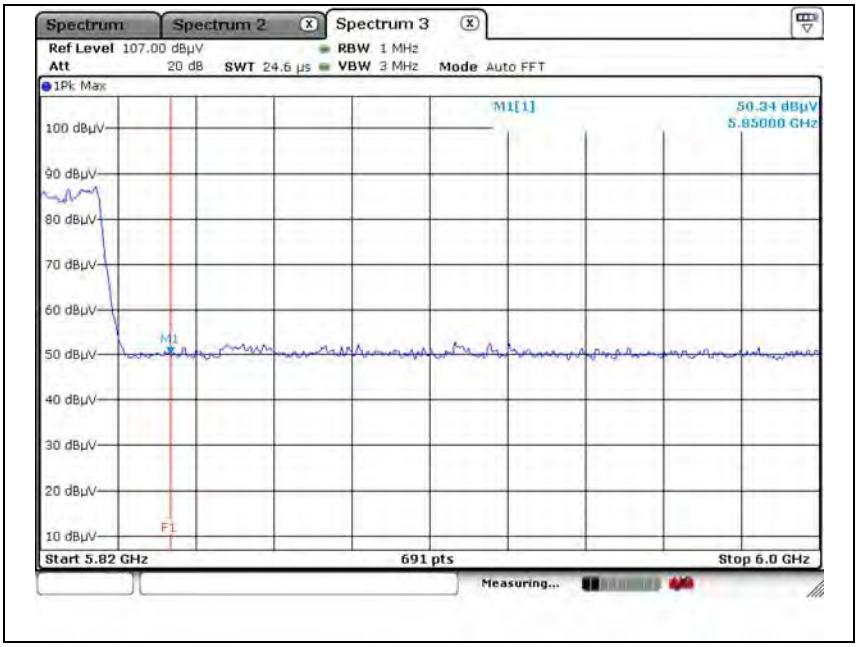


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Mode:	UNII-3 (HT20) (1)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	165
Detected mode:	Peak, Hor

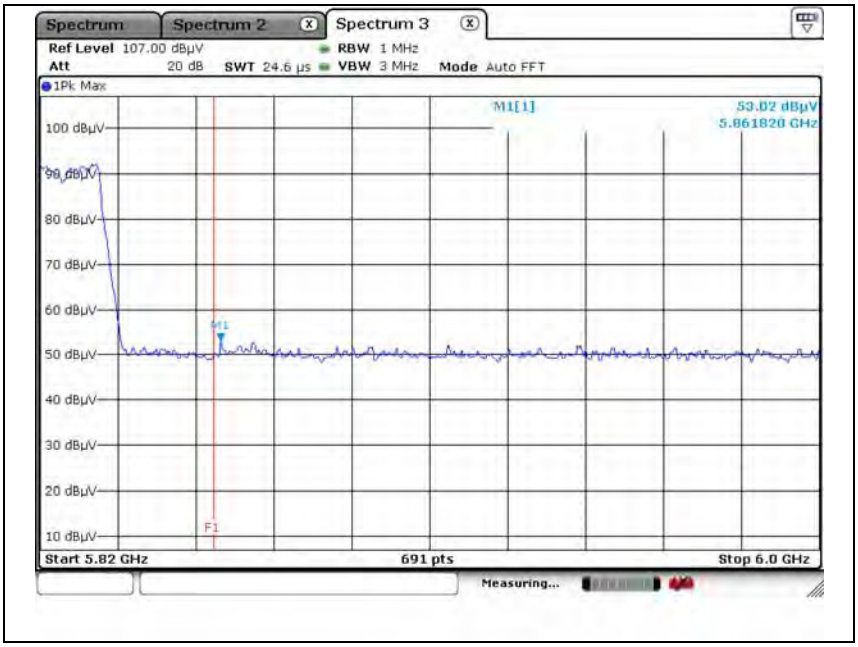


Detected mode:	Peak, Ver

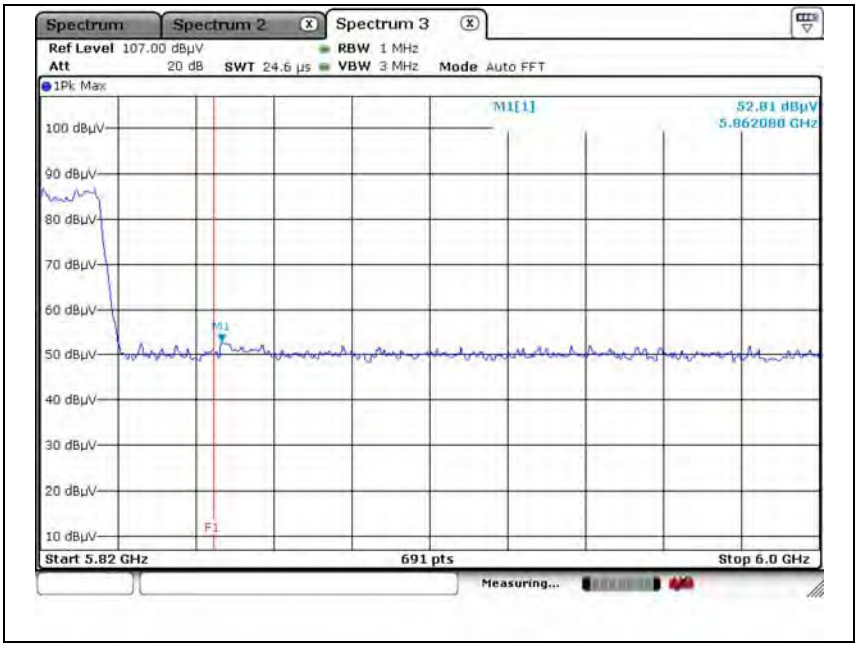


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Mode:	UNII-3 (HT20) (2)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	165
Detected mode:	Peak, Hor

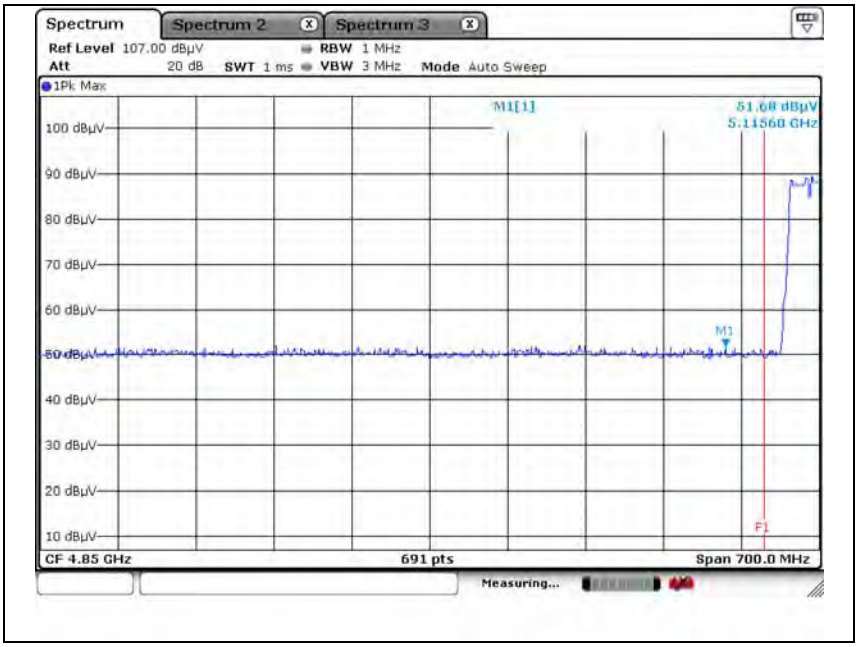


Detected mode: Peak, Ver

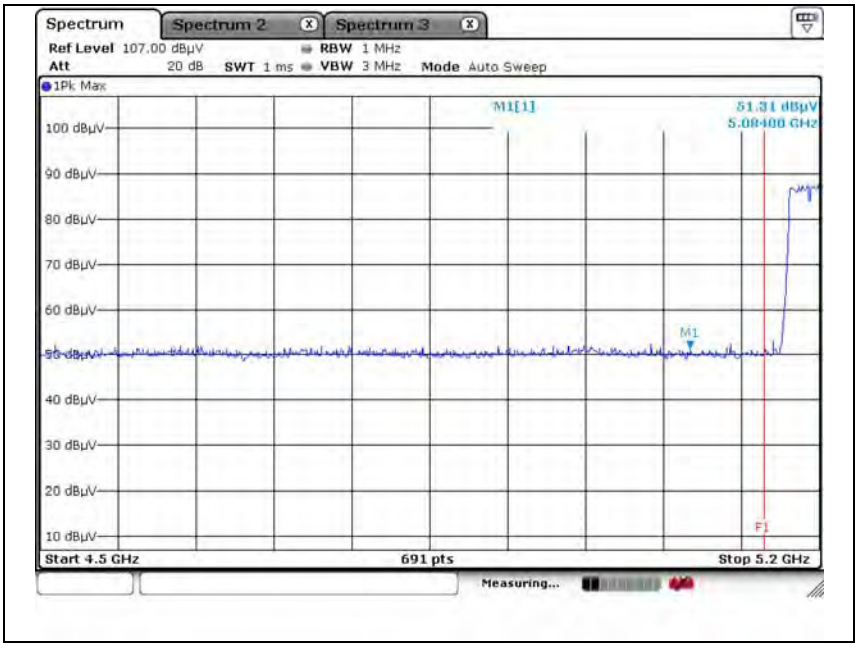


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Mode:	UNII-1 (HT40)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	38
Detected mode:	Peak, Hor

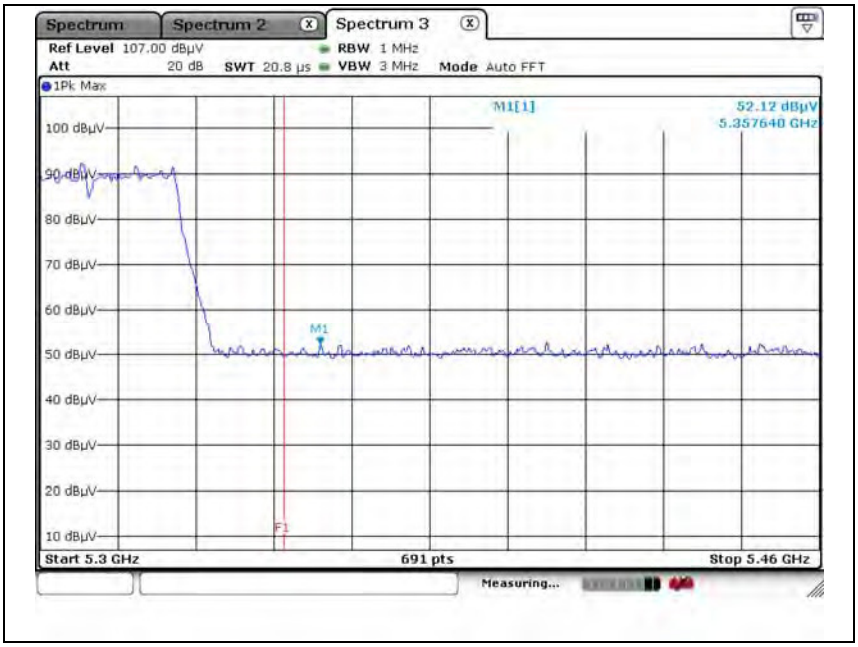


Detected mode:	Peak, Ver

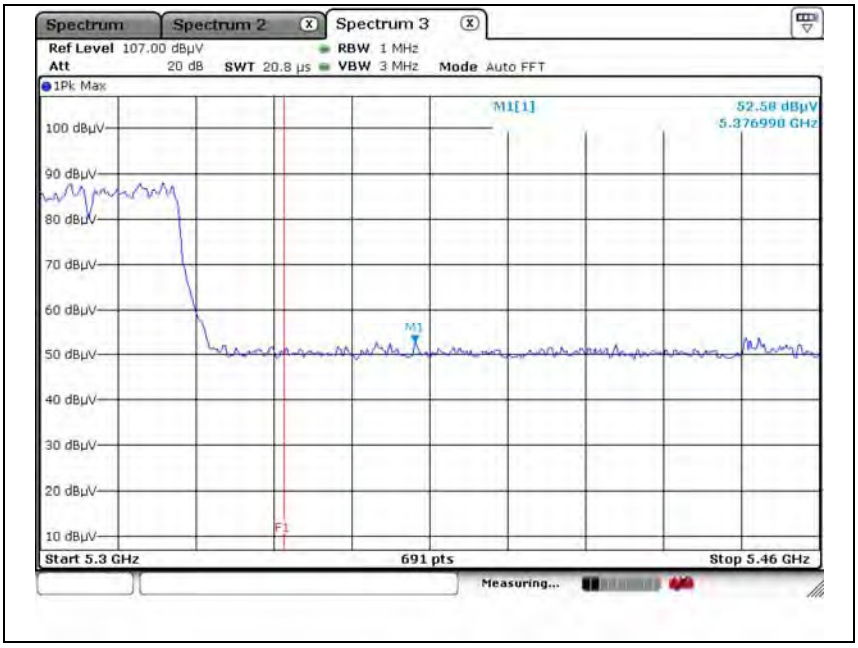


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Mode:	UNII-2A (HT40)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	62
Detected mode:	Peak, Hor

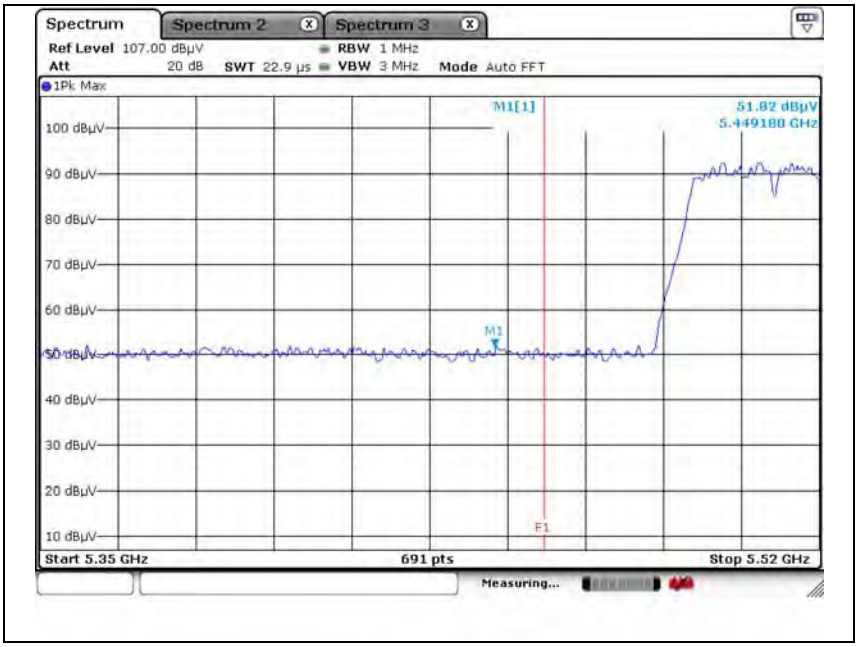


Detected mode:	Peak, Ver

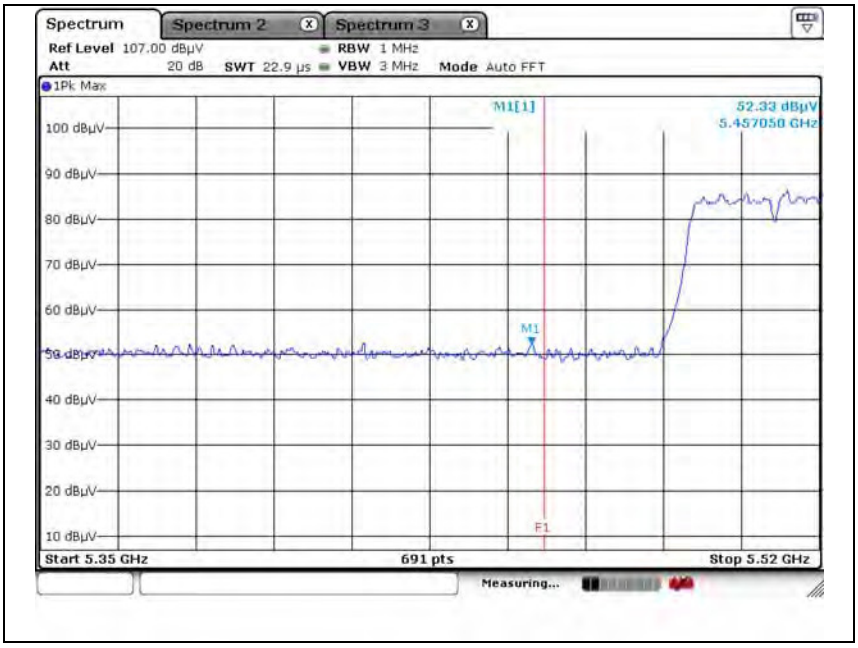


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Mode:	UNII-2C (HT40)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	102
Detected mode:	Peak, Hor

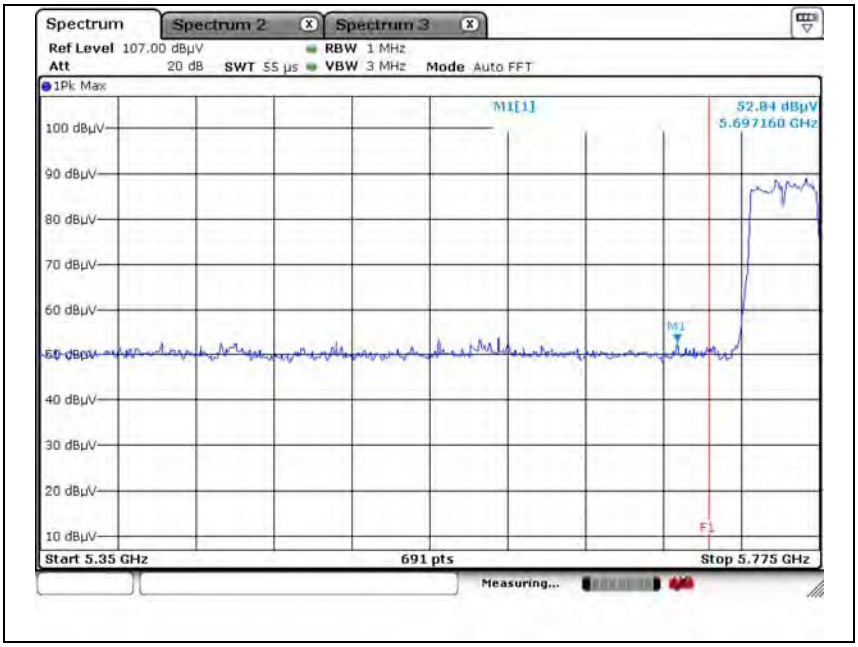


Detected mode:	Peak, Ver

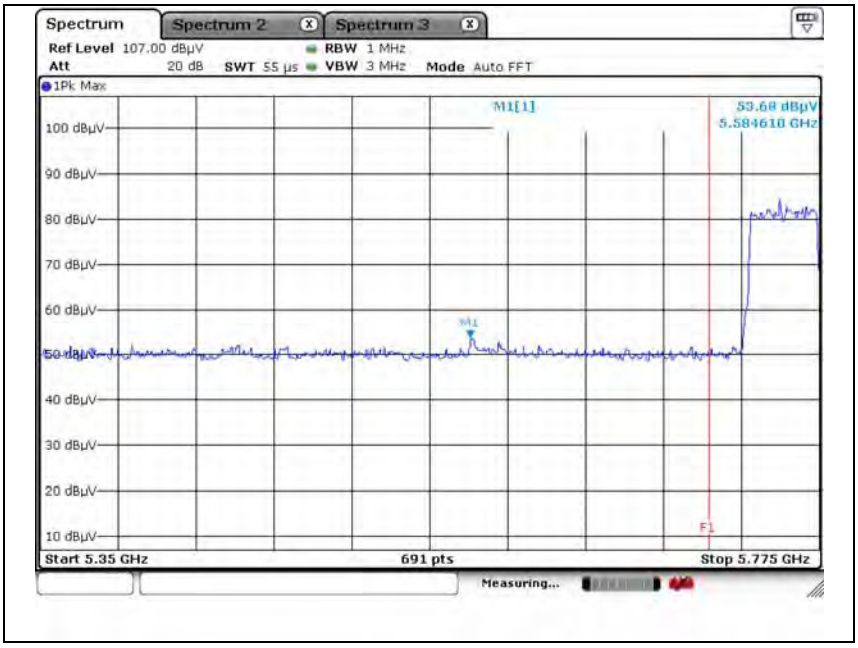


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Mode:	UNII-3 (HT40) (1)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	151
Detected mode:	Peak, Hor

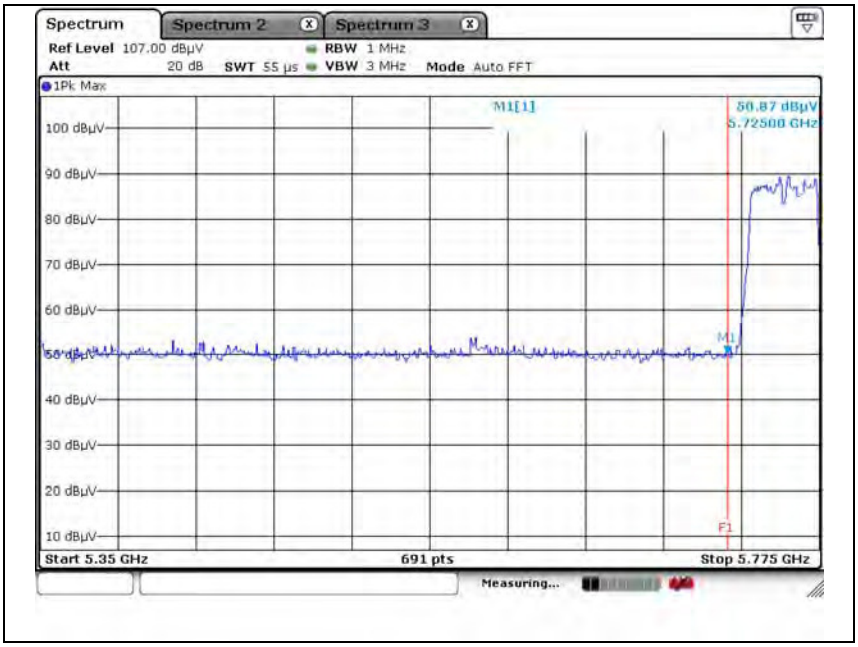


Detected mode:	Peak, Ver

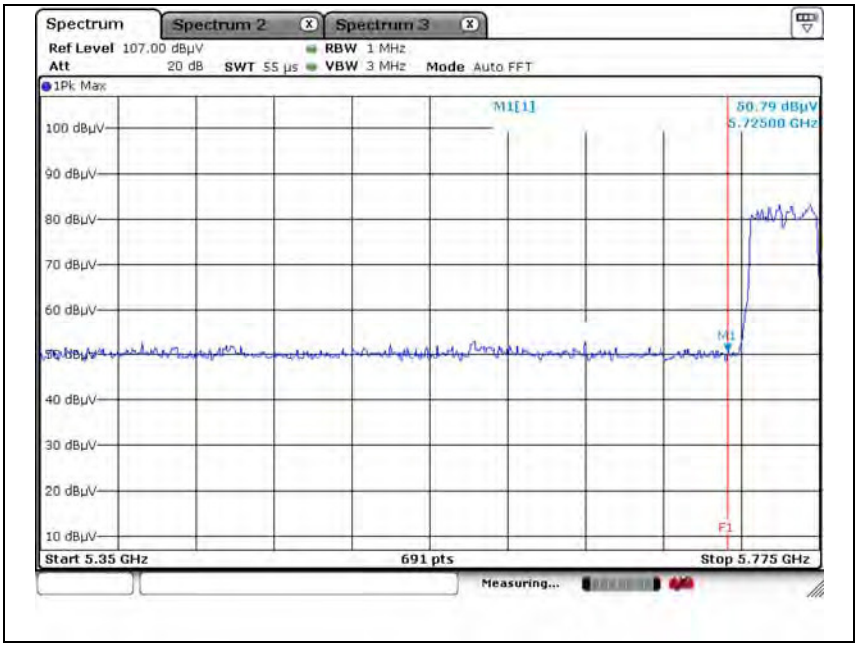


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Mode:	UNII-3 (HT40) (2)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	151
Detected mode:	Peak, Hor

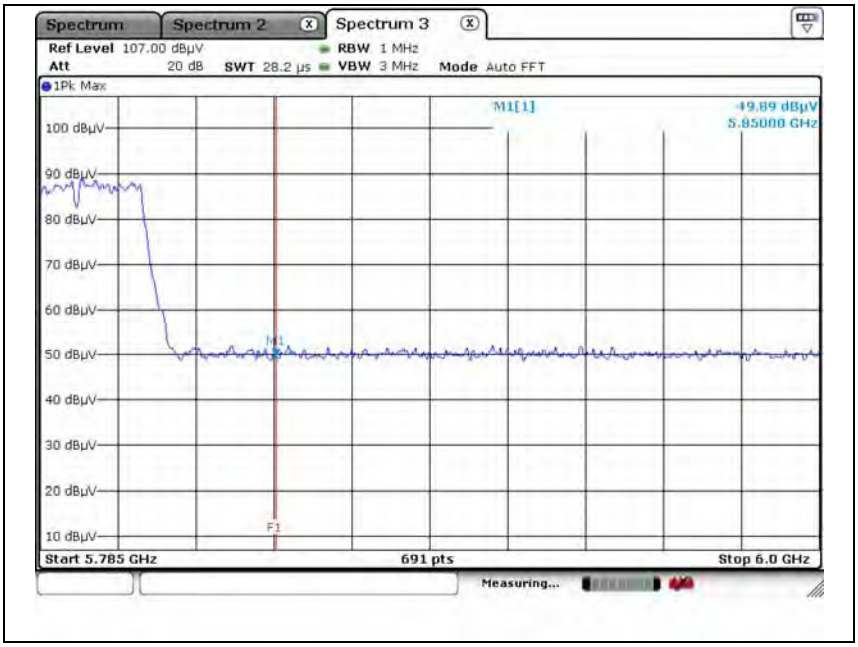


Detected mode:	Peak, Ver

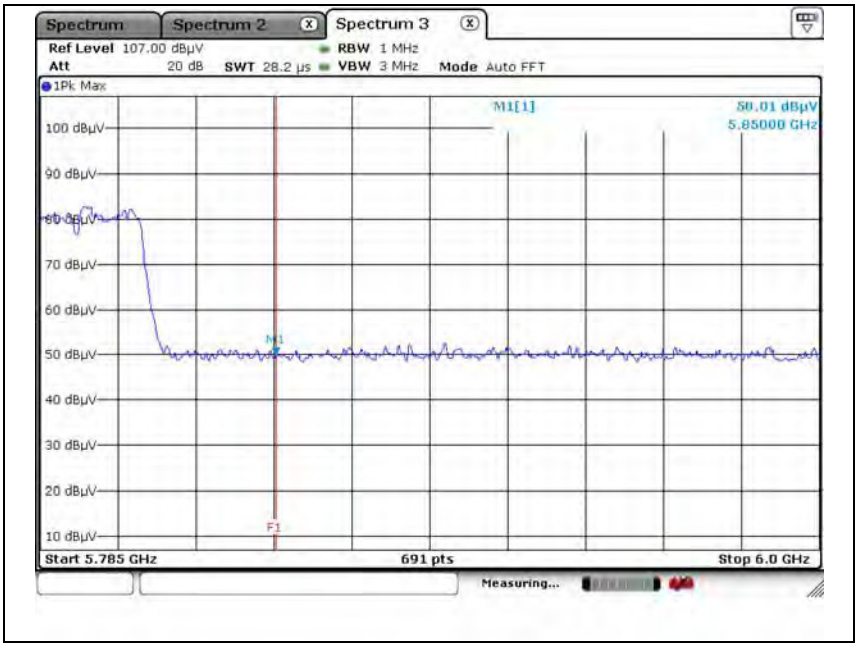


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The test results in the report only apply to the tested sample.

Mode:	UNII-3 (HT40) (1)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	159
Detected mode:	Peak, Hor

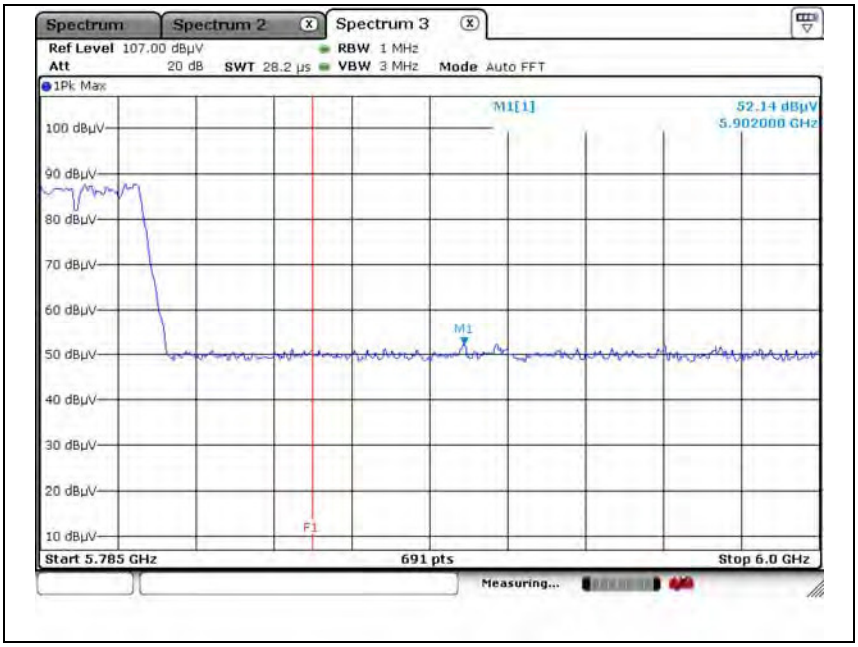


Detected mode:	Peak, Ver

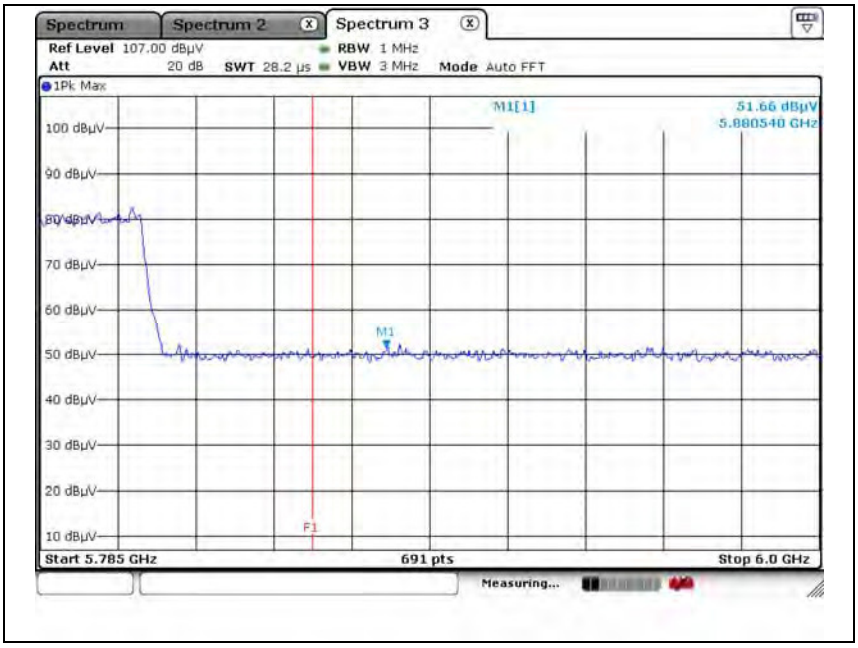


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The test results in the report only apply to the tested sample.

Mode:	UNII-3 (HT40) (2)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	159
Detected mode:	Peak, Hor

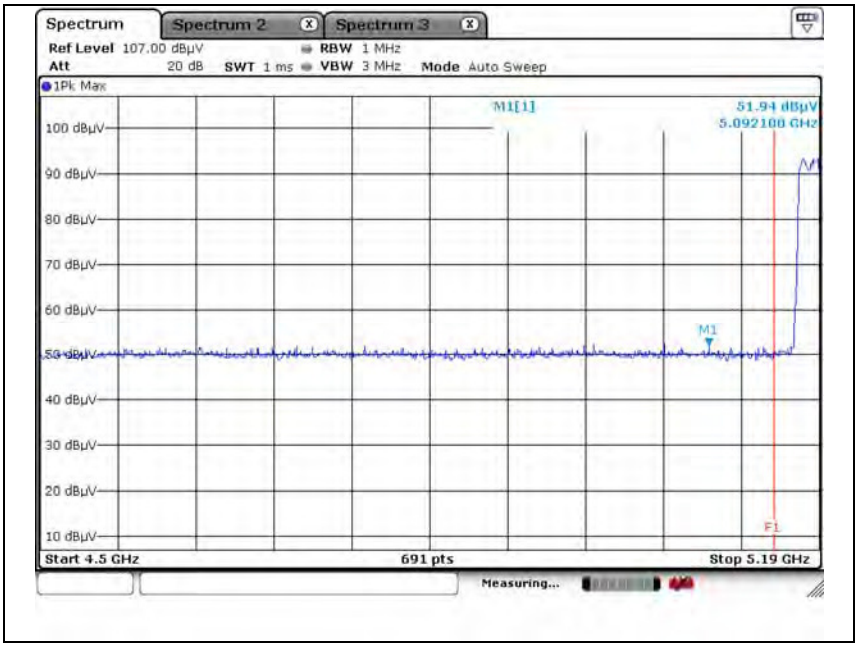


Detected mode:	Peak, Ver

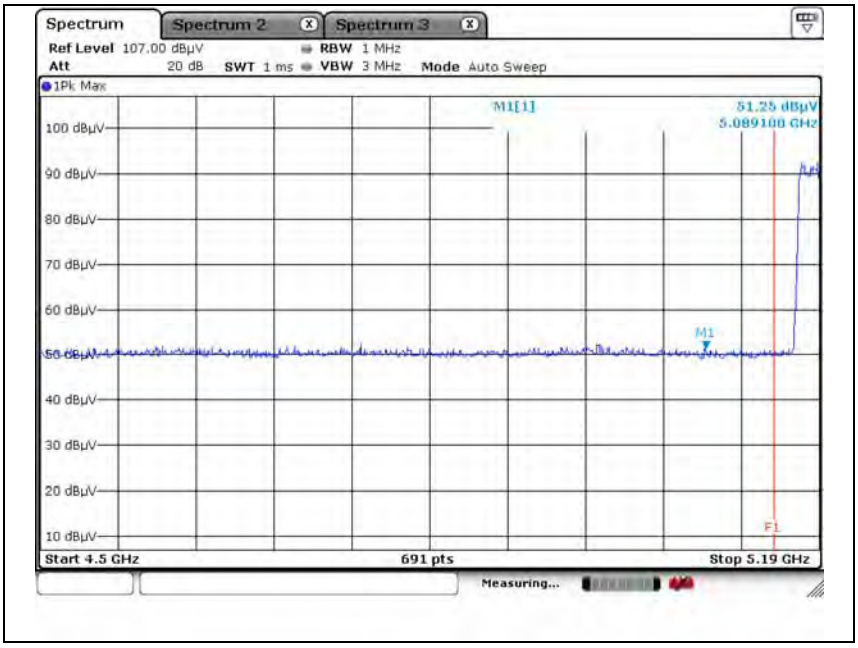


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The test results in the report only apply to the tested sample.

Mode:	UNII-1 (VHT20)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	36
Detected mode:	Peak, Hor

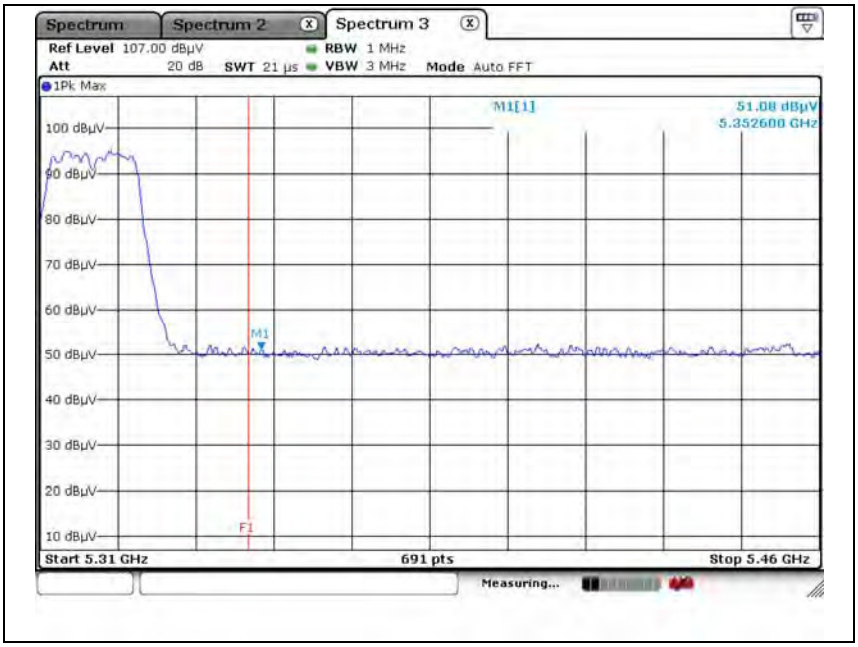


Detected mode:	Peak, Ver

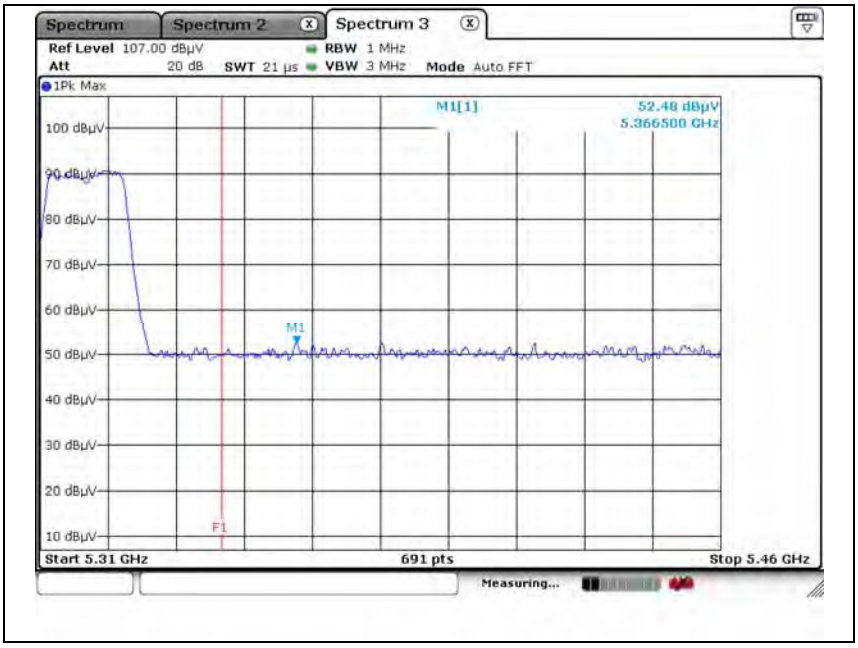


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Mode:	UNII-2A (VHT20)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	64
Detected mode:	Peak, Hor

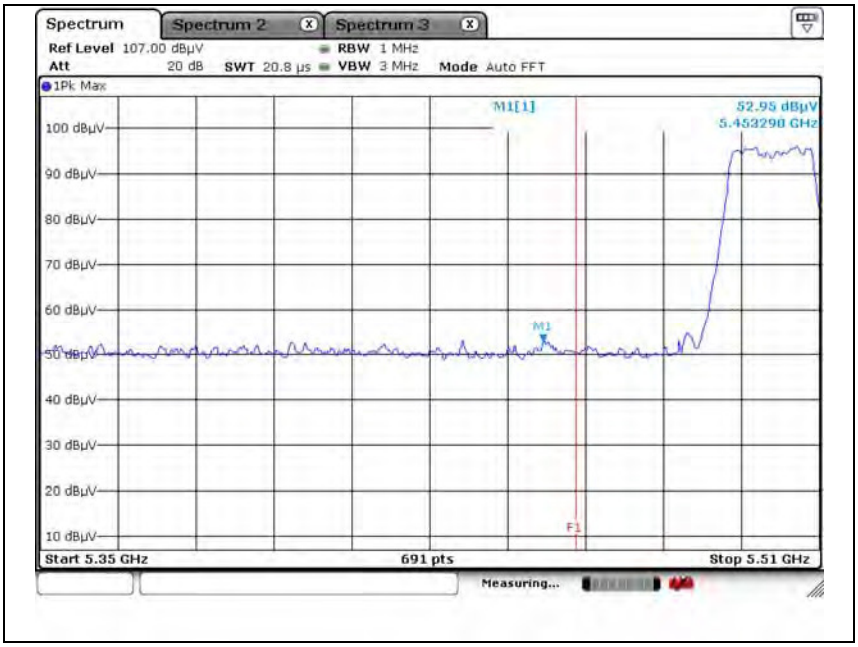


Detected mode:	Peak, Ver

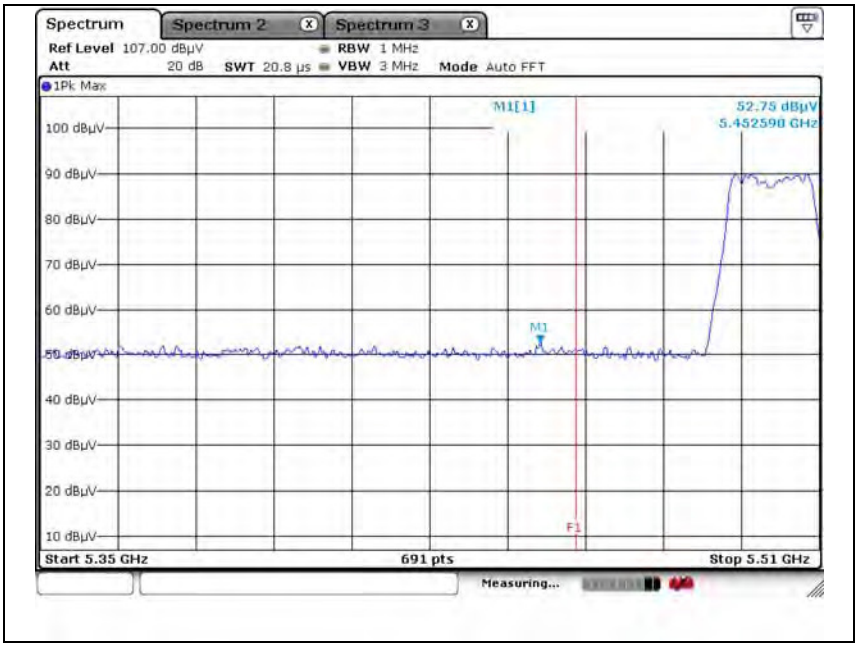


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Mode:	UNII-2C (VHT20)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	100
Detected mode:	Peak, Hor

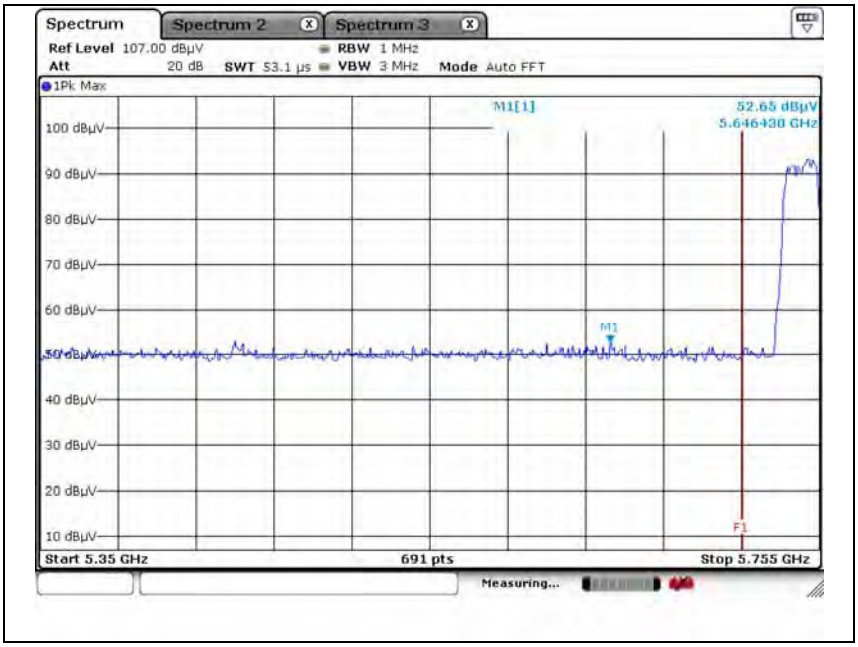


Detected mode:	Peak, Ver

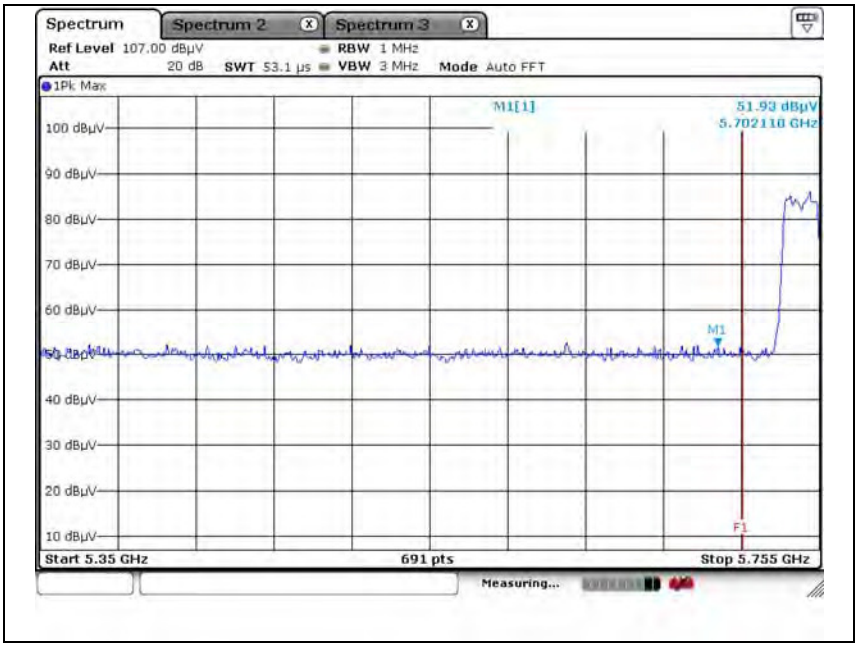


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Mode:	UNII-3 (VHT20) (1)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	149
Detected mode:	Peak, Hor

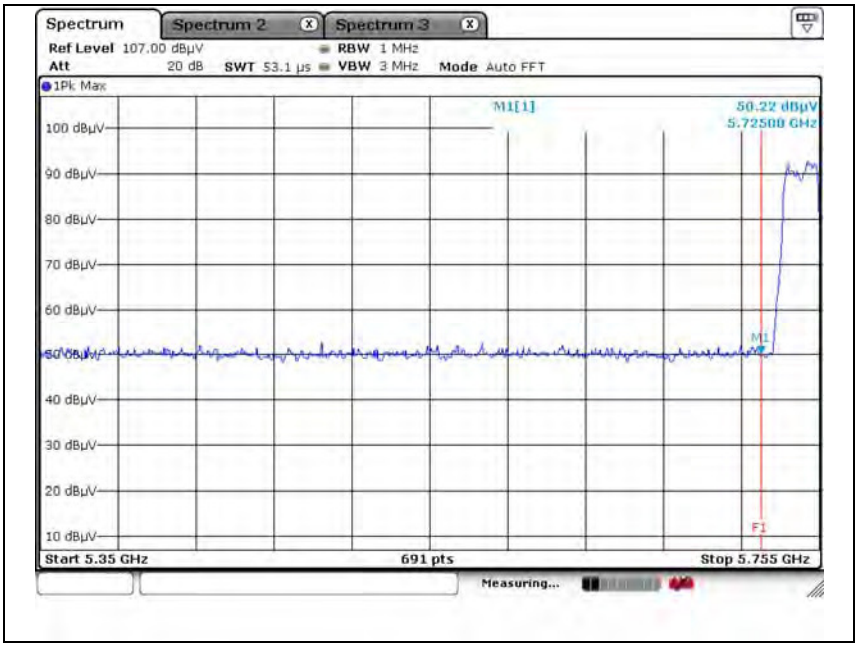


Detected mode:	Peak, Ver

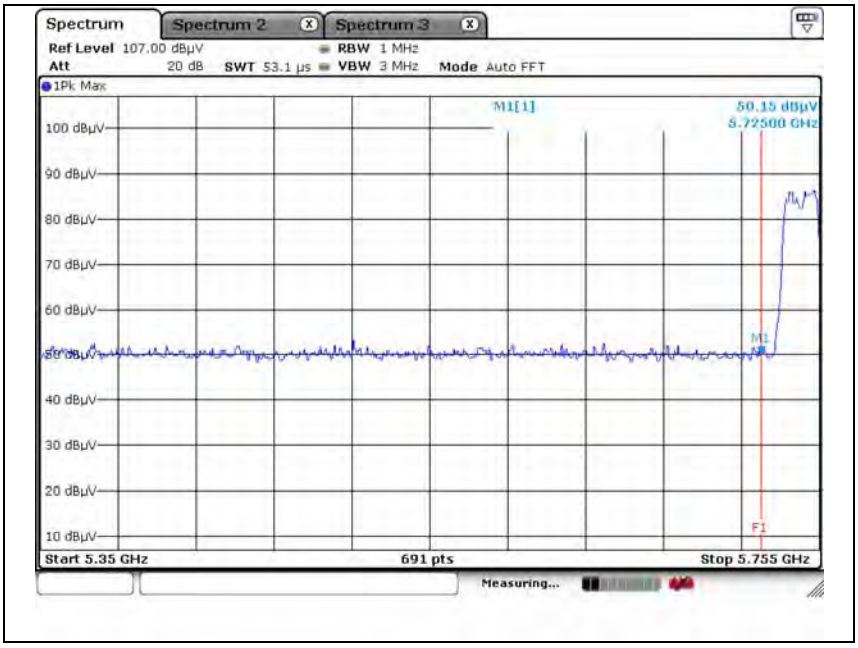


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The test results in the report only apply to the tested sample.

Mode:	UNII-3 (VHT20) (2)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	149
Detected mode:	Peak, Hor

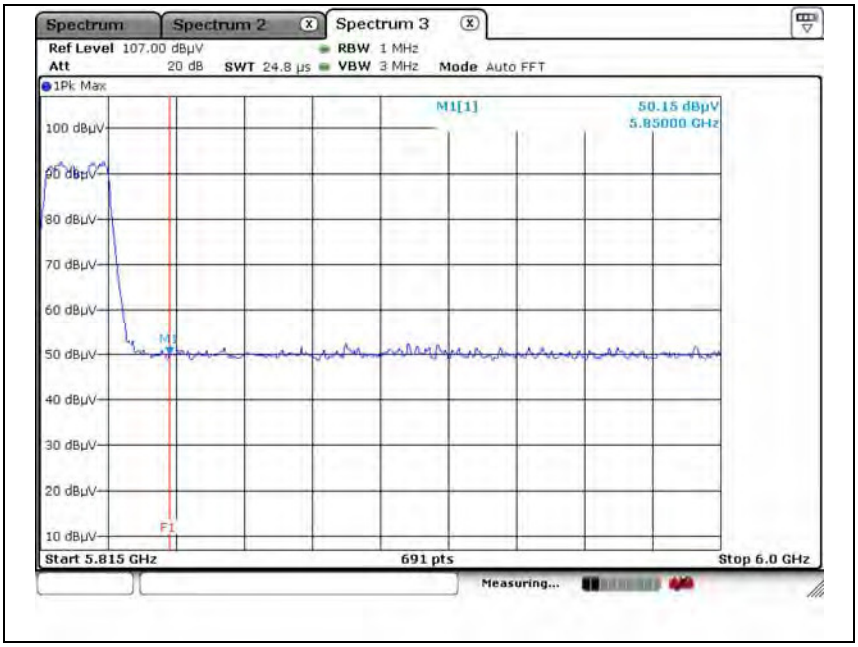


Detected mode:	Peak, Ver

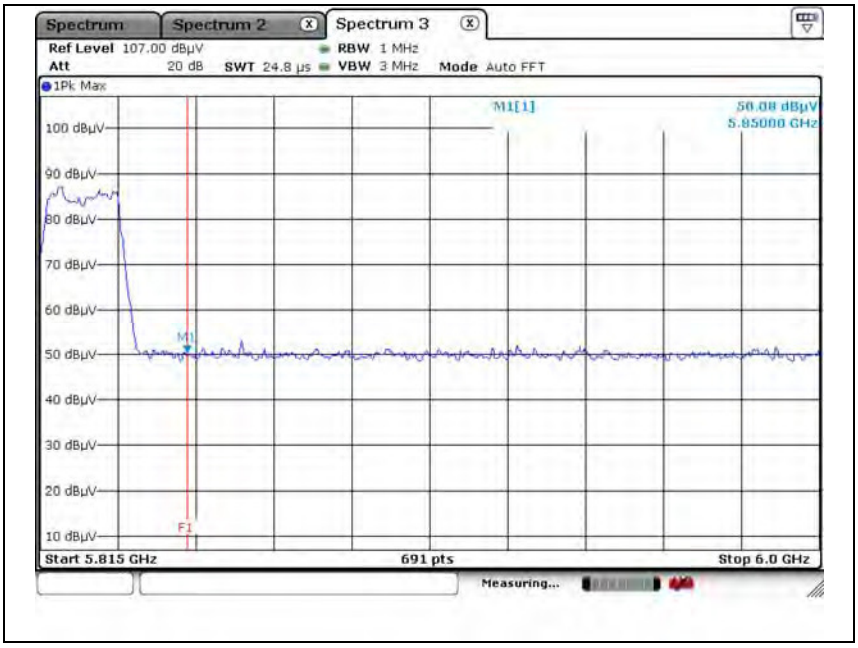


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Mode:	UNII-3 (VHT20) (1)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	165
Detected mode:	Peak, Hor

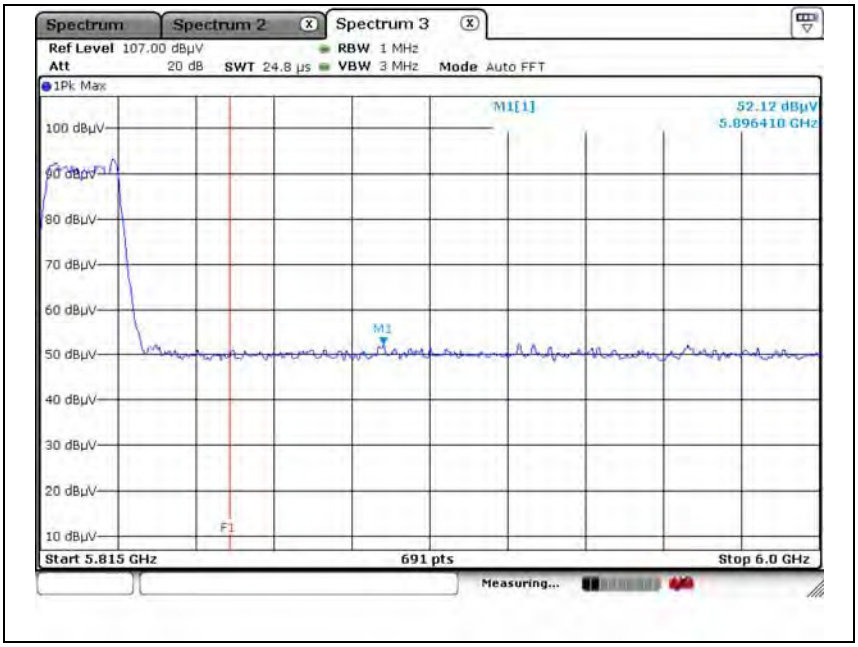


Detected mode: Peak, Ver

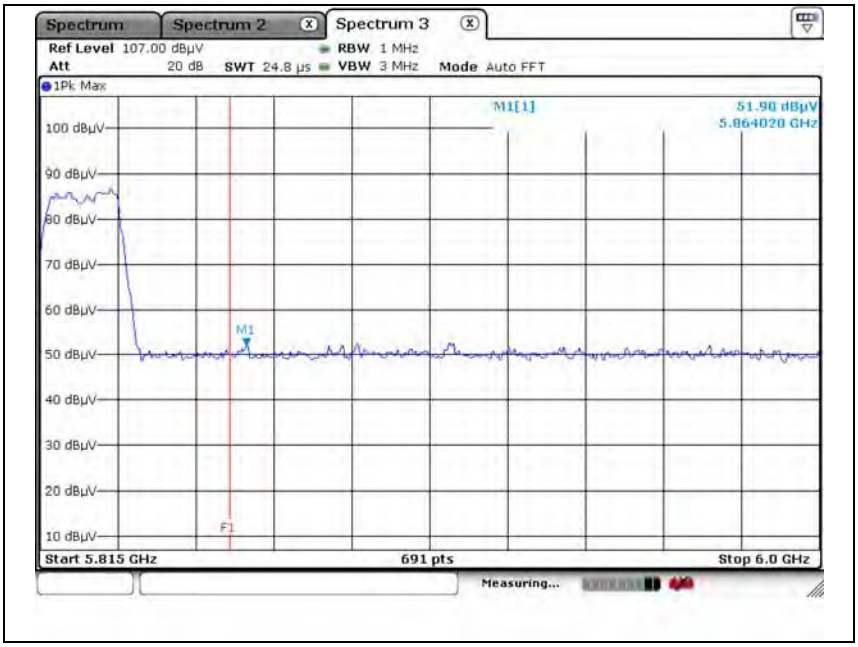


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Mode:	UNII-3 (VHT20) (2)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	165
Detected mode:	Peak, Hor

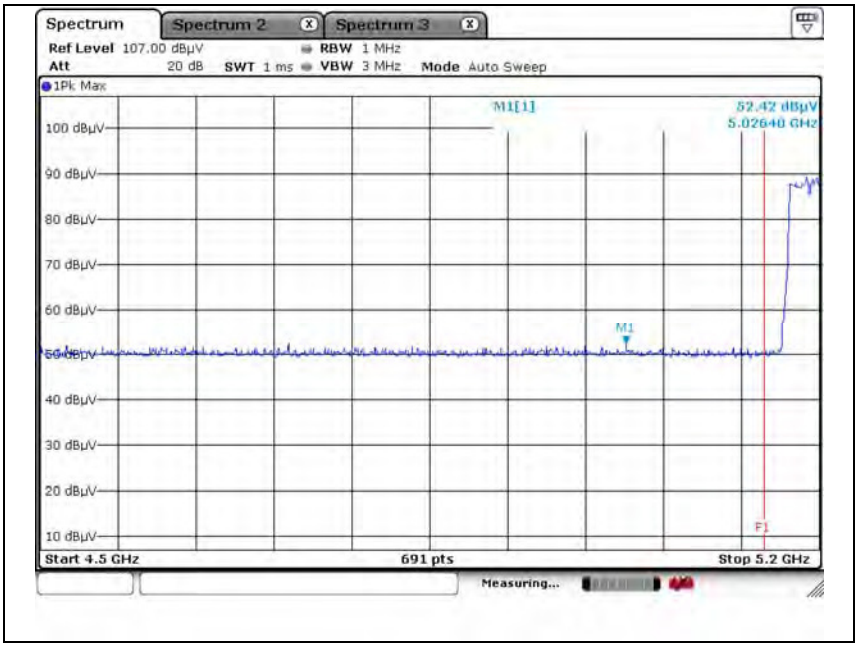


Detected mode:	Peak, Ver

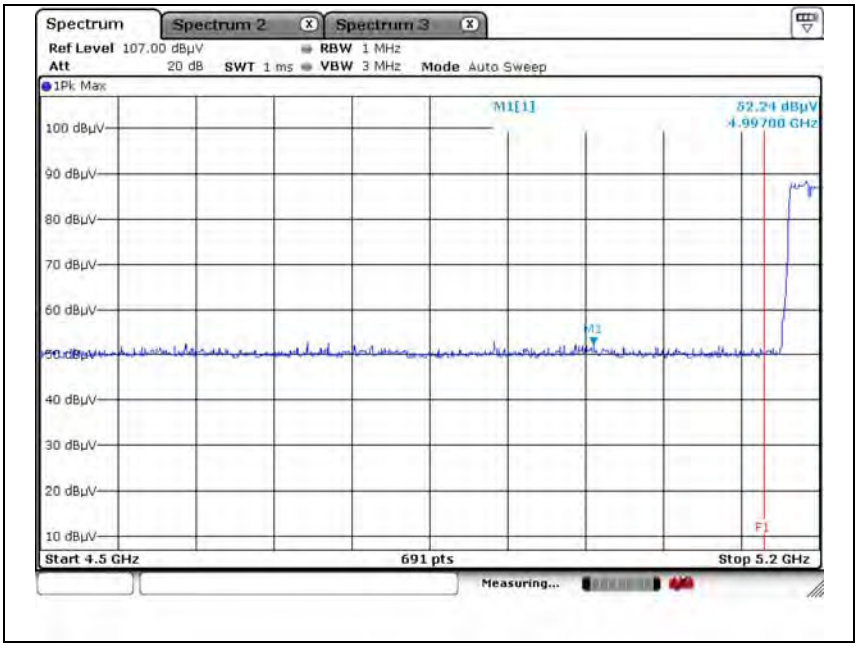


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Mode:	UNII-1 (VHT40)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	38
Detected mode:	Peak, Hor

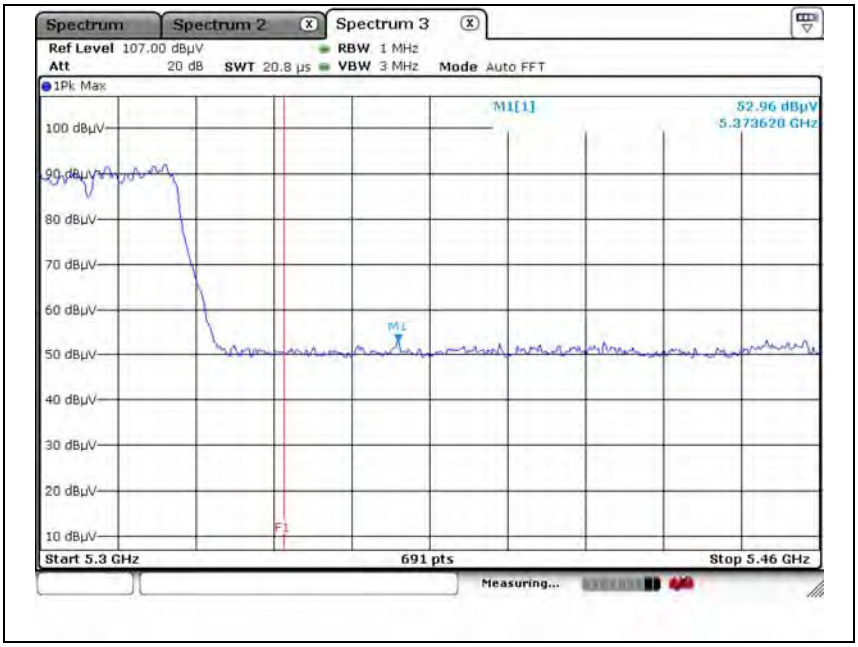


Detected mode:	Peak, Ver

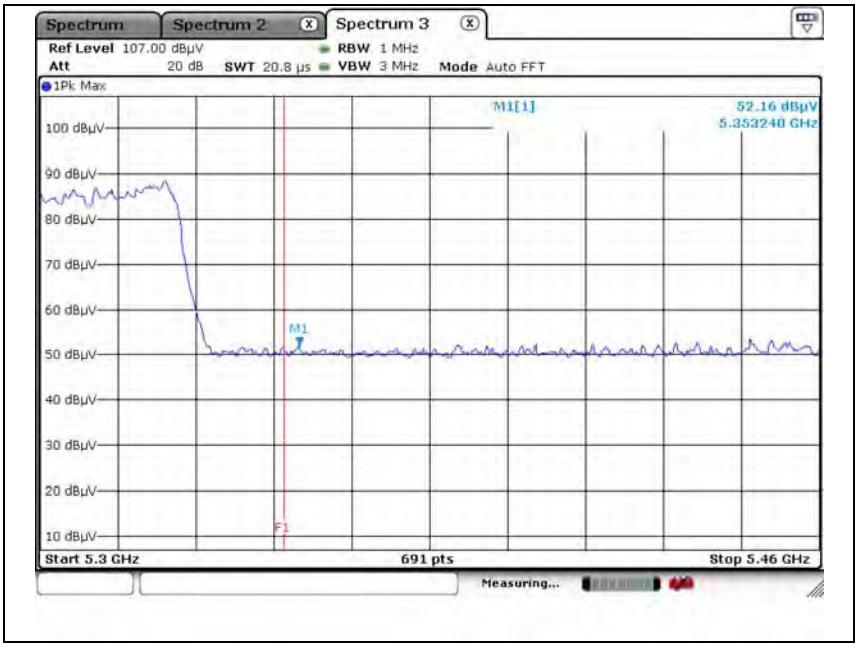


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The test results in the report only apply to the tested sample.

Mode:	UNII-2A (VHT40)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	62
Detected mode:	Peak, Hor

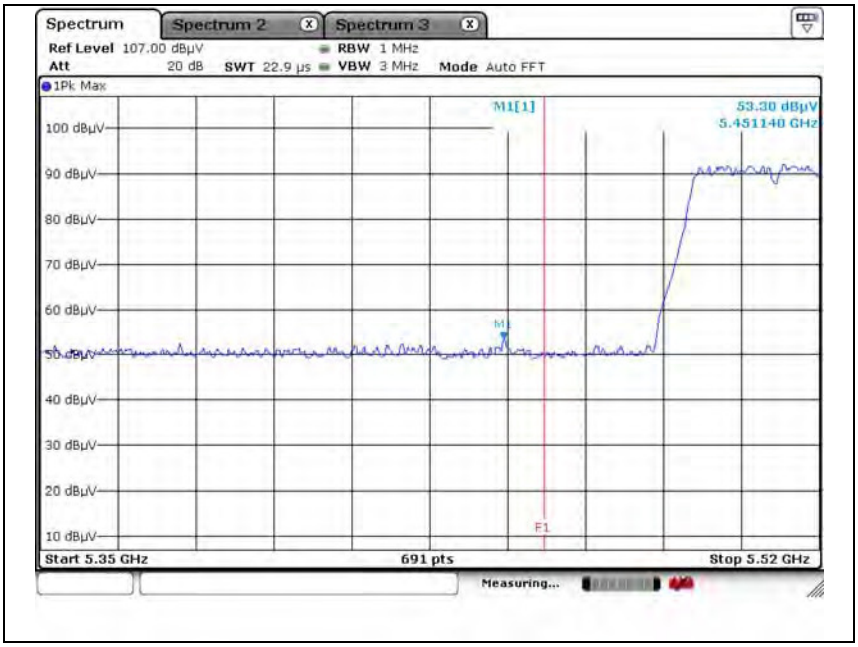


Detected mode:	Peak, Ver

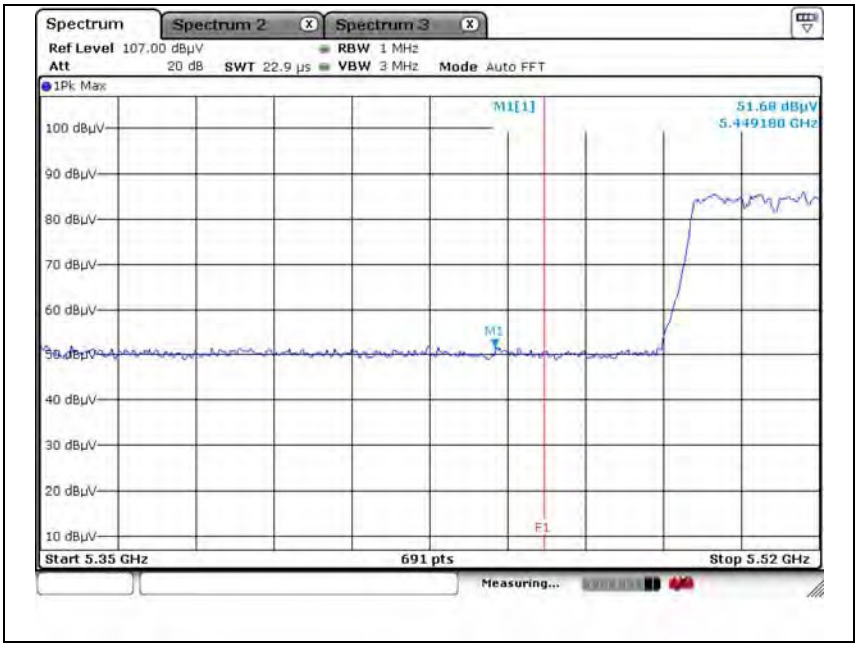


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Mode:	UNII-2C (VHT40)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	102
Detected mode:	Peak, Hor

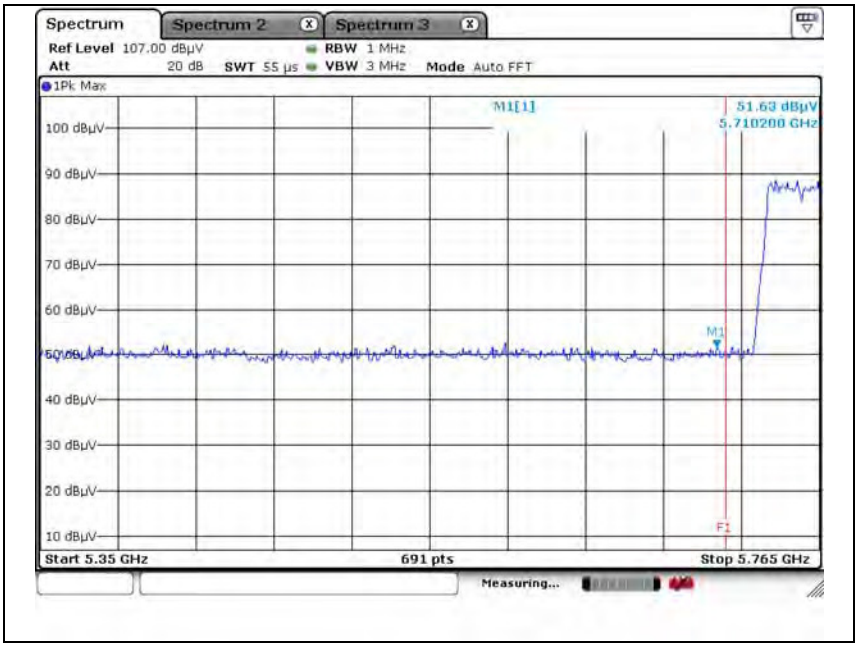


Detected mode:	Peak, Ver

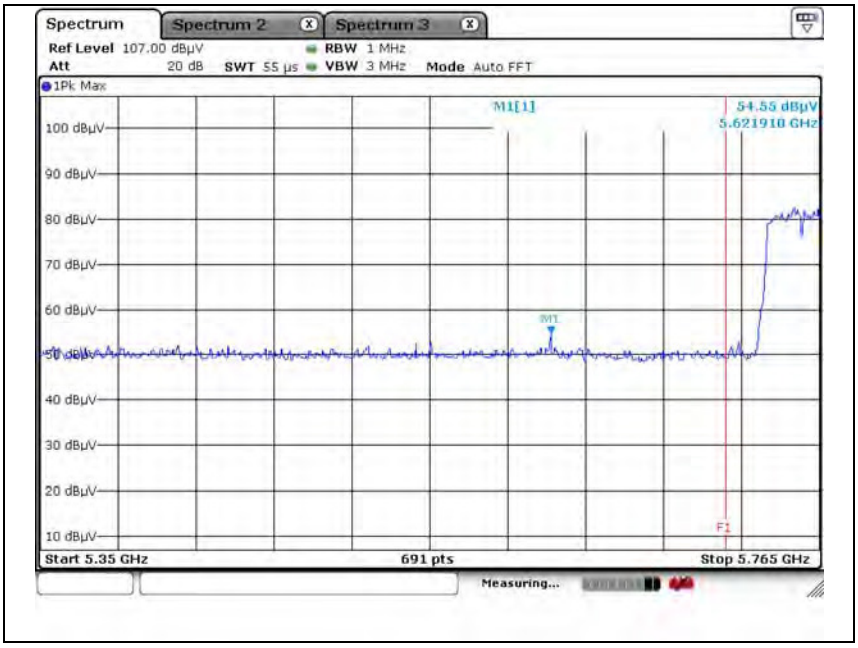


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Mode:	UNII-3 (VHT40) (1)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	151
Detected mode:	Peak, Hor

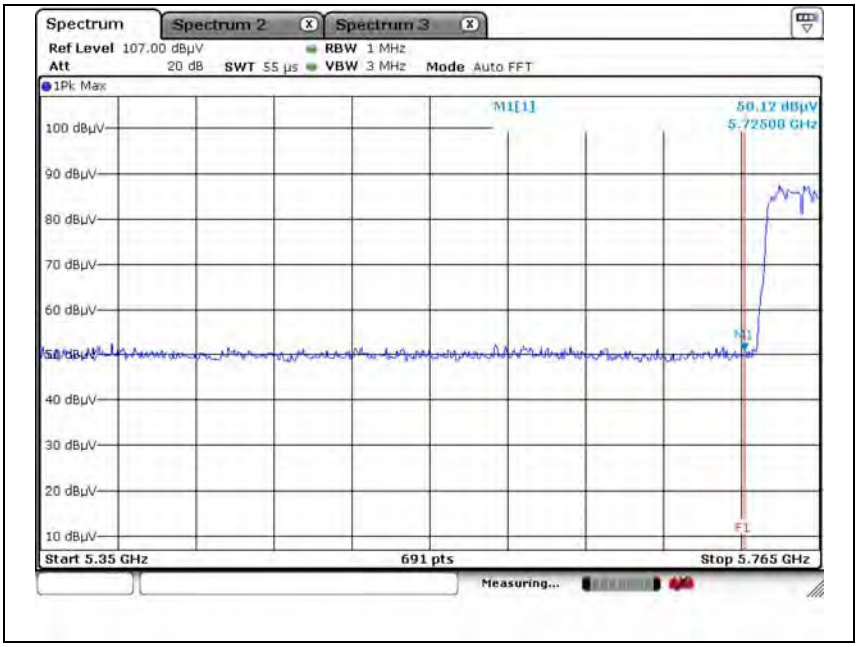


Detected mode:	Peak, Ver

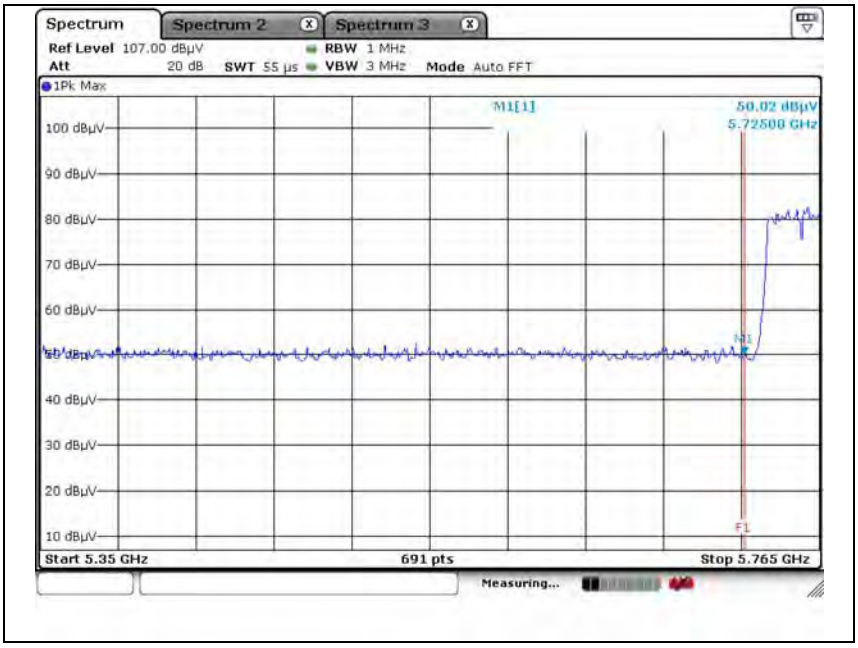


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The test results in the report only apply to the tested sample.

Mode:	UNII-3 (VHT40) (2)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	151
Detected mode:	Peak, Hor

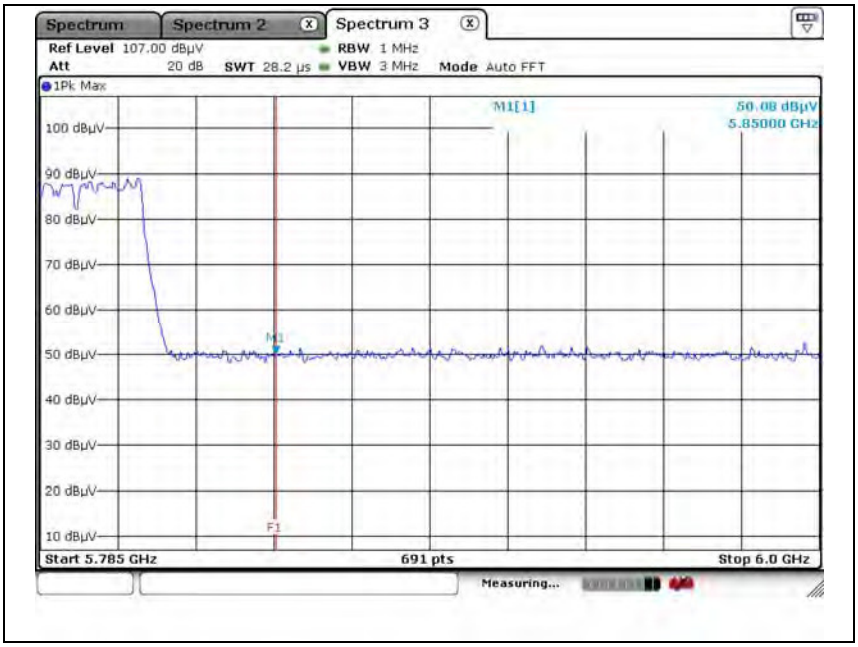


Detected mode:	Peak, Ver

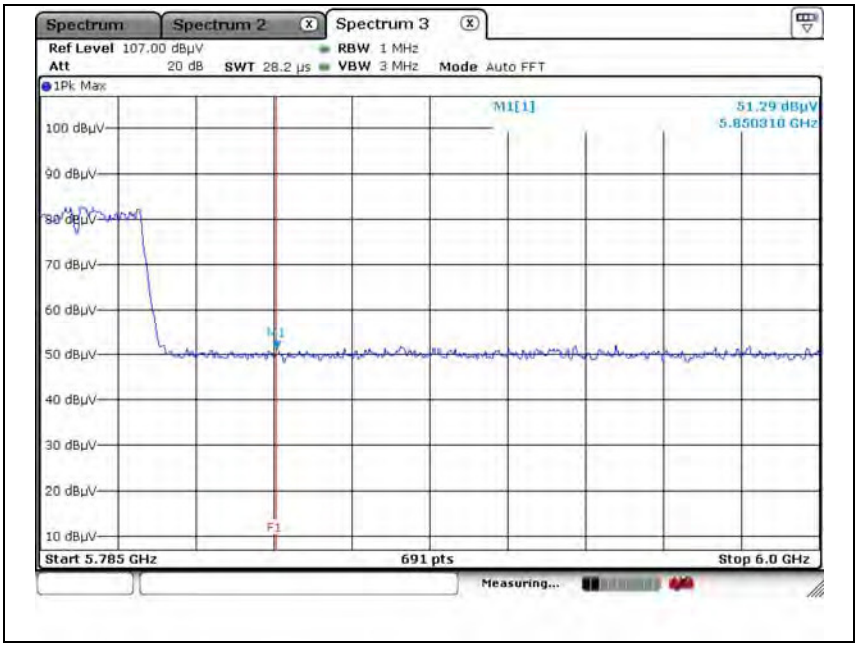


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Mode:	UNII-3 (VHT40) (1)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	159
Detected mode:	Peak, Hor

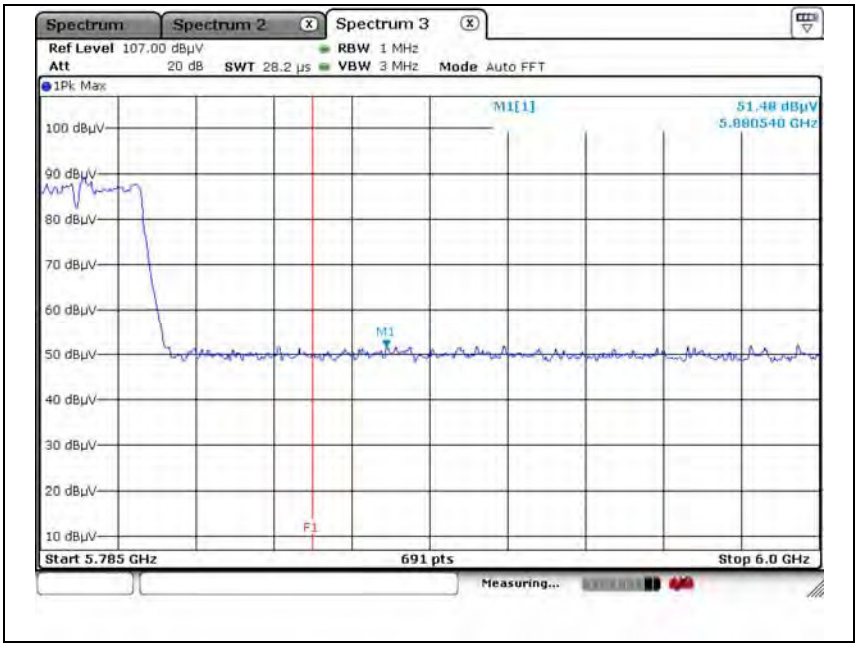


Detected mode:	Peak, Ver

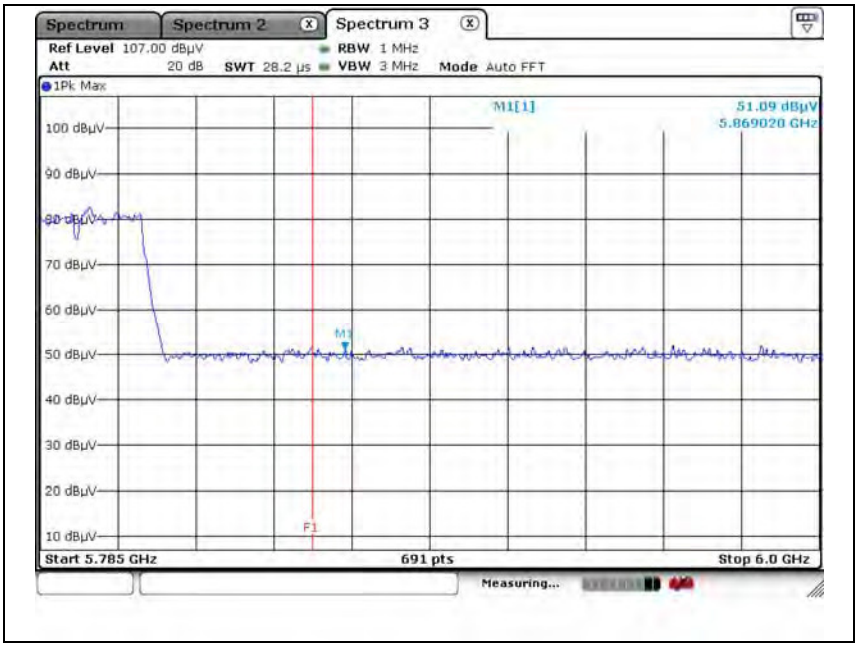


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Mode:	UNII-3 (VHT40) (2)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	159
Detected mode:	Peak, Hor

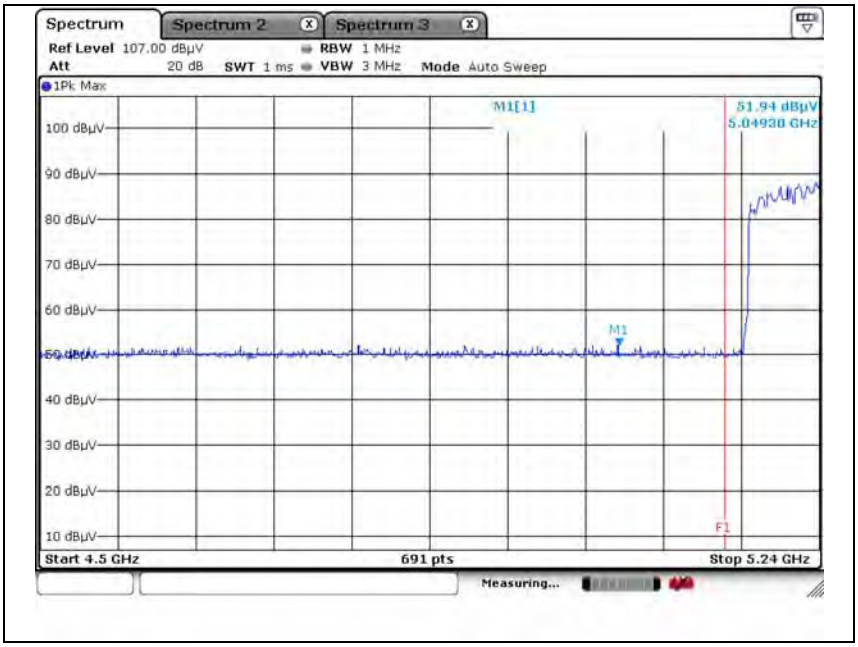


Detected mode:	Peak, Ver

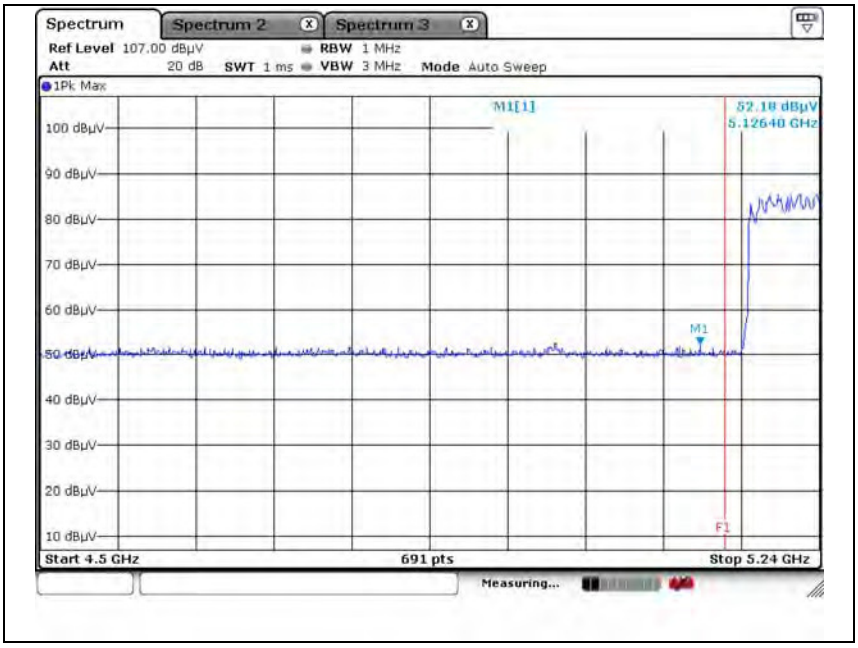


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Mode:	UNII-1 (VHT80)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	42
Detected mode:	Peak, Hor

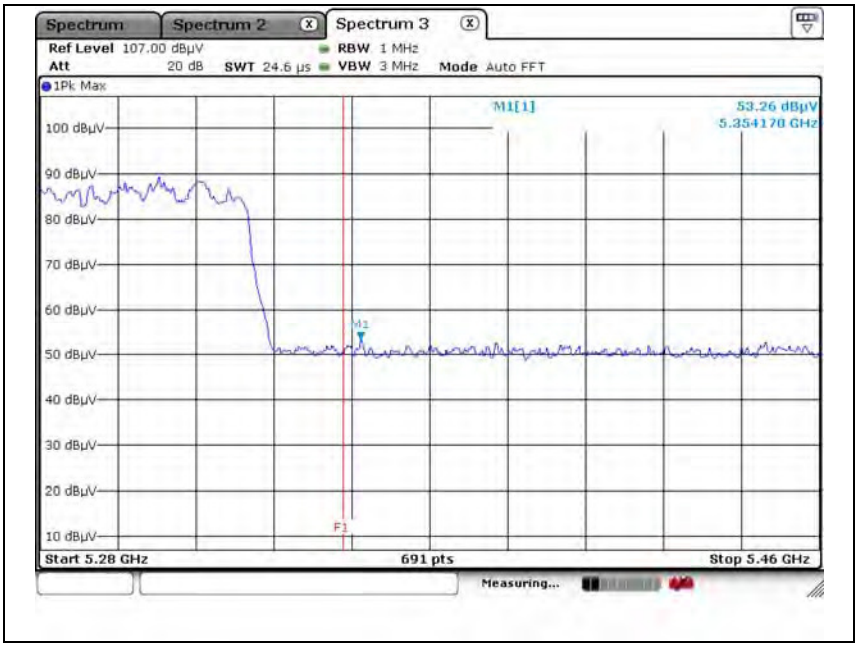


Detected mode:	Peak, Ver

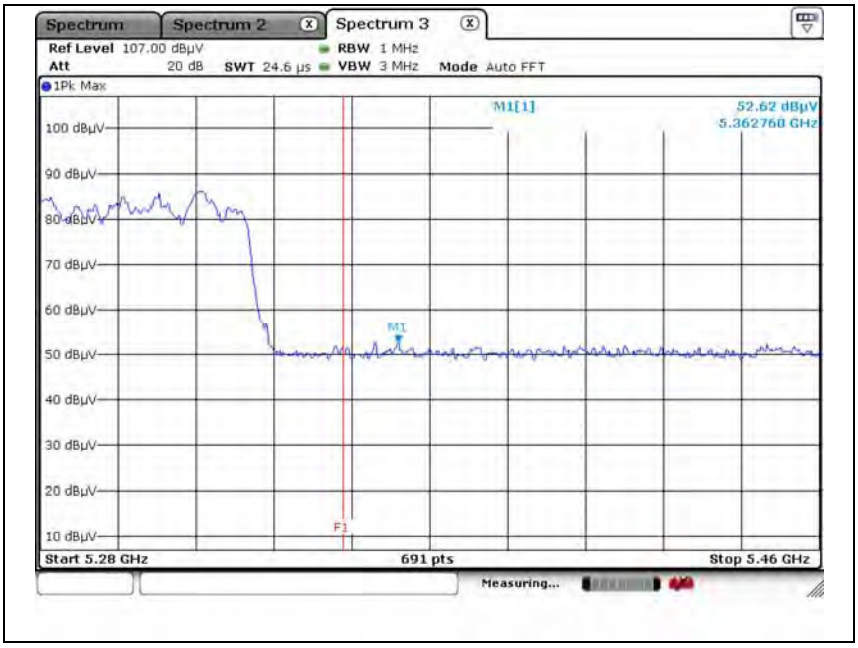


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Mode:	UNII-2A (VHT80)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	58
Detected mode:	Peak, Hor

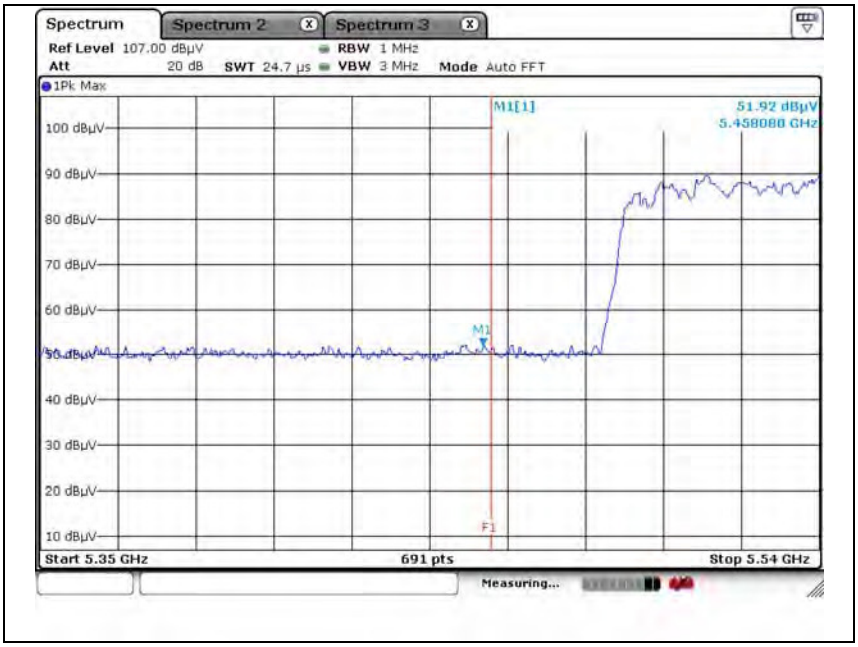


Detected mode:	Peak, Ver

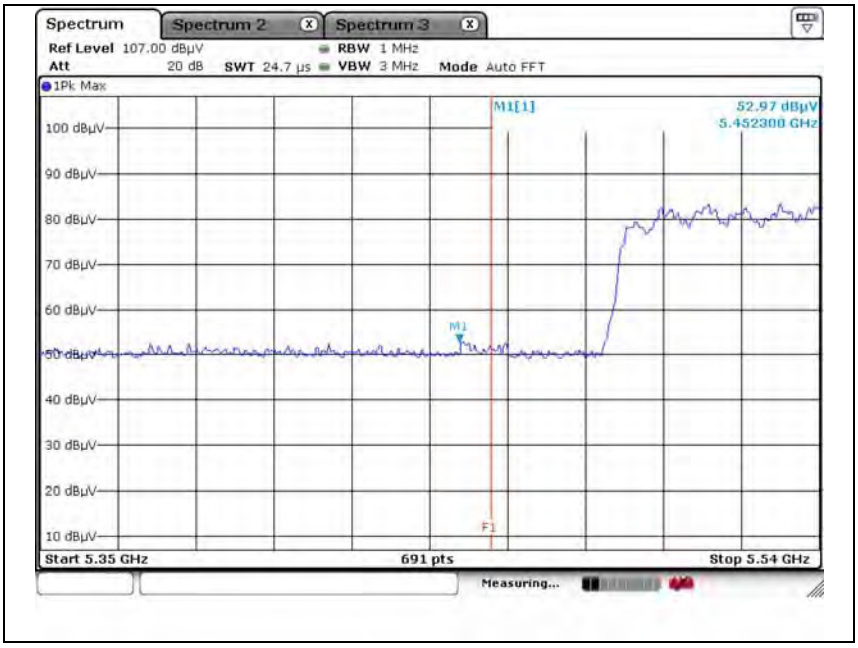


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Mode:	UNII-2C (VHT80)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	106
Detected mode:	Peak, Hor

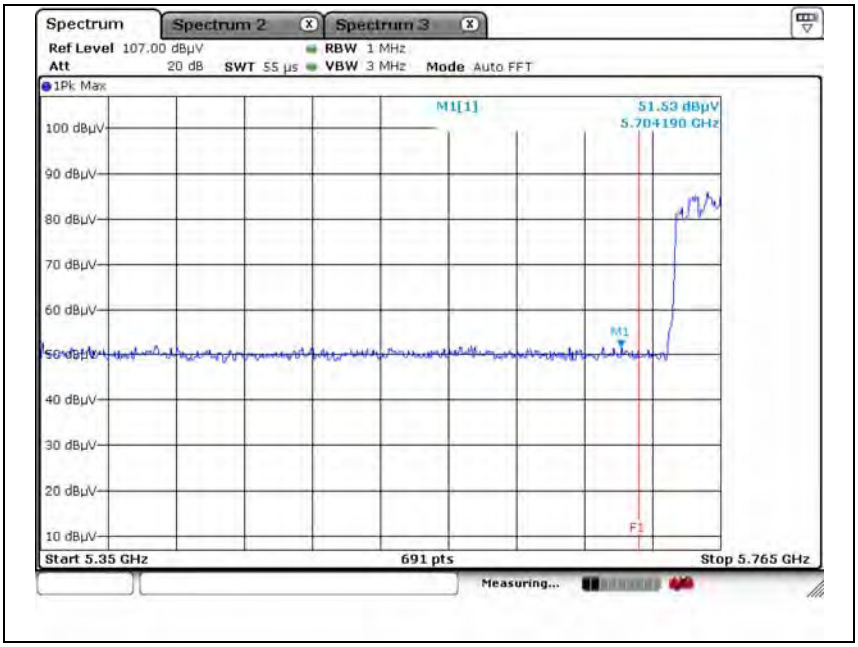


Detected mode:	Peak, Ver

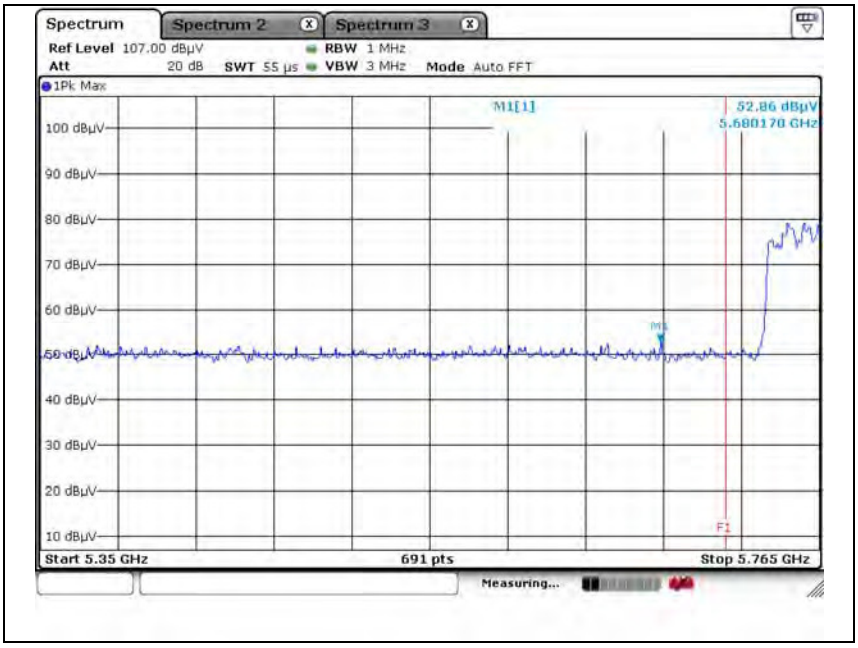


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Mode:	UNII-3 (VHT80) (1)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	151
Detected mode:	Peak, Hor

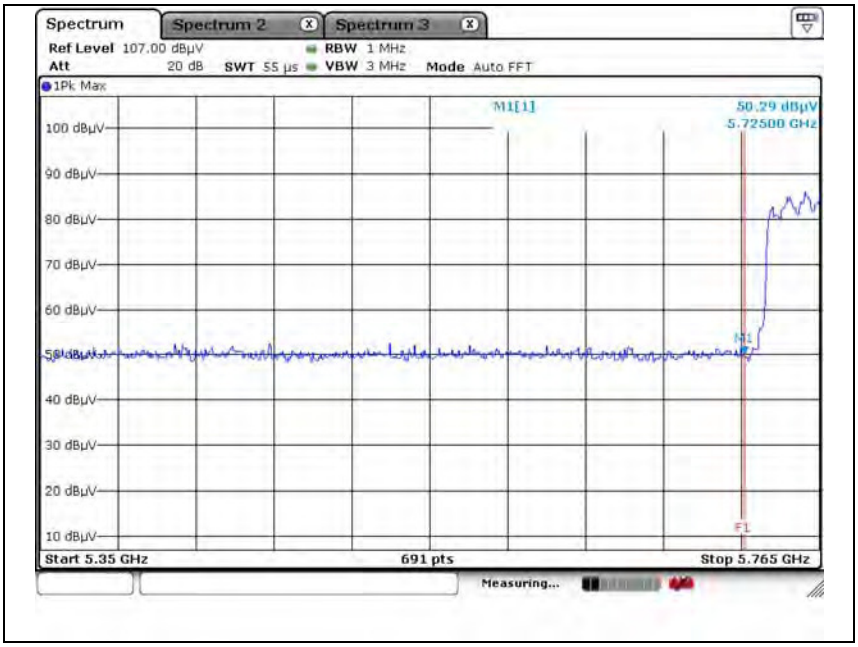


Detected mode:	Peak, Ver

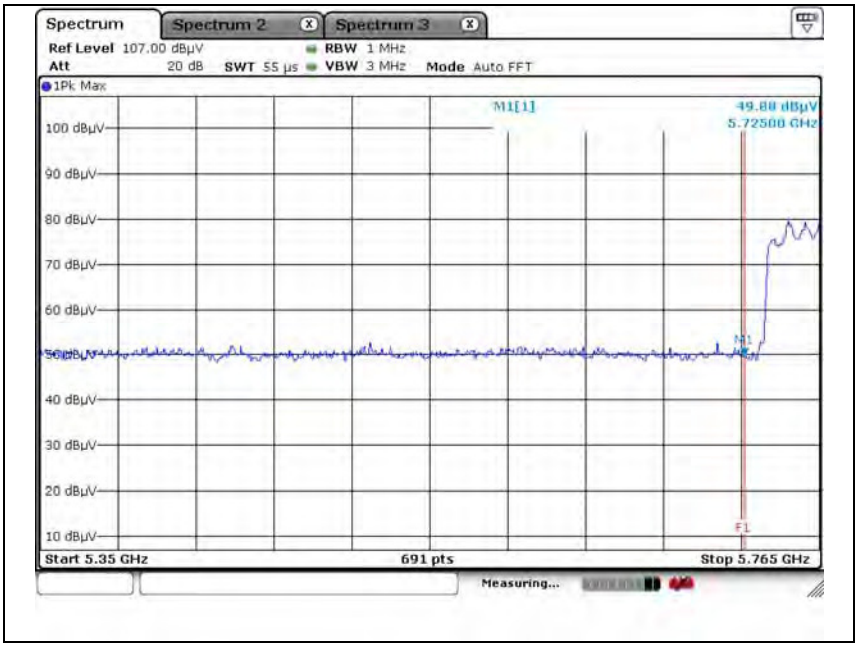


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Mode:	UNII-3 (VHT80) (2)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	151
Detected mode:	Peak, Hor

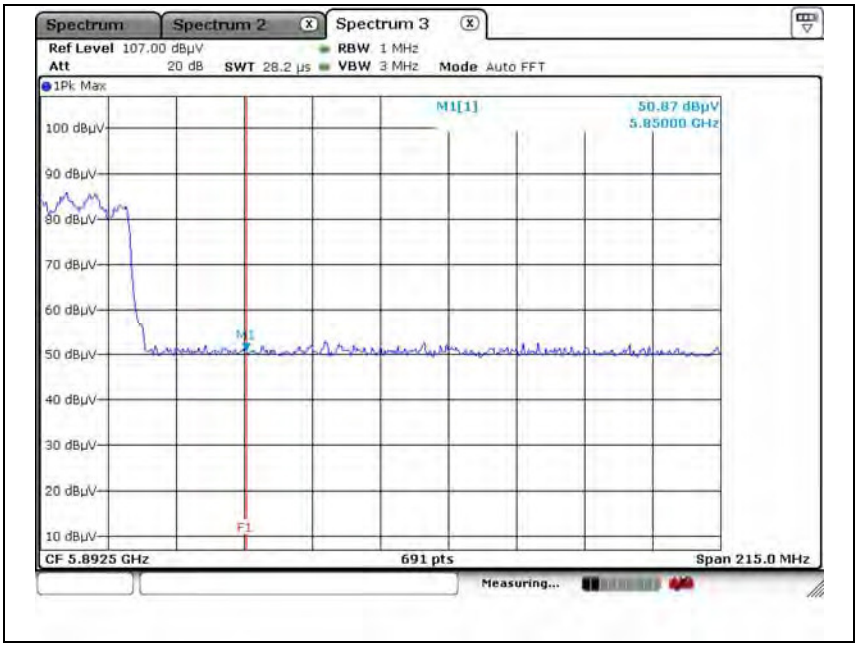


Detected mode:	Peak, Ver

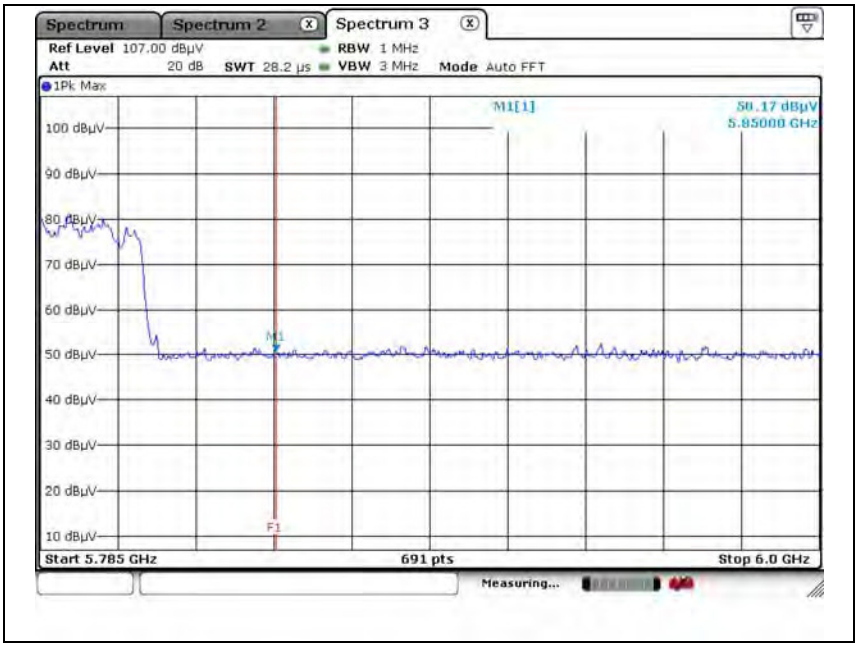


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Mode:	UNII-3 (VHT80) (3)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	151
Detected mode:	Peak, Hor

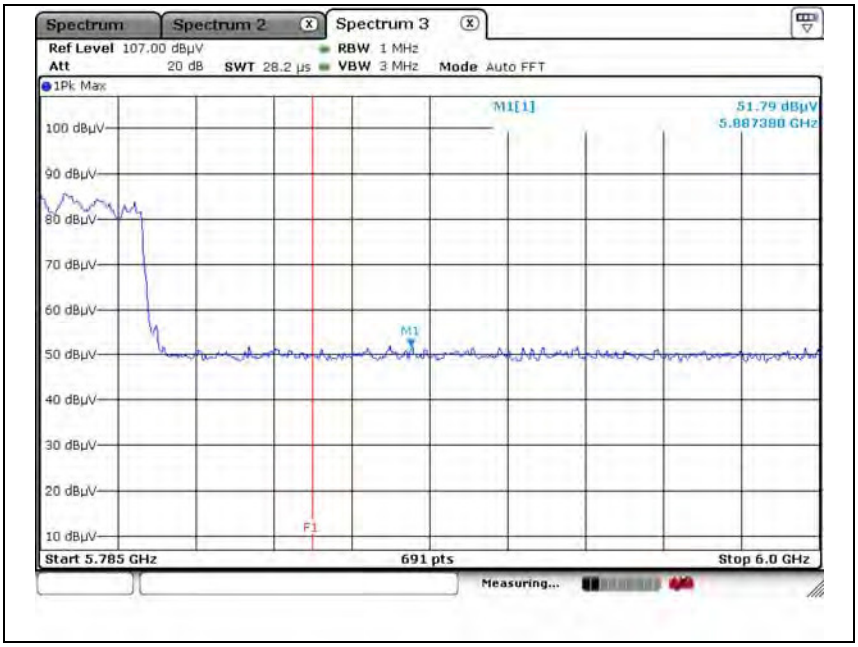


Detected mode:	Peak, Ver

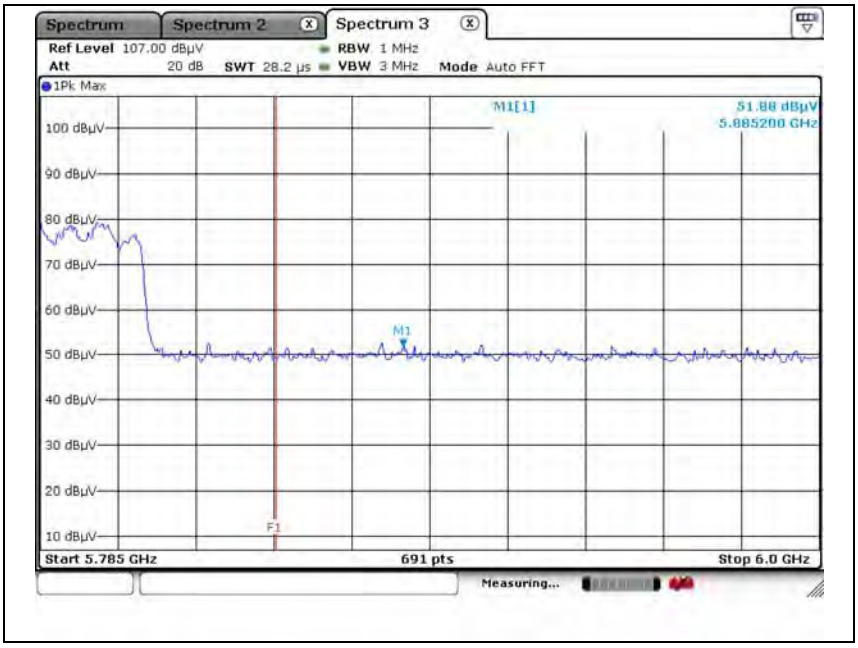


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Mode:	UNII-3 (VHT80) (4)
Transfer rate:	MCS0
Distance of measurement:	3 meter
Channel:	151
Detected mode:	Peak, Hor



Detected mode:	Peak, Ver



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3.7. AC conducted emissions

Limit

According to 15.207(a), for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 ㎑ to 30 ㎒, shall not exceed the limits in the following table, as measured using a 50uH/50 ohm line impedance stabilization network (LISN). Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequencies ranges.

Frequency of Emission (㎒)	Conducted limit (dB㎶/m)	
	Quasi-peak	Average
0.15 – 0.50	66 - 56*	56 - 46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

Note:

1. All AC line conducted spurious emission are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and the appropriate frequencies. All data rates and modes were investigated for conducted spurious emission. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section.
3. Both Cable loss and LISN factor are included in measurement level(QP Level or AV Level).

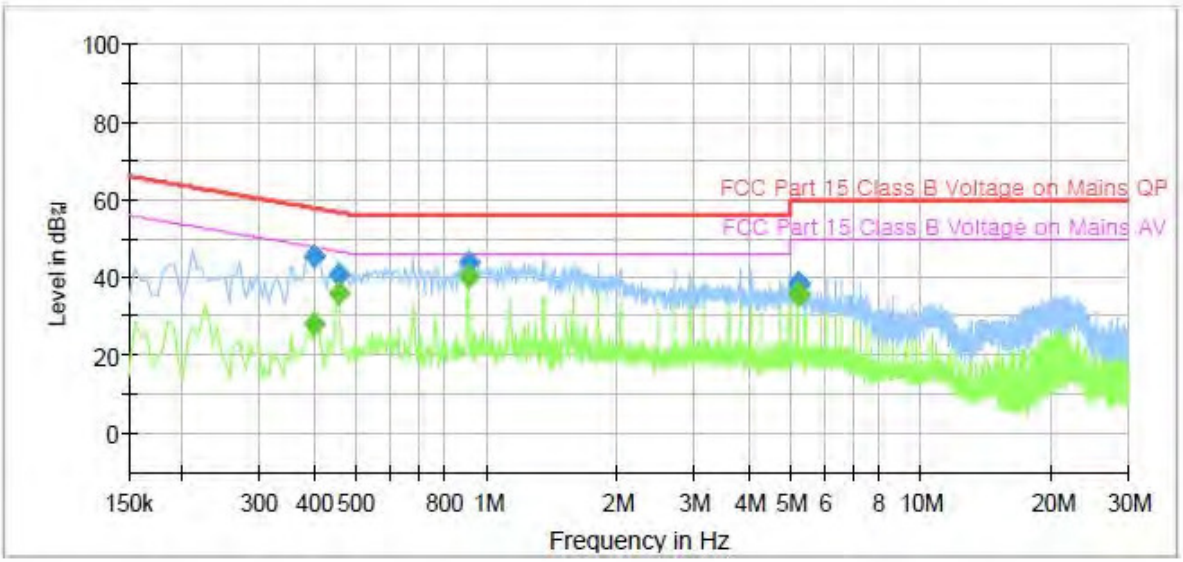
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Test results

Test Report

Common Information

Test Description:	Conducted Emission
Model No.:	TEST
Mode	PoE (5 GHz)
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.400000	---	28.29	47.85	19.56	1000.0	9.000	L1	9.8
0.400000	45.66	---	57.85	12.19	1000.0	9.000	L1	9.8
0.455000	---	35.78	46.78	11.00	1000.0	9.000	L1	9.8
0.455000	40.58	---	56.78	16.20	1000.0	9.000	L1	9.8
0.905000	---	40.01	46.00	5.99	1000.0	9.000	L1	9.9
0.905000	43.91	---	56.00	12.09	1000.0	9.000	L1	9.9
5.200000	---	36.16	50.00	13.84	1000.0	9.000	L1	10.0
5.200000	38.88	---	60.00	21.12	1000.0	9.000	L1	10.0
5.205000	---	35.62	50.00	14.38	1000.0	9.000	L1	10.0
5.205000	38.15	---	60.00	21.85	1000.0	9.000	L1	10.0

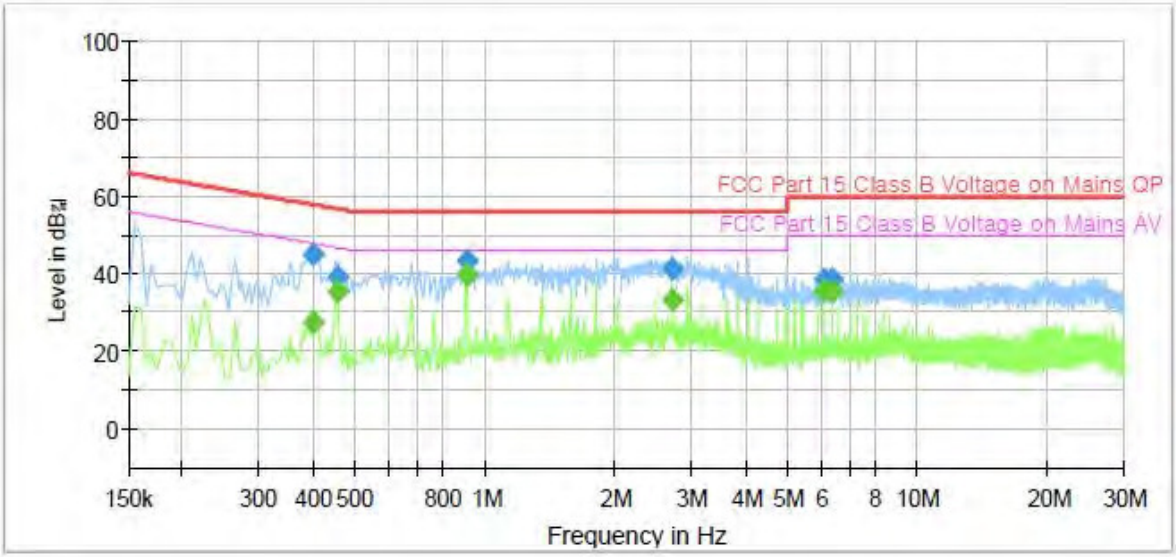
Note; Hot Line

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Test Report

Common Information

Test Description:	Conducted Emission
Model No.:	TEST
Mode	PoE (5 GHz)
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.400000	---	27.59	47.85	20.26	1000.0	9.000	N	9.7
0.400000	44.80	---	57.85	13.05	1000.0	9.000	N	9.7
0.455000	---	35.65	46.78	11.13	1000.0	9.000	N	9.7
0.455000	39.27	---	56.78	17.51	1000.0	9.000	N	9.7
0.905000	---	39.89	46.00	6.11	1000.0	9.000	N	9.9
0.905000	43.27	---	56.00	12.73	1000.0	9.000	N	9.9
2.710000	---	33.49	46.00	12.51	1000.0	9.000	N	10.0
2.710000	41.13	---	56.00	14.87	1000.0	9.000	N	10.0
6.105000	---	35.71	50.00	14.29	1000.0	9.000	N	10.0
6.105000	38.43	---	60.00	21.57	1000.0	9.000	N	10.0
6.335000	---	35.34	50.00	14.66	1000.0	9.000	N	10.0
6.335000	38.47	---	60.00	21.53	1000.0	9.000	N	10.0

Note; Neutral Line

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Appendix A. Measurement equipment

Equipment	Manufacturer	Model	Serial No.	Calibration interval	Calibration due.
Spectrum Analyzer	R&S	FSV40	101002	1 year	2017.07.06
8360B Series Swept Signal Generator	HP	83630B	3844A00786	1 year	2017.01.25
PSG Analog Signal Generator	AGILENT	E8257C	US42340237	1 year	2017.07.05
Power Meter	Anritsu	ML2495A	1438001	1 year	2017.01.25
Pluse Power Sensor	Anritsu	MA2411B	1339205	1 year	2017.01.25
Loop antenna	R&S	HFH2-Z2.335.4711.52	826532	2 years	2017.03.03
Trilog-broadband antenna	SCHWARZBECK	VULB 9168	9168-461	2 years	2017.04.03
Horn Antenna	A.H.	SAS-571	414	2 years	2017.02.09
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170550	2 years	2017.04.30
Preamplifier	SCHWARZBECK	BBV-9718	9718-246	1 year	2016.10.23
Broadband Amplifier	SCHWARZBECK	BBV-9721	PS9721-003	1 year	2017.01.25
Low Pass Filter	Wainwright Instrument	WHNK6.0/26.5G-6SS	1	1 year	2017.07.05
High Pass Filter	WAINWRIGHT INSTRUMENT	WHJS3000-10TT	1	1 year	2017.07.04
Attenuator	KEYSIGHT	8493C	82509	1 year	2017.01.25
EMI Test Receiver	R&S	ESR3	101781	1 year	2017.05.03
EMI Test Receiver	R&S	ESU26	100552	1 year	2017.04.24
EMI Test Receiver	R&S	ESR3	101783	1 year	2017.05.03
DC Power supply	Aglient	6674A	US36370369	1 year	2017.07.04
Temperature & Humidity Chamber	Daehan Engineering	DH-1000	DH1000060628	1 year	2017.01.28
LISN	R&S	ENV216	101137	1 year	2017.02.04

Peripheral devices

Device	Manufacturer	Model No.	Serial No.
Notebook Computer	Samsung Electronics Co., Ltd.	NT-R530	ZWC493BZC00014H
Test Board	N/A	N/A	N/A
USB to Serial Converter	Kangwon Electronics	KW-825	N/A
PoE Adapter	MICROSEMI CORP	PD-INJ-WM	PD-INJ-WM -01-WT-EU

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