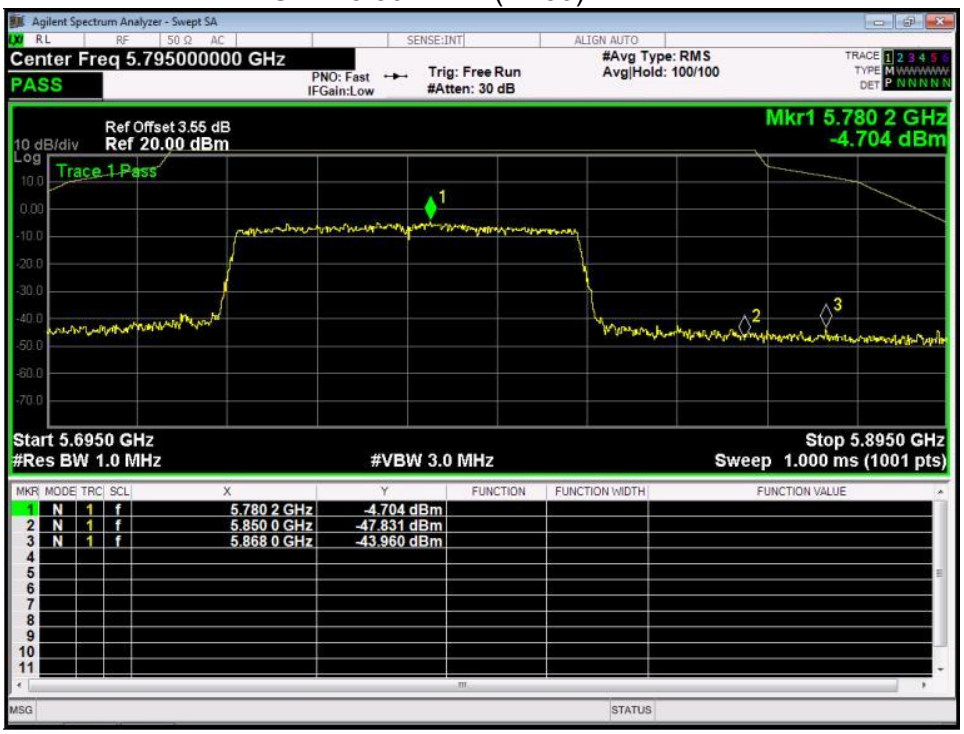
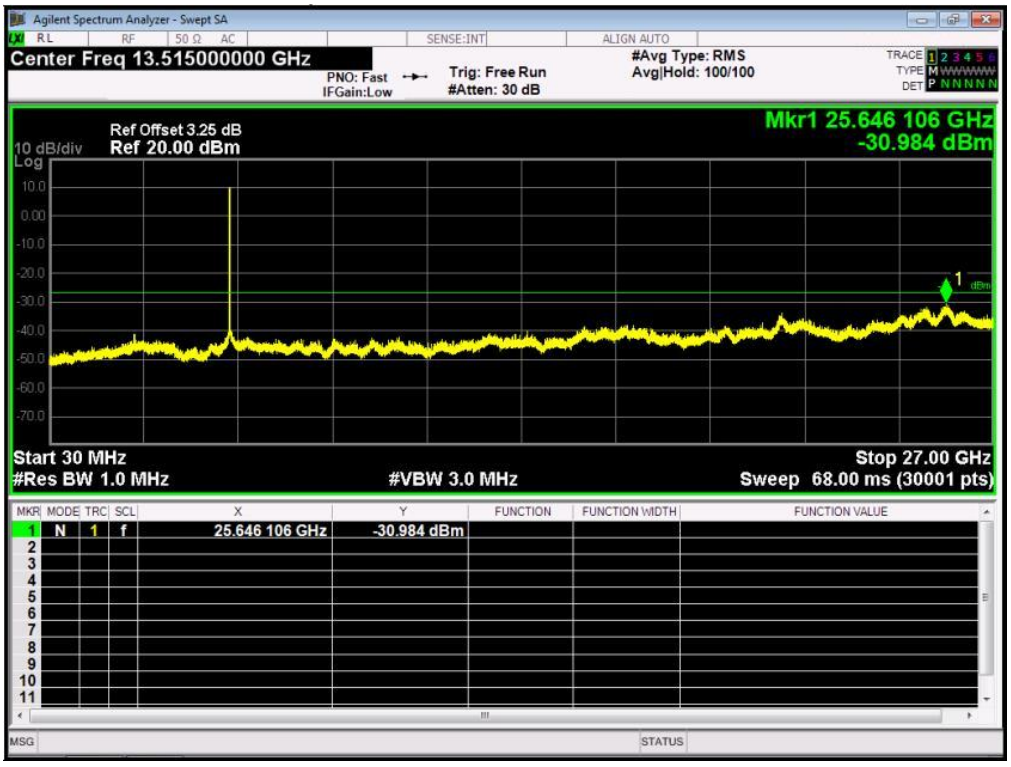
U-NII-3 802.11ac(HT80) left side



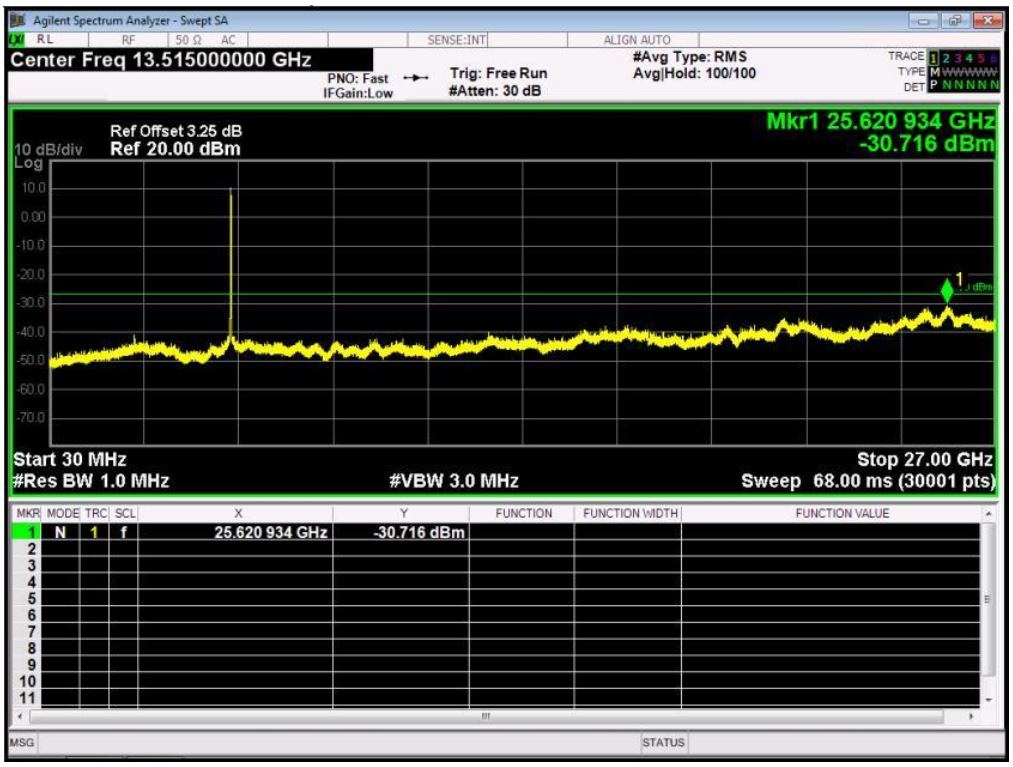
U-NII-3 802.11ac(HT80) Right side

conducted spurious

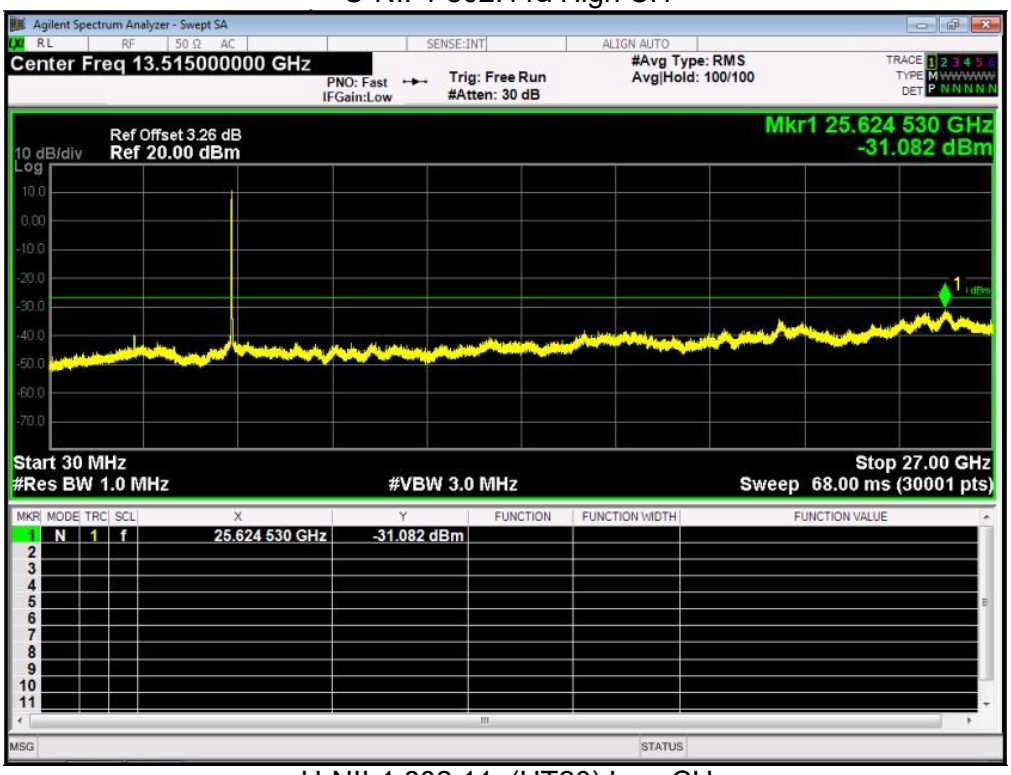
U-NII-1 802.11a Low CH



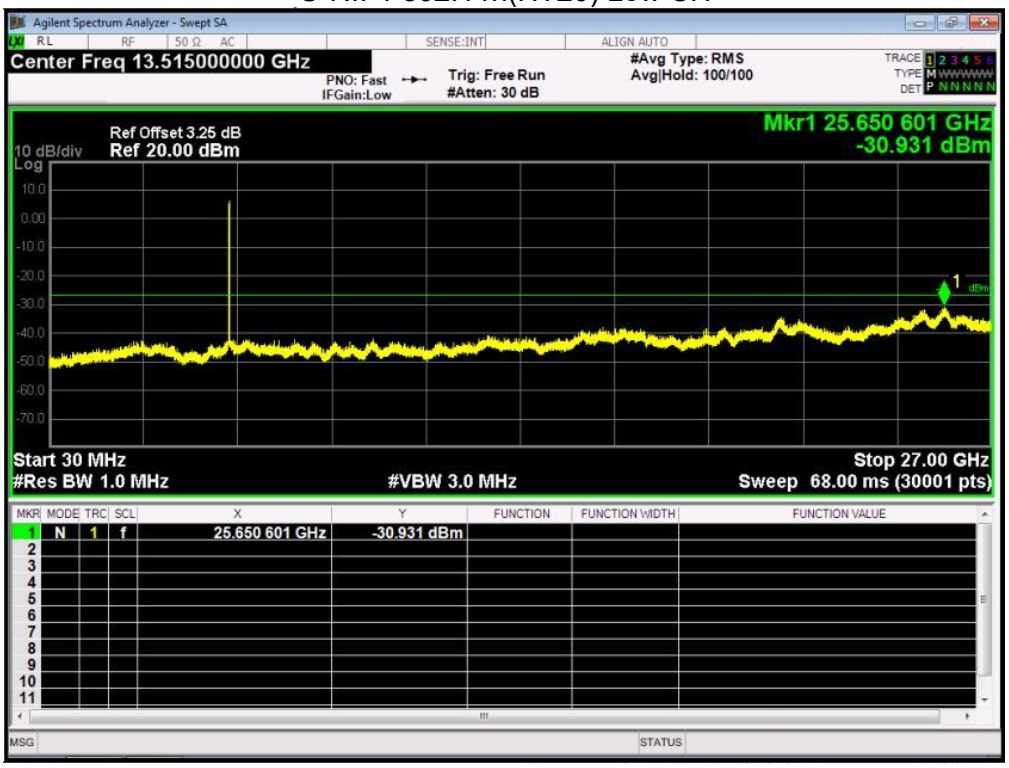
U-NII-1 802.11a Middle CH



U-NII-1 802.11a High CH



U-NII-1 802.11n(HT20) Low CH



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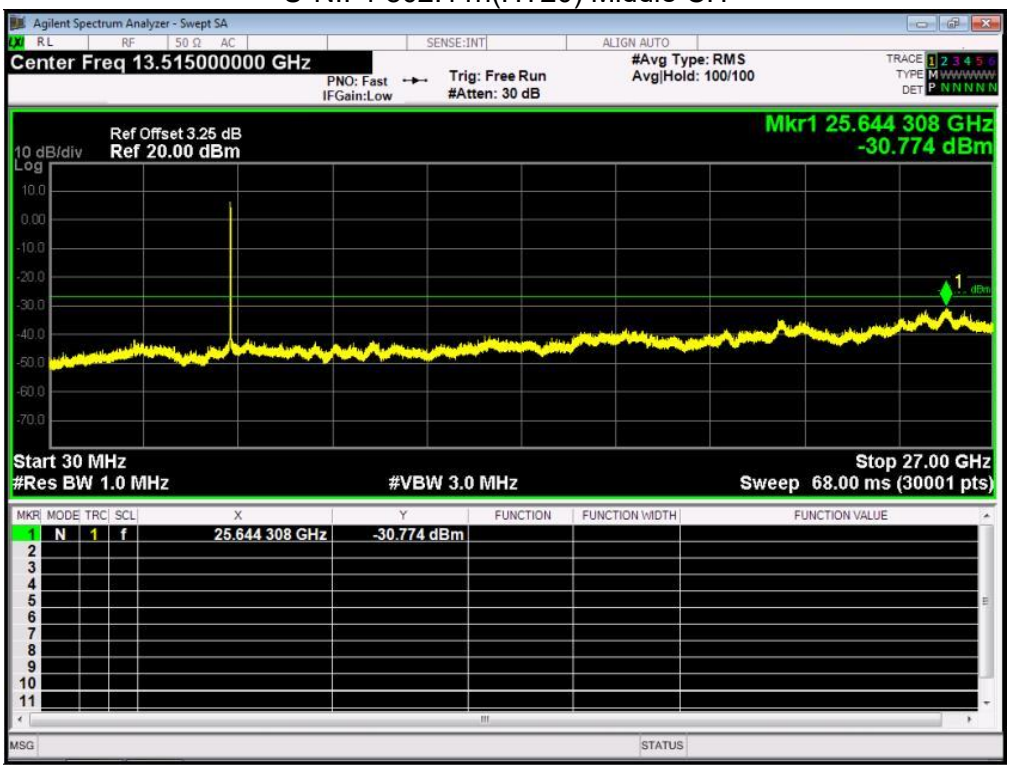

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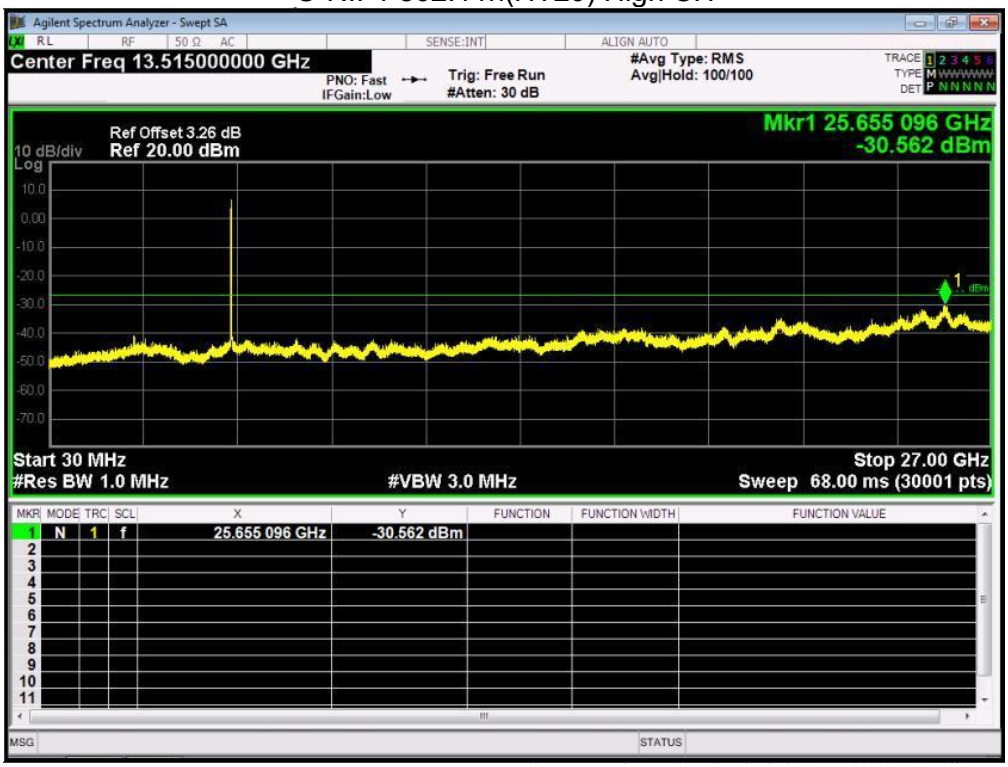
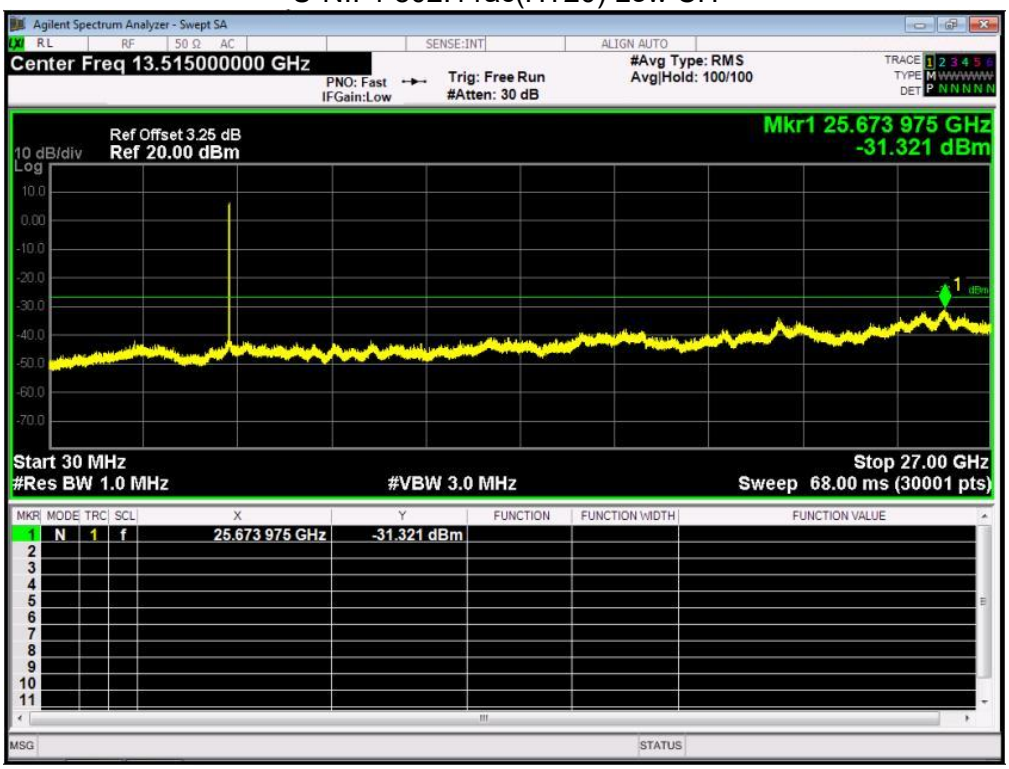
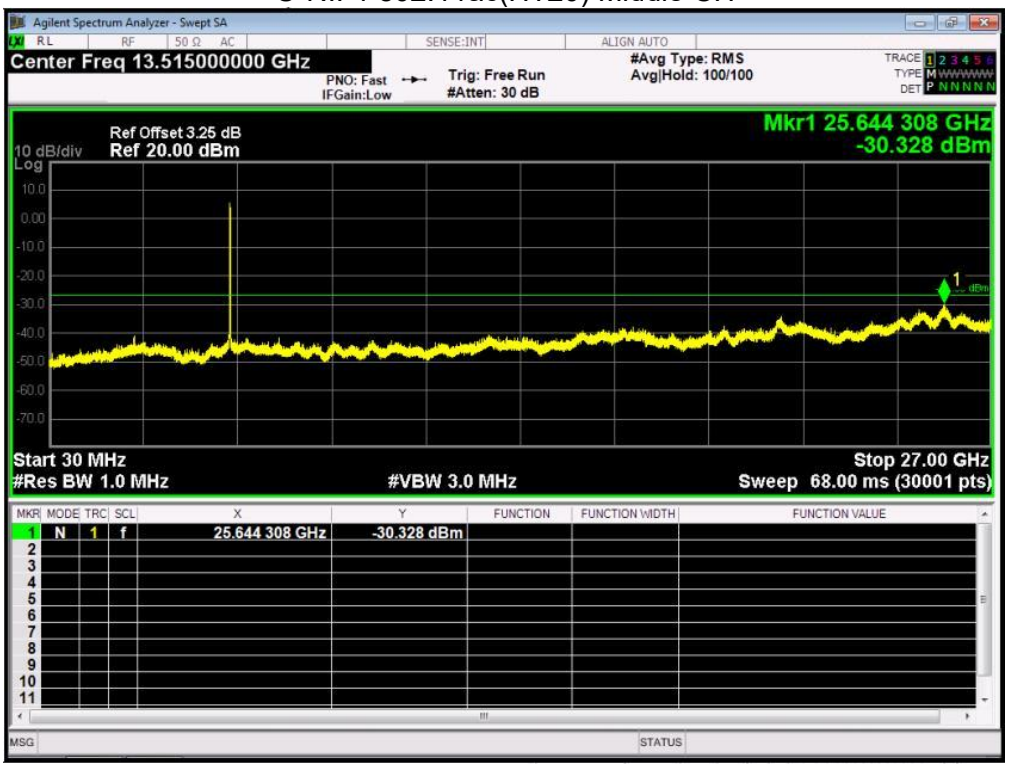


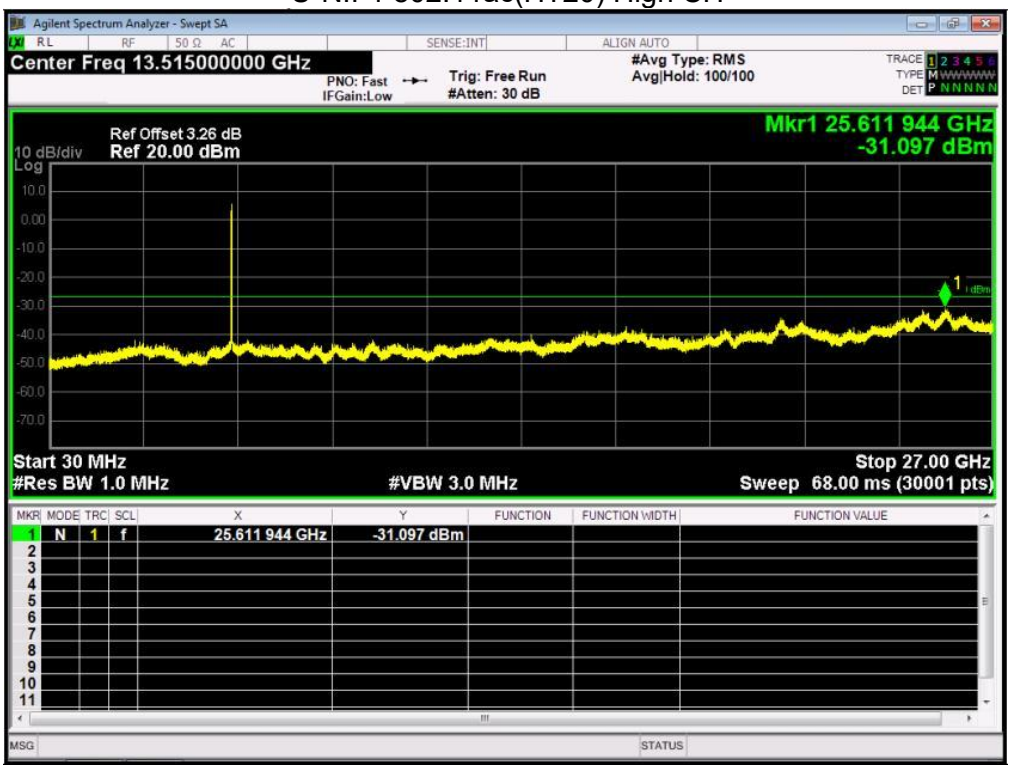
U-NII-1 802.11ac(HT20) Low CH



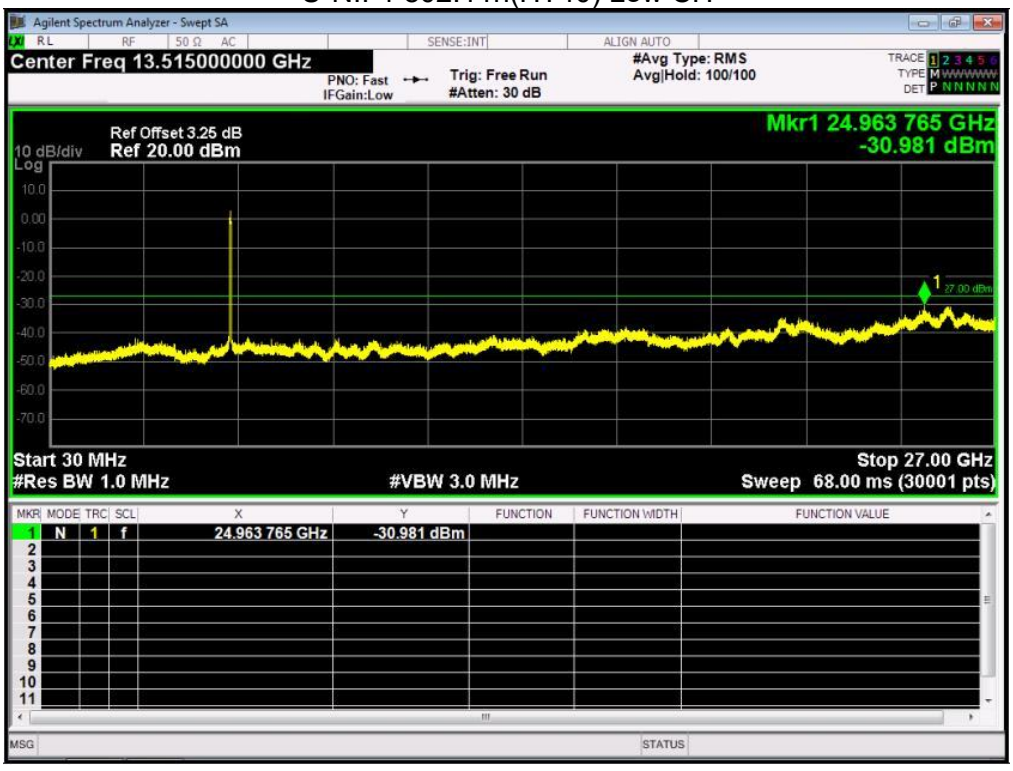
U-NII-1 802.11ac(HT20) Middle CH



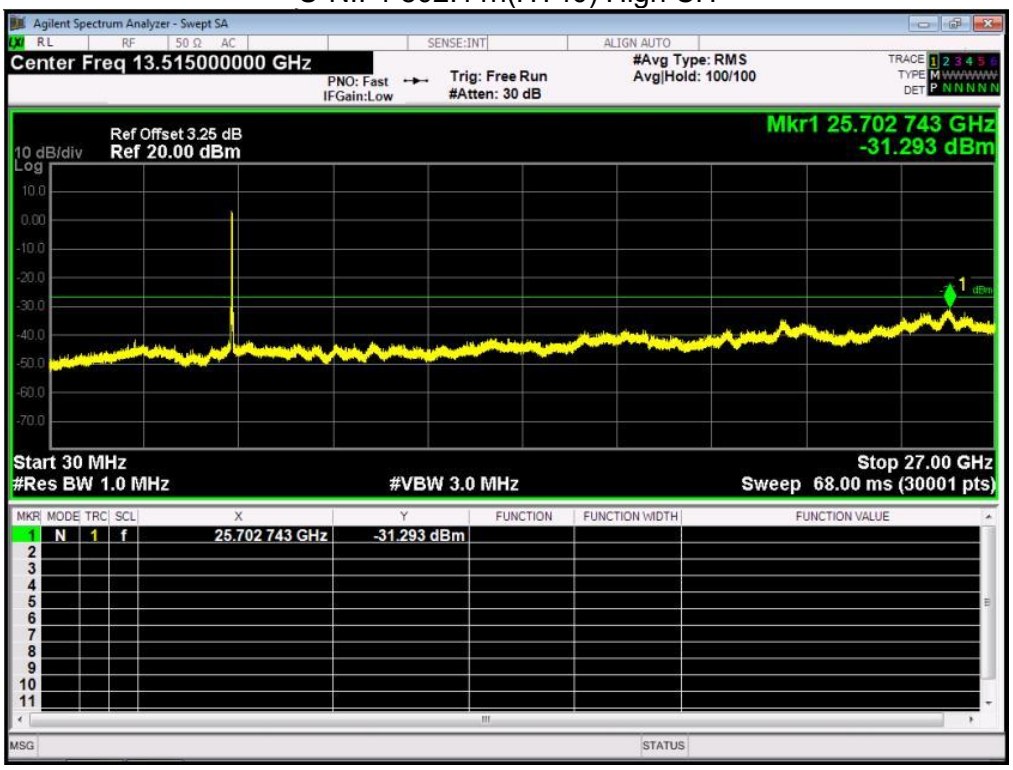
U-NII-1 802.11ac(HT20) High CH



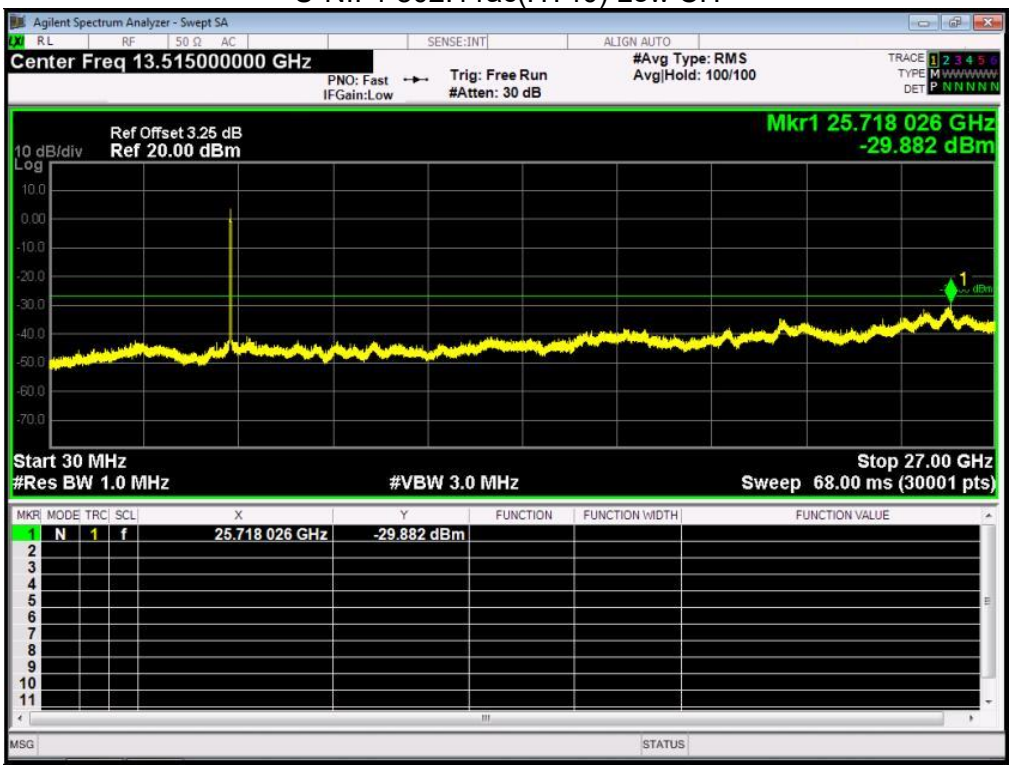
U-NII-1 802.11n(HT40) Low CH



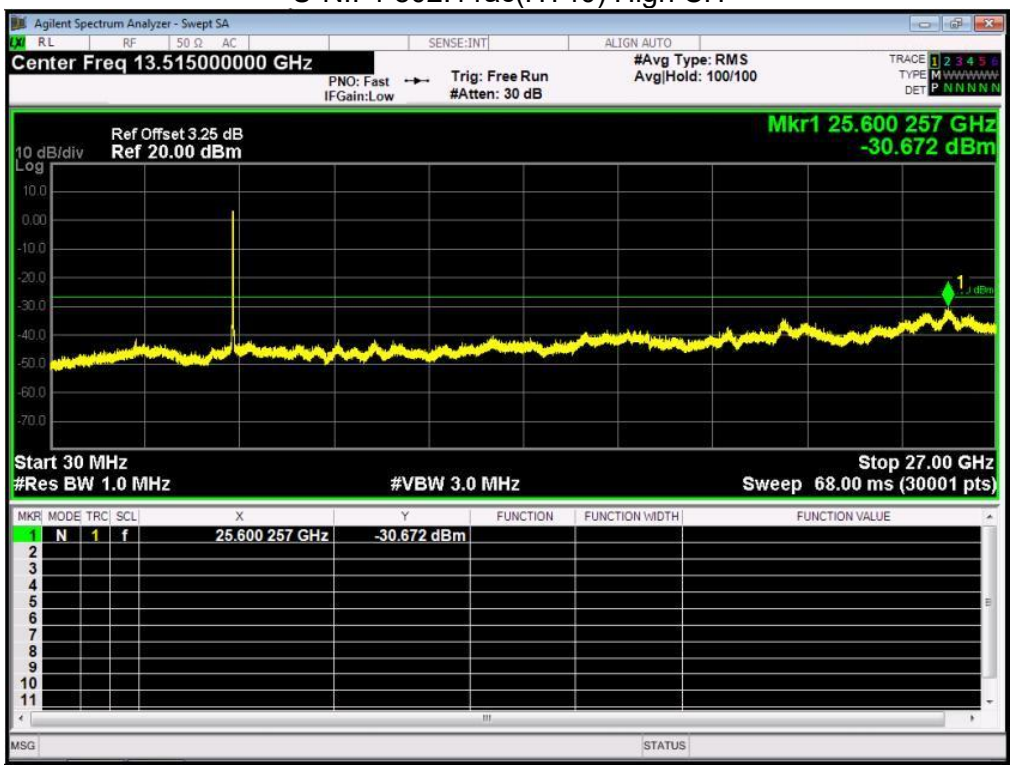
U-NII-1 802.11n(HT40) High CH



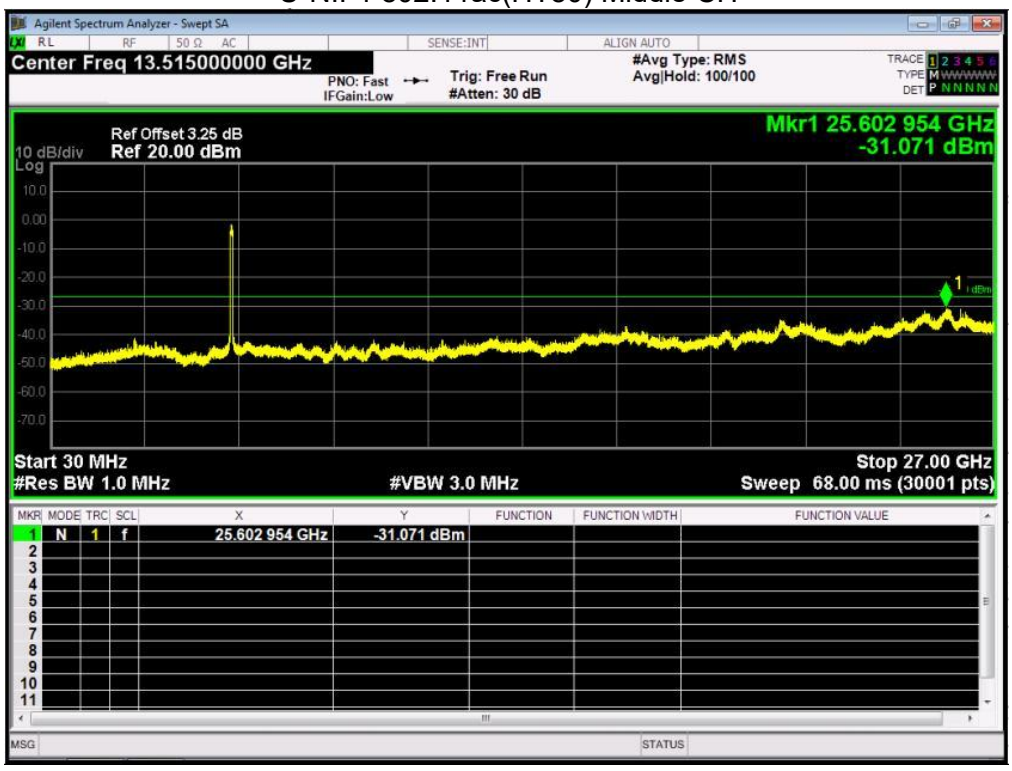
U-NII-1 802.11ac(HT40) Low CH



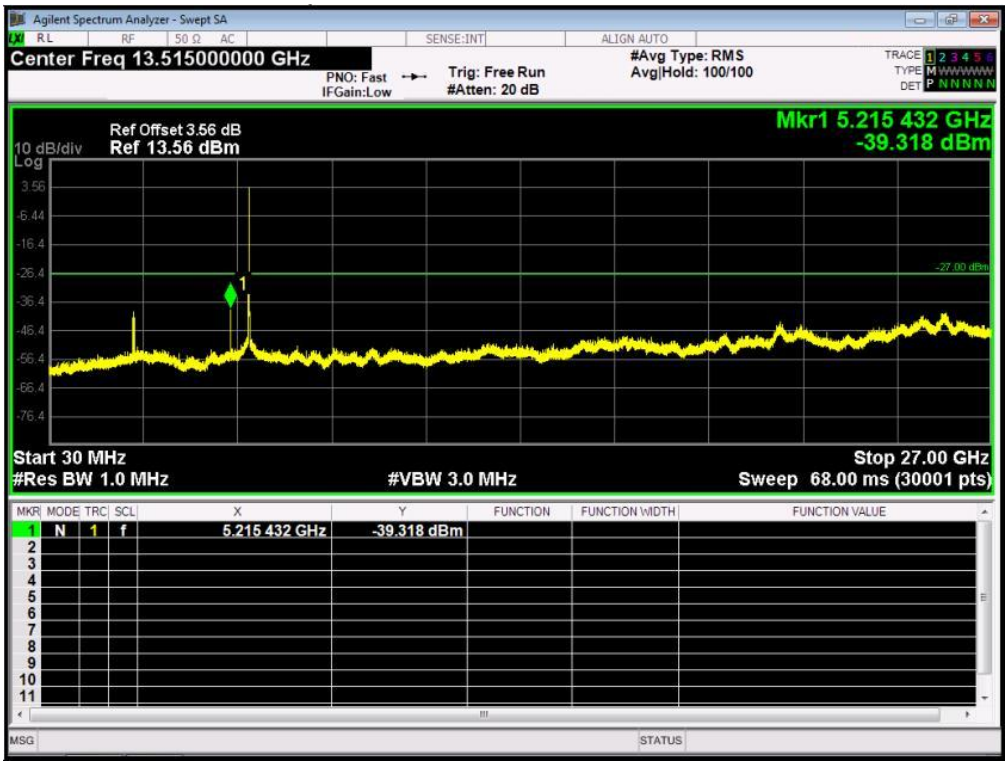
U-NII-1 802.11ac(HT40) High CH



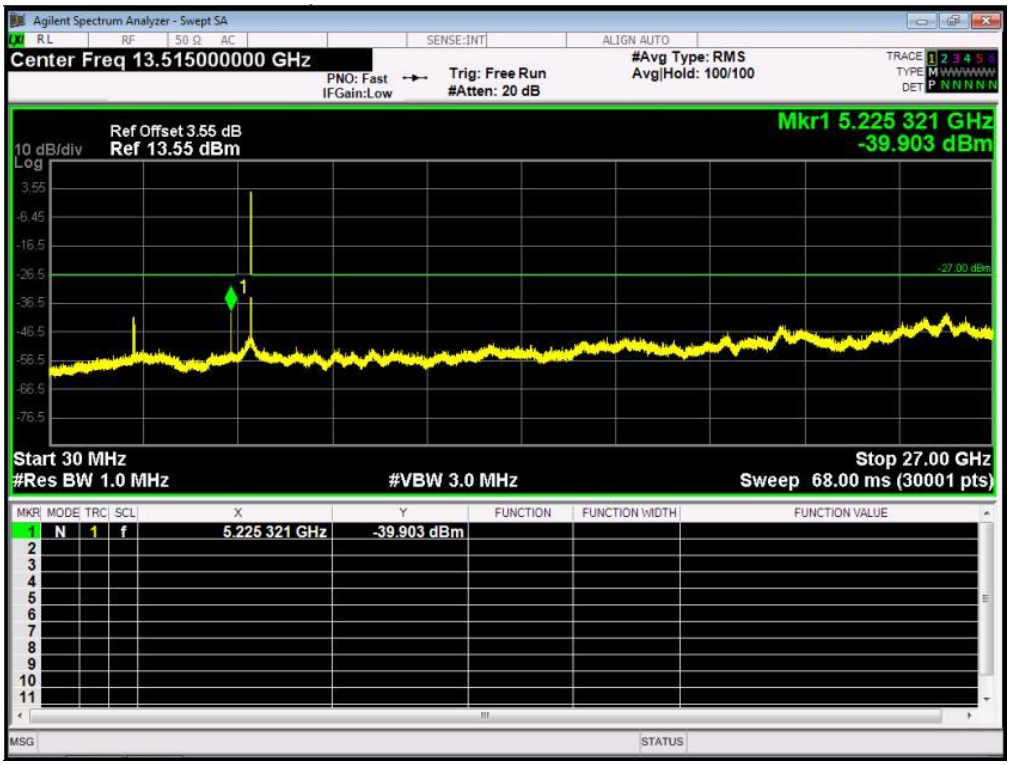
U-NII-1 802.11ac(HT80) Middle CH



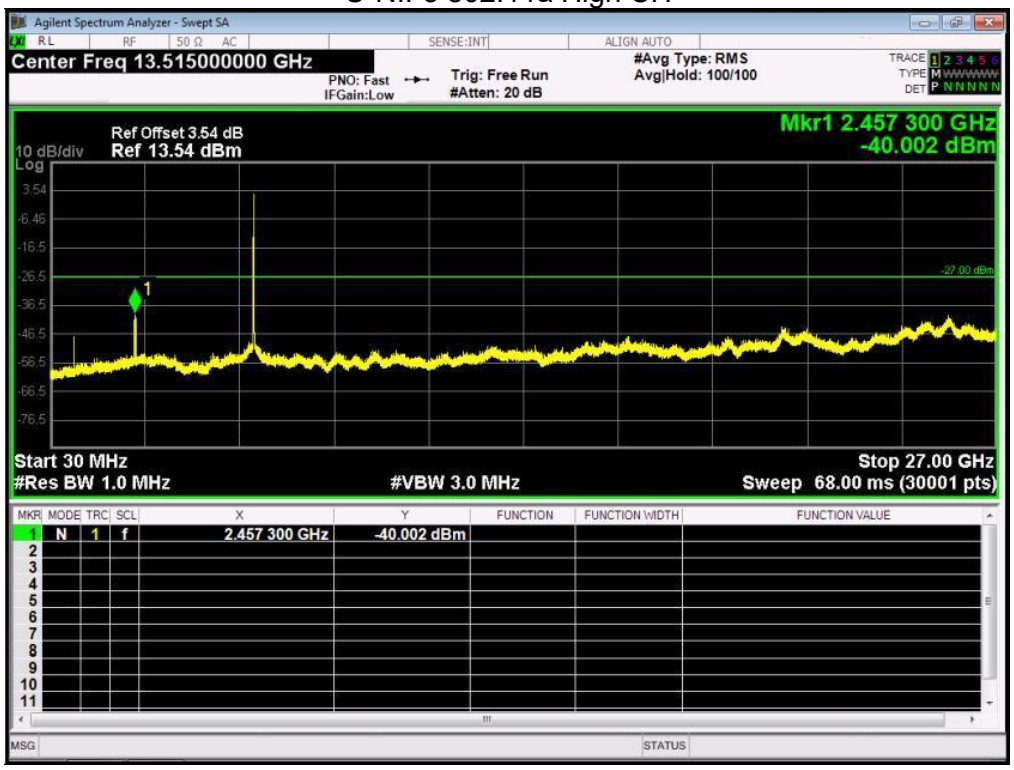
U-NII-3 802.11a Low CH



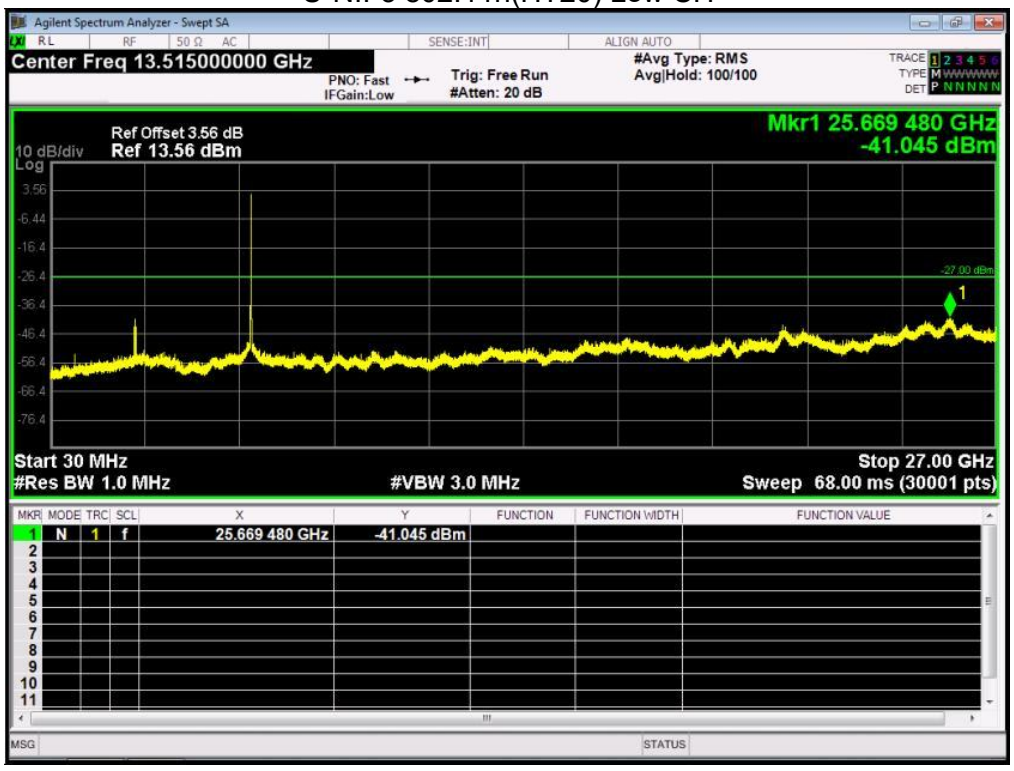
U-NII-3 802.11a Middle CH



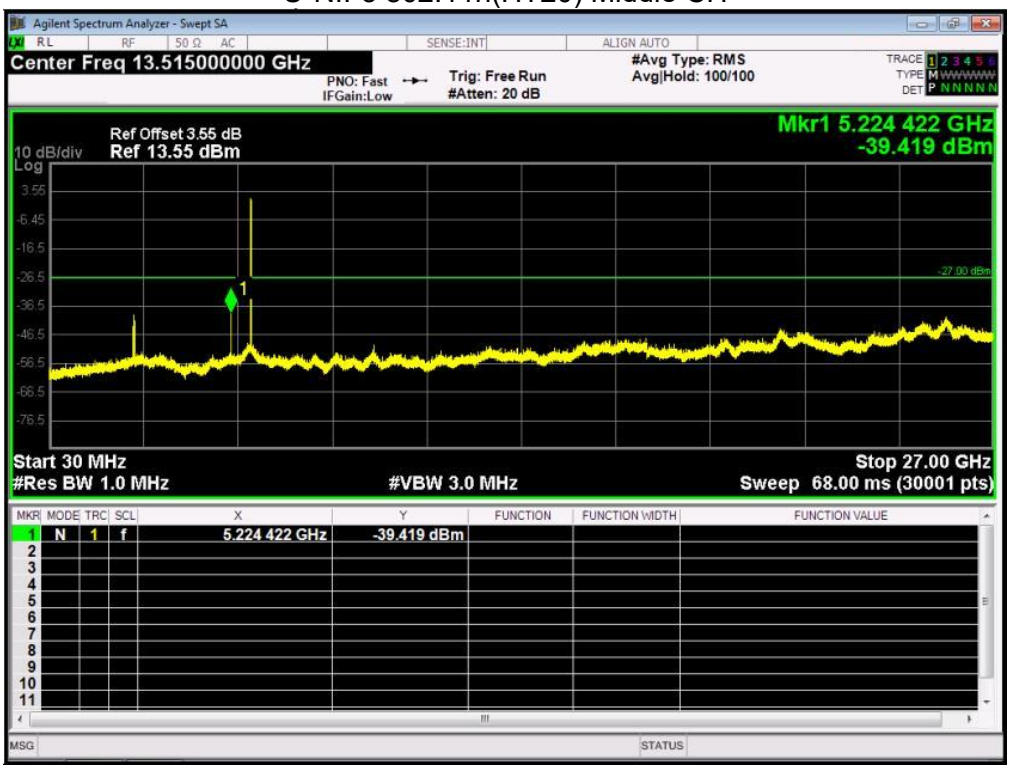
U-NII-3 802.11a High CH



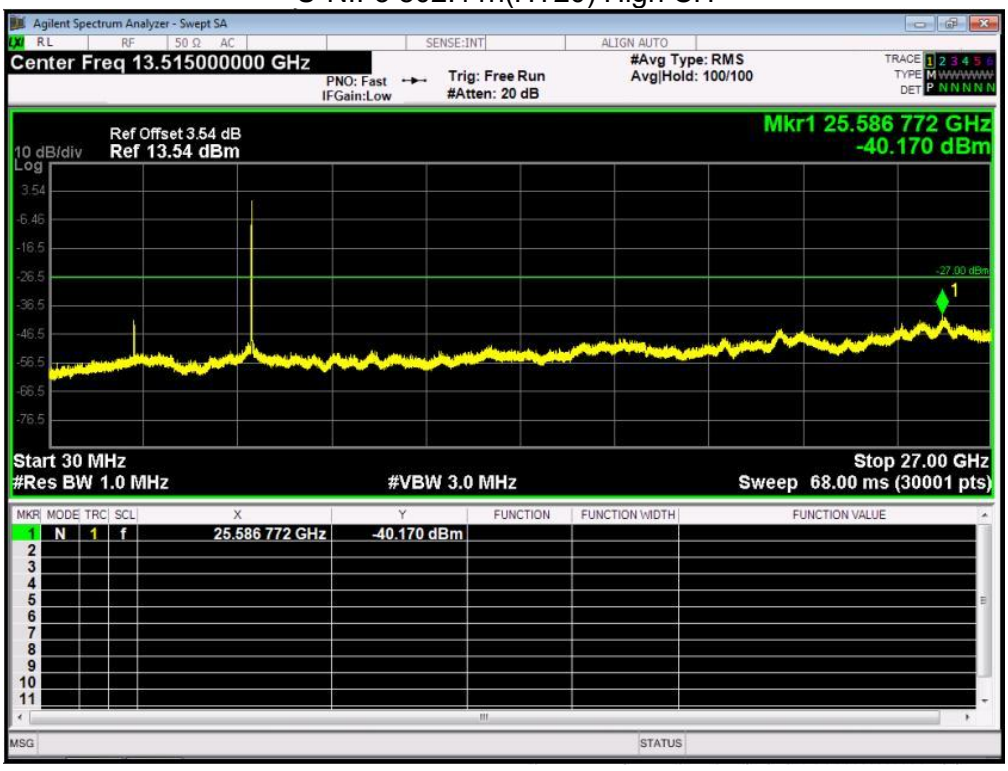
U-NII-3 802.11n(HT20) Low CH



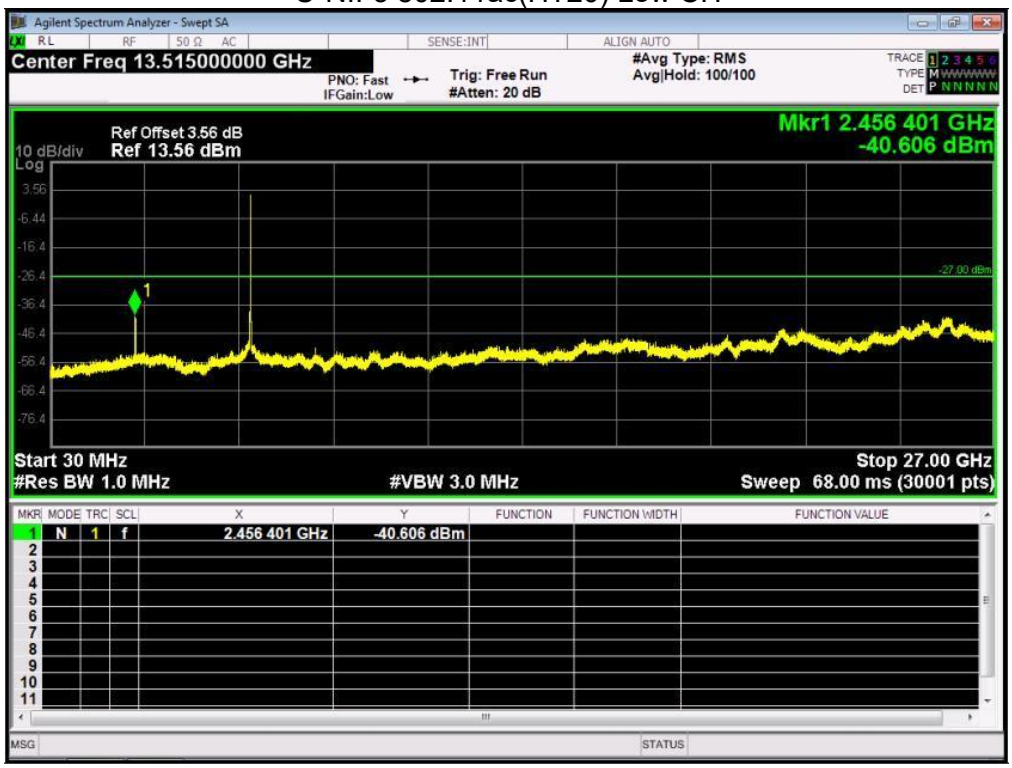
U-NII-3 802.11n(HT20) Middle CH



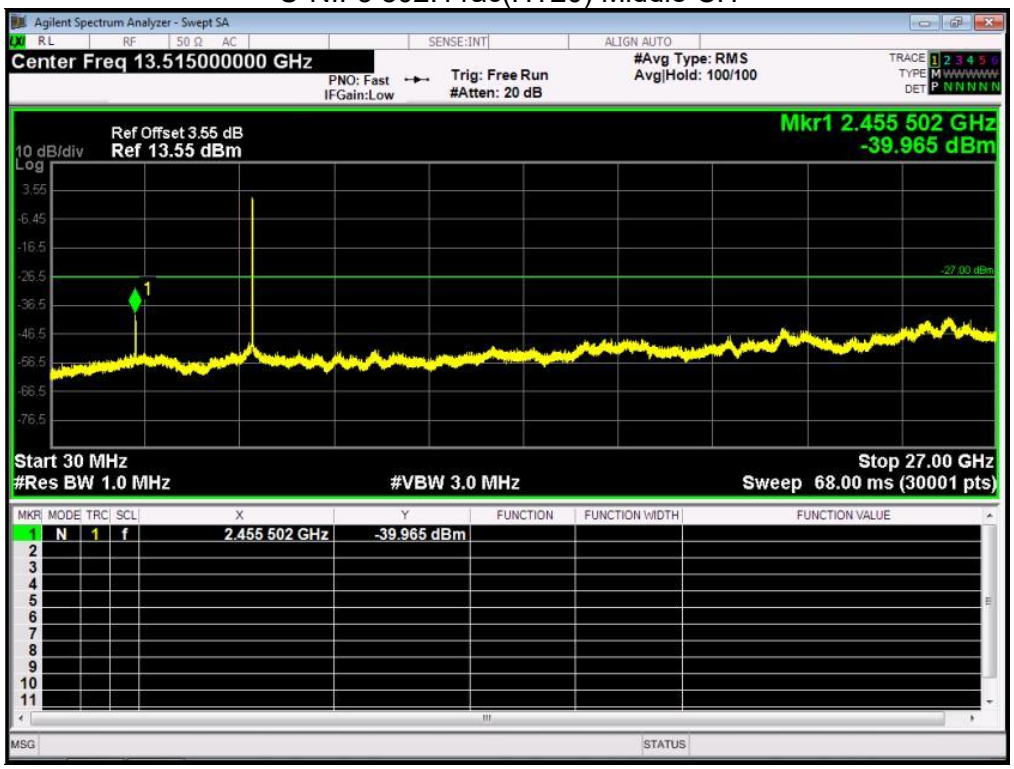
U-NII-3 802.11n(HT20) High CH



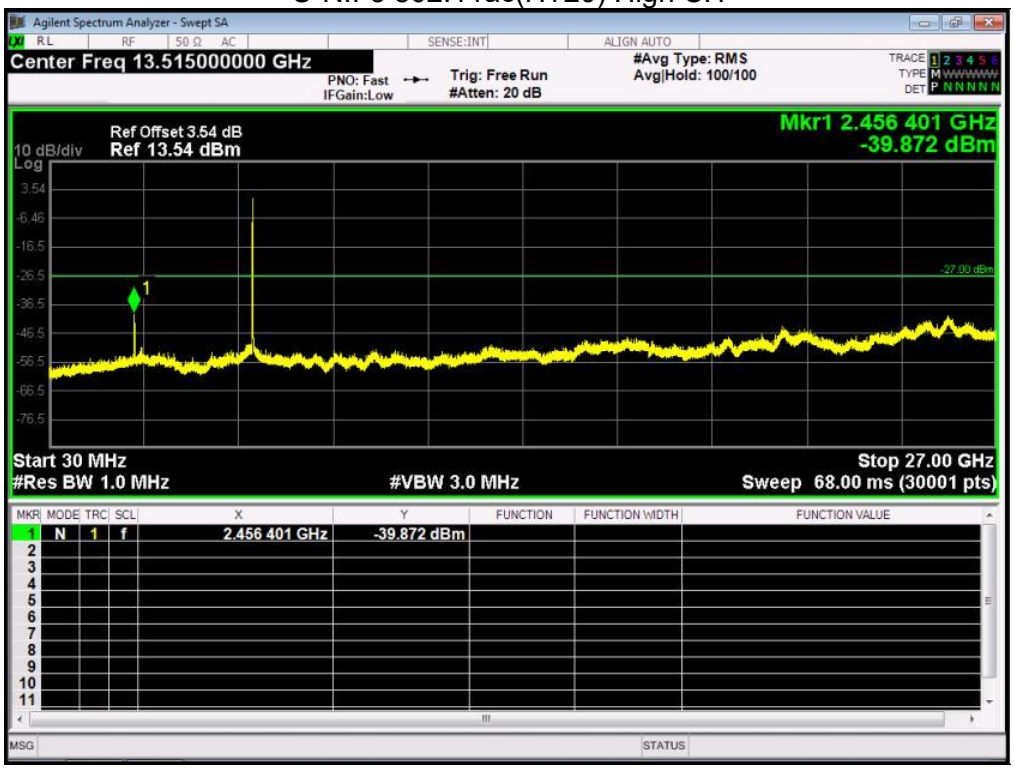
U-NII-3 802.11ac(HT20) Low CH



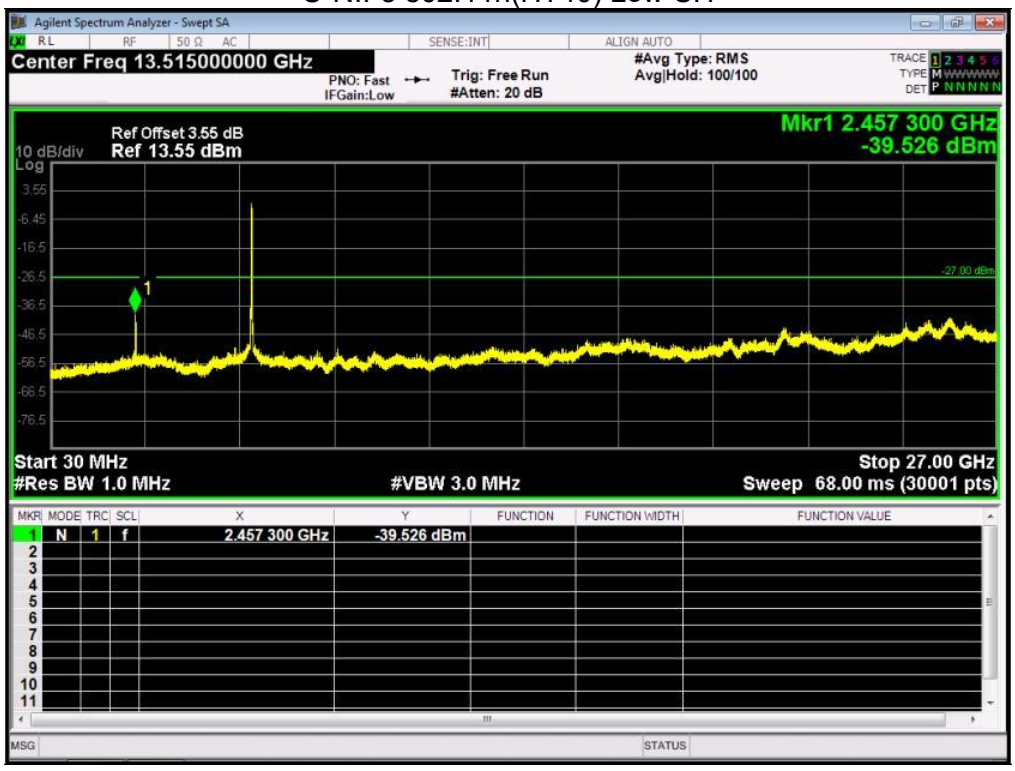
U-NII-3 802.11ac(HT20) Middle CH



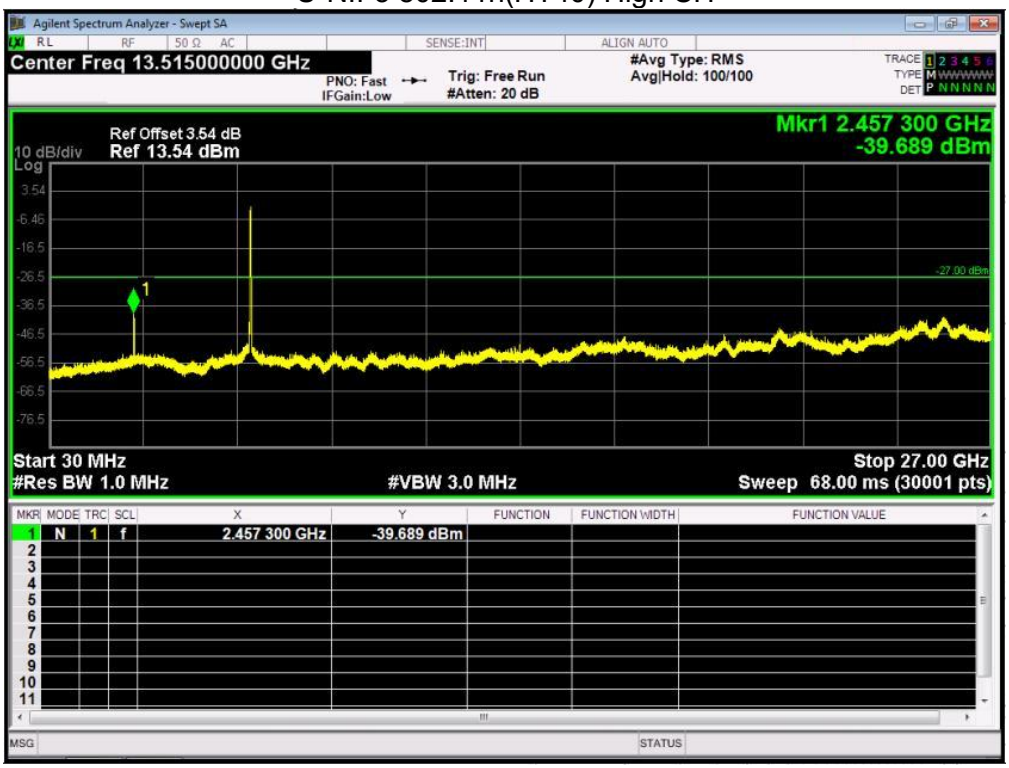
U-NII-3 802.11ac(HT20) High CH



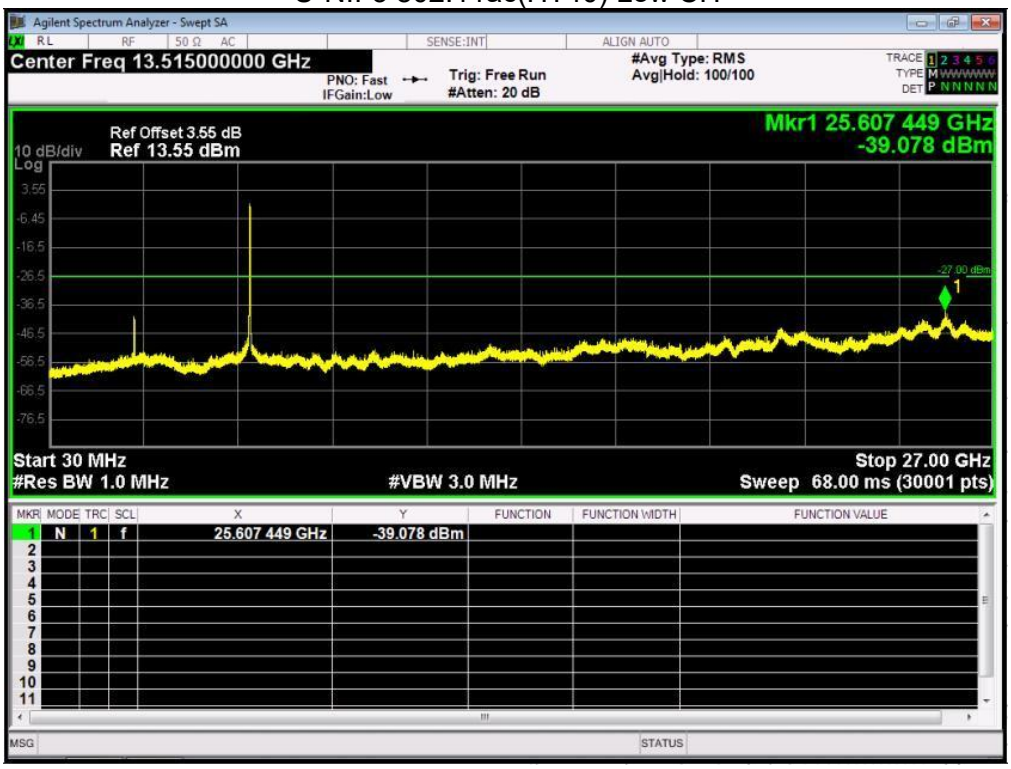
U-NII-3 802.11n(HT40) Low CH



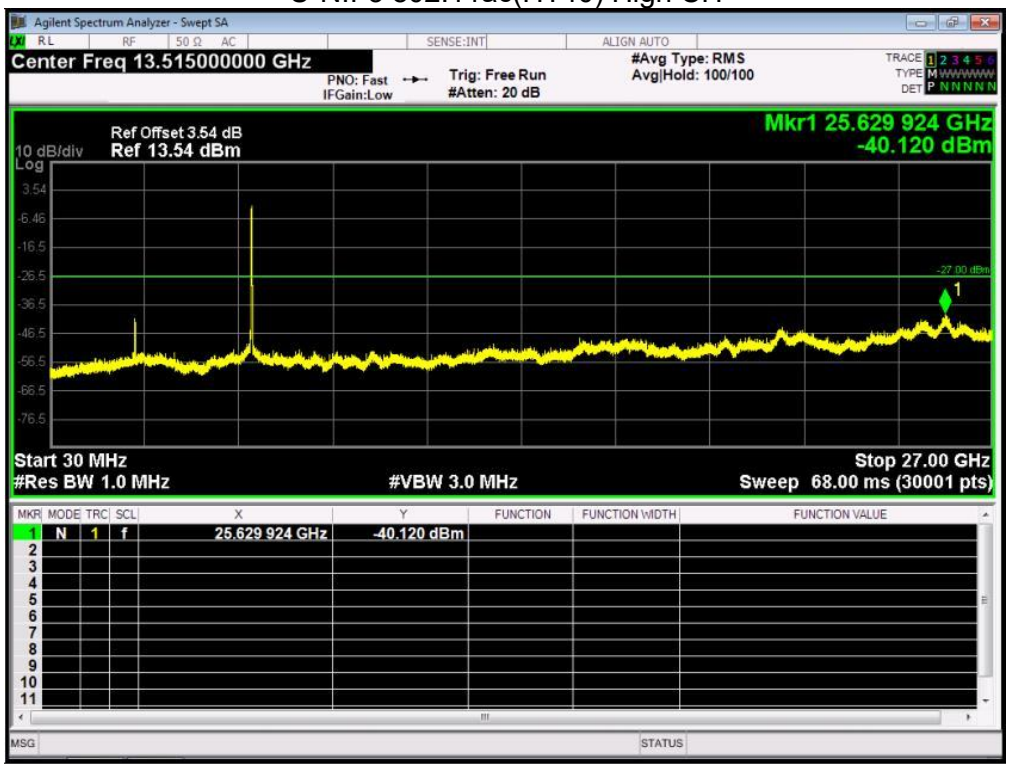
U-NII-3 802.11n(HT40) High CH



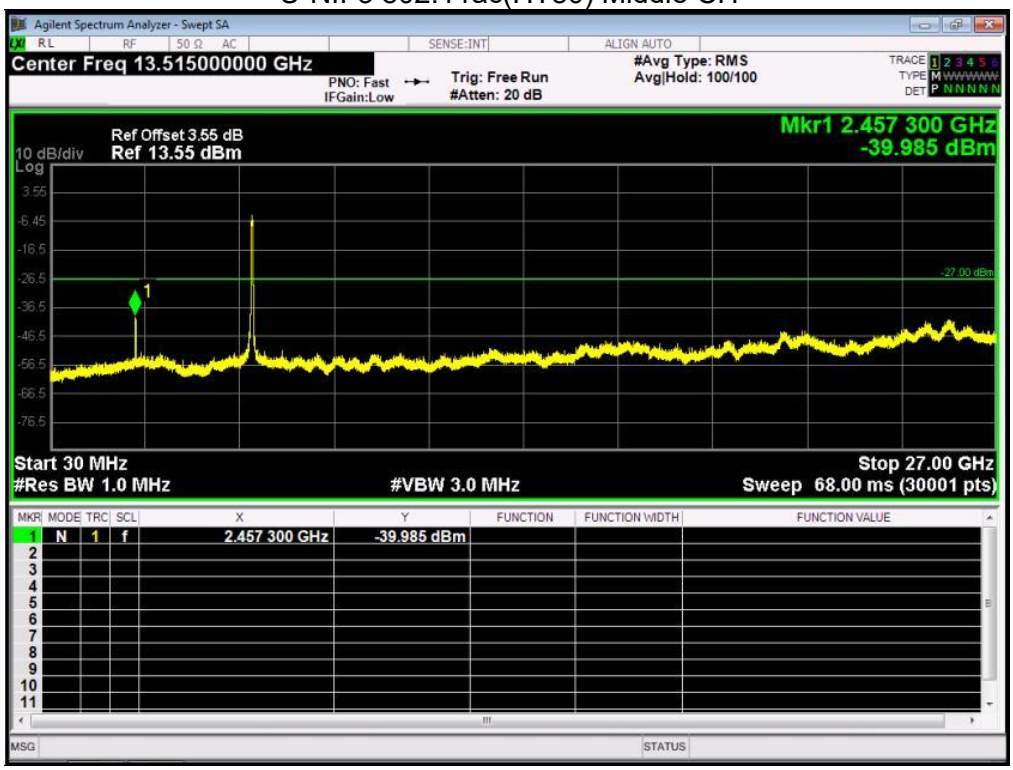
U-NII-3 802.11ac(HT40) Low CH



U-NII-3 802.11ac(HT40) High CH



U-NII-3 802.11ac(HT80) Middle CH



Note:1.The emission levels of other frequencies were less than 20dB margin against the limit.
2.Max Value (dBm) is added antenna gain and cable loss.

8. Duty Cycle

8.1 TEST REQUIREMENT

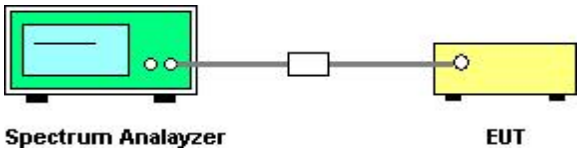
47 CFR Part 15C 15.407 and 789033 D02 General UNII Test Procedures New Rules v02r01(December 14, 2017), Section (B)

ANSI C63.10: 2013

8.2 TEST PROCEDURE

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

8.3 TEST SETUP



8.4 TEST RESULTS

802.11a mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
52	100	100	100
149	100	100	100
802.11n(HT20) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
52	100	100	100
149	100	100	100
802.11n(HT40) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
38	100	100	100
54	100	100	100
151	100	100	100
802.11ac(HT20) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
52	100	100	100
149	100	100	100
802.11ac(HT40) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
38	100	100	100
54	100	100	100
151	100	100	100
802.11ac(HT80) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
42	100	100	100
58	100	100	100
155	100	100	100

9 RADIATED EMISSION MEASUREMENT

9.1 RADIATED EMISSION LIMITS

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205(a)&209(a) limit in the table and according to ANSI C63.10-2013 below has to be followed

LIMITS OF RADIATED EMISSION MEASUREMENT (0.009MHz - 1000MHz)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

For Radiated Emission

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/AV
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	10th carrier hamonic(Peak/AV)
RB / VB (emission in restricted band)	PK=1MHz / 1MHz, AV=1 MHz /10 Hz

9.2 TEST PROCEDURE

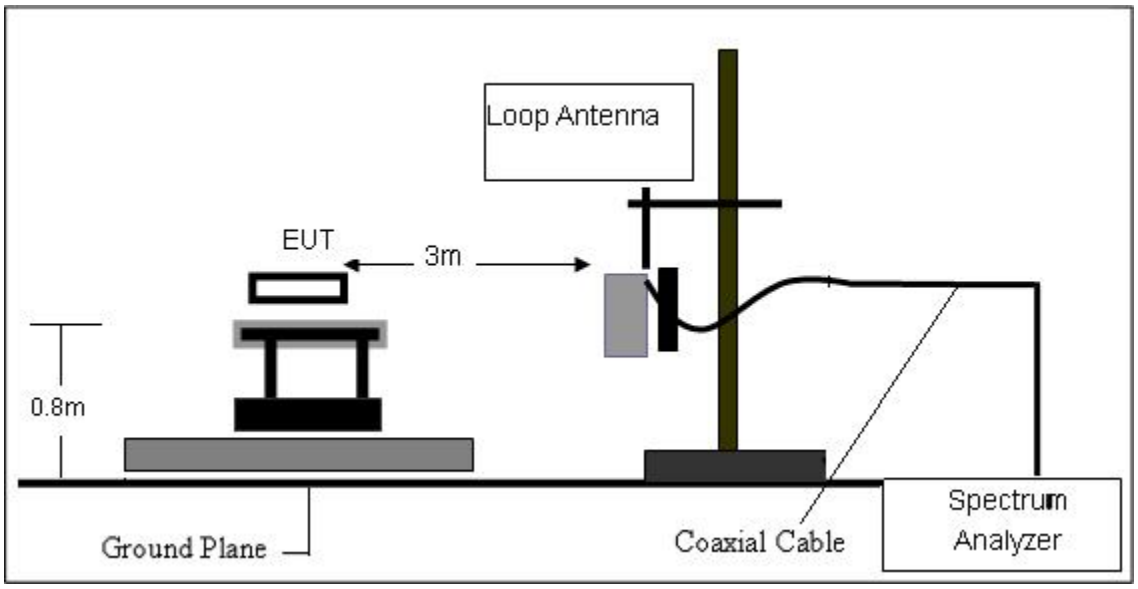
a. The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz,and above 1GHz.
b. The EUT was placed on the top of a rotating table 0.8 meters (above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment shall be 0.8 m(above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then QuasiPeak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

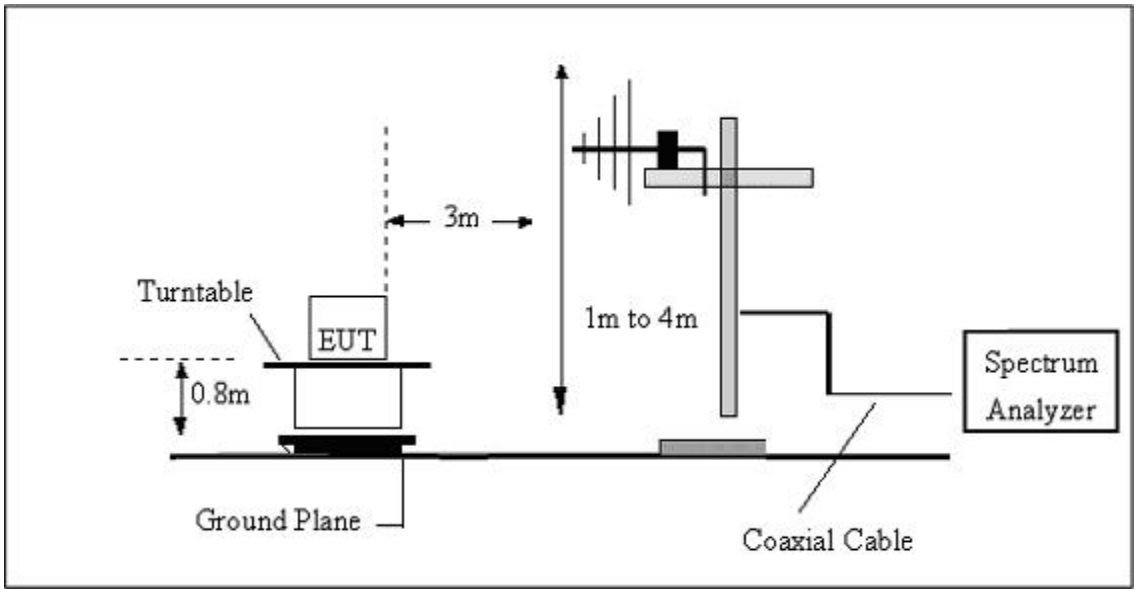
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

9.3 TESTSETUP

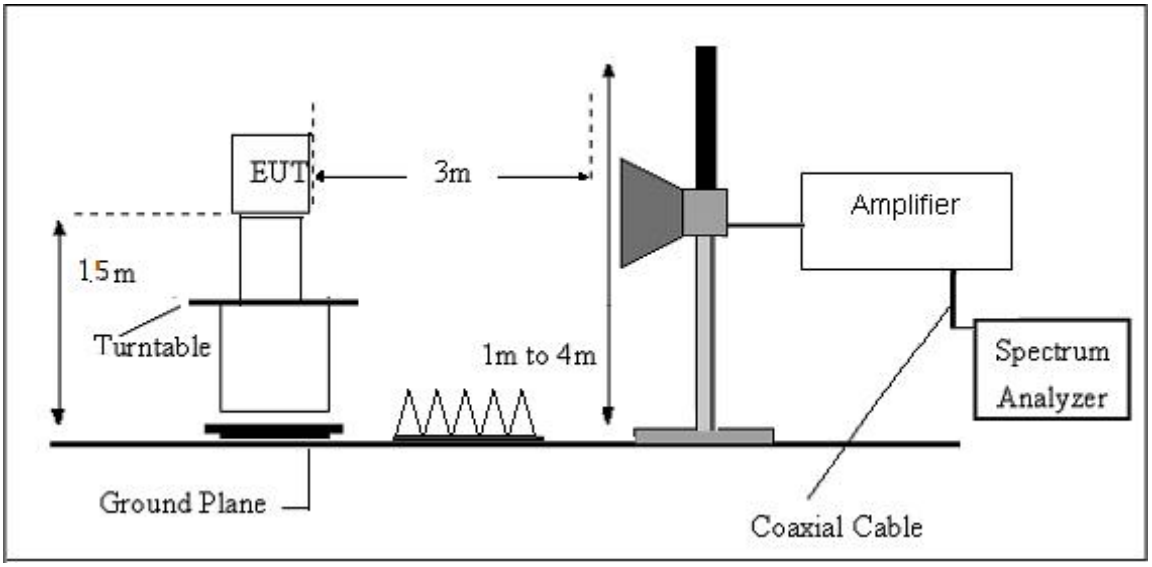
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



9.4. TEST RESULTS

(9KHz-30MHz)

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

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(1GHz~40GHz) Restricted band and Spurious emission Requirements

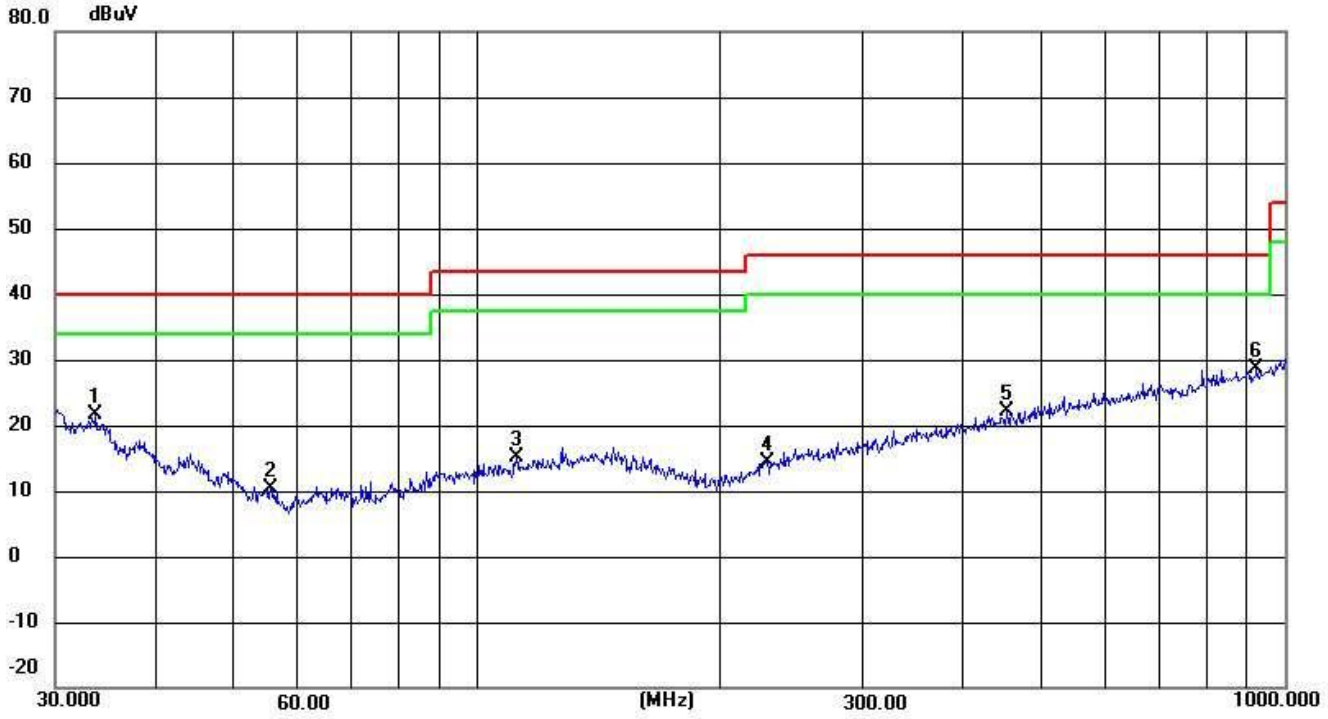
Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11a U-NII-1 Low Channel 5180MHz									
4500.37	49.00	PK	108	1.8	H	-2.03	46.97	74.00	-27.03
4500.37	45.66	Ave	108	1.8	H	-2.03	43.63	54.00	-10.37
10360.00	41.87	PK	378	1.3	H	5.33	47.20	68.20	-26.80
10360.00	36.00	Ave	378	1.3	H	5.33	41.33	54.00	-12.67
802.11a U-NII-1 Middle channel 5200MHz									
4531.52	50.05	PK	233	1.8	H	-1.94	48.11	74.00	-25.89
4531.52	44.98	Ave	233	1.8	H	-1.94	43.04	54.00	-10.96
10400.00	42.05	PK	154	1.6	H	5.21	47.26	68.20	-26.74
10400.00	36.17	Ave	154	1.6	H	5.21	41.38	54.00	-12.62
802.11a U-NII-1 High channel 5240MHz									
4502.74	49.98	PK	302	1.7	H	-2.24	47.74	74.00	-26.26
4502.74	43.84	Ave	302	1.7	H	-2.24	41.60	54.00	-12.40
10480.00	42.03	PK	174	1.4	H	5.14	47.17	68.20	-26.83
10480.00	35.42	Ave	174	1.4	H	5.14	40.56	54.00	-13.44

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11a U-NII-3 Low Channel 5745MHz									
4502.36	49.22	PK	119	1.3	H	-2.06	47.16	74.00	-26.84
4502.36	44.02	Ave	119	1.3	H	-2.06	41.96	54.00	-12.04
11490.00	43.05	PK	356	1.5	H	5.93	48.98	74.00	-25.02
11490.00	37.22	Ave	356	1.5	H	5.93	43.15	54.00	-10.85
802.11a U-NII-3 Middle channel 5785MHz									
4504.45	49.64	PK	309	1.1	H	-2.03	47.61	74.00	-26.39
4504.45	44.19	Ave	309	1.1	H	-2.03	42.16	54.00	-11.84
11570.00	42.39	PK	78	1.2	H	5.81	48.20	74.00	-25.80
11570.00	37.03	Ave	78	1.2	H	5.81	42.84	54.00	-11.16
802.11a U-NII-3 High channel 5825MHz									
4508.33	49.90	PK	14	1.2	H	-1.84	48.06	74.00	-25.94
4508.33	45.26	Ave	14	1.2	H	-1.84	43.42	54.00	-10.58
11650.00	40.65	PK	159	1.5	H	5.84	46.49	74.00	-27.51
11650.00	36.39	Ave	159	1.5	H	5.84	42.23	54.00	-11.77

Note:
all other emissions are attenuated 20dB below the limits, so it does not reported in the report

(30MHz-1000MHz)

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	33.6802	31.28	-9.65	21.63	40.00	-18.37	QP
2	55.4147	30.26	-19.80	10.46	40.00	-29.54	QP
3	111.7380	47.30	-32.18	15.12	43.50	-28.38	QP
4	228.4904	46.49	-32.01	14.48	46.00	-31.52	QP
5	452.7197	53.68	-31.44	22.24	46.00	-23.76	QP
6	922.5157	59.27	-30.68	28.59	46.00	-17.41	QP

Remark:

1. Margin = Result (Result =Reading + Factor)–Limit