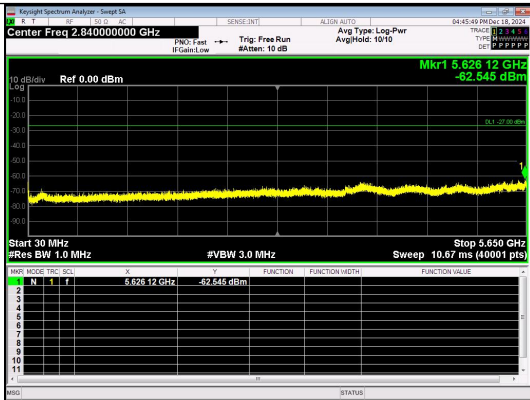
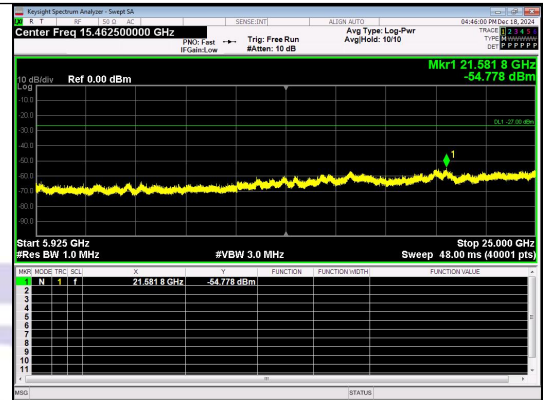
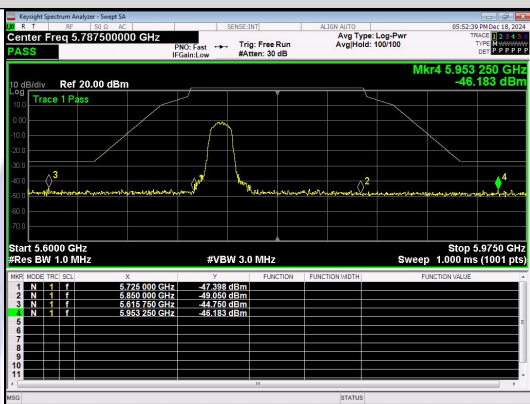




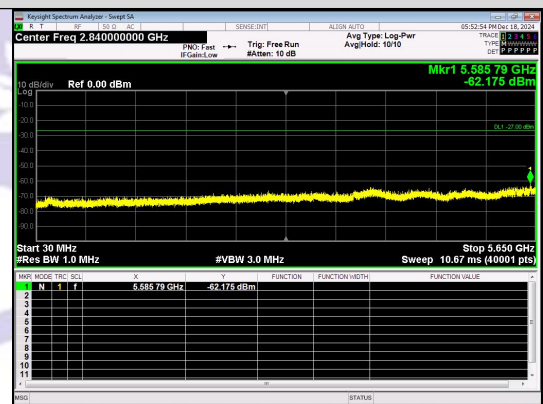
Spurious Emission:30.0~5650 MHz
IEEE 802.11n_Channel 159_40MHz_Antenna 0



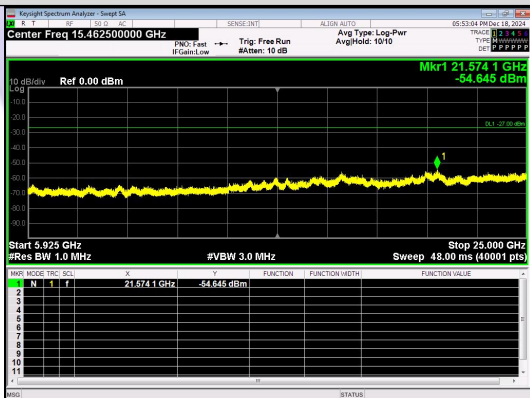
Spurious Emission:5925~25000.0 MHz
IEEE 802.11n_Channel 159_40MHz_Antenna 0



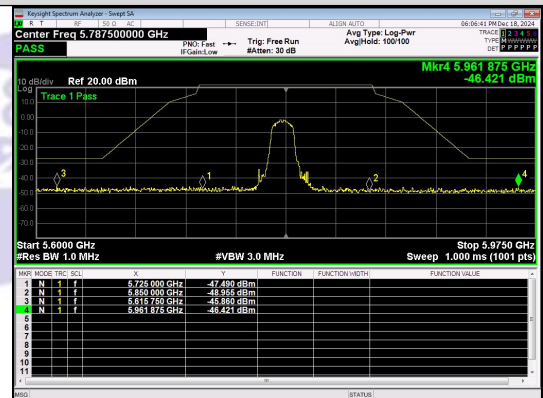
Out Of Band Emission
IEEE 802.11ac_Channel 149_20MHz_Antenna 0



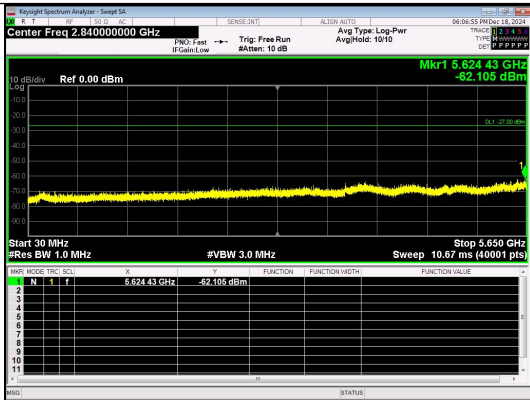
Spurious Emission:30.0~5650 MHz
IEEE 802.11ac_Channel 149_20MHz_Antenna 0



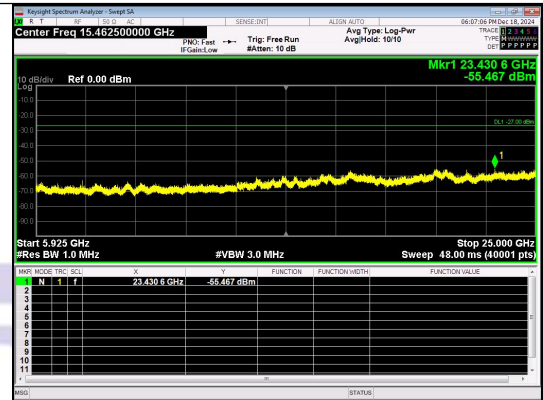
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IEEE 802.11ac_Channel 149_20MHz_Antenna 0



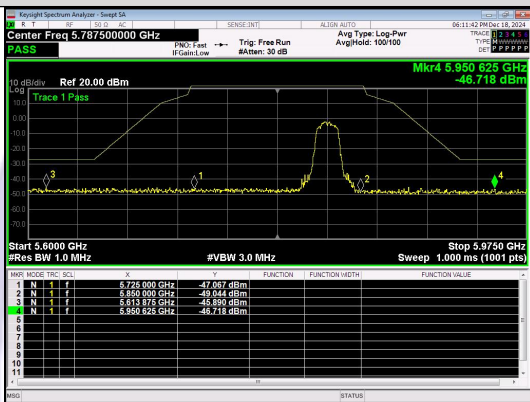
Out Of Band Emission
IEEE 802.11ac_Channel 157_20MHz_Antenna 0



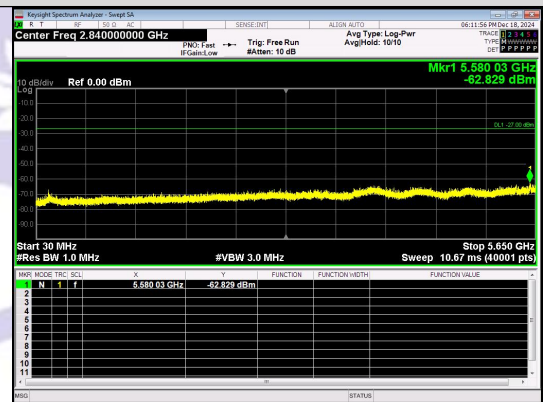
Spurious Emission:30.0~5650 MHz
IEEE 802.11ac_Channel 157_20MHz_Antenna 0



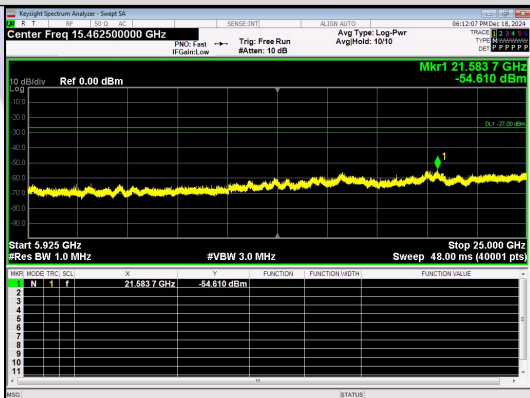
Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac_Channel 157_20MHz_Antenna 0



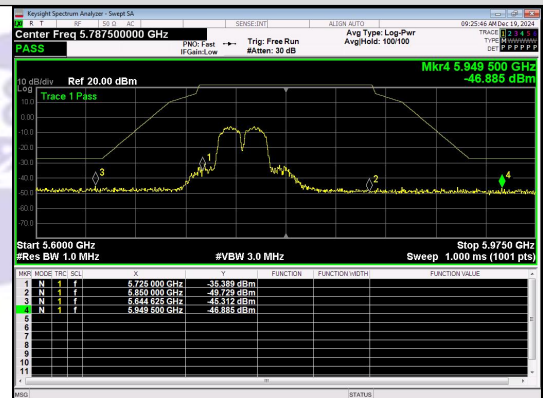
Out Of Band Emission
IEEE 802.11ac_Channel 165_20MHz_Antenna 0



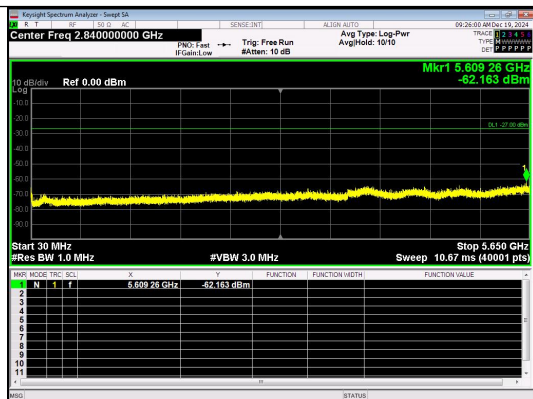
Spurious Emission:30.0~5650 MHz
IEEE 802.11ac_Channel 165_20MHz_Antenna 0



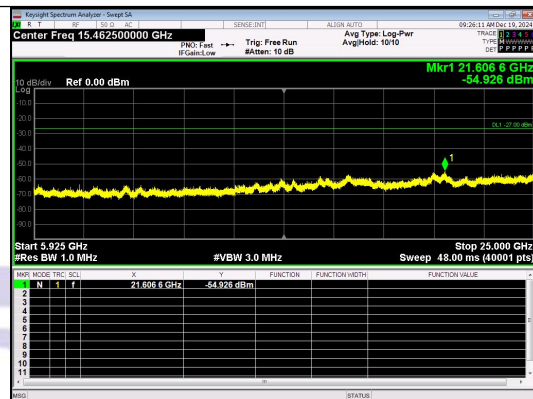
Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac_Channel 165_20MHz_Antenna 0



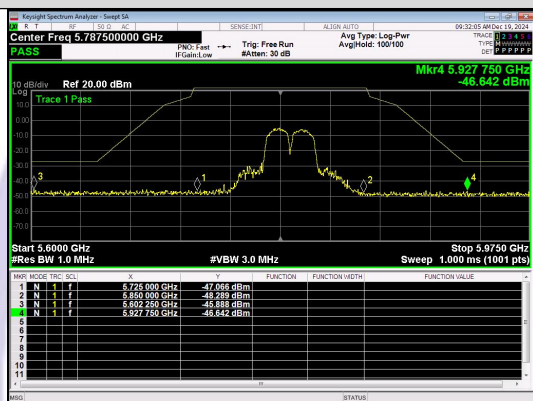
Out Of Band Emission
IEEE 802.11ac_Channel 151_40MHz_Antenna 0



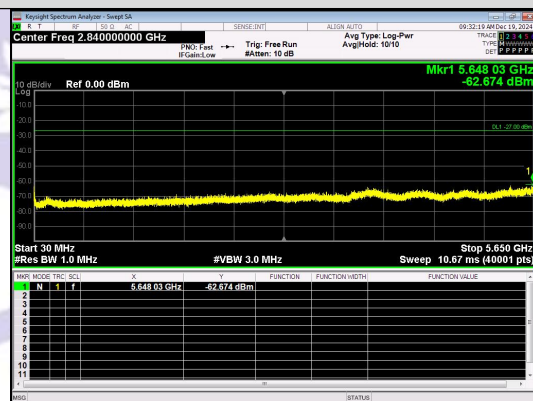
Spurious Emission:30.0~5650 MHz
IEEE 802.11ac_Channel 151_40MHz_Antenna 0



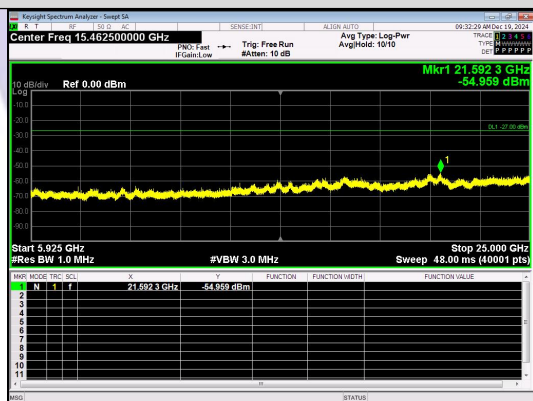
Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac_Channel 151_40MHz_Antenna 0



Out Of Band Emission
IEEE 802.11ac_Channel 159_40MHz_Antenna 0



Spurious Emission:30.0~5650 MHz
IEEE 802.11ac_Channel 159_40MHz_Antenna 0



Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac_Channel 159_40MHz_Antenna 0

12 Frequency Stability Measurement

12.1 Test Standard and Limit

FCC

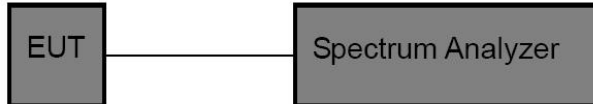
Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band (IEEE 802.11n specification).

IC

If the frequency stability of the licence-exempt radio apparatus is not specified in the applicable RSS, the fundamental emissions of the radio apparatus should be kept within at least the central 80% of its permitted operating frequency band in order to minimize the possibility of out-of-band operation. In addition, its occupied bandwidth shall be entirely outside the restricted bands and the prohibited TV bands of 54-72 MHz, 76-88 MHz, 174-216 MHz, and 470-602 MHz, unless otherwise indicated.

12.2 Test Setup



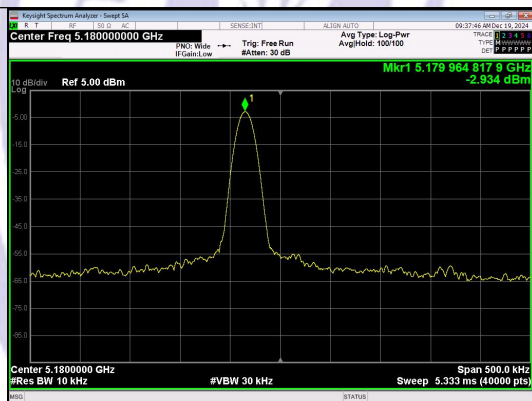
12.3 Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and the limit is less than ± 20 ppm (IEEE 802.11n specification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value

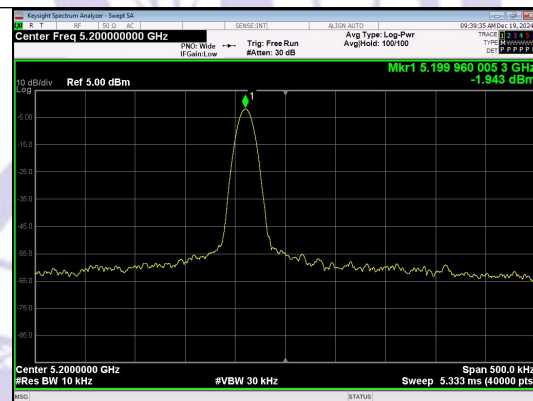
7. Extreme temperature is -20°C~50°C.

12.4 Test Data

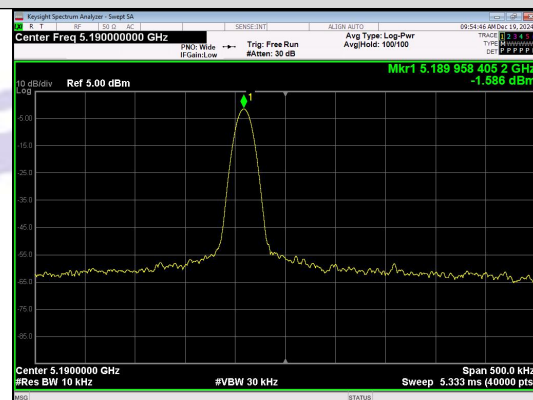
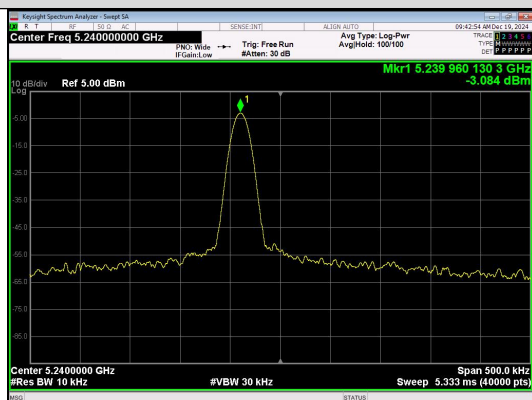
Condition	Ch.	Antenna	Center Frequency (MHz)	Calculated Value of Center Frequency(MHz)	Result (ppm)	Limit (ppm)	State
NT/NV	36	0	5180.0	5179.964818	-6.79	Within authorized band	PASS
	40		5200.0	5199.960005	-7.69		PASS
	48		5240.0	5239.960130	-7.61		PASS
	38		5190.0	5189.958405	-8.01		PASS
	46		5230.0	5229.957380	-8.15		PASS
	149		5745.0	5744.955593	-7.73		PASS
	157		5785.0	5784.952405	-8.23		PASS
	165		5825.0	5824.952205	-8.21		PASS
	151		5755.0	5754.960005	-6.95		PASS
	159		5795.0	5794.953930	-7.95		PASS



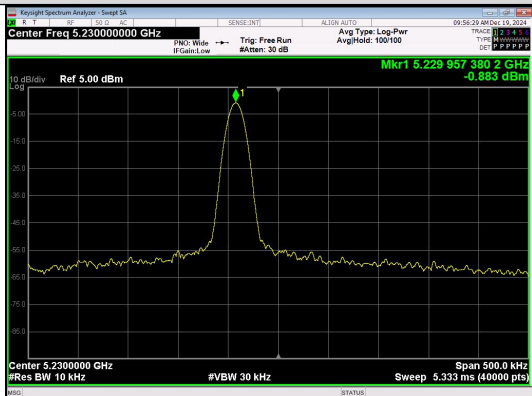
NT/NV_Antenna 0
IEEE 802.11ac_Channel 36_20MHz



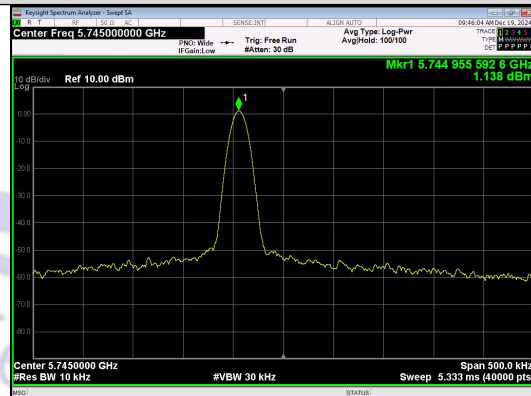
NT/NV_Antenna 0
IEEE 802.11ac_Channel 40_20MHz



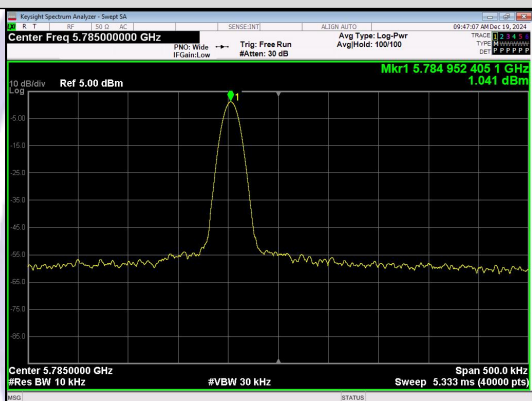
NT/NV_Antenna 0 IEEE 802.11ac_Channel 48_20MHz



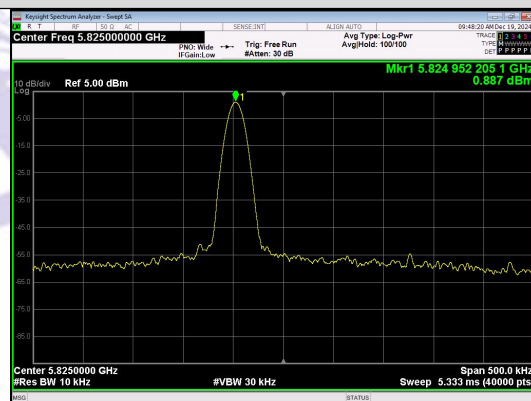
NT/NV_Antenna 0 IEEE 802.11ac_Channel 38_40MHz



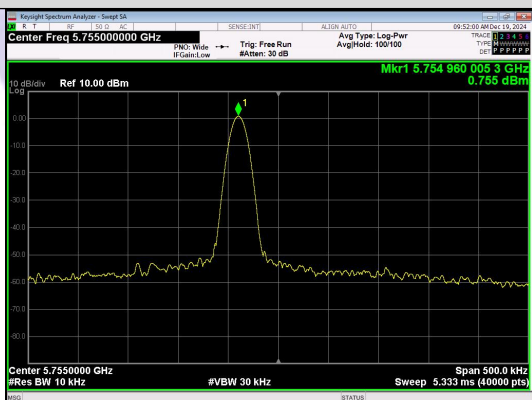
NT/NV_Antenna 0 IEEE 802.11ac_Channel 46_40MHz



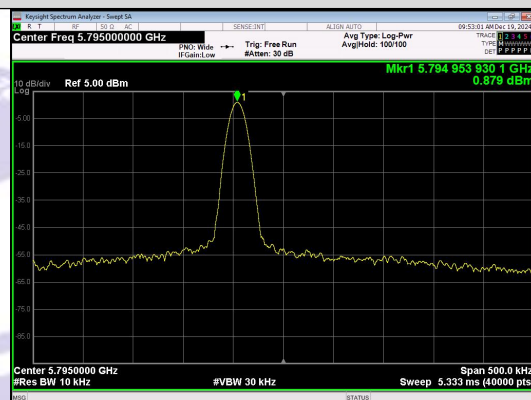
NT/NV_Antenna 0 IEEE 802.11ac_Channel 149_20MHz



NT/NV_Antenna 0 IEEE 802.11ac_Channel 157_20MHz



NT/NV_Antenna 0 IEEE 802.11ac_Channel 165_20MHz



NT/NV_Antenna 0 IEEE 802.11ac_Channel 151_40MHz

NT/NV_Antenna 0 IEEE 802.11ac_Channel 159_40MHz

13 On Time and Duty Cycle

13.1 Standard Applicable

None; for reporting purpose only

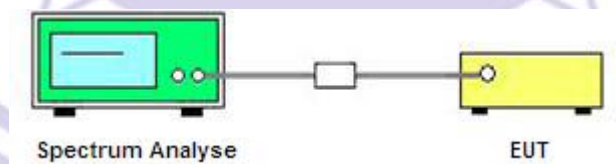
13.2 Measuring Instruments and Setting

Please refer to equipment list in this report. The following table is the setting of the spectrum analyzer.

13.3 Test Procedures

- 1). Set the Centre frequency of the spectrum analyzer to the transmitting frequency;
- 2). Set the span=0MHz, RBW=8MHz, VBW=8MHz, Sweep time=10001pts;
- 3). Detector = peak;
- 4). Trace mode = Single hold.

13.4 Test Setup Layout



13.5 EUT Operation during Test

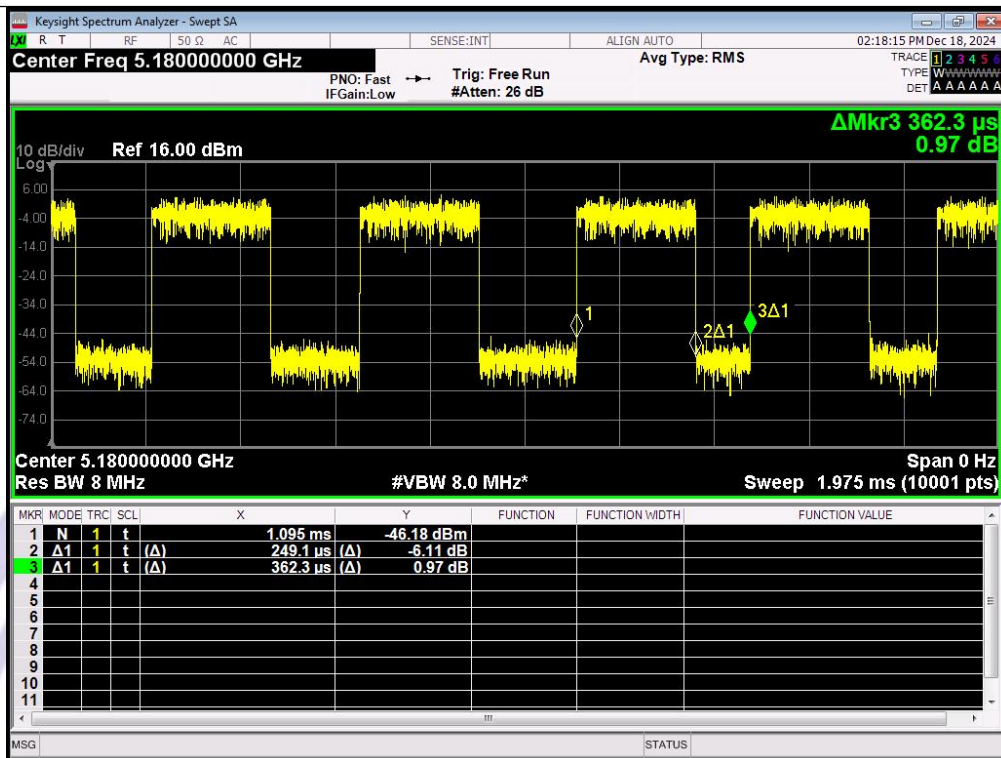
The EUT was programmed to be in continuously transmitting mode.

13.6 Test result

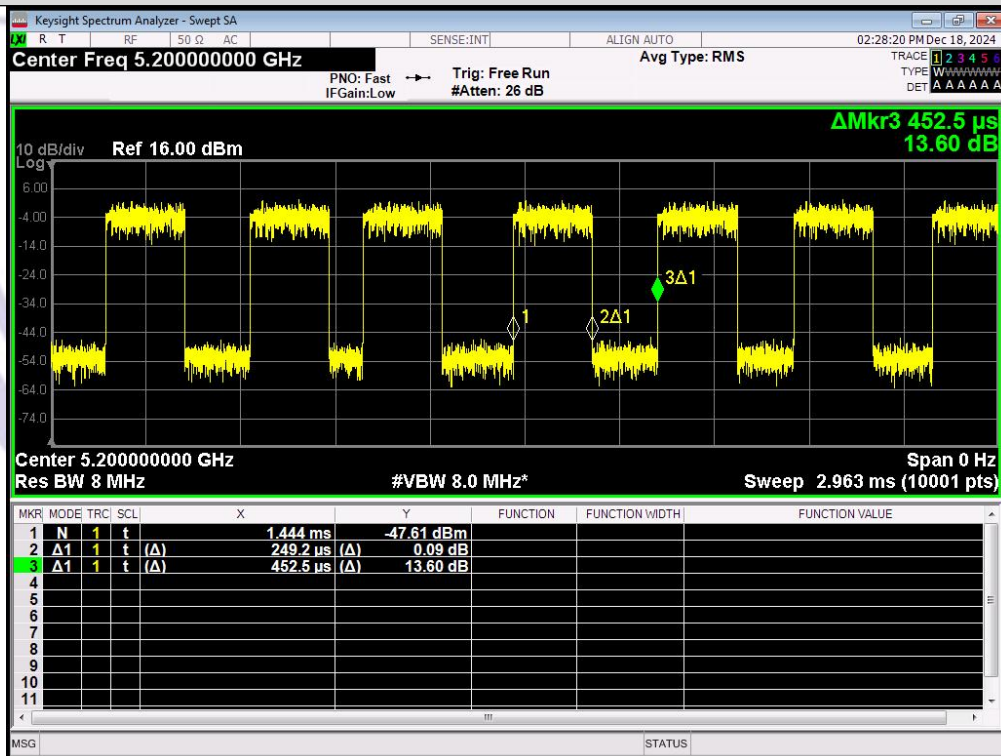
Mode	Channel	Antenna	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)
IEEE 802.11a	36	0	0.249	0.362	68.76	0.6876	1.6266
	40		0.249	0.452	55.08	0.5508	2.5901
	48		0.249	0.425	58.57	0.5857	2.3232
IEEE 802.11n_20	36		1.924	2.080	92.50	0.9250	0.3386
	40		1.924	2.107	91.31	0.9131	0.3948
	48		1.924	2.107	91.31	0.9131	0.3948
IEEE 802.11n_40	38		0.947	1.148	82.44	0.8244	0.8386
	46		0.947	1.121	84.43	0.8443	0.735
IEEE 802.11ac_20	36		2.068	2.421	85.42	0.8542	0.6844
	40		2.070	2.539	81.52	0.8152	0.8874
	48		2.068	2.538	81.48	0.8148	0.8895
IEEE 802.11ac_40	38		2.068	2.511	82.36	0.8236	0.8428
	46		2.068	2.439	84.79	0.8479	0.7166

Mode	Channel	Antenna	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)
IEEE 802.11a	149	0	0.249	0.407	61.21	0.6121	2.1318
	157		0.249	0.344	72.38	0.7238	1.4038
	165		0.249	0.434	57.32	0.5732	2.4169
IEEE 802.11n_20	149		1.924	2.125	90.54	0.9054	0.4316
	157		1.924	2.125	90.54	0.9054	0.4316
	165		1.924	2.134	90.16	0.9016	0.4499
IEEE 802.11n_40	151		0.947	1.148	82.44	0.8244	0.8386
	159		0.947	1.176	80.54	0.8054	0.9399
IEEE 802.11ac_20	149		2.068	2.466	83.86	0.8386	0.7645
	157		2.068	2.520	82.06	0.8206	0.8587
	165		2.068	2.556	80.91	0.8091	0.92
IEEE 802.11ac_40	151		2.068	2.457	84.17	0.8417	0.7484
	159		2.070	2.530	81.82	0.8182	0.8714

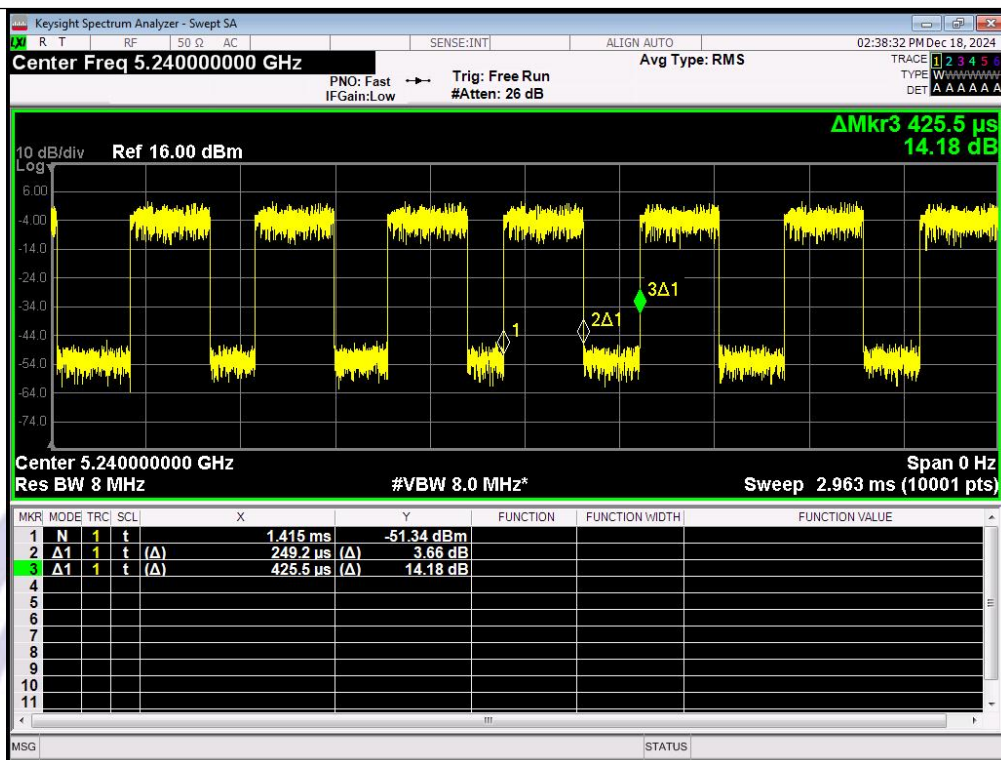
Test Graphs



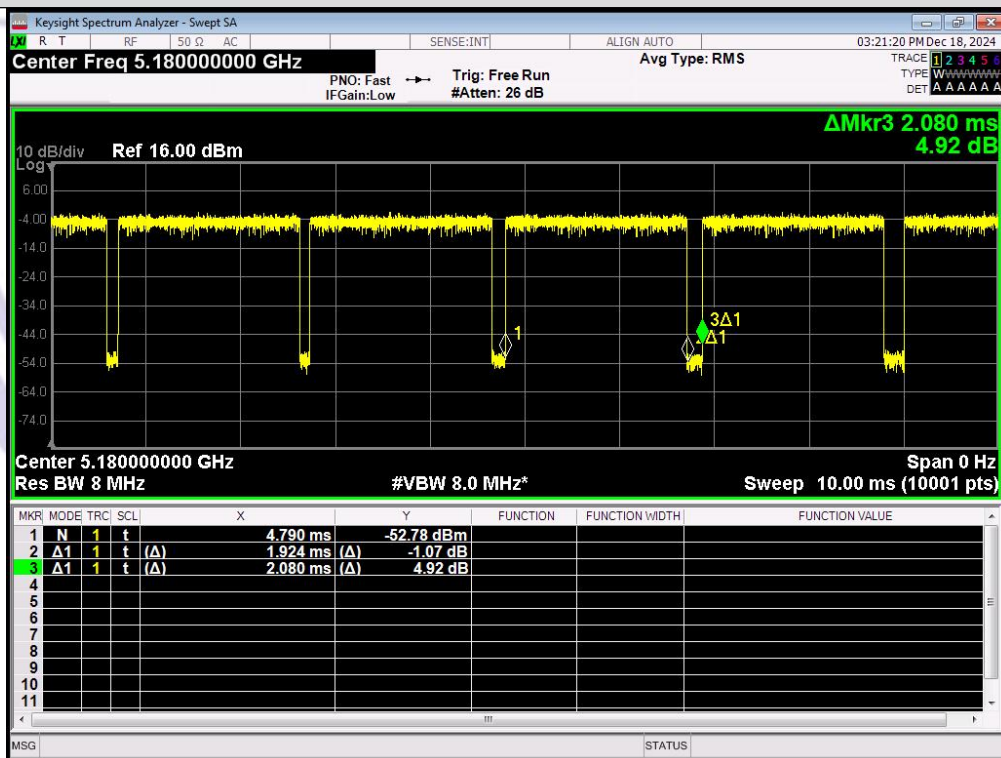
IEEE 802.11a_20MHz_Channel 36



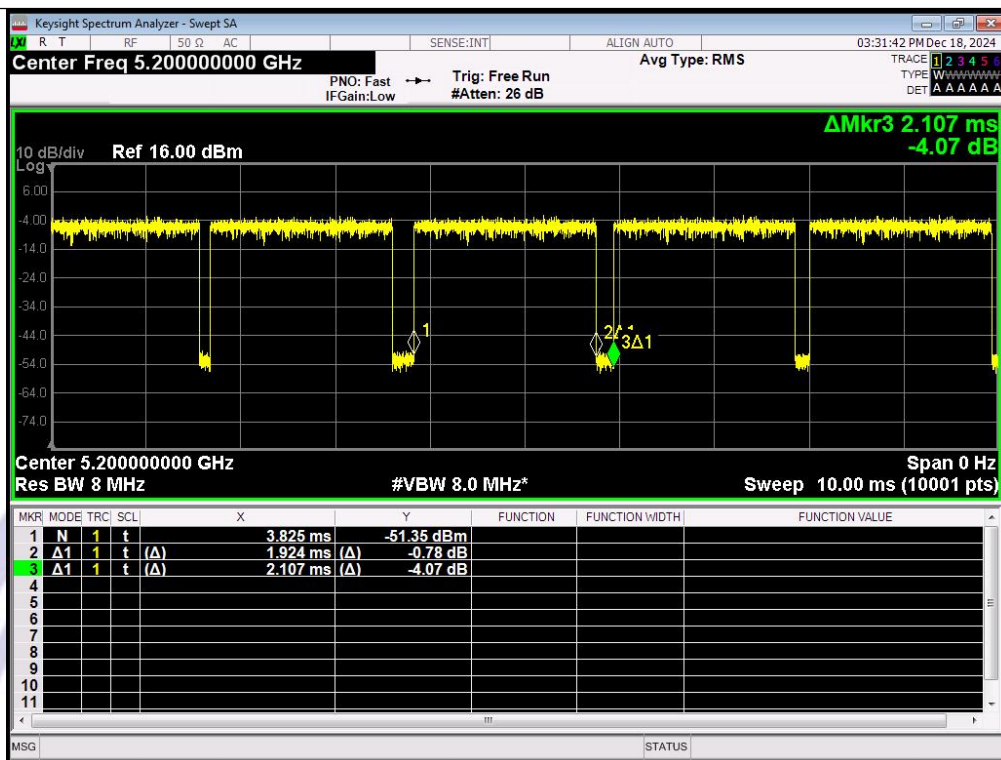
IEEE 802.11a_20MHz_Channel 40



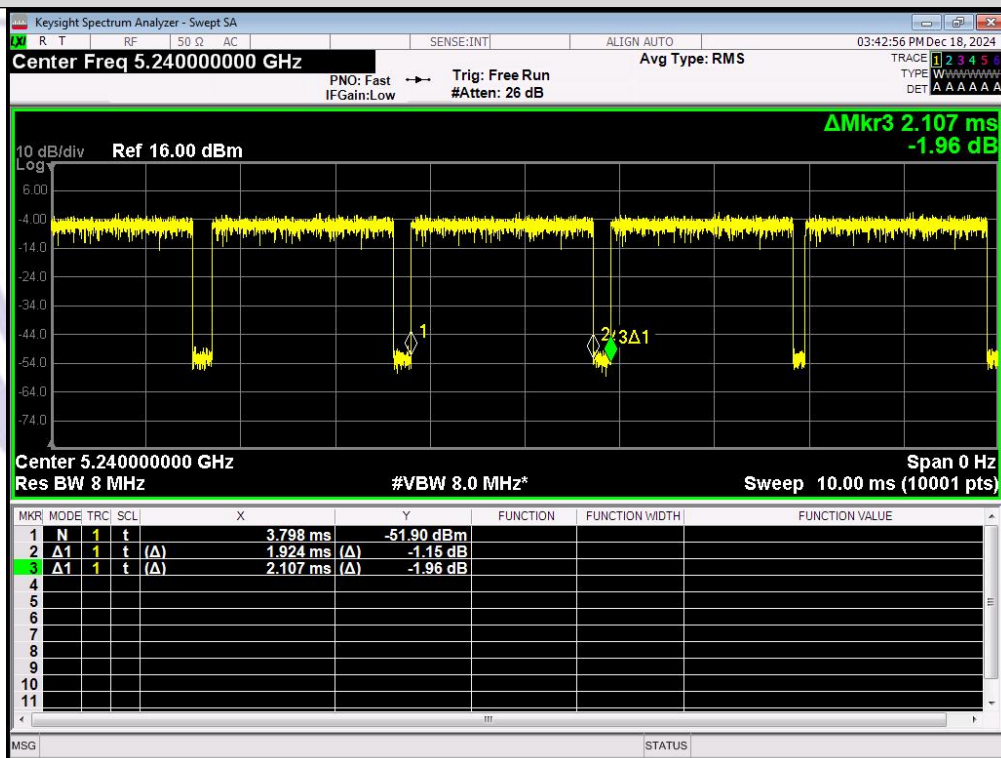
IEEE 802.11a_20MHz_Channel 48



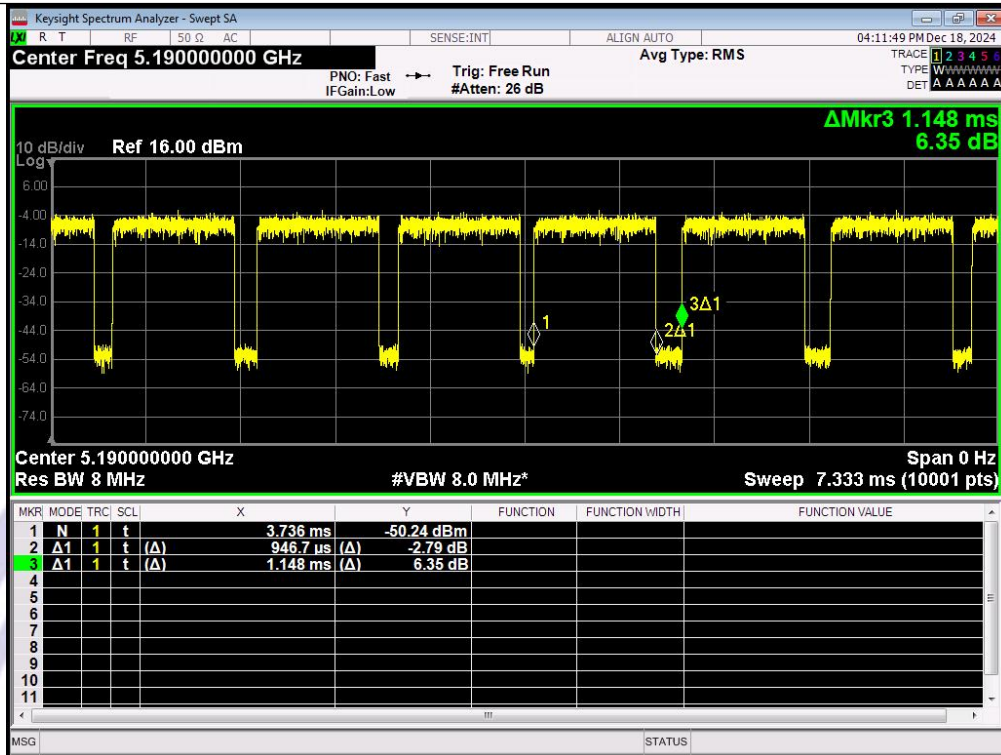
IEEE 802.11n_20MHz_Channel 36



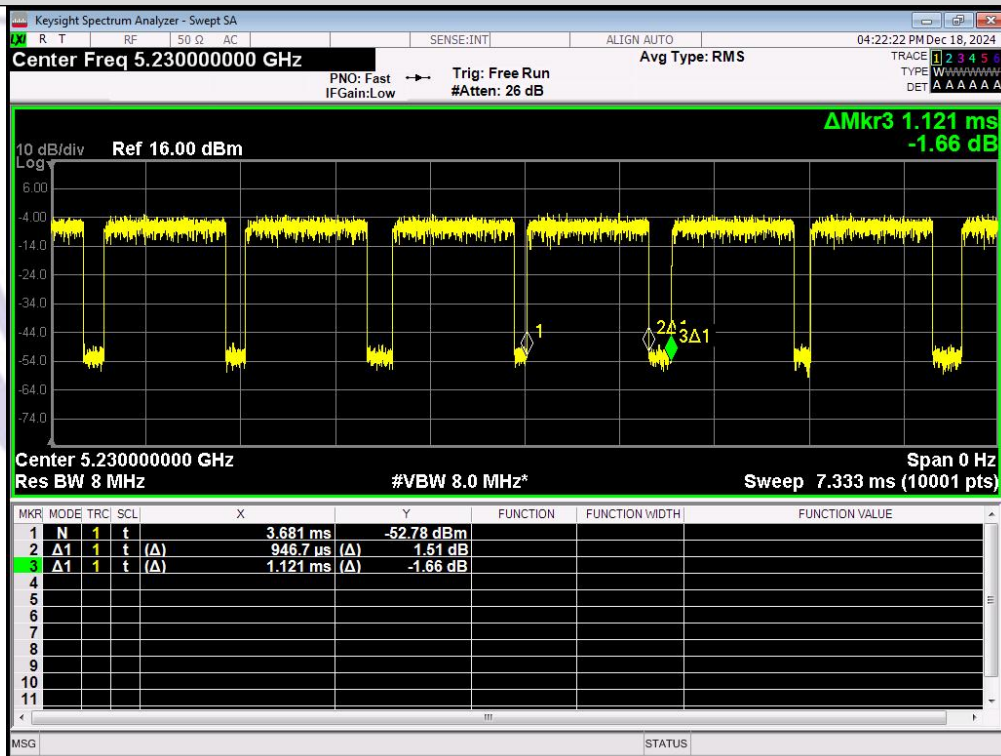
IEEE 802.11n_20MHz_Channel 40



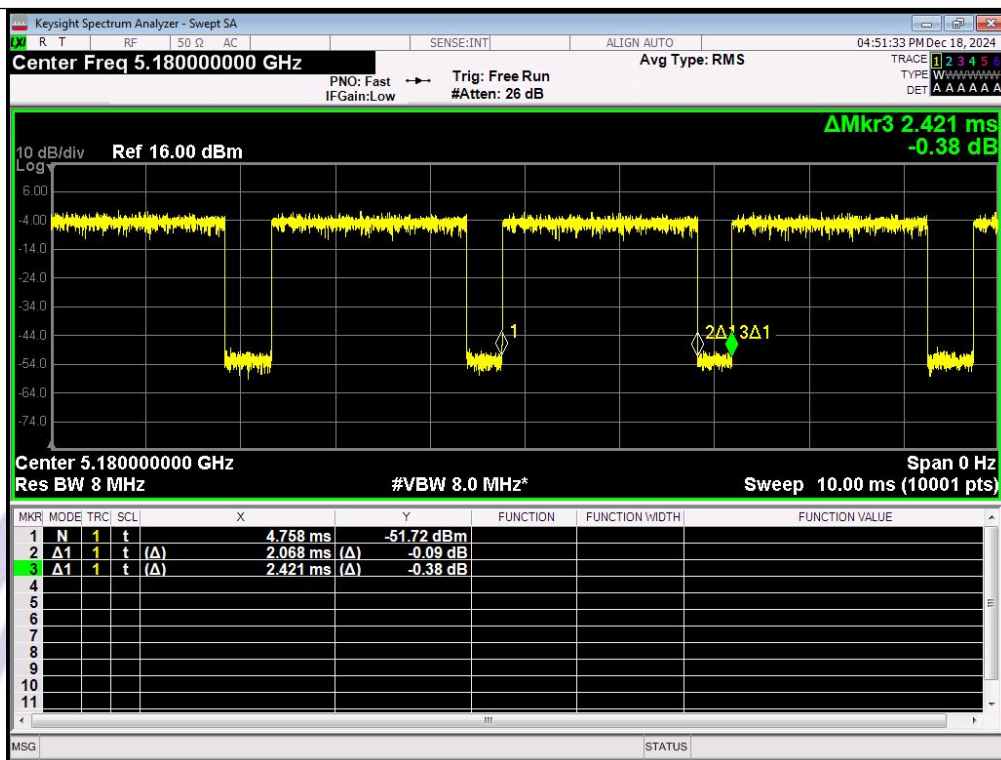
IEEE 802.11n_20MHz_Channel 48



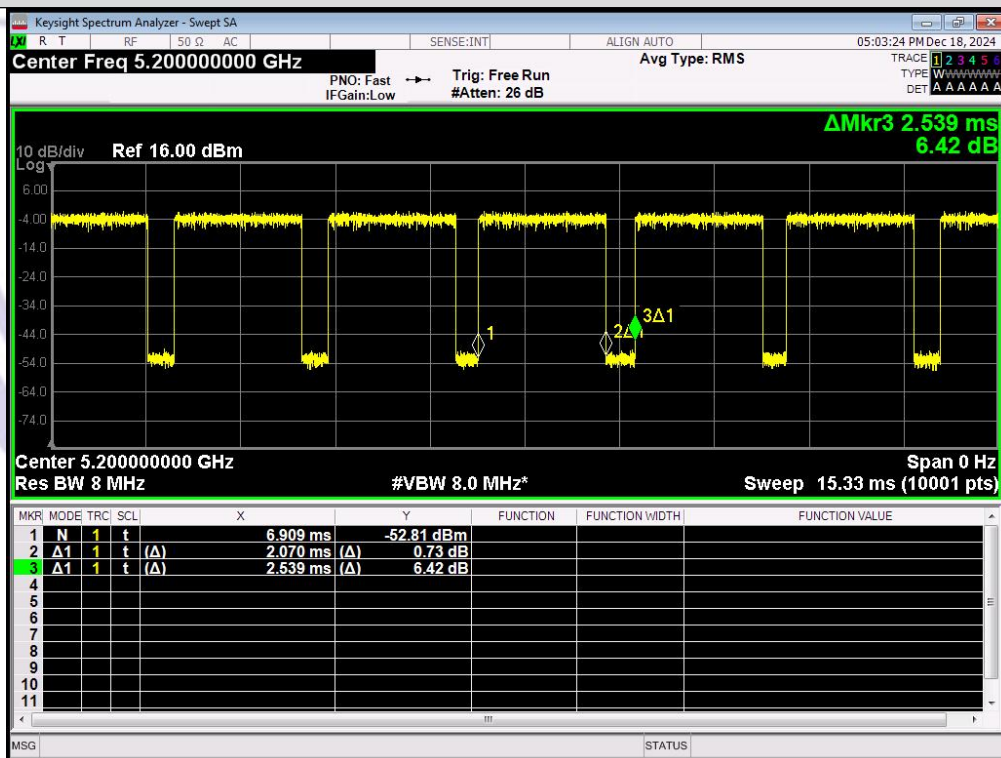
IEEE 802.11n_40MHz_Channel 38



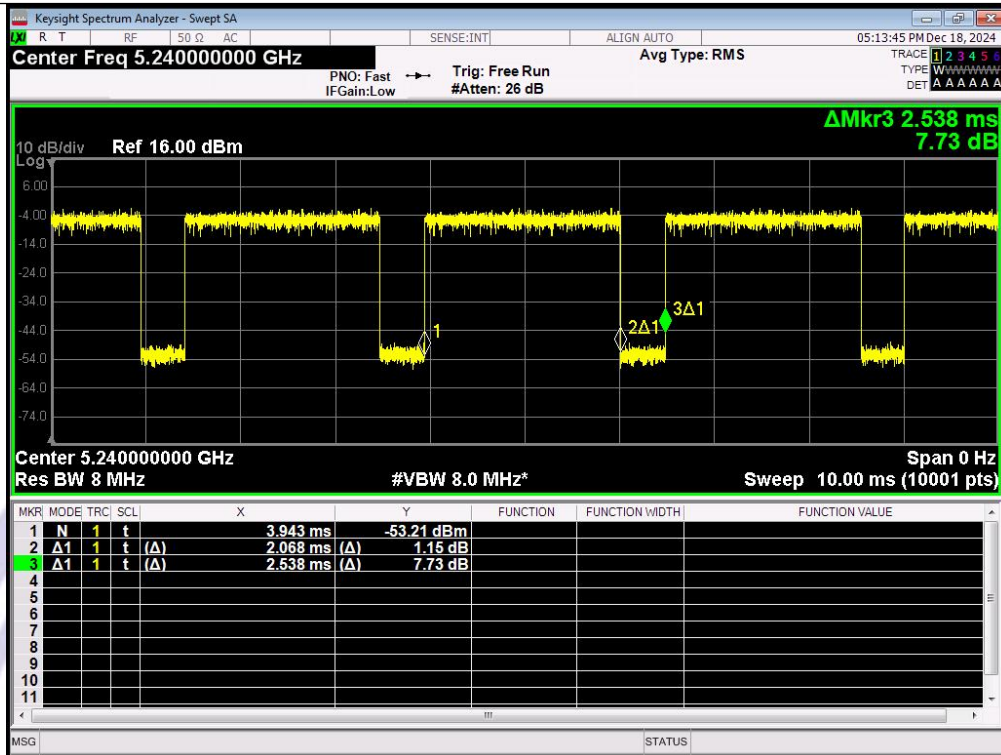
IEEE 802.11n_40MHz_Channel 46



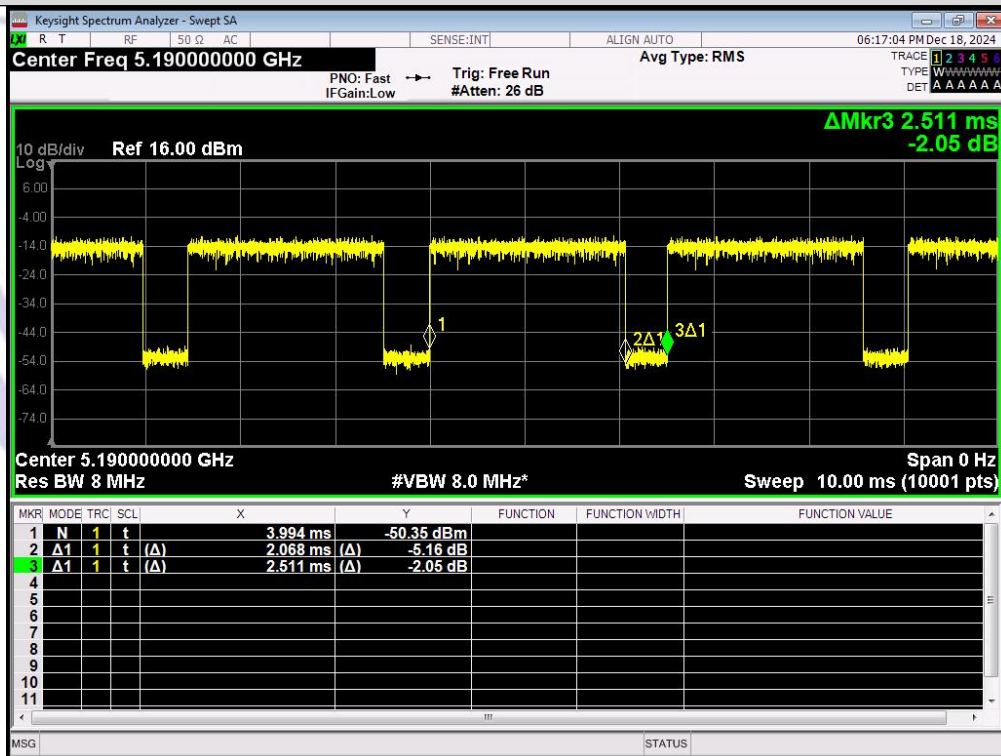
IEEE 802.11ac_20MHz_Channel 36



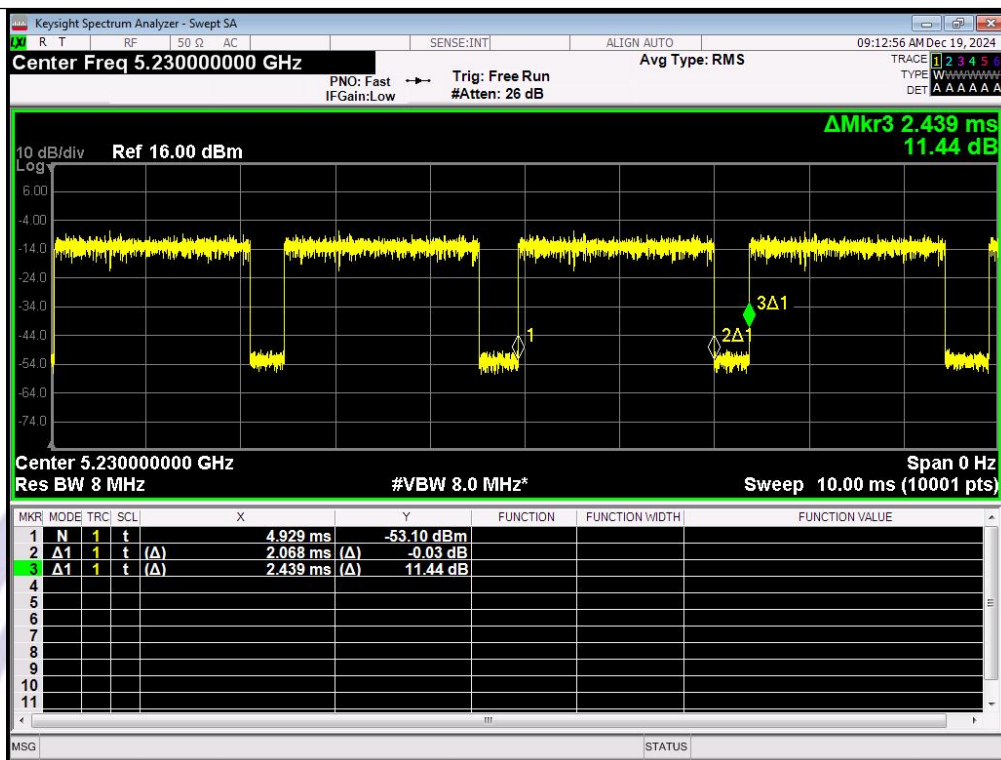
IEEE 802.11ac_20MHz_Channel 40



IEEE 802.11ac_20MHz_Channel 48



IEEE 802.11ac_40MHz_Channel 38



IEEE 802.11ac_40MHz_Channel 46

