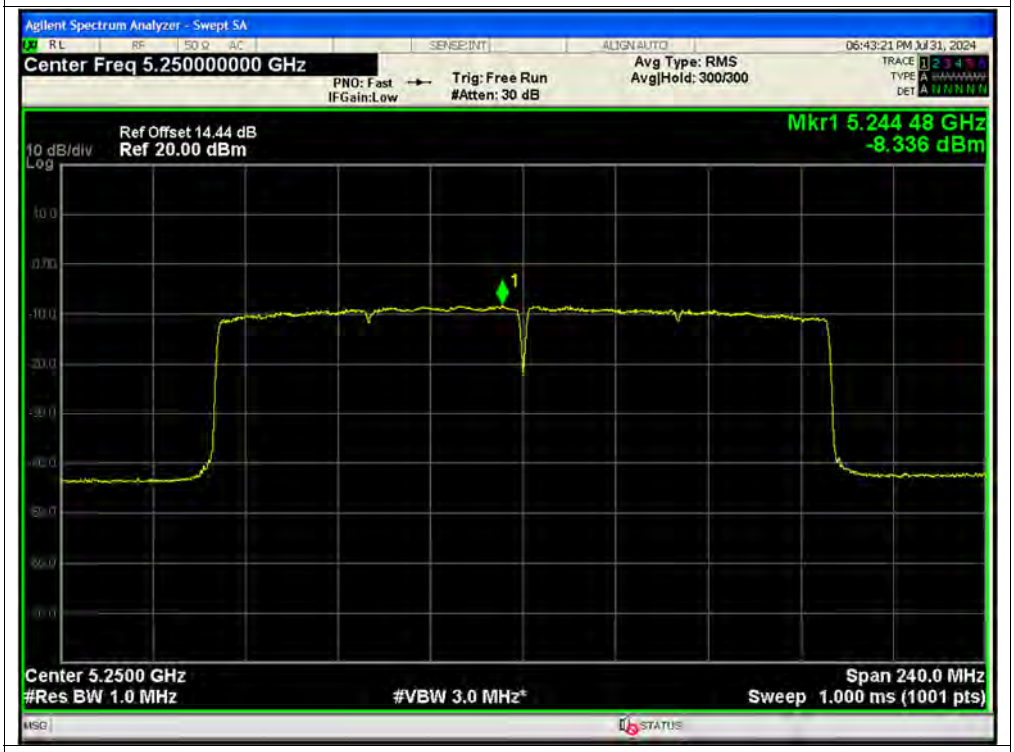
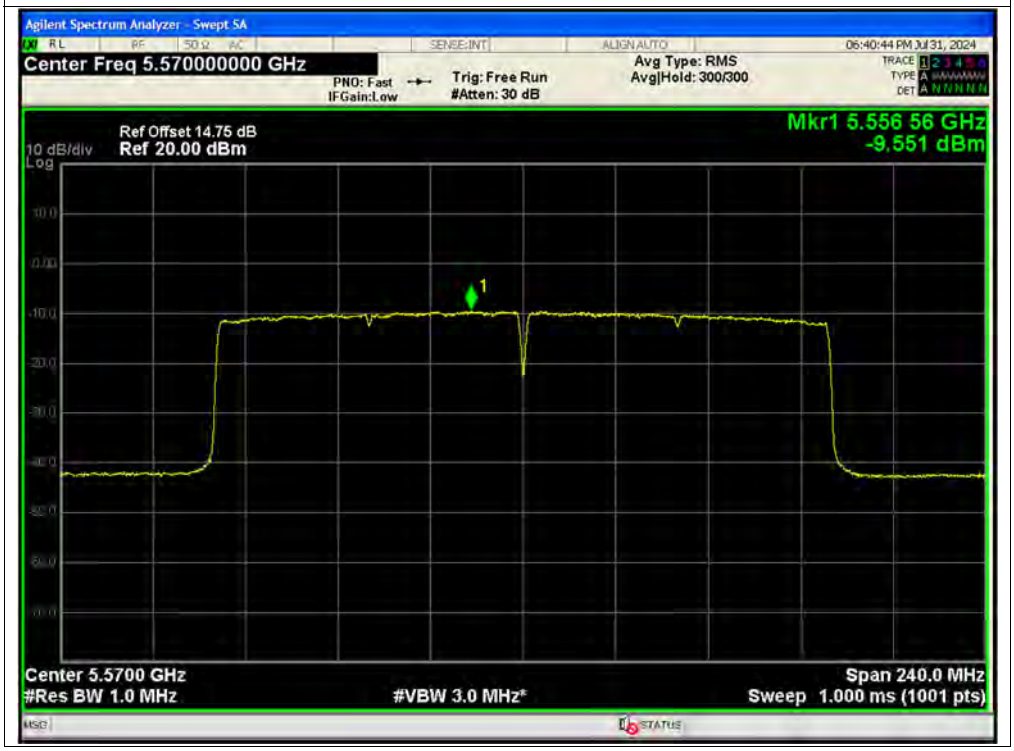
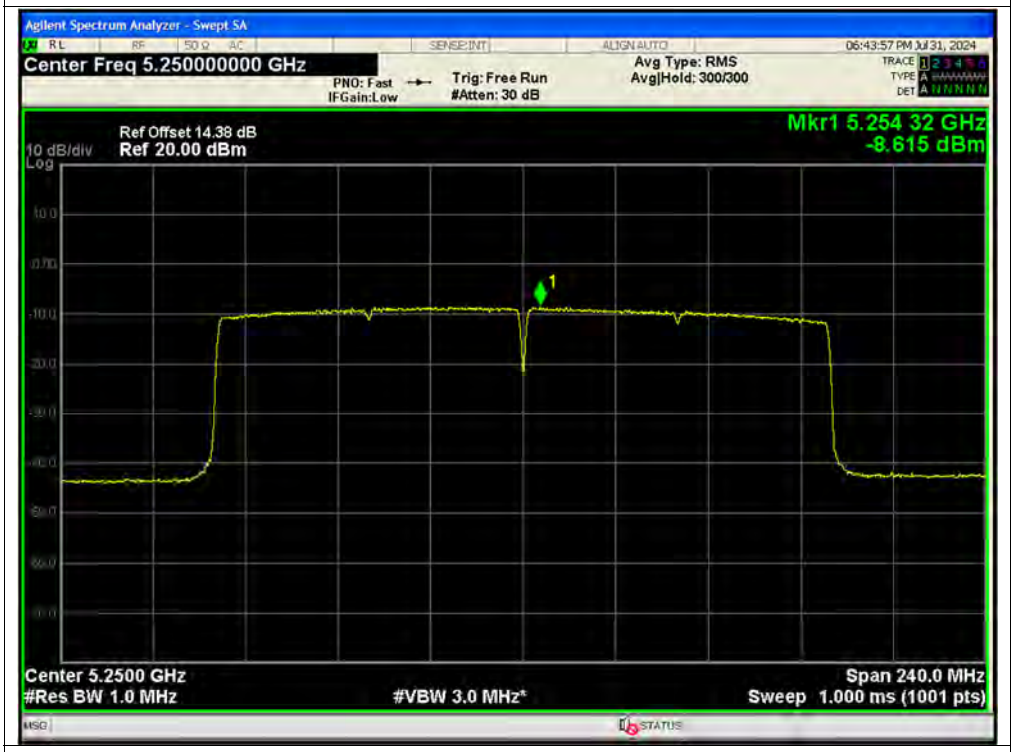
PSD NVNT ax160 5250MHz Ant1 SISO



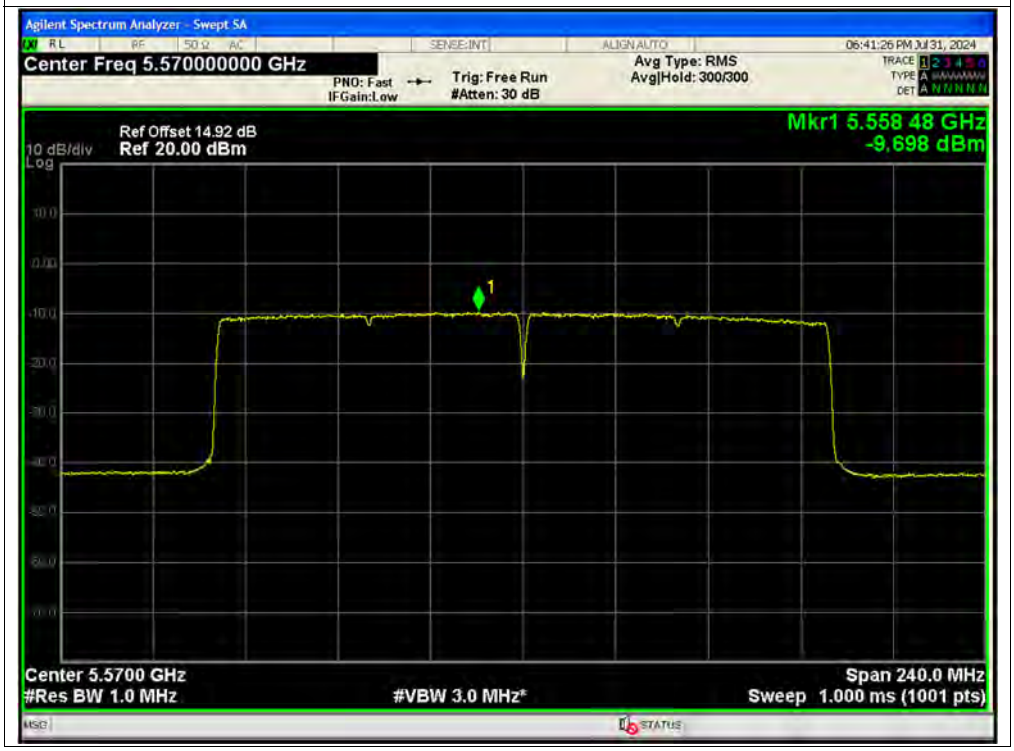
PSD NVNT ax160 5570MHz Ant1 SISO



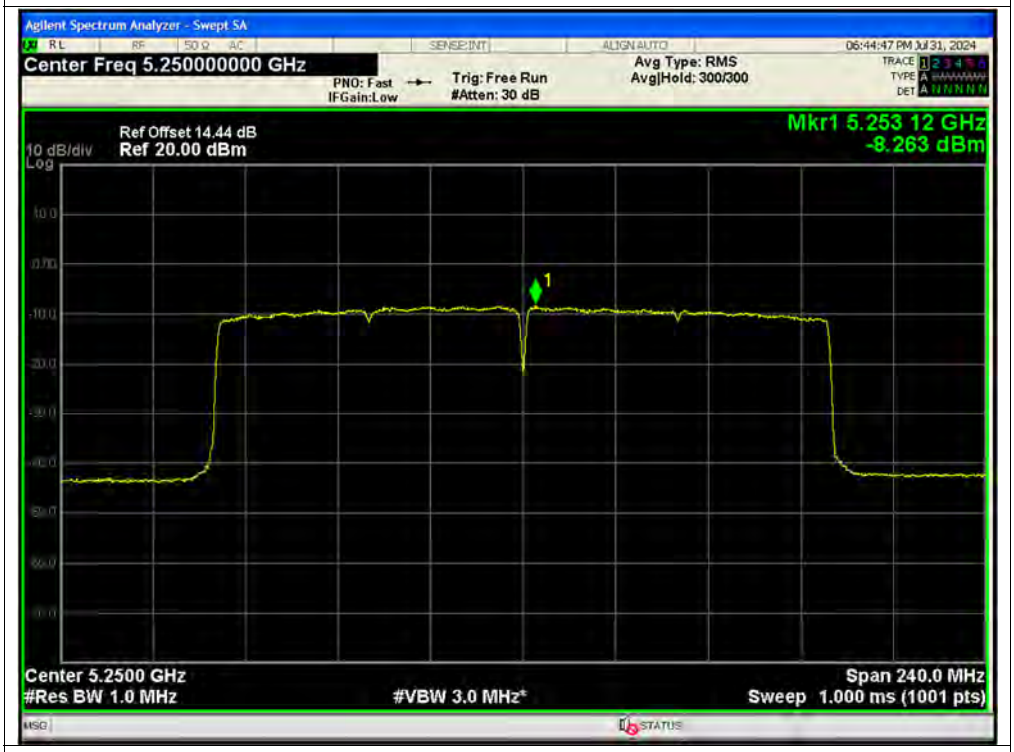
PSD NVNT ax160 5250MHz Ant2 SISO



PSD NVNT ax160 5570MHz Ant2 SISO

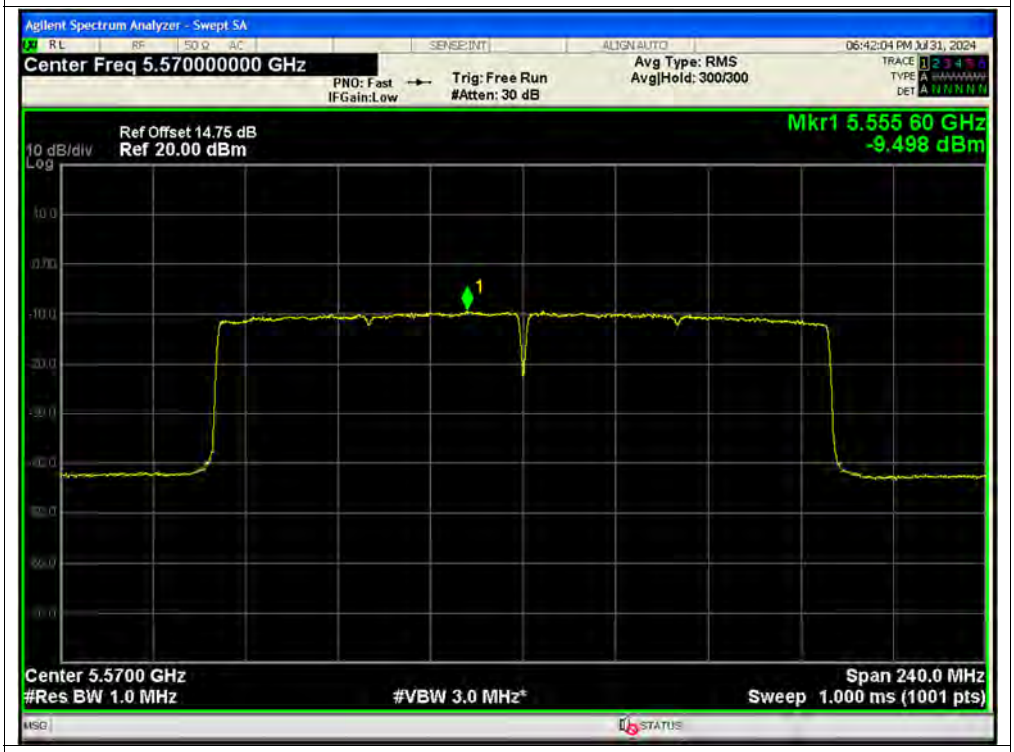


PSD NVNT ax160 5250MHz Ant1 MIMO

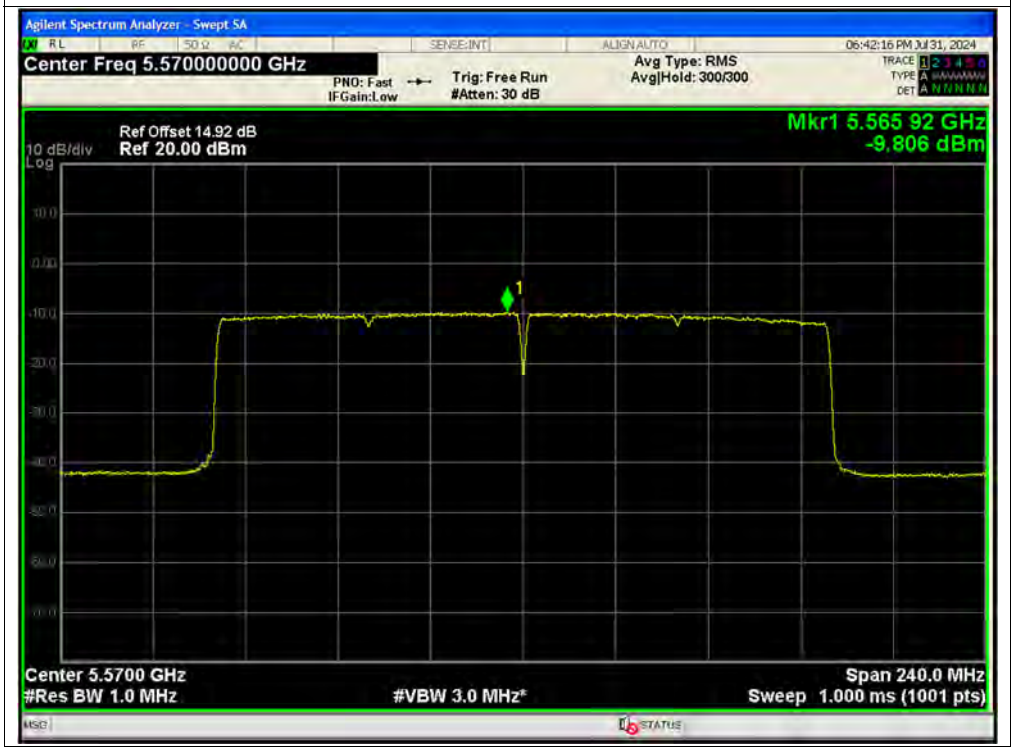


PSD NVNT ax160 5250MHz Ant2 MIMO

PSD NVNT ax160 5570MHz Ant1 MIMO



PSD NVNT ax160 5570MHz Ant2 MIMO



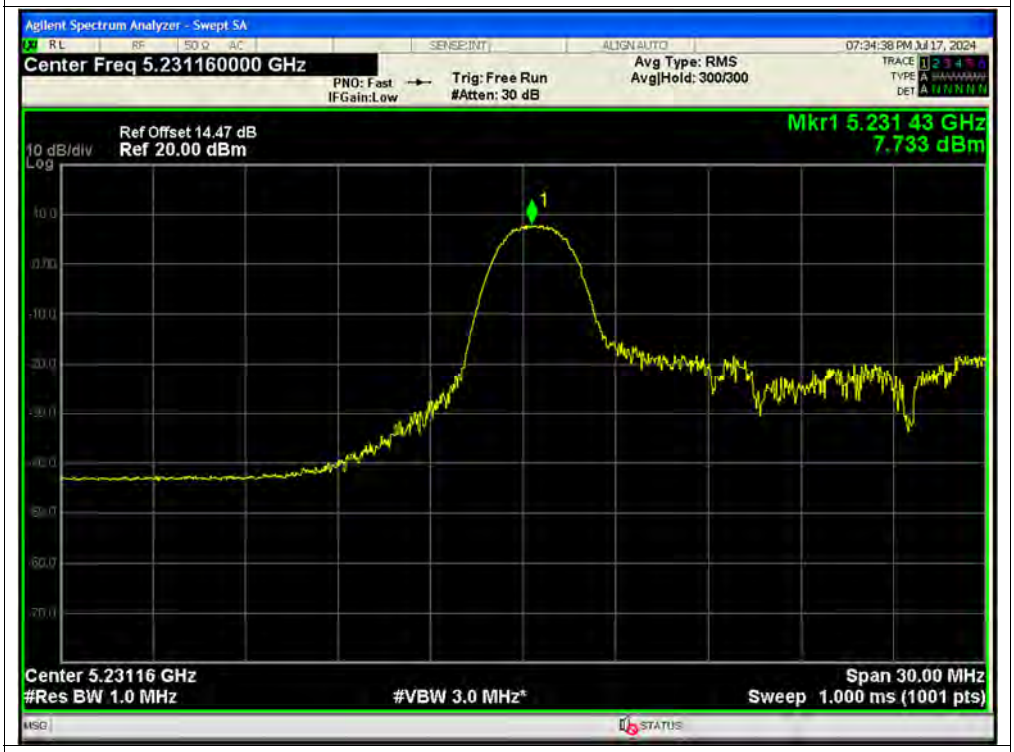
Test Graphs
PSD NVNT ax20 26@0 5180MHz Ant1

PSD NVNT ax20 26@0 5180MHz Ant2

PSD NVNT ax20 26@0 5220MHz Ant1

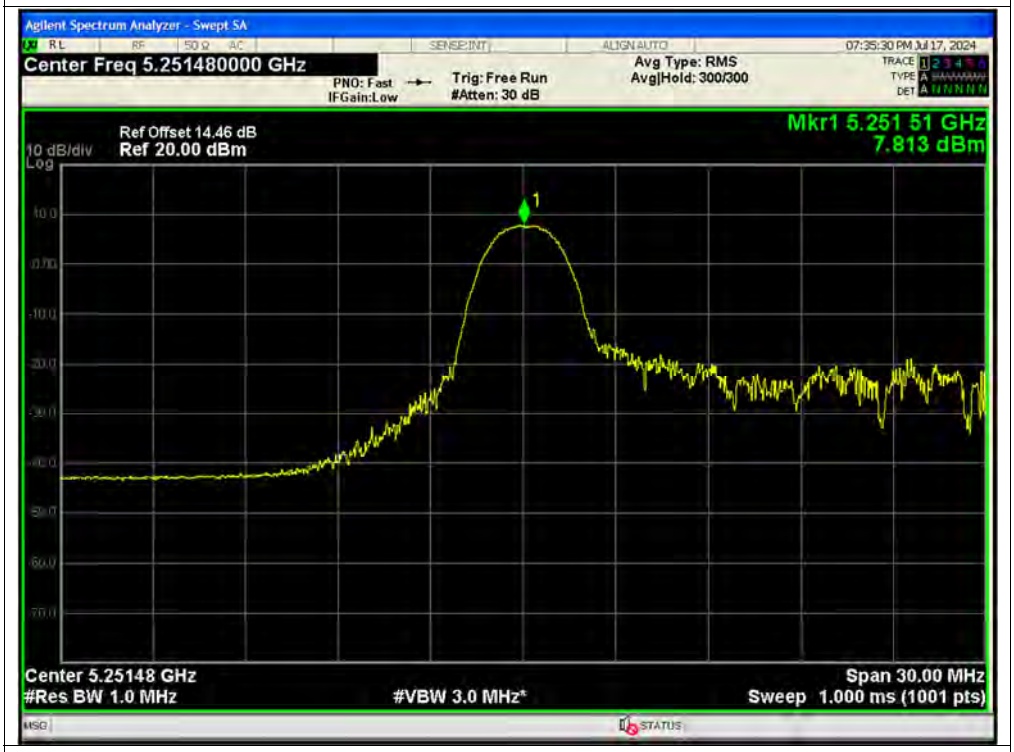
PSD NVNT ax20 26@0 5220MHz Ant2

PSD NVNT ax20 26@0 5240MHz Ant1



PSD NVNT ax20 26@0 5240MHz Ant2

PSD NVNT ax20 26@0 5260MHz Ant1



PSD NVNT ax20 26@0 5260MHz Ant2

PSD NVNT ax20 26@0 5300MHz Ant1

PSD NVNT ax20 26@0 5300MHz Ant2

PSD NVNT ax20 26@0 5320MHz Ant1

PSD NVNT ax20 26@0 5320MHz Ant2

PSD NVNT ax20 26@0 5500MHz Ant1

PSD NVNT ax20 26@0 5500MHz Ant2

PSD NVNT ax20 26@0 5600MHz Ant1

PSD NVNT ax20 26@0 5600MHz Ant2

PSD NVNT ax20 26@0 5720MHz Ant1

PSD NVNT ax20 26@0 5720MHz Ant2

PSD NVNT ax20 26@0 5745MHz Ant1

PSD NVNT ax20 26@0 5745MHz Ant2

PSD NVNT ax20 26@0 5785MHz Ant1

PSD NVNT ax20 26@0 5785MHz Ant2

PSD NVNT ax20 26@0 5825MHz Ant1

PSD NVNT ax20 26@0 5825MHz Ant2

PSD NVNT ax20 52@37 5180MHz Ant1

PSD NVNT ax20 52@37 5180MHz Ant2

PSD NVNT ax20 52@37 5220MHz Ant1

PSD NVNT ax20 52@37 5220MHz Ant2

PSD NVNT ax20 52@37 5240MHz Ant1

PSD NVNT ax20 52@37 5240MHz Ant2

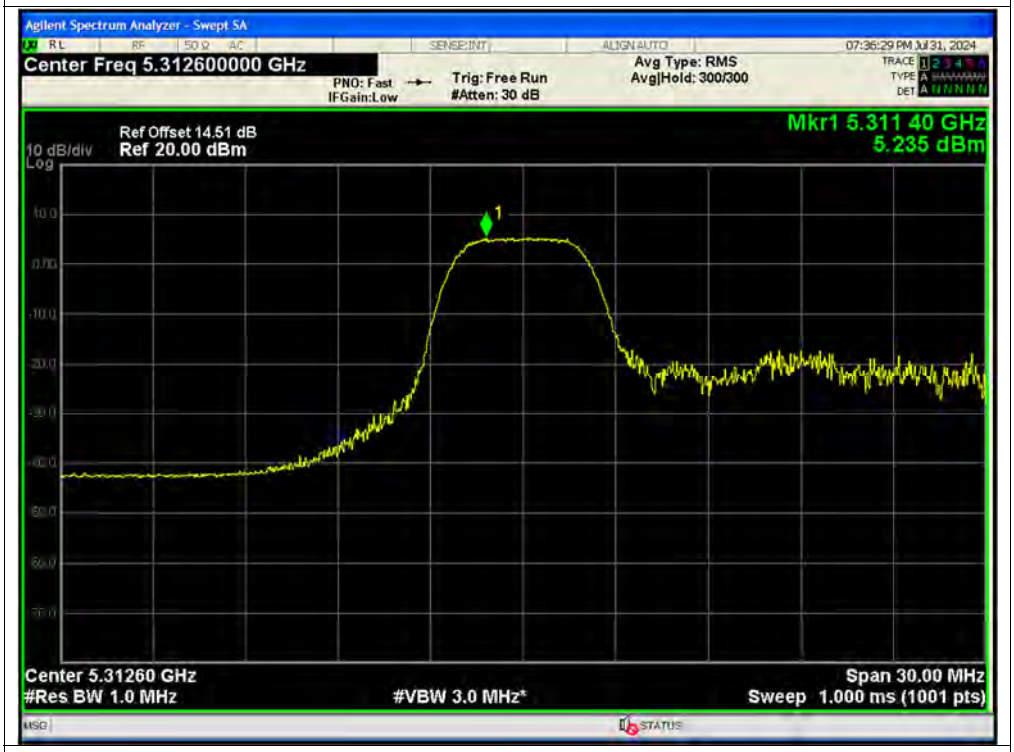
PSD NVNT ax20 52@37 5260MHz Ant1

PSD NVNT ax20 52@37 5260MHz Ant2

PSD NVNT ax20 52@37 5300MHz Ant1

PSD NVNT ax20 52@37 5300MHz Ant2

PSD NVNT ax20 52@37 5320MHz Ant1



PSD NVNT ax20 52@37 5320MHz Ant2

PSD NVNT ax20 52@37 5500MHz Ant1

PSD NVNT ax20 52@37 5500MHz Ant2

PSD NVNT ax20 52@37 5600MHz Ant1

PSD NVNT ax20 52@37 5600MHz Ant2

PSD NVNT ax20 52@37 5720MHz Ant1

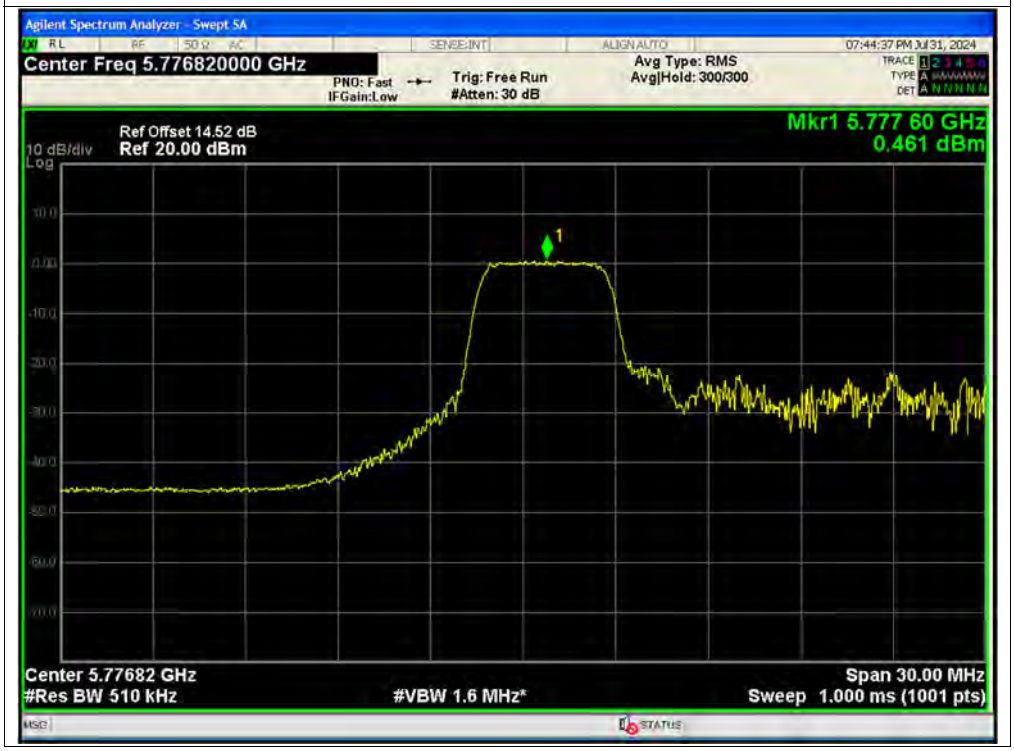
PSD NVNT ax20 52@37 5720MHz Ant2

PSD NVNT ax20 52@37 5745MHz Ant1

PSD NVNT ax20 52@37 5745MHz Ant2

PSD NVNT ax20 52@37 5785MHz Ant1

PSD NVNT ax20 52@37 5785MHz Ant2



PSD NVNT ax20 52@37 5825MHz Ant1

PSD NVNT ax20 52@37 5825MHz Ant2

PSD NVNT ax20 106@53 5180MHz Ant1

PSD NVNT ax20 106@53 5180MHz Ant2

PSD NVNT ax20 106@53 5220MHz Ant1

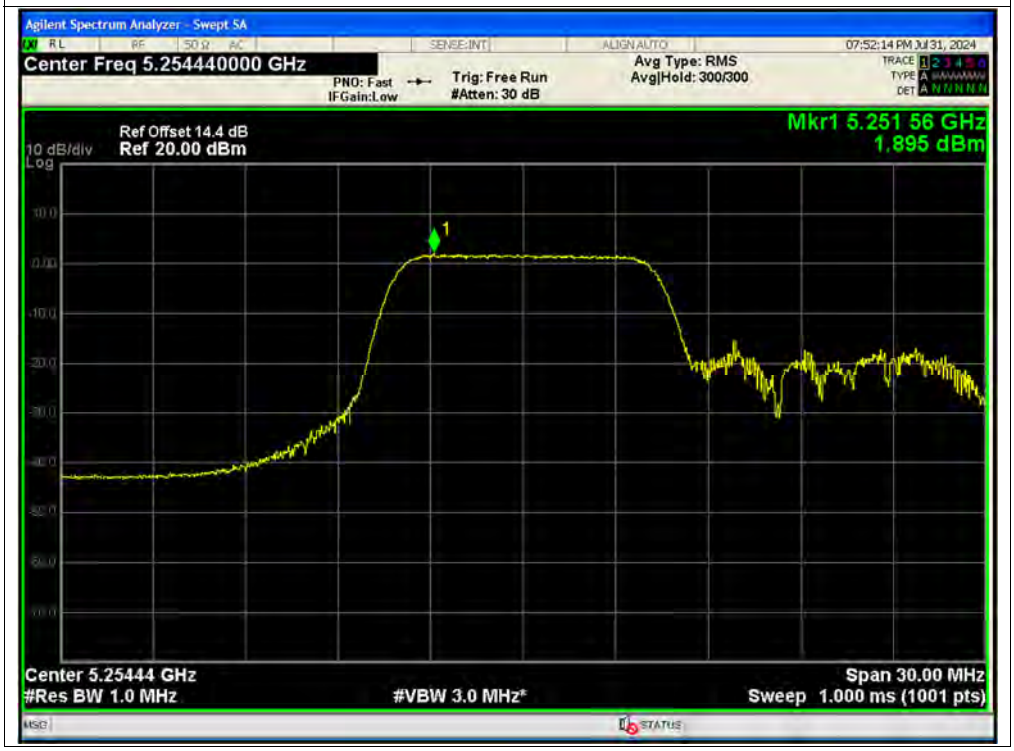
PSD NVNT ax20 106@53 5220MHz Ant2

PSD NVNT ax20 106@53 5240MHz Ant1

PSD NVNT ax20 106@53 5240MHz Ant2

PSD NVNT ax20 106@53 5260MHz Ant1

PSD NVNT ax20 106@53 5260MHz Ant2



PSD NVNT ax20 106@53 5300MHz Ant1

PSD NVNT ax20 106@53 5300MHz Ant2

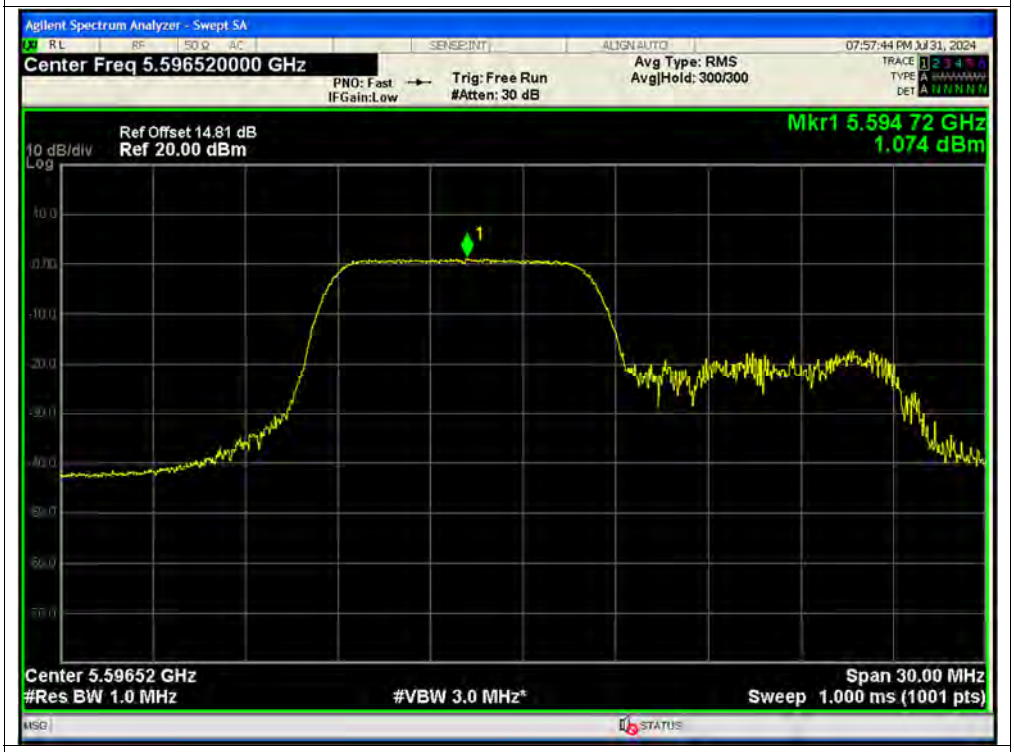
PSD NVNT ax20 106@53 5320MHz Ant1

PSD NVNT ax20 106@53 5320MHz Ant2

PSD NVNT ax20 106@53 5500MHz Ant1

PSD NVNT ax20 106@53 5500MHz Ant2

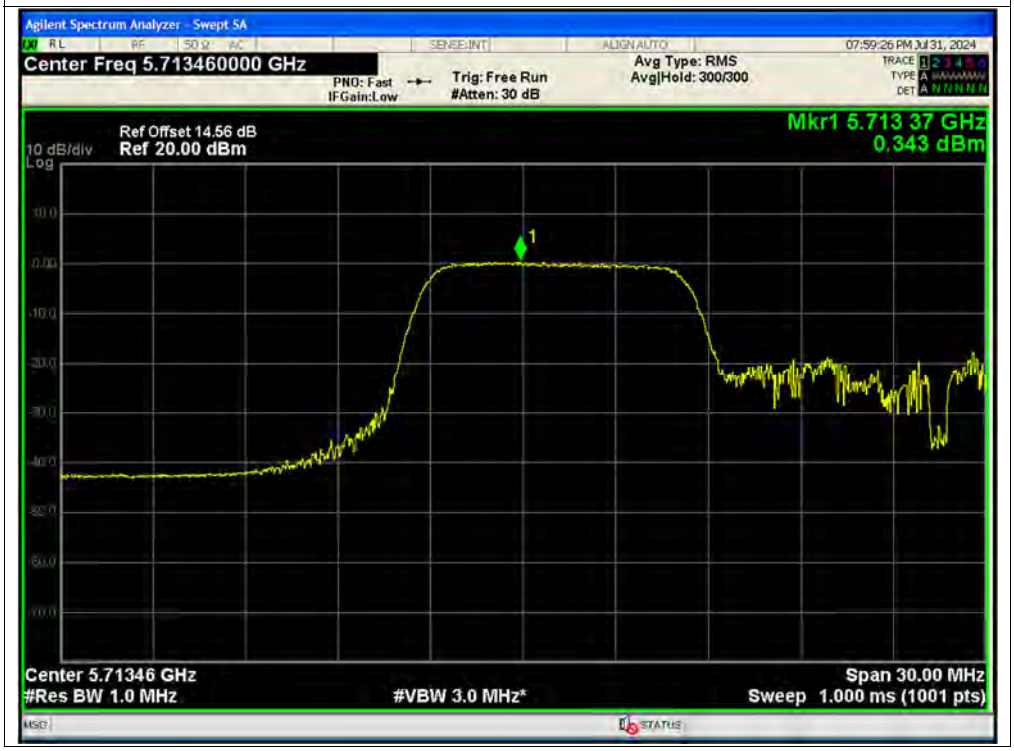
PSD NVNT ax20 106@53 5600MHz Ant1



PSD NVNT ax20 106@53 5600MHz Ant2

PSD NVNT ax20 106@53 5720MHz Ant1

PSD NVNT ax20 106@53 5720MHz Ant2



PSD NVNT ax20 106@53 5745MHz Ant1

PSD NVNT ax20 106@53 5745MHz Ant2

PSD NVNT ax20 106@53 5785MHz Ant1

PSD NVNT ax20 106@53 5785MHz Ant2

PSD NVNT ax20 106@53 5825MHz Ant1

PSD NVNT ax20 106@53 5825MHz Ant2

PSD NVNT ax40 26@0 5190MHz Ant1

PSD NVNT ax40 26@0 5190MHz Ant2

PSD NVNT ax40 26@0 5230MHz Ant1

PSD NVNT ax40 26@0 5230MHz Ant2

PSD NVNT ax40 26@0 5270MHz Ant1

PSD NVNT ax40 26@0 5270MHz Ant2

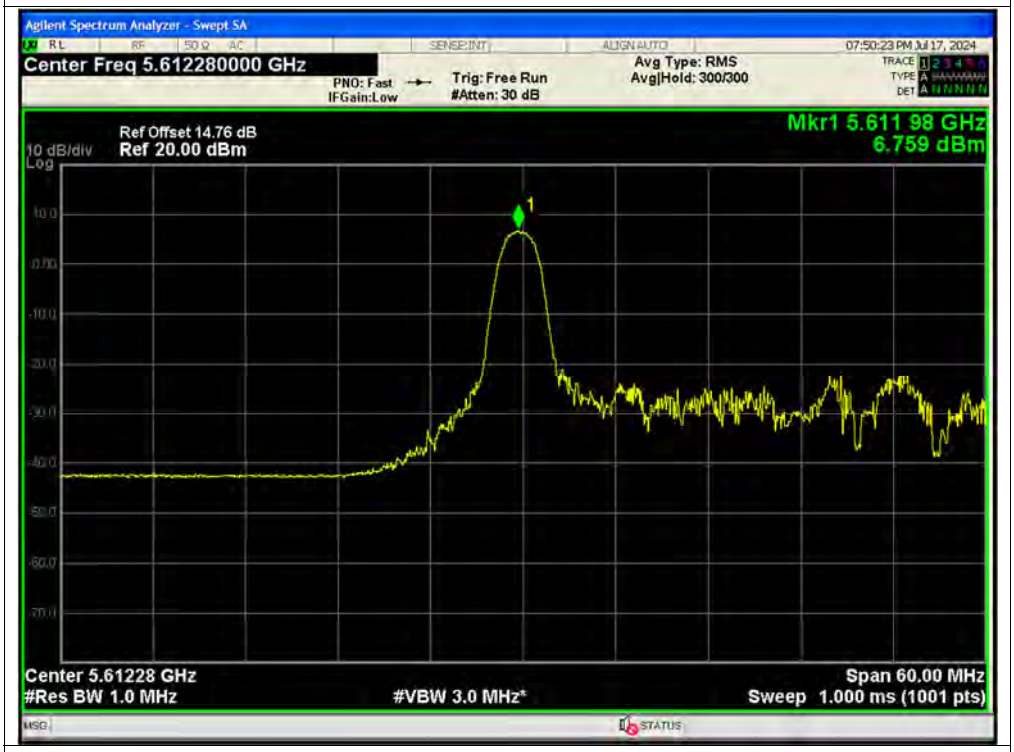
PSD NVNT ax40 26@0 5310MHz Ant1

PSD NVNT ax40 26@0 5310MHz Ant2

PSD NVNT ax40 26@0 5510MHz Ant1

PSD NVNT ax40 26@0 5510MHz Ant2

PSD NVNT ax40 26@0 5630MHz Ant1



PSD NVNT ax40 26@0 5630MHz Ant2

PSD NVNT ax40 26@0 5710MHz Ant1

PSD NVNT ax40 26@0 5710MHz Ant2

PSD NVNT ax40 52@37 5190MHz Ant1

PSD NVNT ax40 52@37 5190MHz Ant2

PSD NVNT ax40 106@53 5190MHz Ant1

PSD NVNT ax40 106@53 5190MHz Ant2

PSD NVNT ax40 242@61 5190MHz Ant1

PSD NVNT ax40 242@61 5190MHz Ant2

PSD NVNT ax80 26@0 5210MHz Ant1

PSD NVNT ax80 26@0 5210MHz Ant2

PSD NVNT ax80 26@0 5290MHz Ant1

PSD NVNT ax80 26@0 5290MHz Ant2

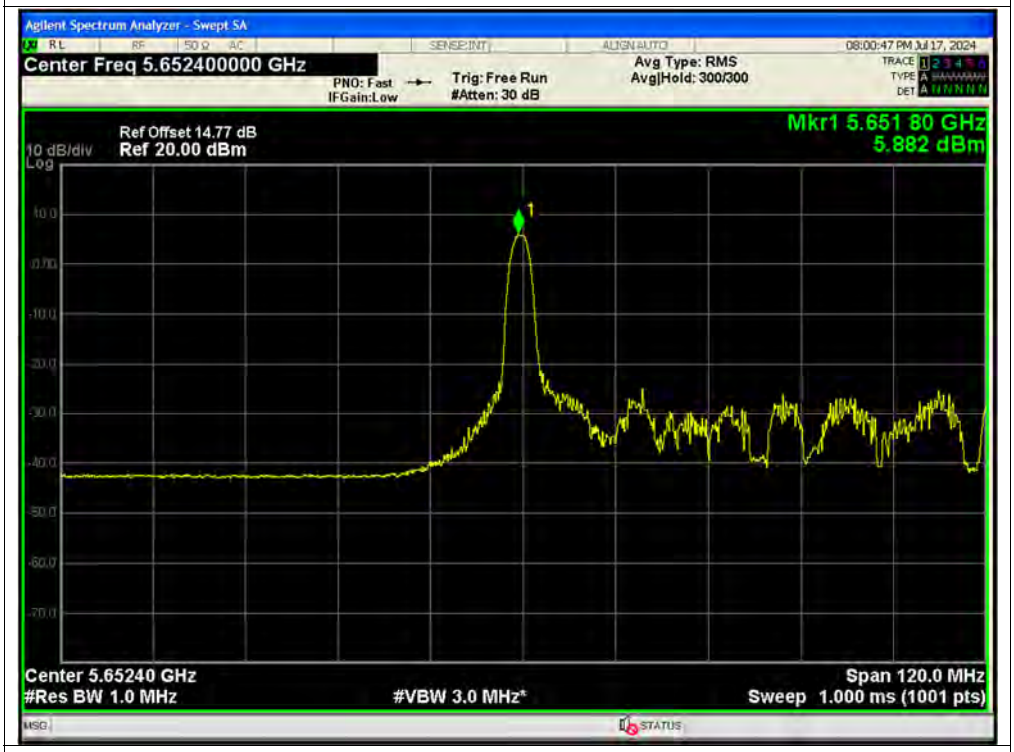
PSD NVNT ax80 26@0 5530MHz Ant1

PSD NVNT ax80 26@0 5530MHz Ant2

PSD NVNT ax80 26@0 5610MHz Ant1

PSD NVNT ax80 26@0 5610MHz Ant2

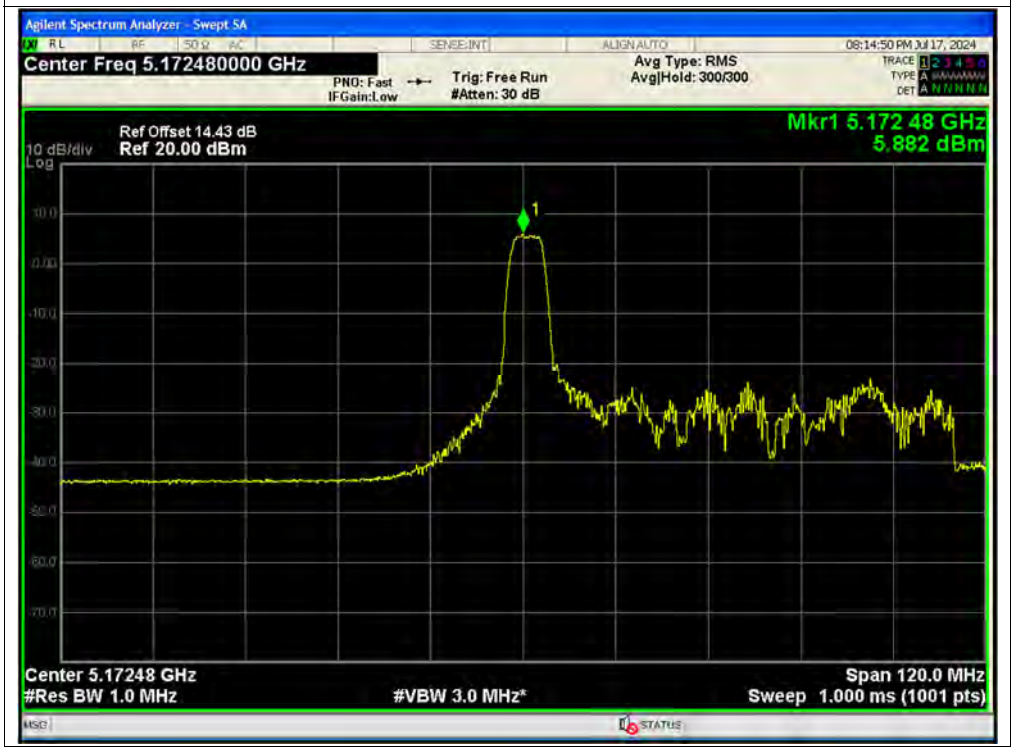
PSD NVNT ax80 26@0 5690MHz Ant1



PSD NVNT ax80 26@0 5690MHz Ant2

PSD NVNT ax80 52@37 5210MHz Ant1

PSD NVNT ax80 52@37 5210MHz Ant2



PSD NVNT ax80 106@53 5210MHz Ant1

PSD NVNT ax80 106@53 5210MHz Ant2

PSD NVNT ax80 242@61 5210MHz Ant1

PSD NVNT ax80 242@61 5210MHz Ant2

PSD NVNT ax80 484@65 5210MHz Ant1

PSD NVNT ax80 484@65 5210MHz Ant2

PSD NVNT ax160 26@0 5250MHz Ant1

PSD NVNT ax160 26@0 5250MHz Ant2

PSD NVNT ax160 26@0 5570MHz Ant1

PSD NVNT ax160 26@0 5570MHz Ant2

PSD NVNT ax160 52@74 5250MHz Ant1

PSD NVNT ax160 52@74 5250MHz Ant2

PSD NVNT ax160 52@74 5570MHz Ant1

PSD NVNT ax160 52@74 5570MHz Ant2

PSD NVNT ax160 106@106 5250MHz Ant1

PSD NVNT ax160 106@106 5250MHz Ant2

PSD NVNT ax160 106@106 5570MHz Ant1

PSD NVNT ax160 106@106 5570MHz Ant2

PSD NVNT ax160 242@122 5250MHz Ant1

PSD NVNT ax160 242@122 5250MHz Ant2

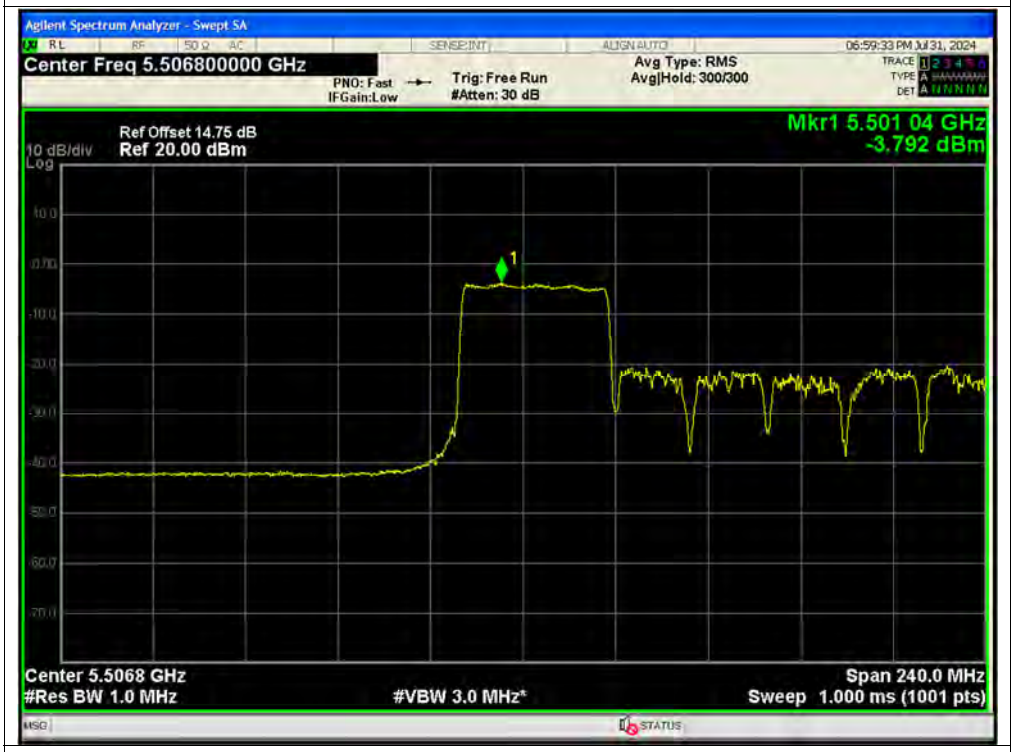
PSD NVNT ax160 242@122 5570MHz Ant1

PSD NVNT ax160 242@122 5570MHz Ant2

PSD NVNT ax160 484@130 5250MHz Ant1

PSD NVNT ax160 484@130 5250MHz Ant2

PSD NVNT ax160 484@130 5570MHz Ant1



PSD NVNT ax160 484@130 5570MHz Ant2

PSD NVNT ax160 966@134 5250MHz Ant1

PSD NVNT ax160 966@134 5250MHz Ant2

PSD NVNT ax160 966@134 5570MHz Ant1

PSD NVNT ax160 966@134 5570MHz Ant2

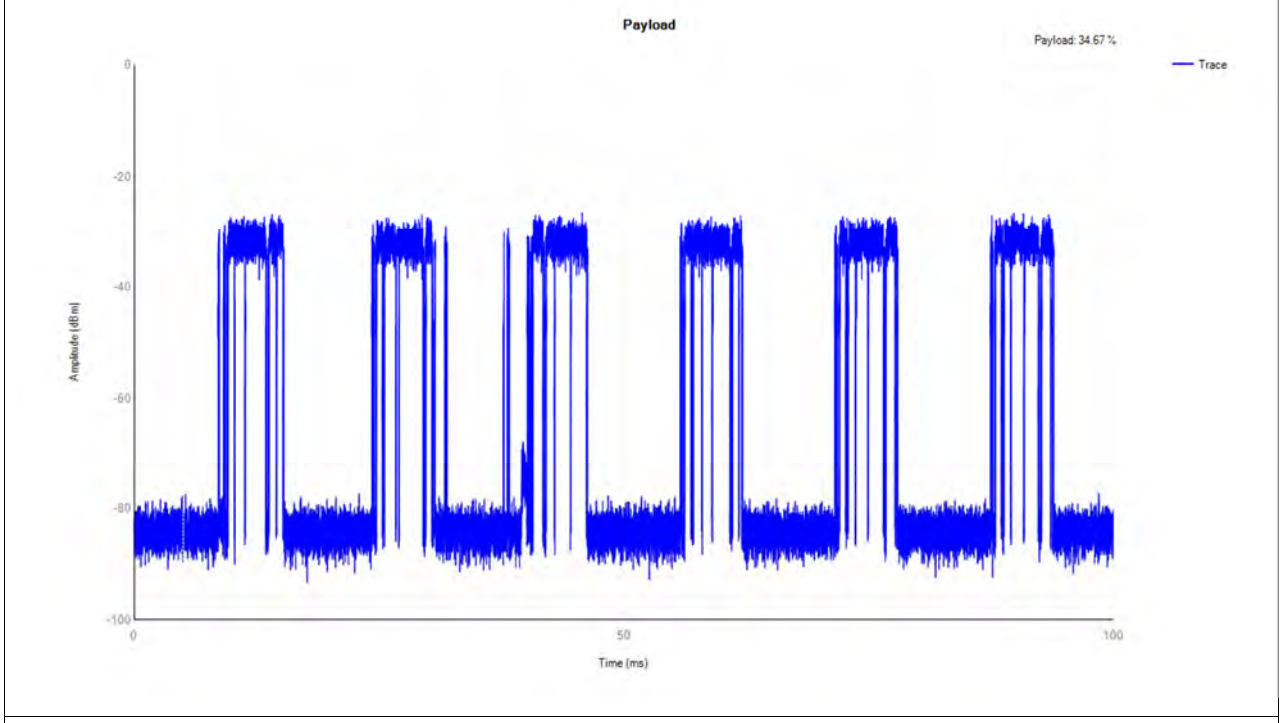
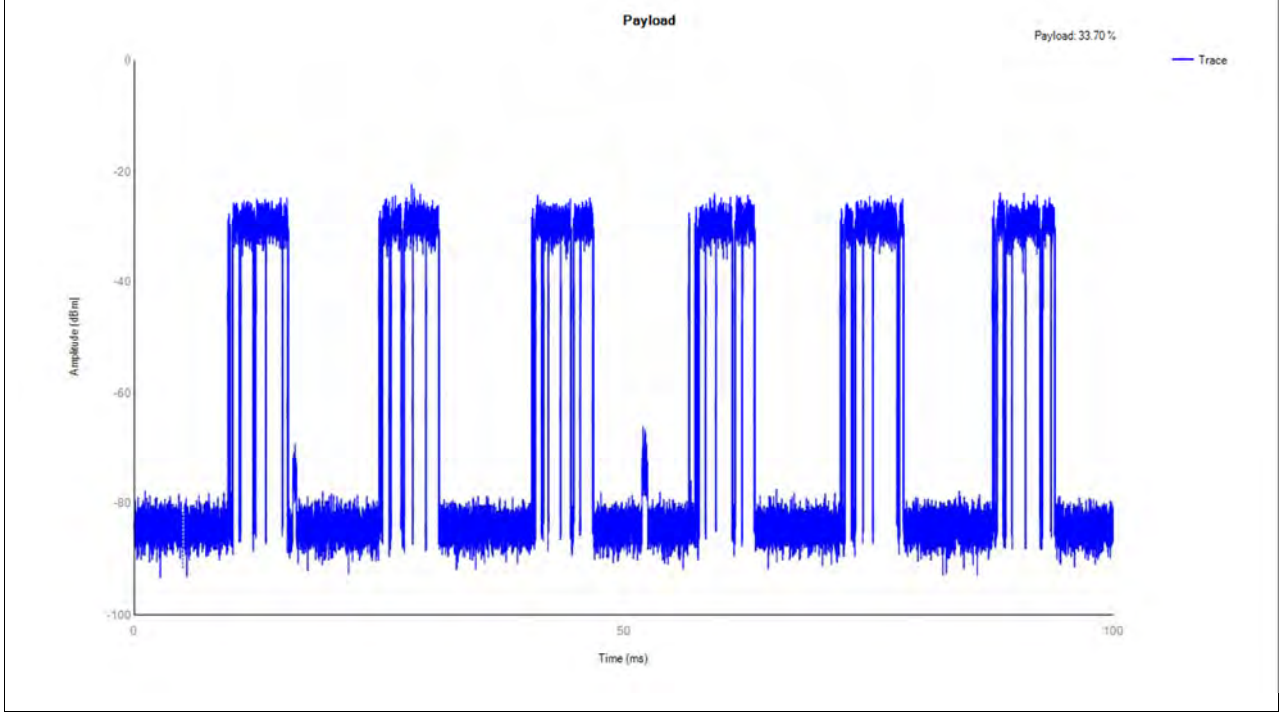
A.5. Frequency Stability

Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
20C 3.3V	Carrier	5180	Ant1	5180.02	20000	3.86	25	Pass
20C 3.85V	Carrier	5180	Ant1	5180	0	0	25	Pass
20C 4.4V	Carrier	5180	Ant1	5180.02	20000	3.86	25	Pass
0C 3.85V	Carrier	5180	Ant1	5180.02	20000	3.86	25	Pass
10C 3.85V	Carrier	5180	Ant1	5179.98	-20000	-3.86	25	Pass
30C 3.85V	Carrier	5180	Ant1	5180.02	20000	3.86	25	Pass
40C 3.85V	Carrier	5180	Ant1	5180	0	0	25	Pass
20C 3.3V	Carrier	5260	Ant1	5260.02	20000	3.8	25	Pass
20C 3.85V	Carrier	5260	Ant1	5260	0	0	25	Pass
20C 4.4V	Carrier	5260	Ant1	5260	0	0	25	Pass
0C 3.85V	Carrier	5260	Ant1	5260	0	0	25	Pass
10C 3.85V	Carrier	5260	Ant1	5260	0	0	25	Pass
30C 3.85V	Carrier	5260	Ant1	5260.02	20000	3.8	25	Pass
40C 3.85V	Carrier	5260	Ant1	5260.02	20000	3.8	25	Pass
20C 3.3V	Carrier	5500	Ant1	5499.98	-20000	-3.64	25	Pass
20C 3.85V	Carrier	5500	Ant1	5500.02	20000	3.64	25	Pass
20C 4.4V	Carrier	5500	Ant1	5500	0	0	25	Pass
0C 3.85V	Carrier	5500	Ant1	5500	0	0	25	Pass
10C 3.85V	Carrier	5500	Ant1	5500.02	20000	3.64	25	Pass
30C 3.85V	Carrier	5500	Ant1	5500.02	20000	3.64	25	Pass
40C 3.85V	Carrier	5500	Ant1	5500.02	20000	3.64	25	Pass
20C 3.3V	Carrier	5745	Ant1	5745	0	0	25	Pass
20C 3.85V	Carrier	5745	Ant1	5745	0	0	25	Pass
20C 4.4V	Carrier	5745	Ant1	5745	0	0	25	Pass
0C 3.85V	Carrier	5745	Ant1	5745	0	0	25	Pass
10C 3.85V	Carrier	5745	Ant1	5745	0	0	25	Pass
30C 3.85V	Carrier	5745	Ant1	5745	0	0	25	Pass
40C 3.85V	Carrier	5745	Ant1	5745	0	0	25	Pass

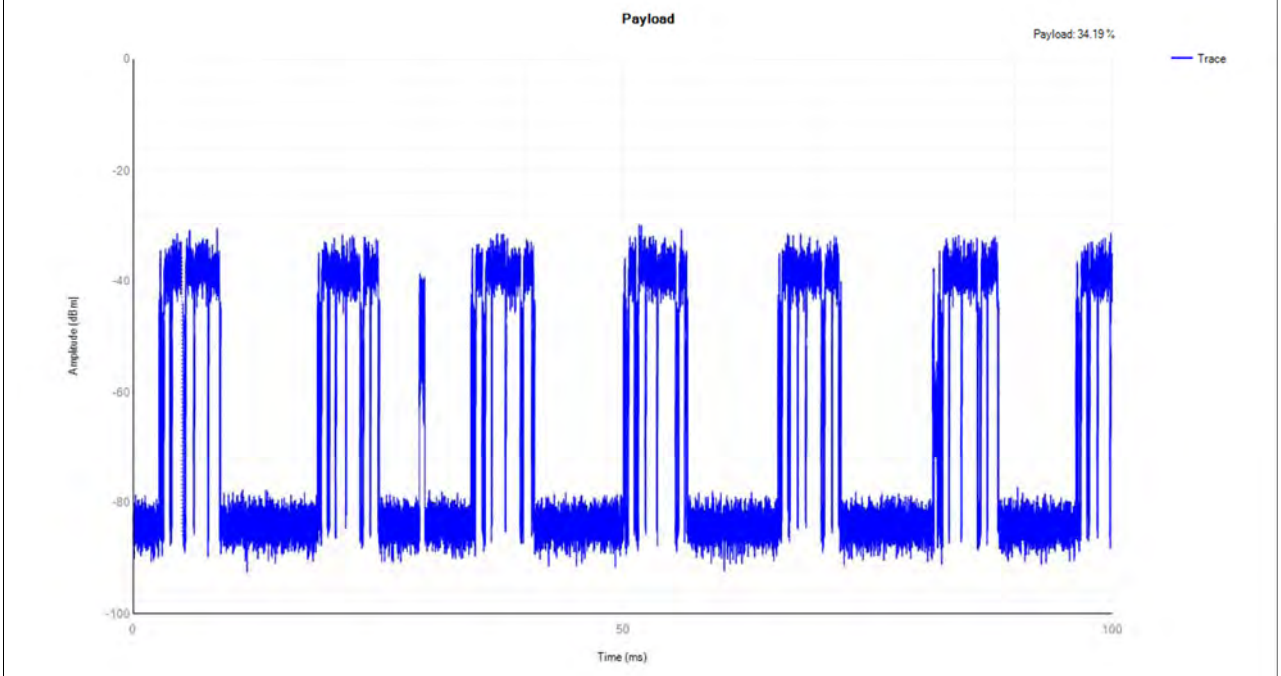
A.6. Dynamic Frequency Selection

Payload

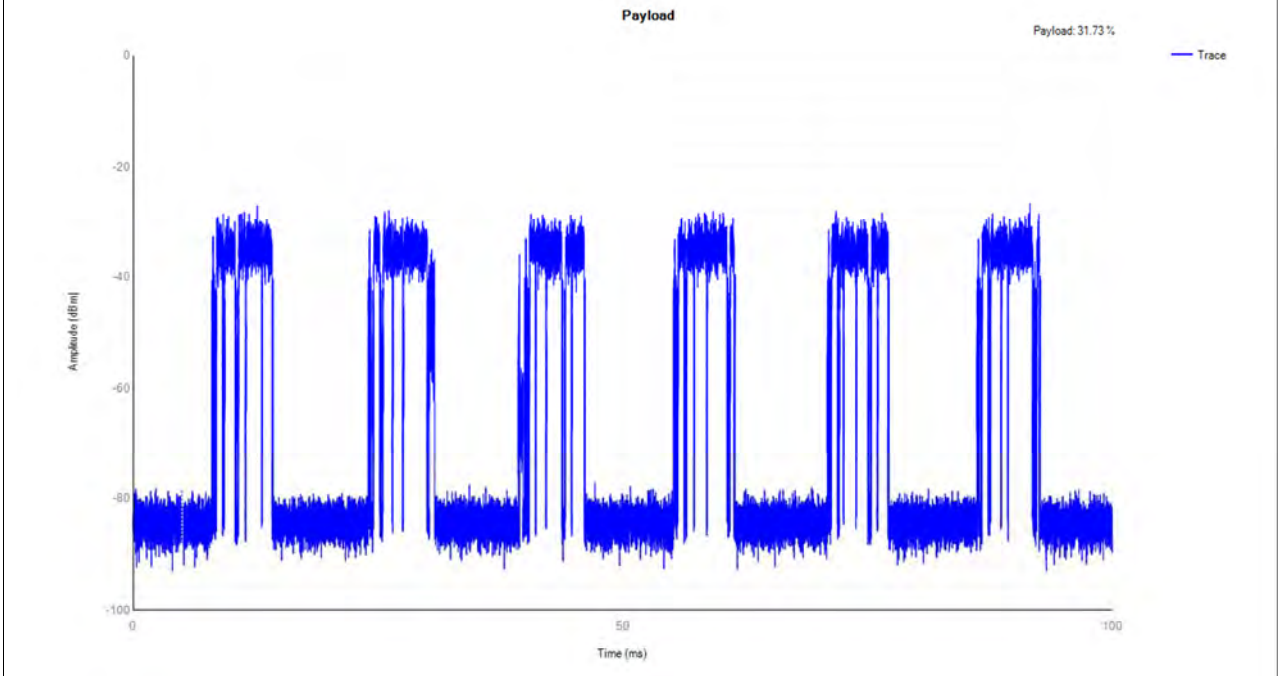
Mode	Frequency (MHz)	Result	Verdict
ax20	5320	34.67	Pass
ax20	5500	33.70	Pass
ax80	5290	34.19	Pass
ax160	5570	31.73	Pass

Test Graphs
ax20 5320MHz Payload

ax20 5500MHz Payload


ax80 5290MHz Payload



ax160 5570MHz Payload



Detection Thresholds

Mode	Frequency (MHz)	Type	Result	Verdict
ax20	5320	DFS_FCC_T0	See test Graph	Pass
ax20	5500	DFS_FCC_T0	See test Graph	Pass
ax80	5290	DFS_FCC_T0	See test Graph	Pass
ax160	5570	DFS_FCC_T0	See test Graph	Pass

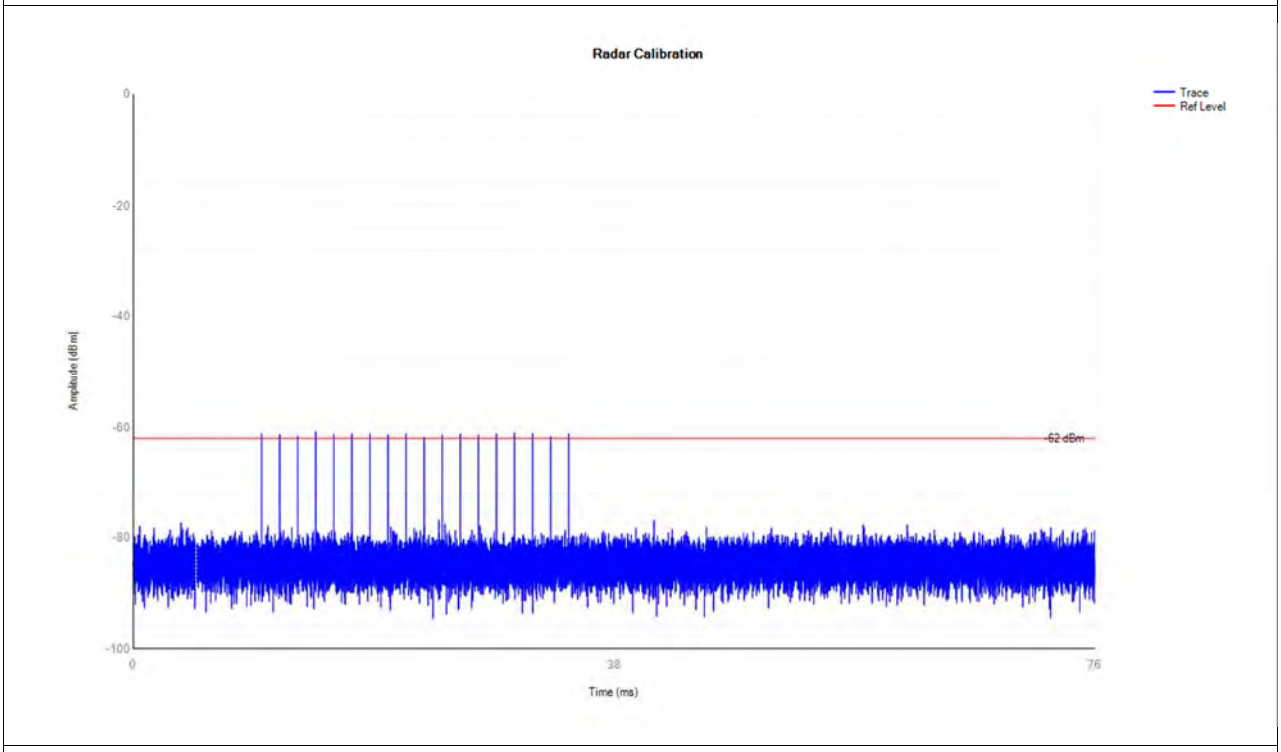
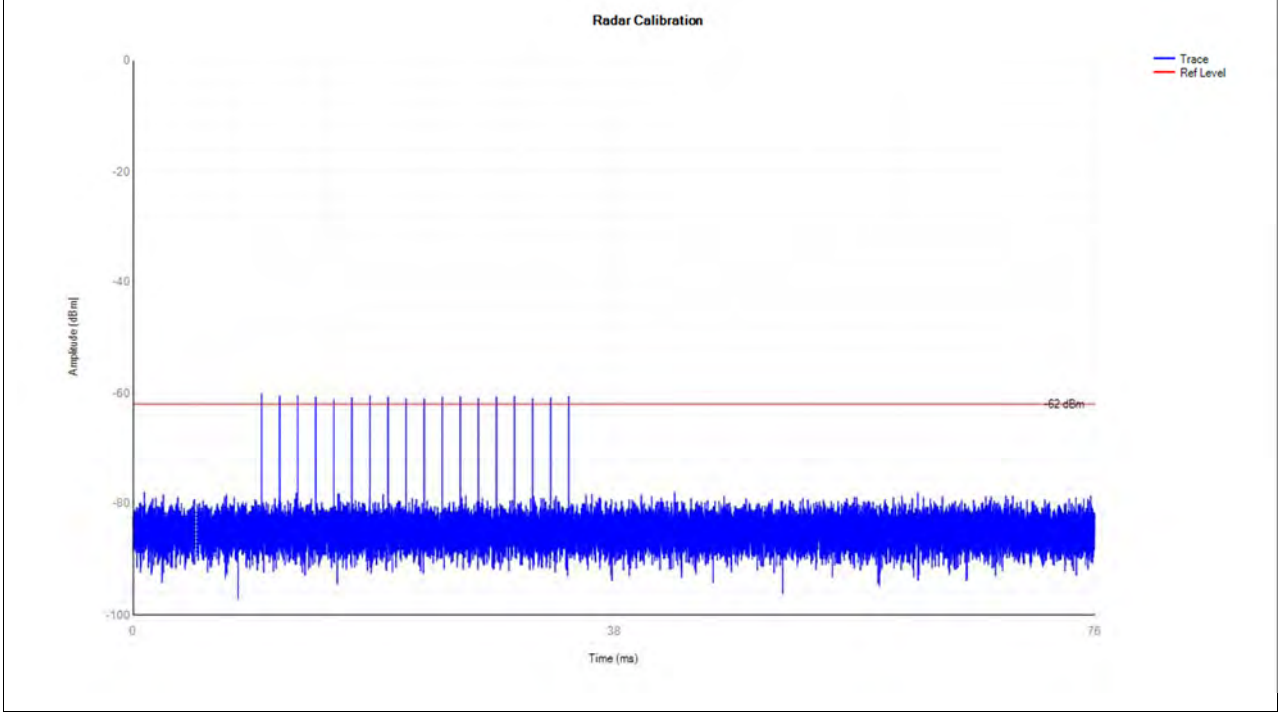
Spectrum analyzer settings:

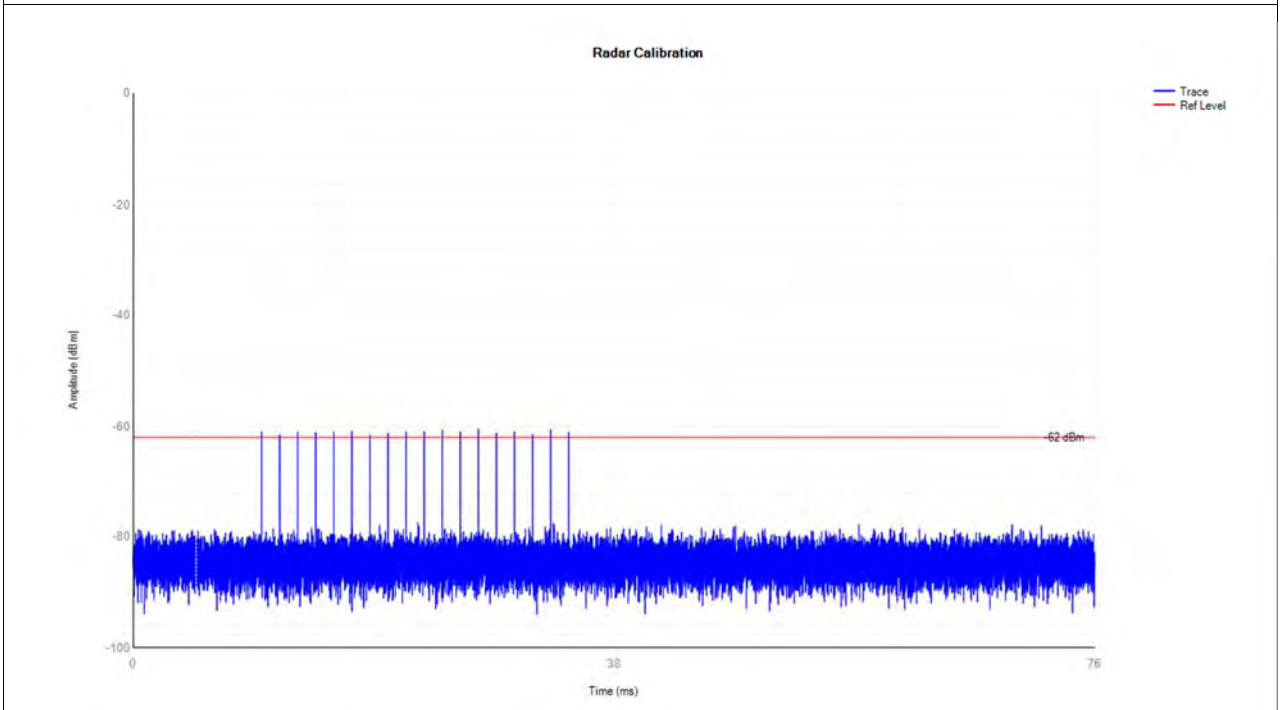
Span: Zero

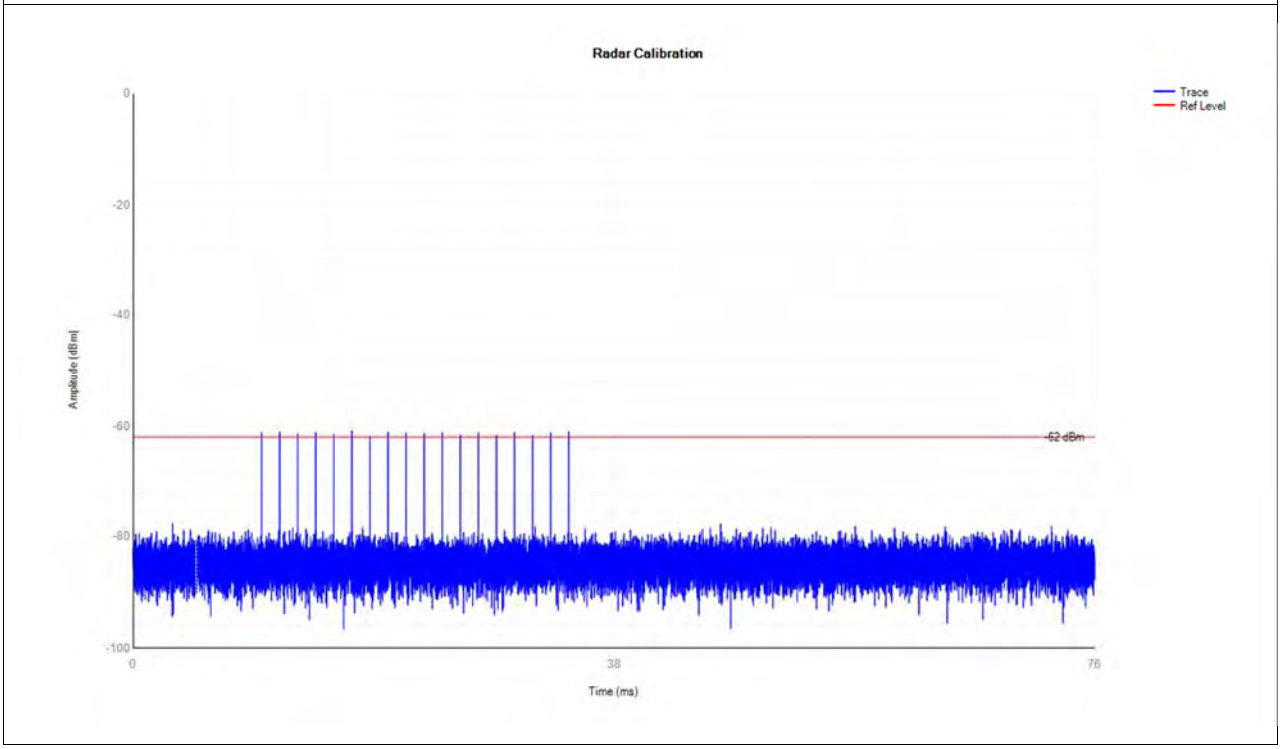
Detector Type: Peak

RBW: 3MHz

VBW: 3MHz

Test Graphs
5320MHz DFS_FCC_T0

5500MHz DFS_FCC_T0


5290MHz DFS_FCC_T0


5570MHz DFS_FCC_T0


Channel Move Time and Channel Closing Transmission Time

Mode	Frequency (MHz)	Channel Move Time (s)	Limit Channel Move Time (s)	Close Transmission Time (s)	Limit Close Transmission Time (s)	Close Transmission Time after 200ms(s)	Limit Close Transmission Time after 200ms (s)	Verdict
ax20	5320	0.921	10	0.025	0.26	0.02	0.06	Pass
ax20	5500	0.859	10	0.053	0.26	0.015	0.06	Pass
ax80	5290	0.832	10	0.038	0.26	0.015	0.06	Pass
ax160	5570	0.84	10	0.037	0.26	0.016	0.06	Pass

Spectrum analyzer settings:

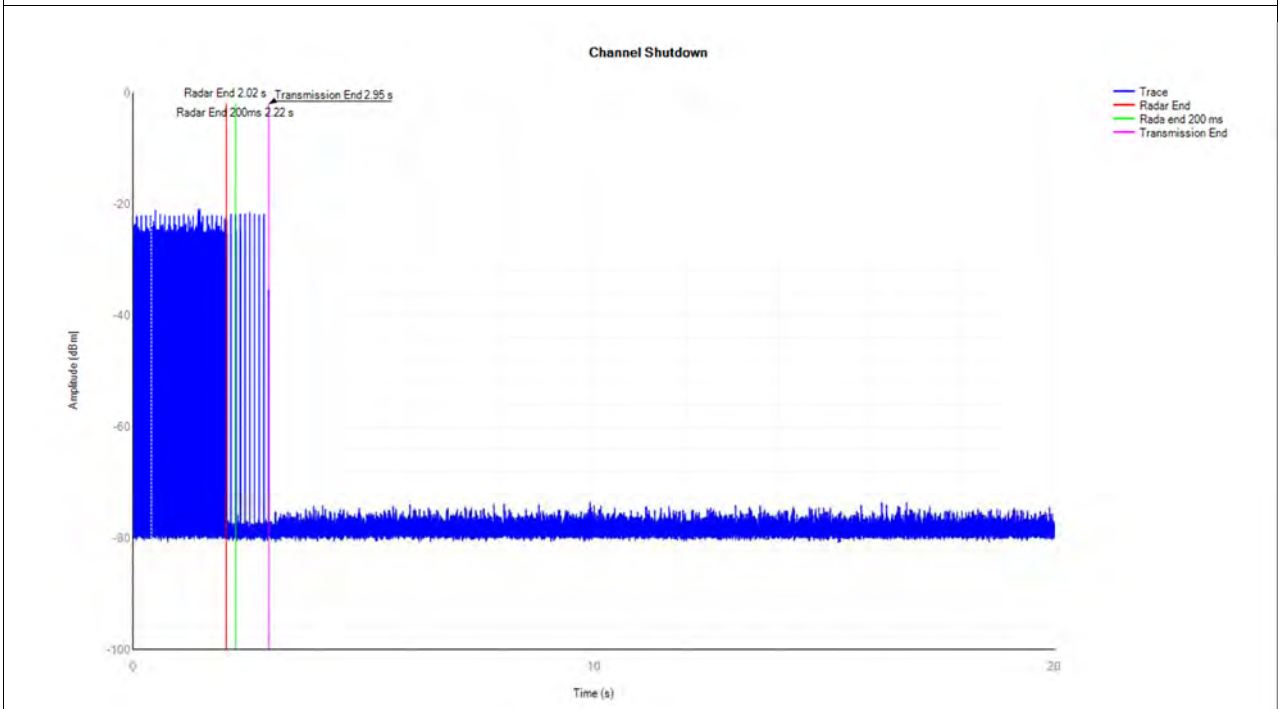
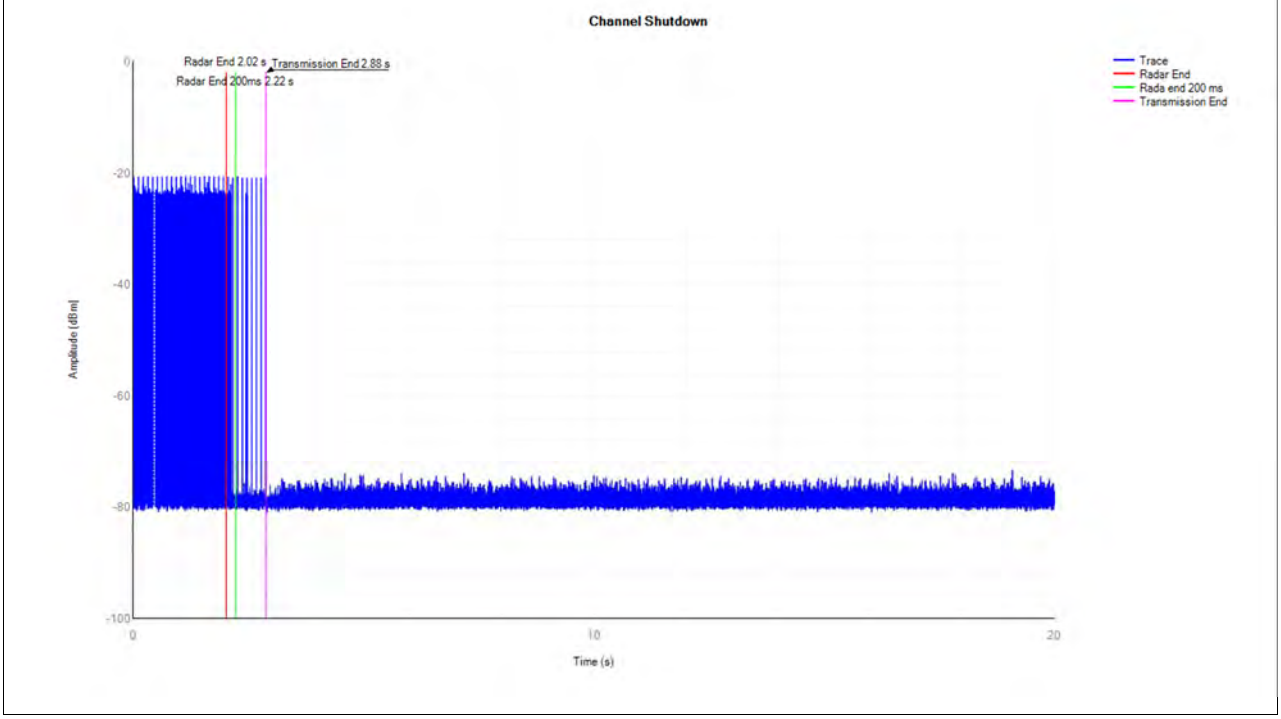
Span: Zero

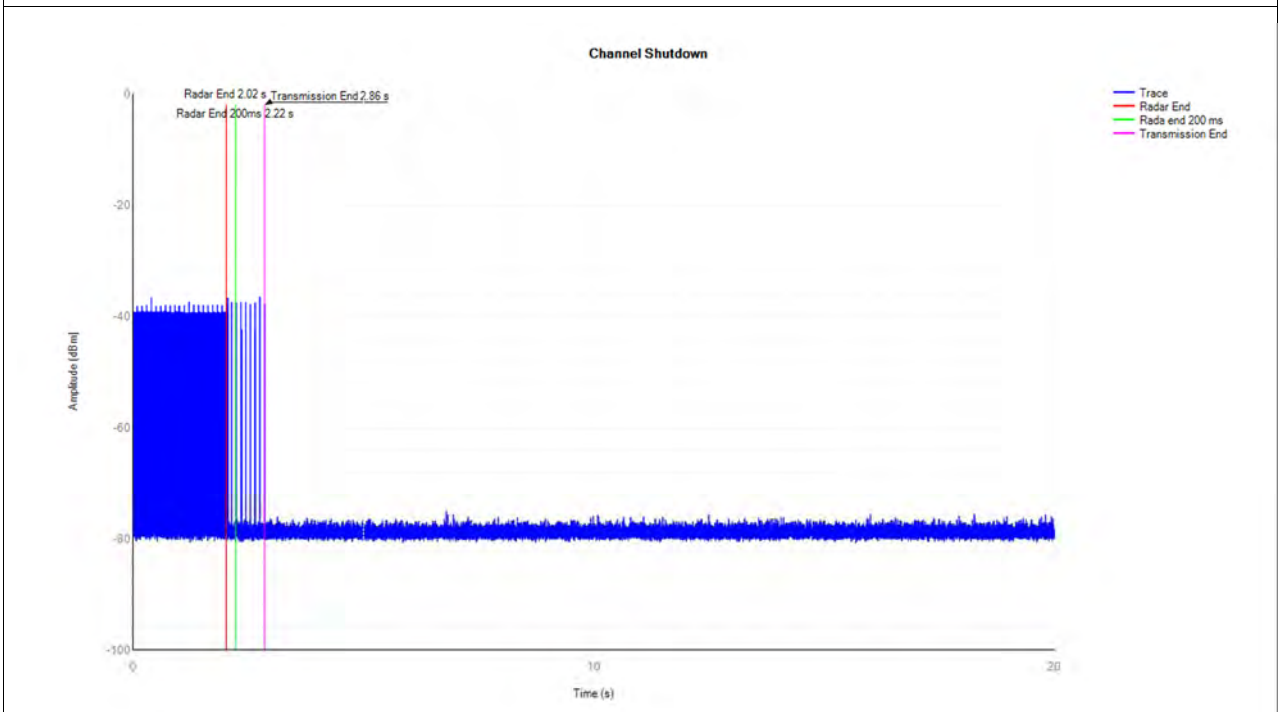
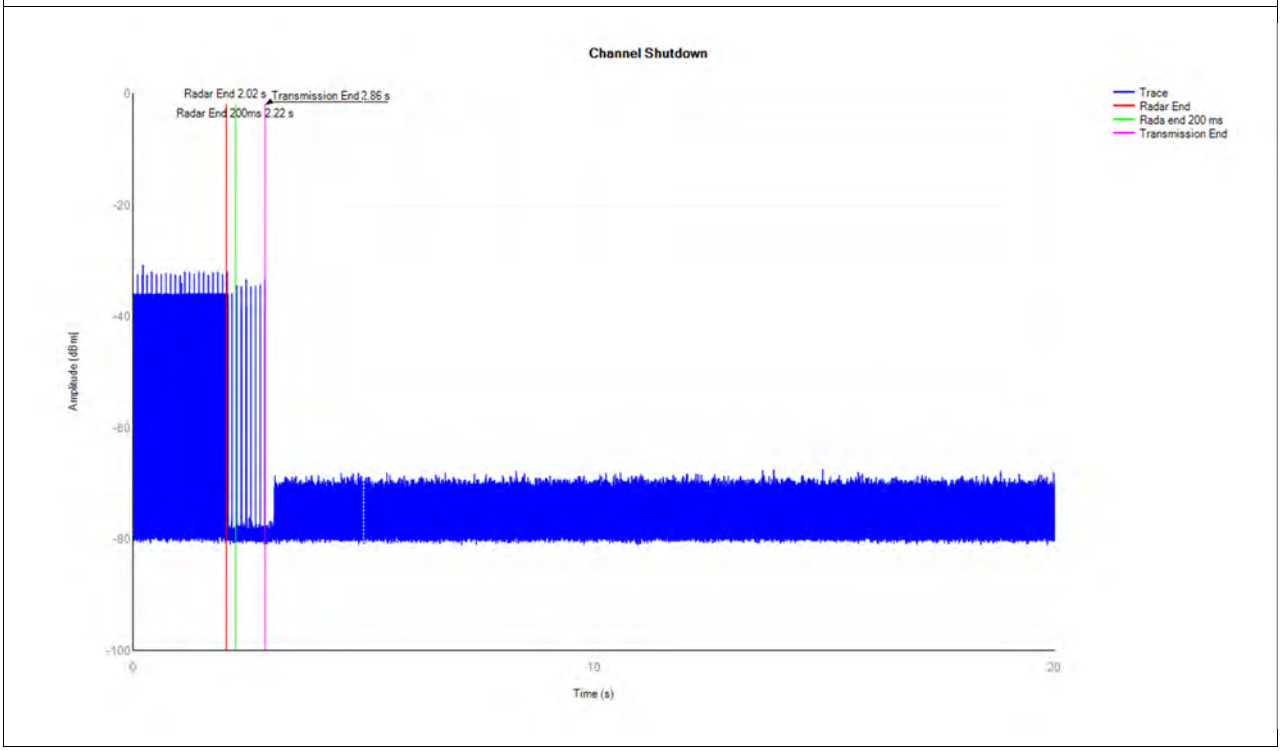
Detector type: Peak

RBW: 3MHz

VBW: 3MHz

Sweep time: 20s

Test Graphs
ax20 5320MHz Shutdown

ax20 5500MHz Shutdown


ax80 5290MHz Shutdown

ax160 5570MHz Shutdown


Note：The signal above the noise floor after the radar signal ends is the signal which leaked from other channels that have been moved following the Master device.

Non-Occupancy Period

Mode	Frequency (MHz)	Result	Verdict
ax20	5320	See test Graph	Pass
ax20	5500	See test Graph	Pass

Spectrum analyzer settings:

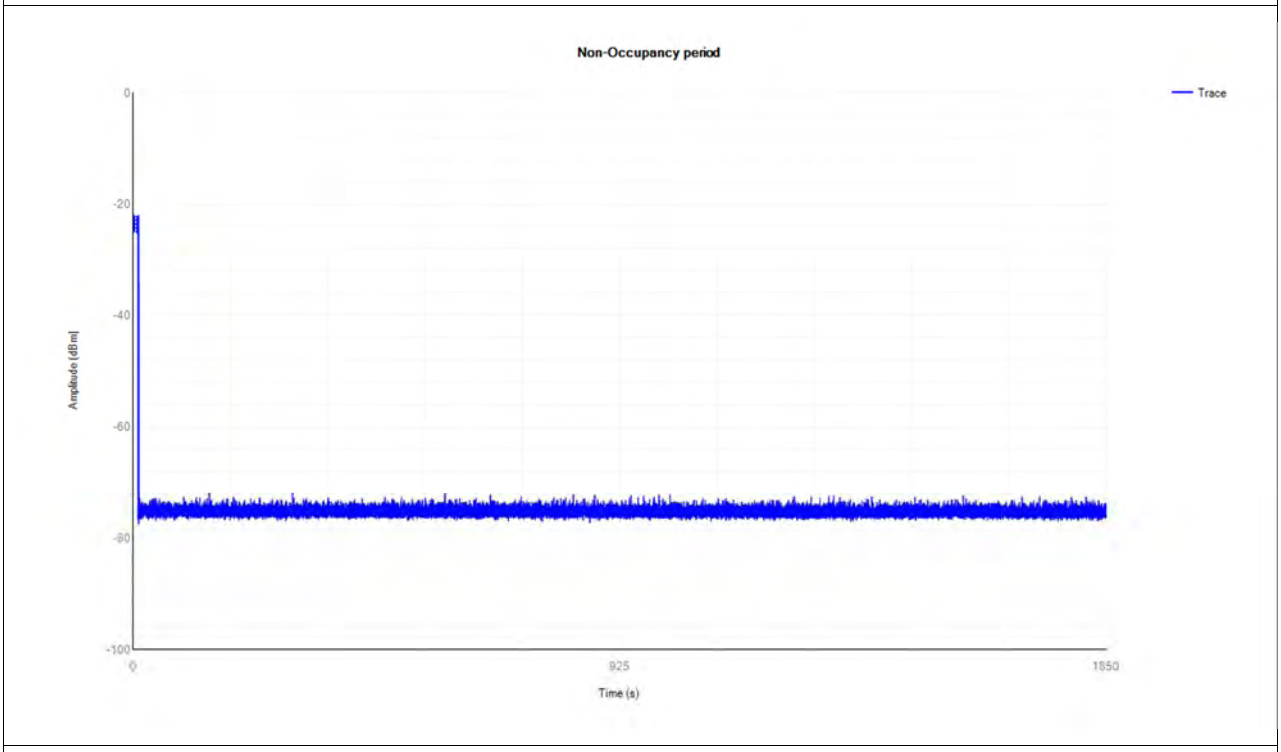
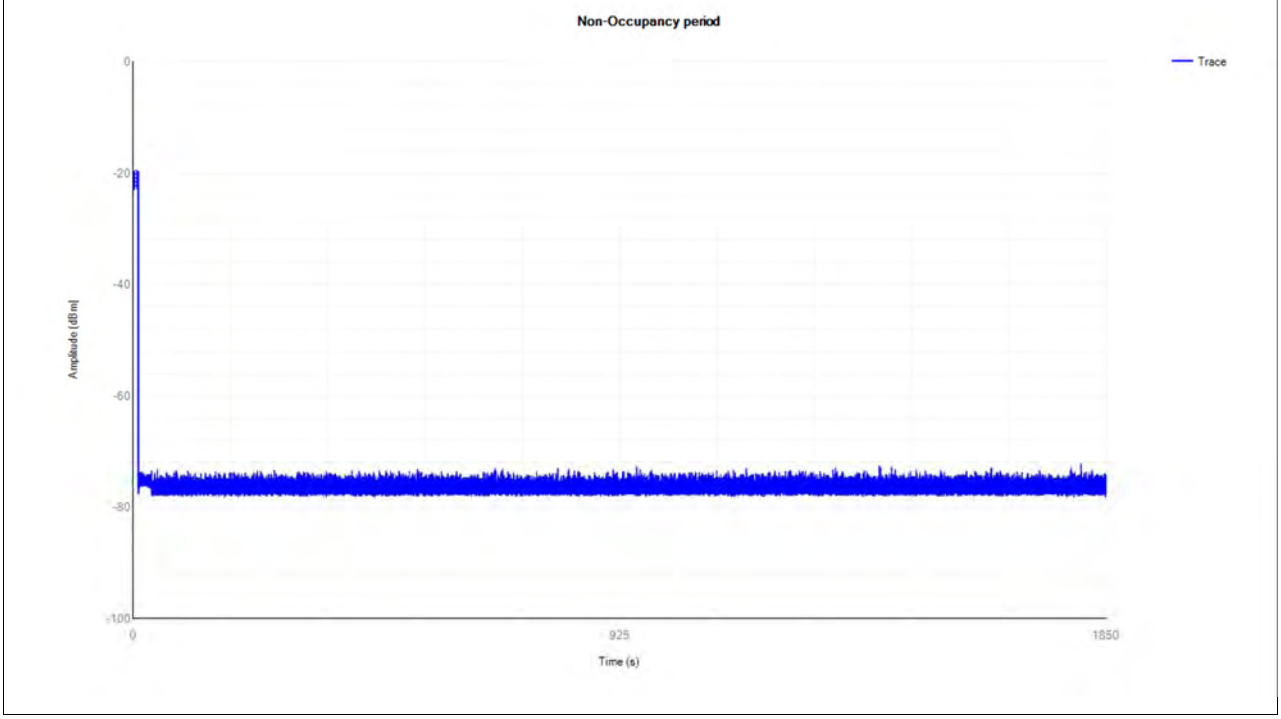
Span: Zero

Detector type: Peak

RBW: 3MHz

VBW: 3MHz

Sweep time: 1850s

Test Graphs
ax20 5320MHz Non-Occupancy

ax20 5500MHz Non-Occupancy


A.7. Conducted Emission

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Set RBW=9kHz, VBW=30kHz. Refer to recorded points and plots below.

Note: Both of the test voltage AC 120V/60Hz and AC 230V/50Hz were considered and tested respectively, only the results of the worst case AC 120V/60Hz were recorded in this report.

A. Test Setup:

Test Mode: EUT+PC+PC Adapter+WIFI TX

Test voltage: AC 120V/60Hz

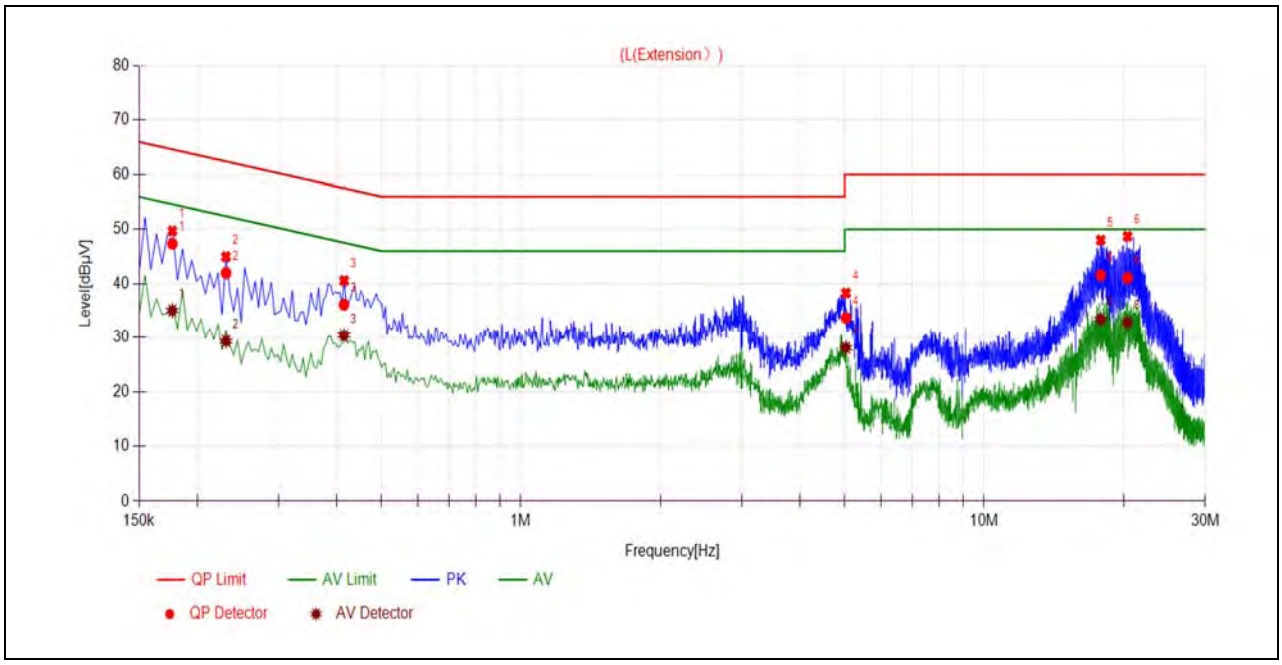
The measurement results are obtained as below:

$E\ [dB\mu V] = U_R + L_{Cable\ loss}\ [dB] + A_{Factor}$

U_R: Receiver Reading

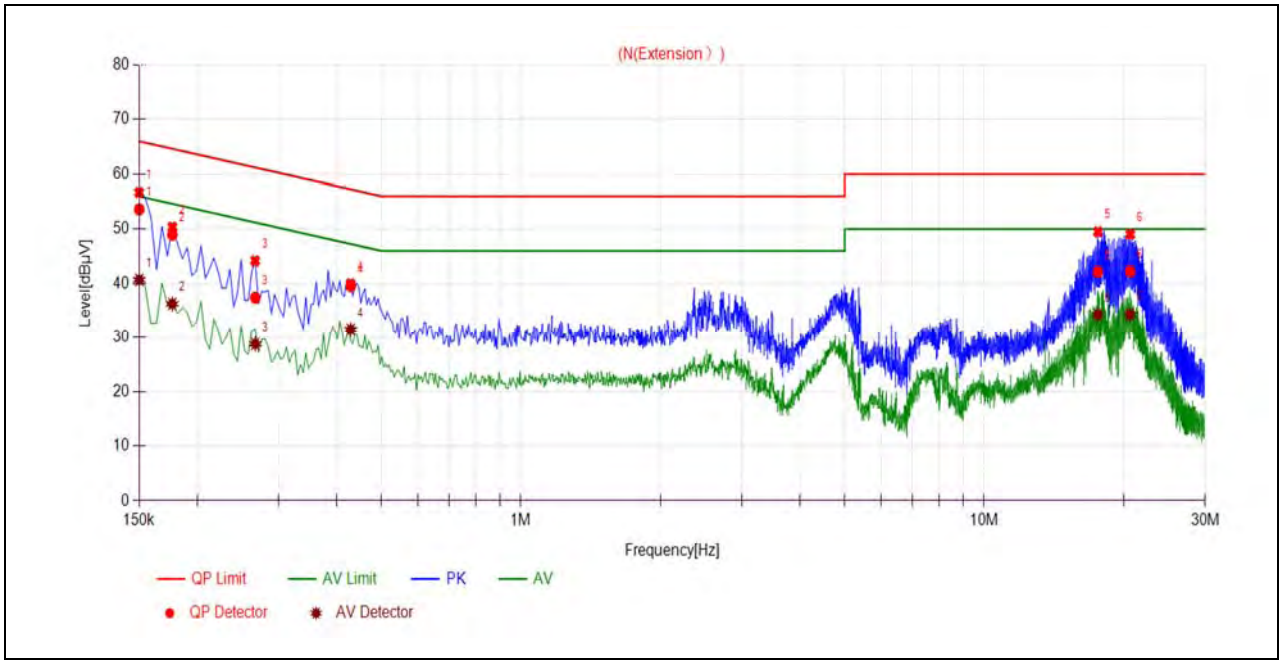
A_{Factor}: Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1769	47.37	35.06	47.37	54.63	Line	PASS
2	0.2310	41.97	29.31	41.97	52.41		PASS
3	0.4151	36.14	30.38	36.14	47.55		PASS
4	5.0311	33.68	28.07	33.68	50.00		PASS
5	17.8645	41.57	33.44	41.57	50.00		PASS
6	20.3995	41.09	32.84	41.09	50.00		PASS



(N Phase)

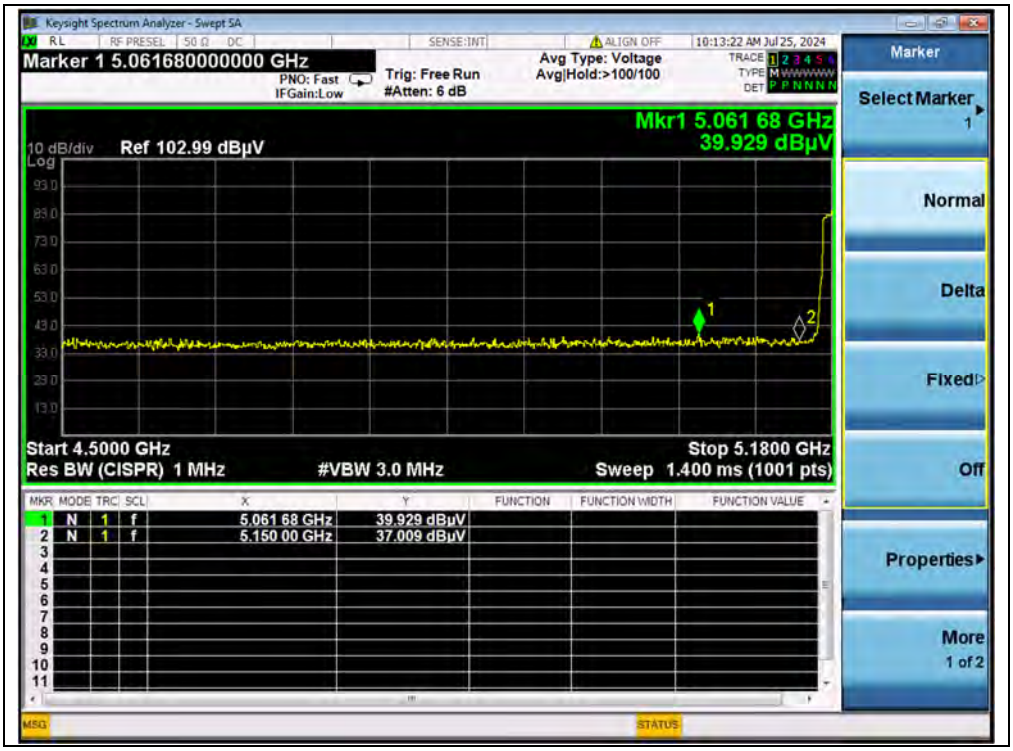
No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1501	53.63	40.69	66.00	56.00	Neutral	PASS
2	0.1769	48.96	36.28	64.63	54.63		PASS
3	0.2671	37.41	28.77	61.21	51.21		PASS
4	0.4294	39.57	31.52	57.26	47.26		PASS
5	17.6012	42.18	34.30	60.00	50.00		PASS
6	20.6557	42.25	34.34	60.00	50.00		PASS

A.8. Restricted Frequency Bands

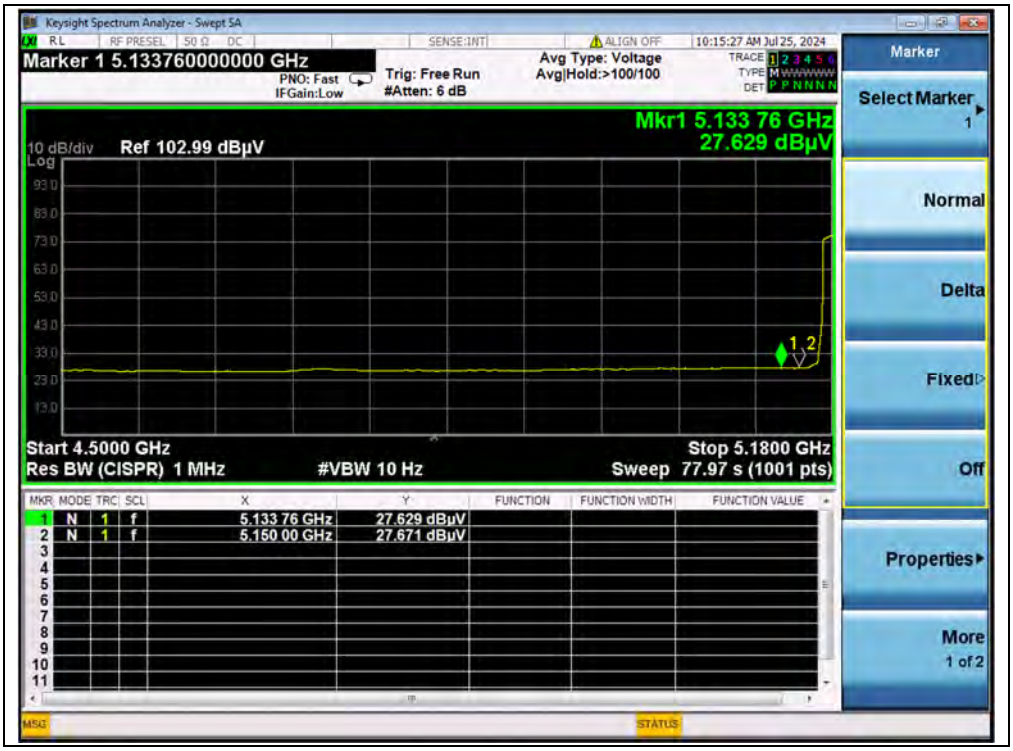
The lowest and highest channels are tested to verify the Restricted Frequency Bands.
The measurement results are obtained as below:
E [dBμV/m] =U_R + A_T + A_{Factor} [dB]; A_T =$L_{Cable\ loss}$ [dB]-G_{preamp} [dB]
A_T: Total correction Factor except Antenna
U_R: Receiver Reading
G_{preamp}: Preamplifier Gain
A_{Factor}: Antenna Factor at 3m
Note 1: Restricted Frequency Bands were performed when antenna was at vertical and horizontal polarity, and only the worse test condition (horizontal) was recorded in this test report.
Note 2: Restricted Frequency Bands were performed in X, Y, Z axis direction, and only the worst axis (X axis) test condition was recorded in this test report.
Note 3: All test modes and bandwidth were considered and evaluated respectively by performing full test, only the worst data were recorded for each bandwidth.

802.11a Mode

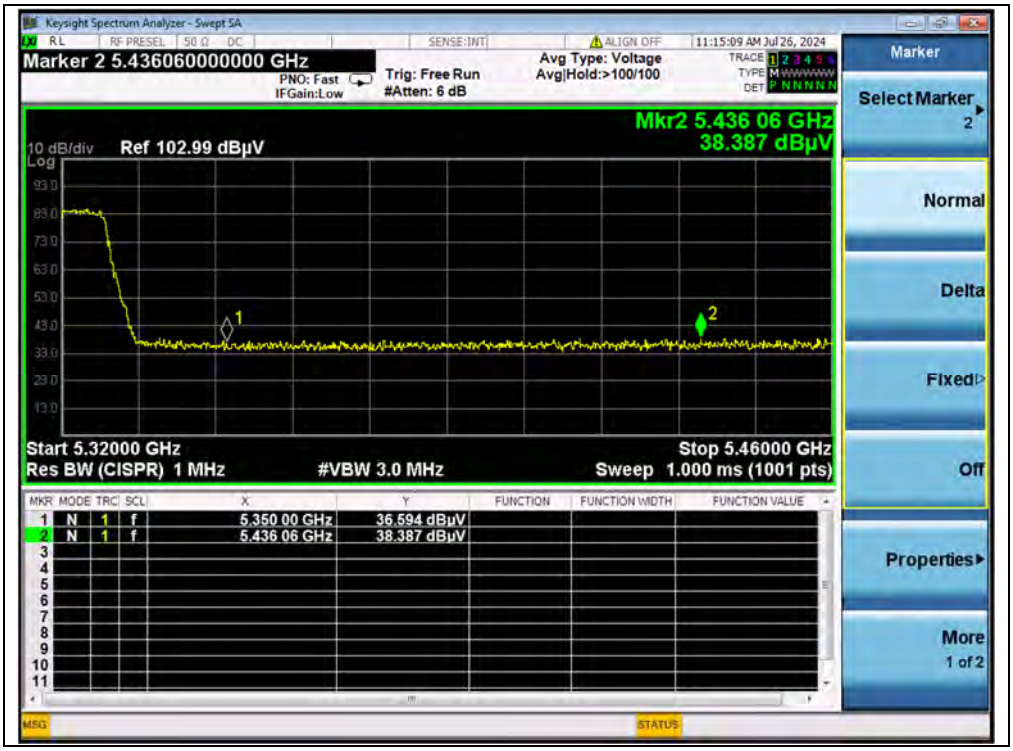
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
36	5061.68	PK	39.93	-21.29	32.20	50.84	74	PASS
36	5150.00	AV	27.67	-21.29	32.20	38.58	54	PASS
64	5436.06	PK	38.39	-20.66	32.20	49.93	74	PASS
64	5352.20	AV	27.42	-20.66	32.20	38.96	54	PASS
100	5130.00	PK	37.91	-20.24	32.20	49.87	74	PASS
100	5460.00	AV	26.82	-20.24	32.20	38.78	54	PASS
144	5873.40	PK	39.91	-20.24	32.20	51.87	68.23	PASS
149	5650.00	PK	38.43	-21.11	32.20	49.52	68.23	PASS
165	5850.00	PK	36.69	-21.11	32.20	47.78	122.23	PASS



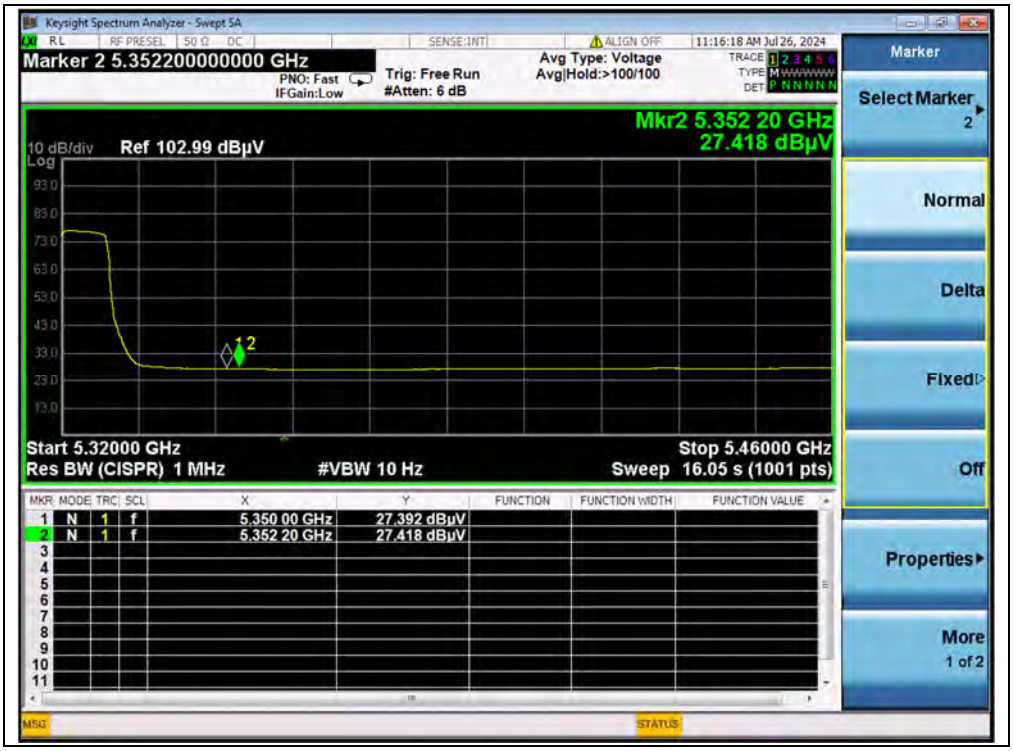
(PEAK, Channel 36, 802.11a)



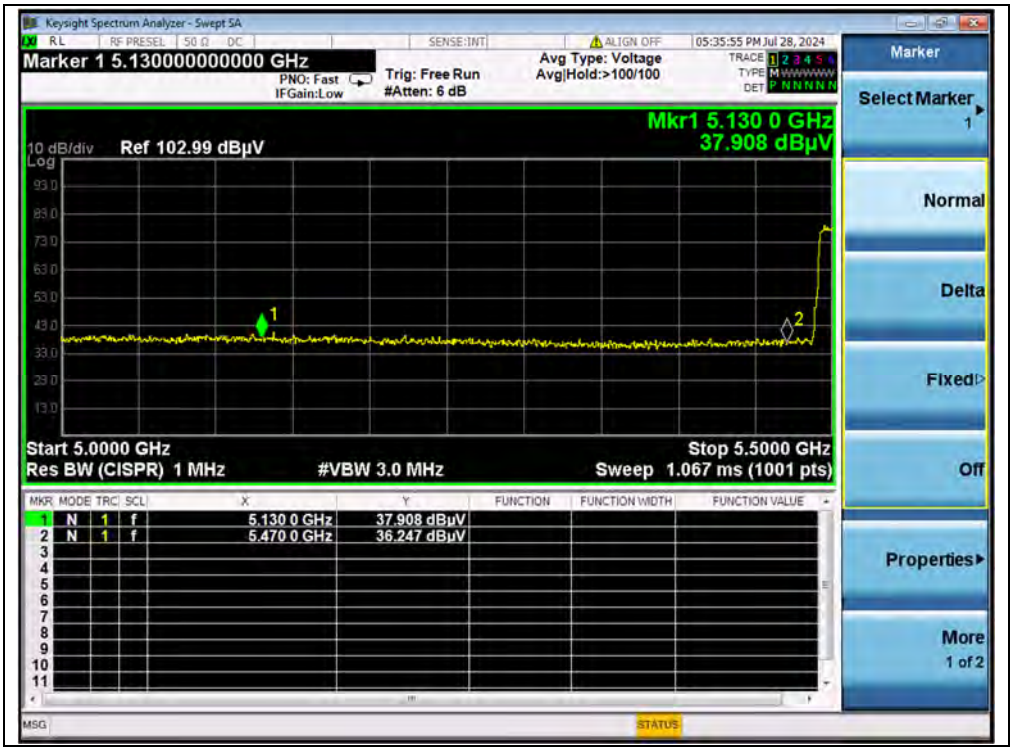
(AVERAGE, Channel 36, 802.11a)



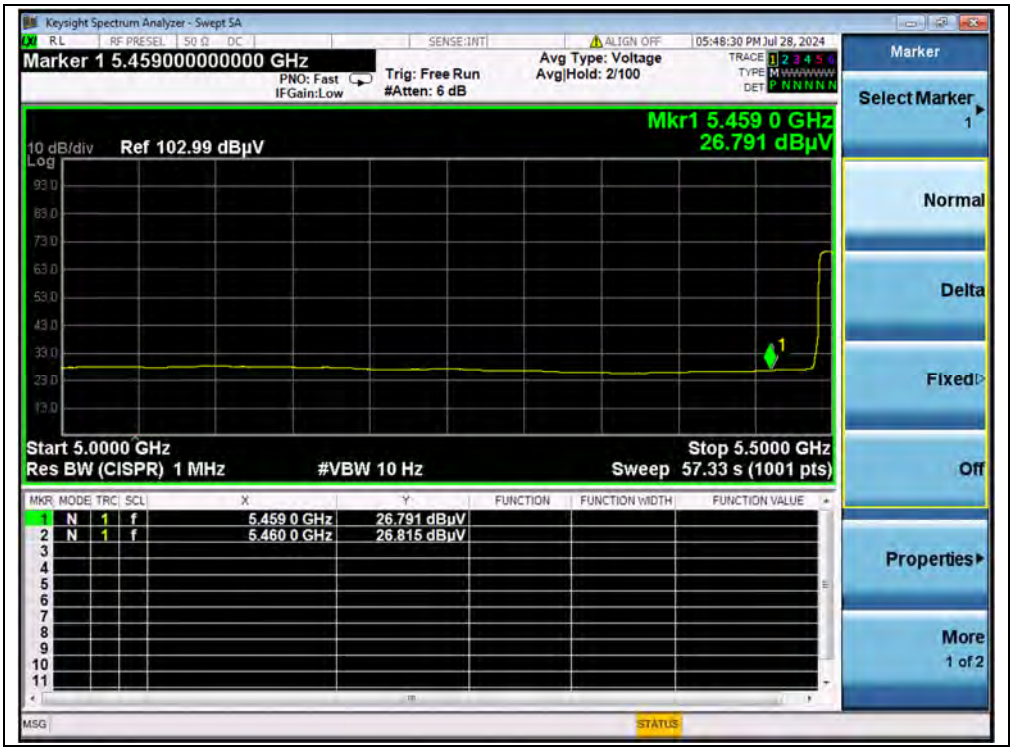
(PEAK, Channel 64, 802.11a)



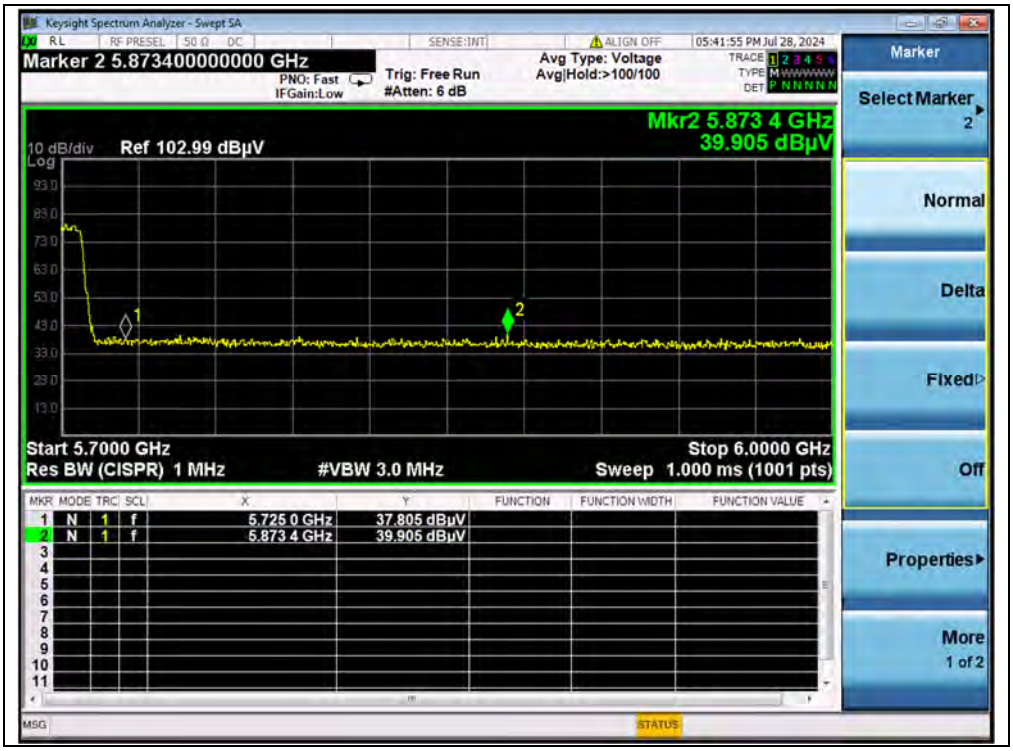
(AVERAGE, Channel 64, 802.11a)



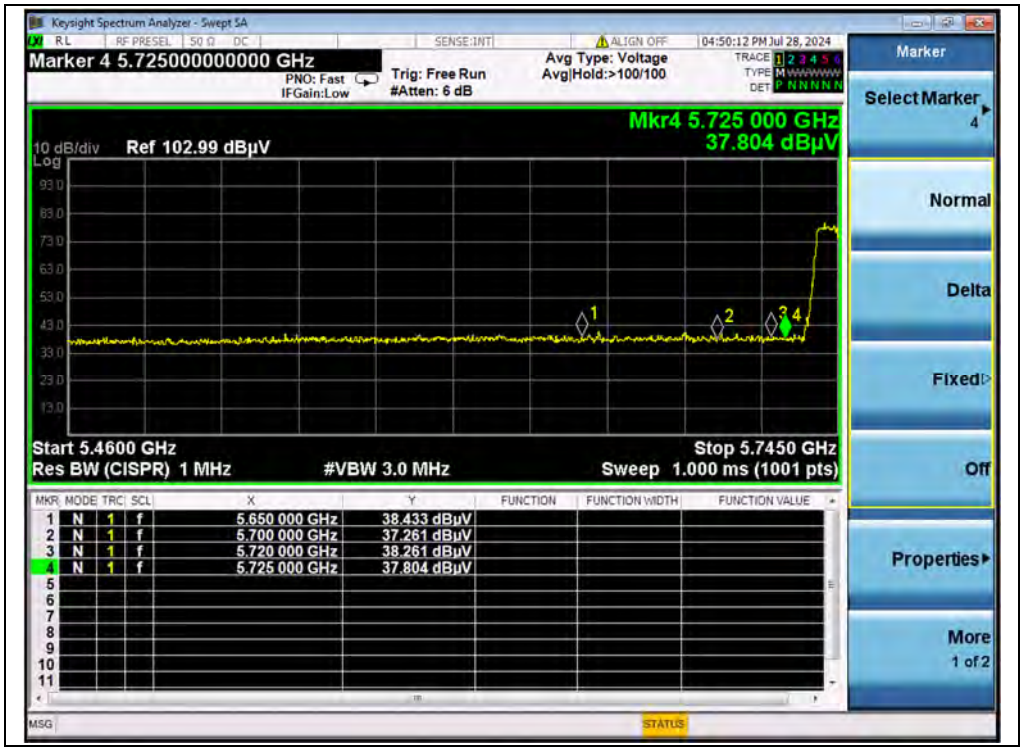
(PEAK, Channel 100, 802.11a)



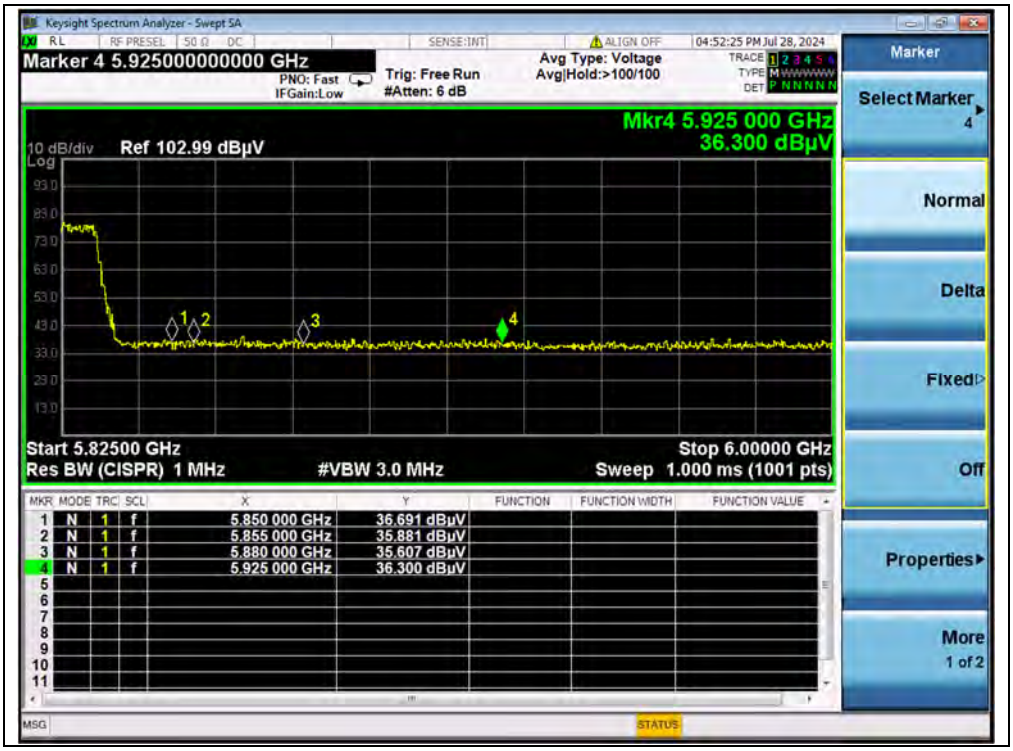
(AVERAGE, Channel 100, 802.11a)



(PEAK, Channel 144, 802.11a)



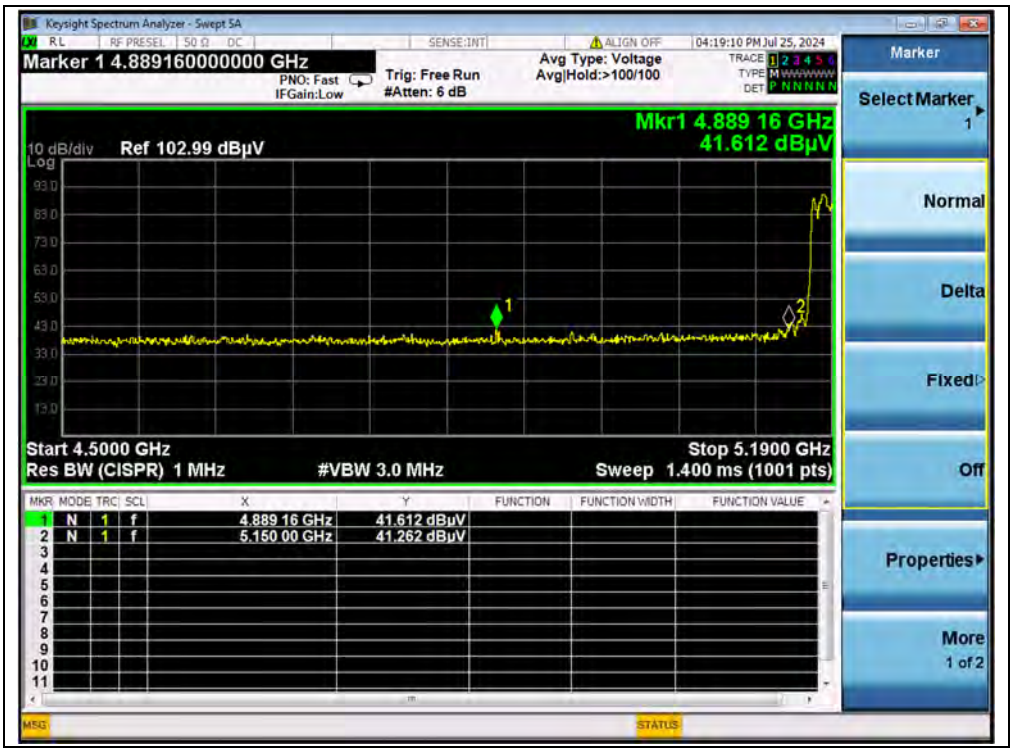
(PEAK, Channel 149, 802.11a)



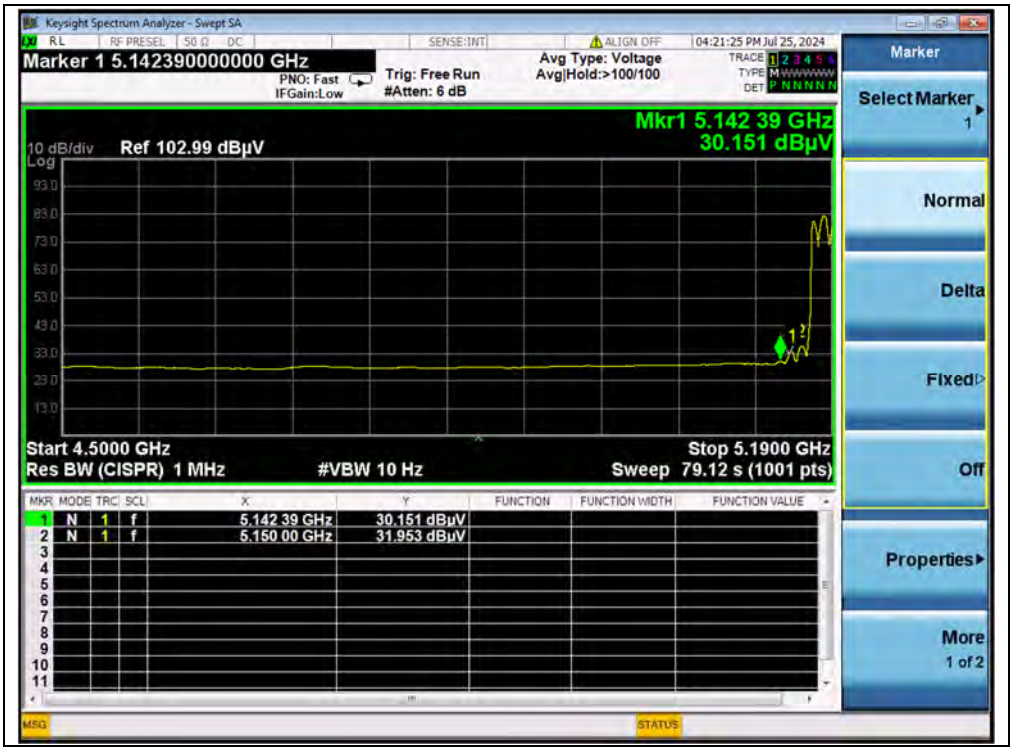
(PEAK, Channel 165, 802.11a)

802.11n (HT40) Mode

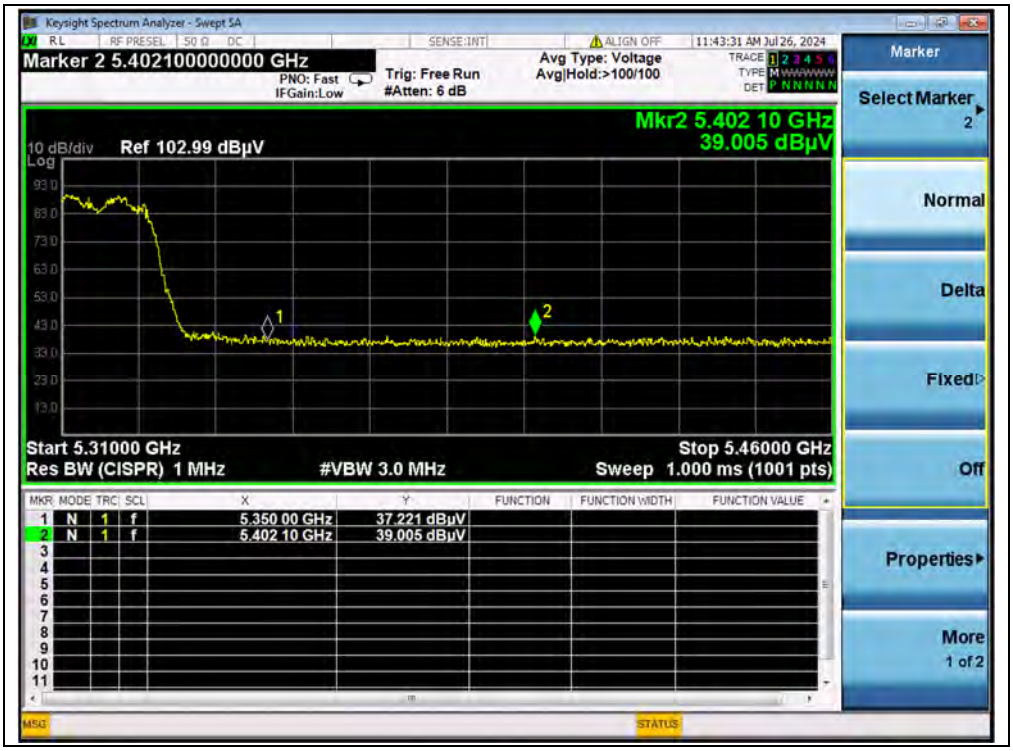
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
38	4889.16	PK	41.61	-21.29	32.20	52.52	74	PASS
38	5150.00	AV	31.95	-21.29	32.20	42.86	54	PASS
62	5402.10	PK	39.01	-20.66	32.20	50.55	74	PASS
62	5350.00	AV	28.42	-20.66	32.20	39.96	54	PASS
102	5026.01	PK	41.81	-20.24	32.20	53.77	74	PASS
102	5450.00	AV	28.01	-20.24	32.20	39.97	54	PASS
142	5767.02	PK	39.79	-20.24	32.20	51.75	68.23	PASS
151	5725.00	PK	40.10	-21.11	32.20	51.19	122.23	PASS
159	5850.00	PK	38.30	-21.11	32.20	49.39	122.23	PASS



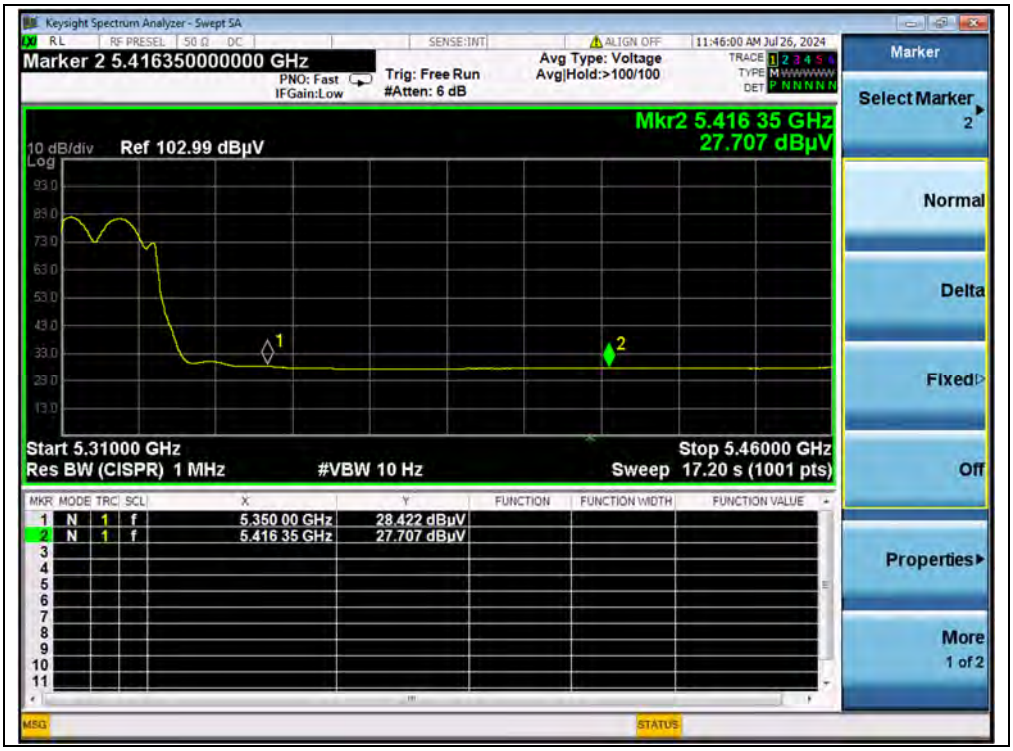
(PEAK, Channel 38, 802.11n (HT40))



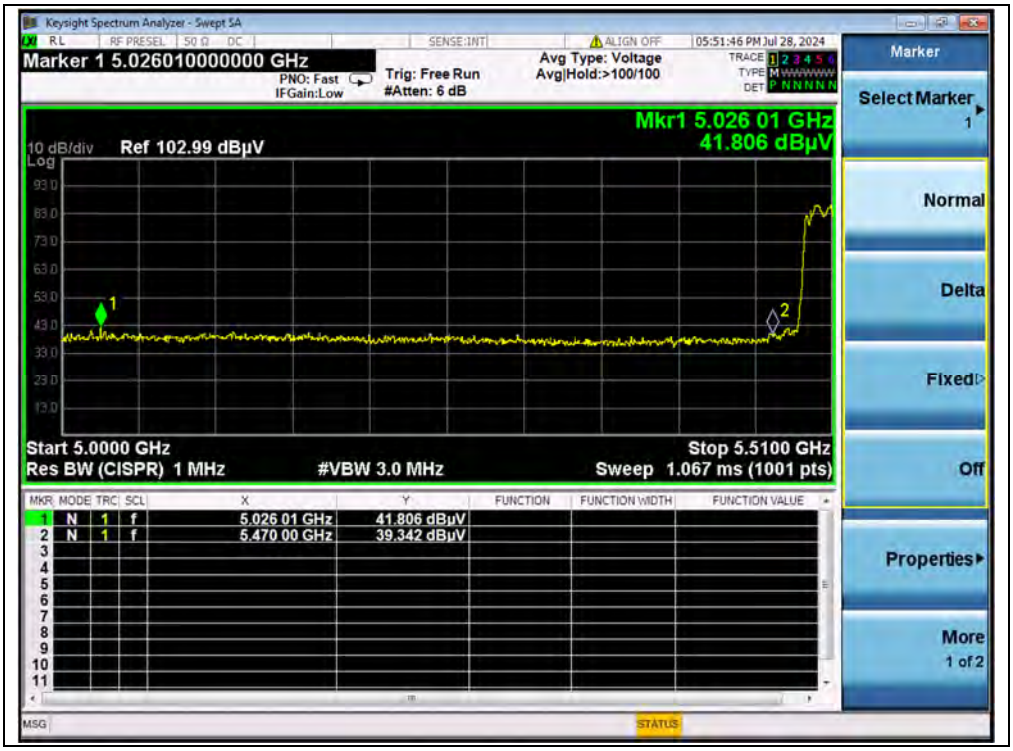
(AVERAGE, Channel 38, 802.11n (HT40))



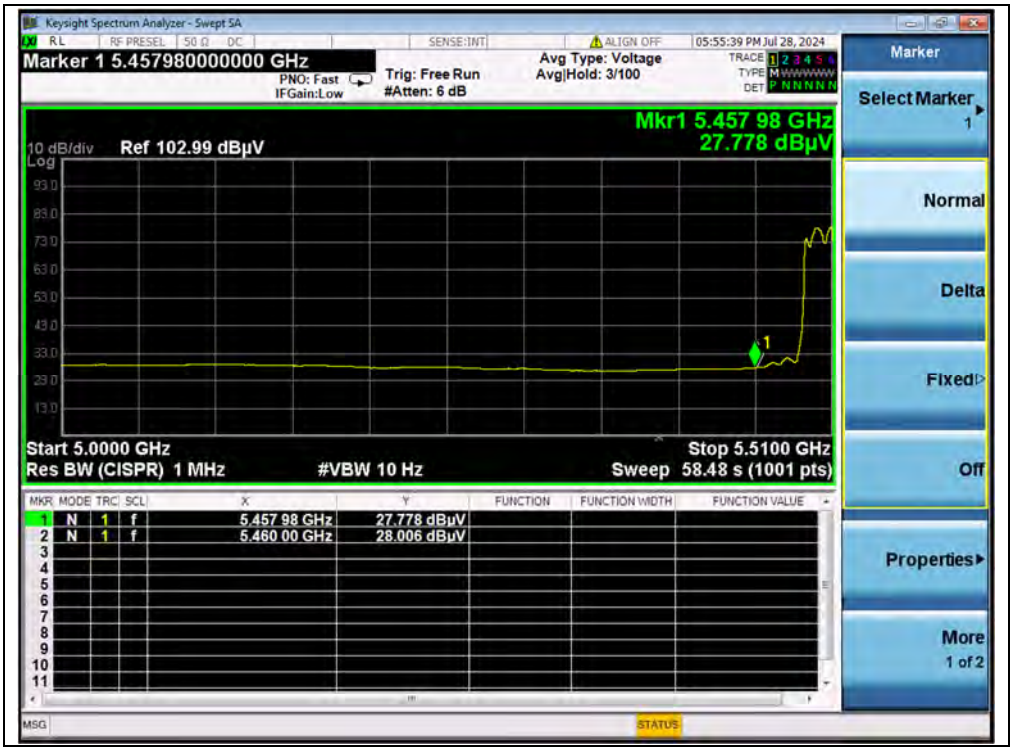
(PEAK, Channel 62, 802.11n (HT40))



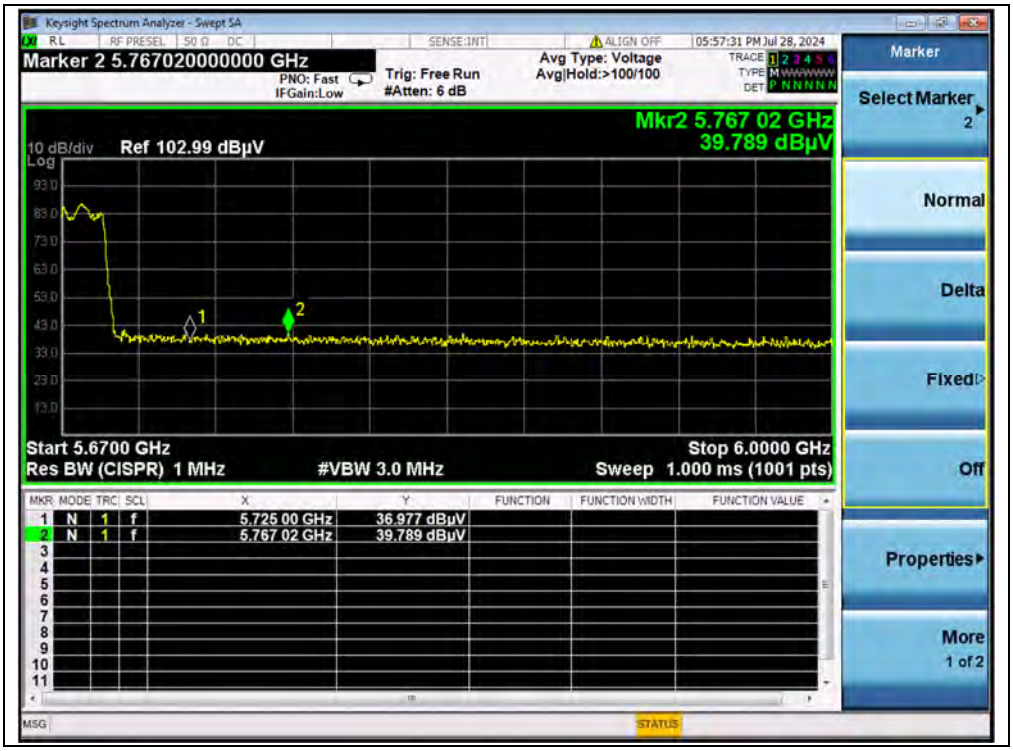
(AVERAGE, Channel 62, 802.11n (HT40))



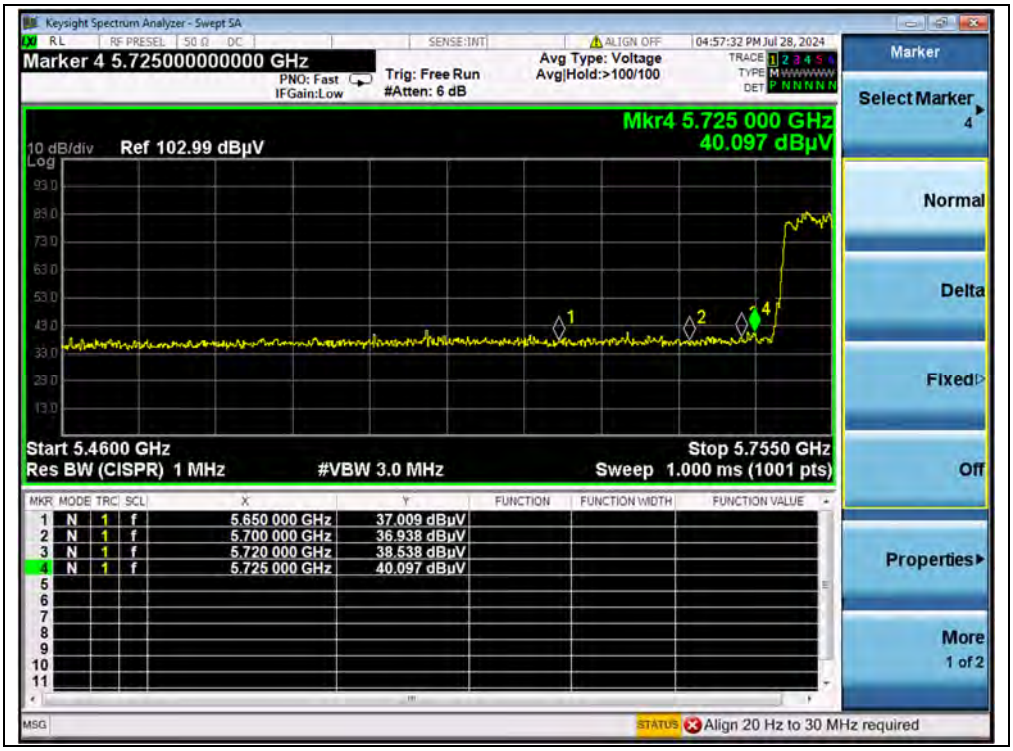
(PEAK, Channel 102, 802.11n (HT40))



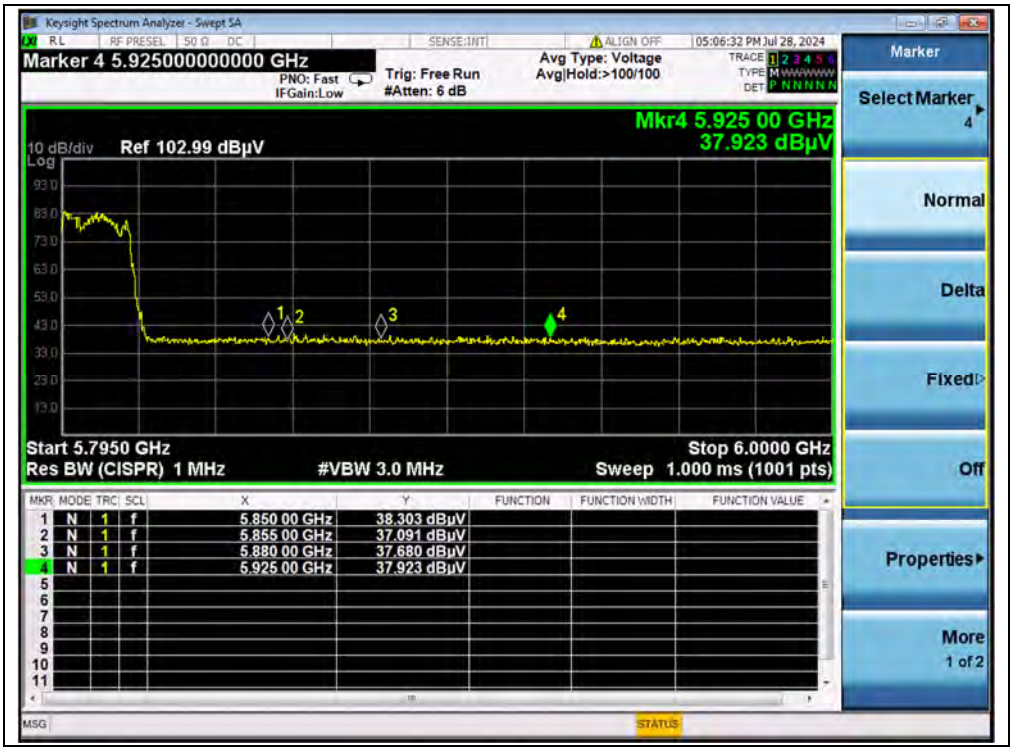
(AVERAGE, Channel 102, 802.11n (HT40))



(PEAK, Channel 142, 802.11n (HT40))



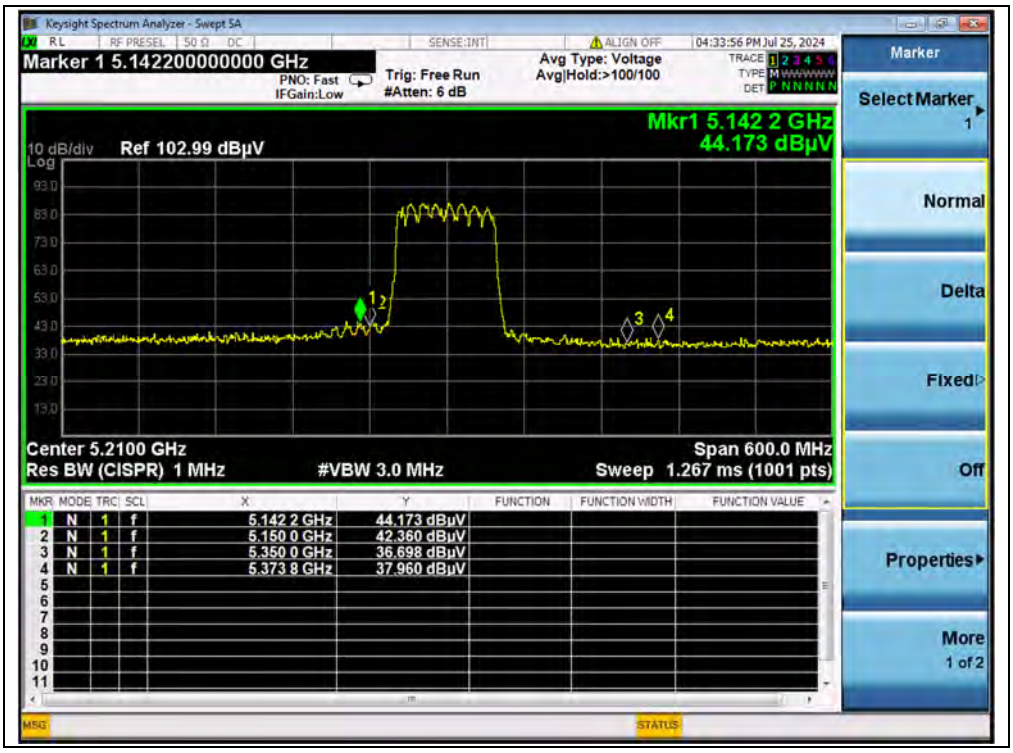
(PEAK, Channel 151, 802.11n (HT40))



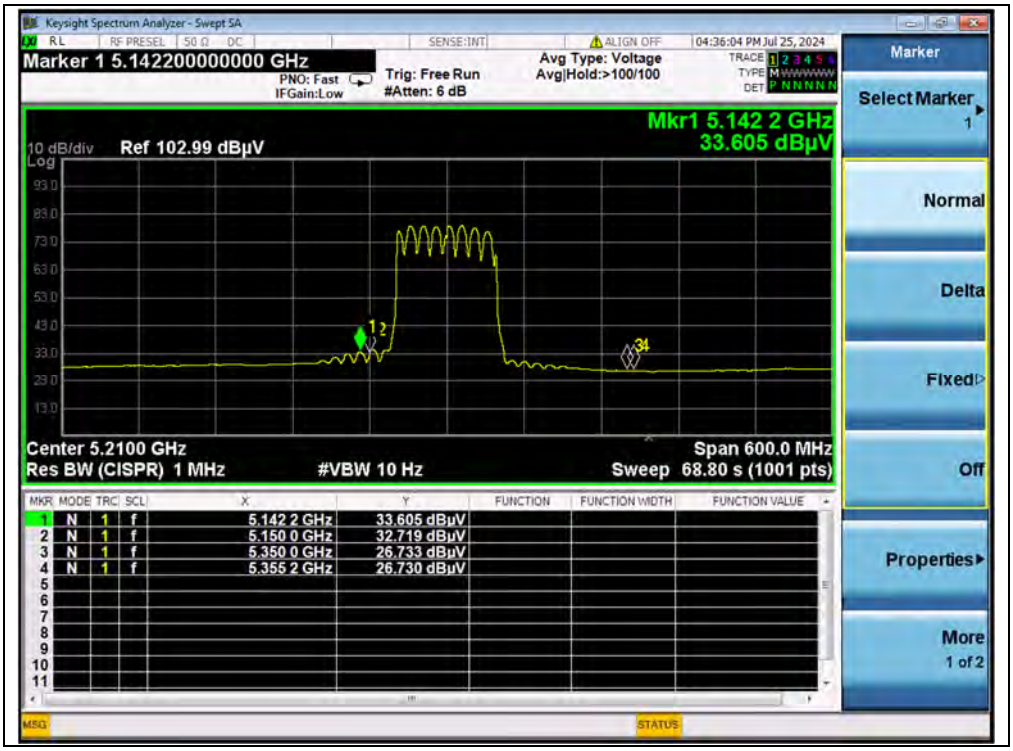
(PEAK, Channel 159, 802.11n (HT40))

802.11ac (VHT80) Mode

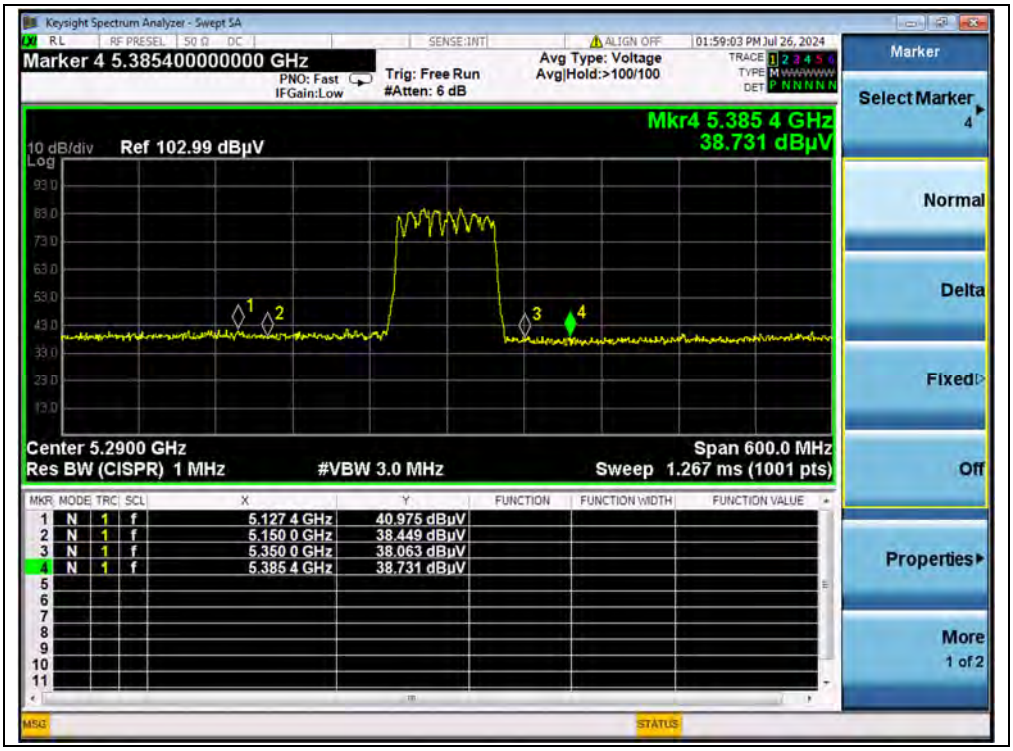
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
42	5142.20	PK	44.17	-21.29	32.20	55.08	74	PASS
42	5142.20	AV	33.61	-21.29	32.20	44.52	54	PASS
58	5385.40	PK	38.73	-20.66	32.20	50.27	74	PASS
58	5536.60	AV	28.30	-20.66	32.20	39.84	54	PASS
106	5067.31	PK	40.90	-20.24	32.20	52.86	74	PASS
106	5457.39	AV	27.99	-20.24	32.20	39.95	54	PASS
138	5754.30	PK	41.46	-20.24	32.20	53.42	68.23	PASS
155	5720.00	PK	37.87	-21.11	32.20	48.96	110.83	PASS
155	5850.00	PK	38.85	-21.11	32.20	49.94	122.23	PASS



(PEAK, Channel 42, 802.11ac (VHT80))



(AVERAGE, Channel 42, 802.11ac (VHT80))



(PEAK, Channel 58, 802.11ac (VHT80))