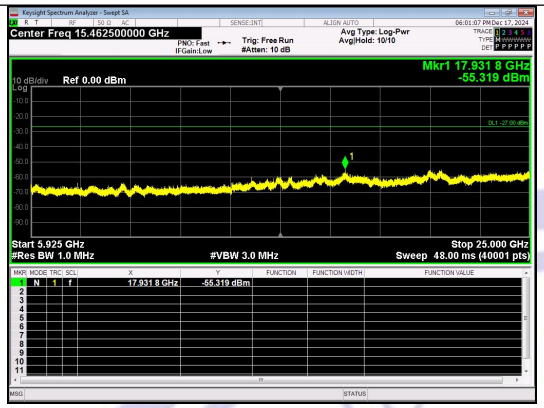
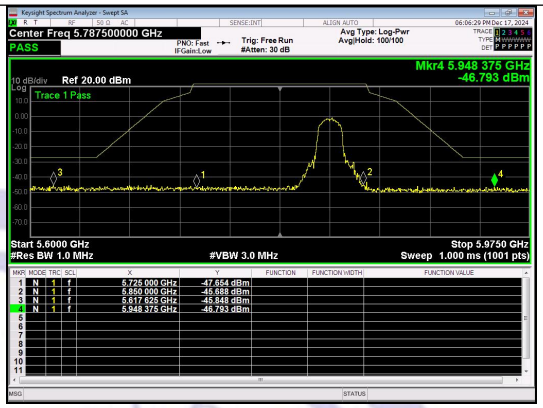
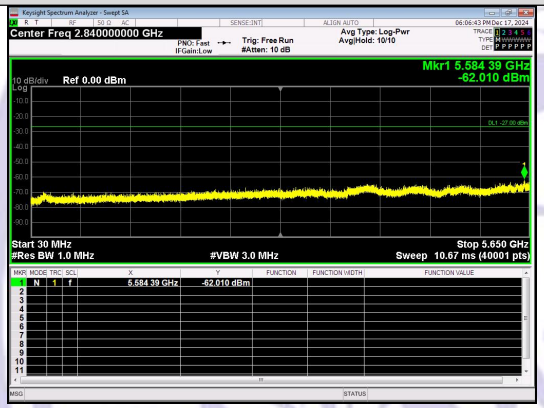


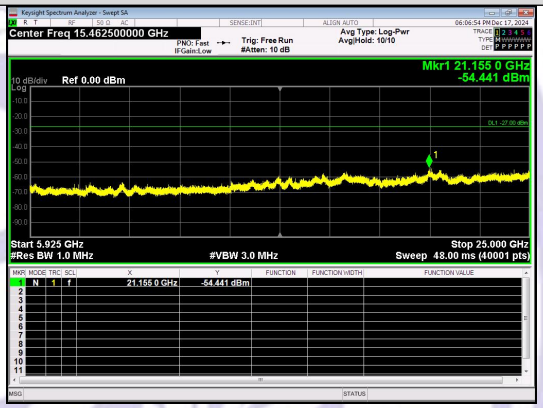
Spurious Emission:5925~25000.0 MHz
IEEE 802.11n_Channel 157_20MHz_Antenna 0



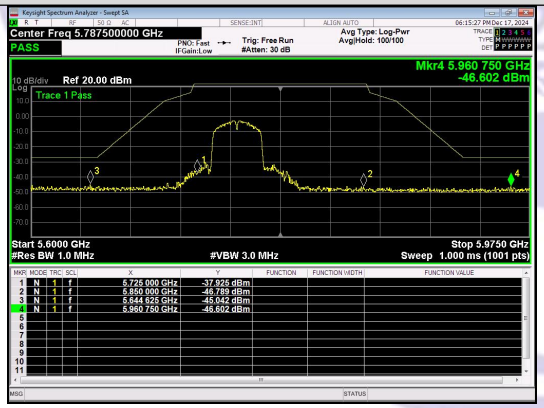
Out Of Band Emission
IEEE 802.11n_Channel 165_20MHz_Antenna 0



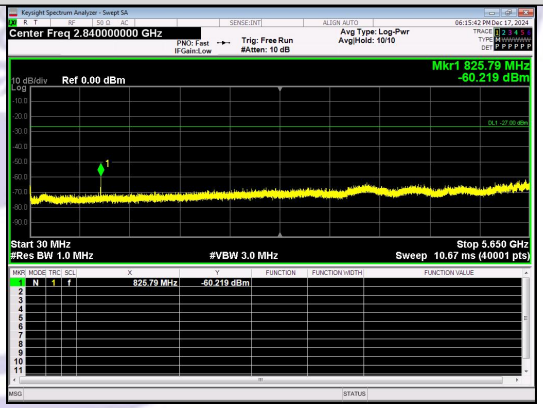
Spurious Emission:30.0~5650 MHz
IEEE 802.11n_Channel 165_20MHz_Antenna 0



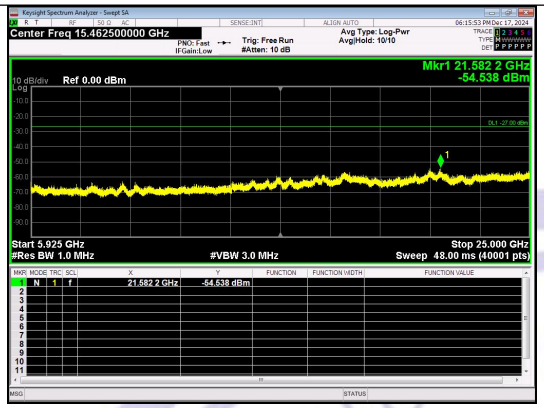
Spurious Emission:5925~25000.0 MHz
IEEE 802.11n_Channel 165_20MHz_Antenna 0



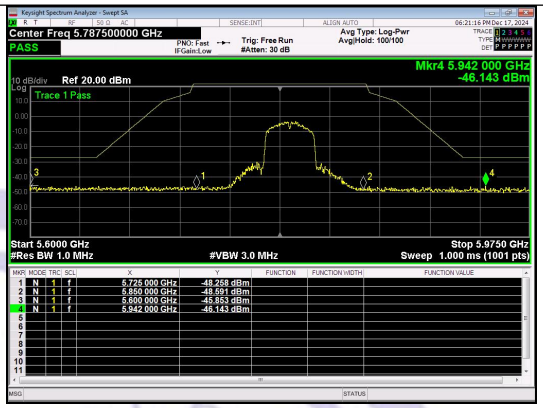
Out Of Band Emission
IEEE 802.11n_Channel 151_40MHz_Antenna 0



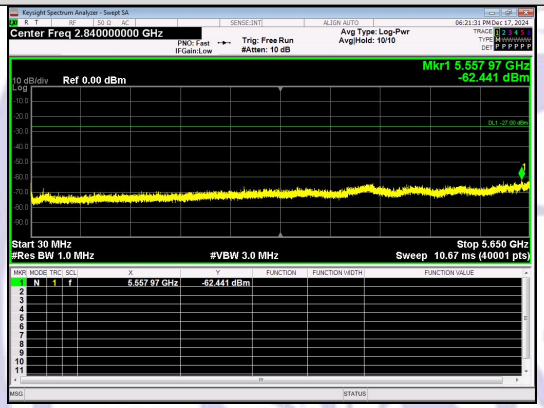
Spurious Emission:30.0~5650 MHz
IEEE 802.11n_Channel 151_40MHz_Antenna 0



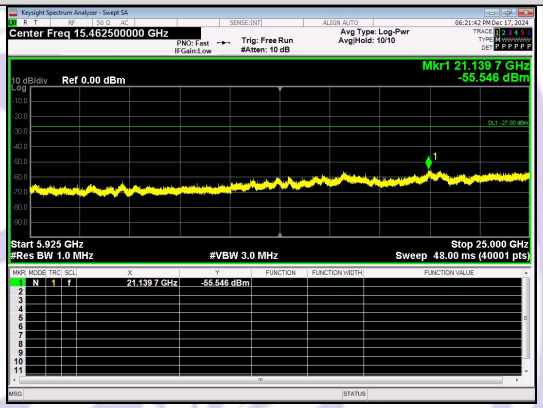
Spurious Emission:5925~25000.0 MHz
IEEE 802.11n_Channel 151_40MHz_Antenna 0



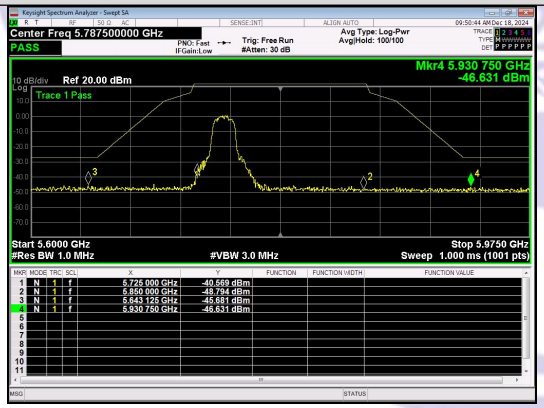
Out Of Band Emission
IEEE 802.11n_Channel 159_40MHz_Antenna 0



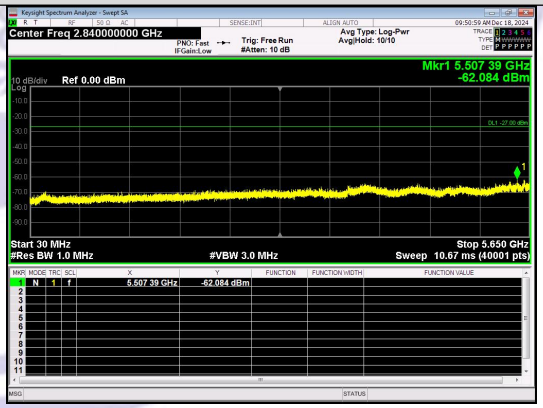
Spurious Emission:30.0~5650 MHz
IEEE 802.11n_Channel 159_40MHz_Antenna 0



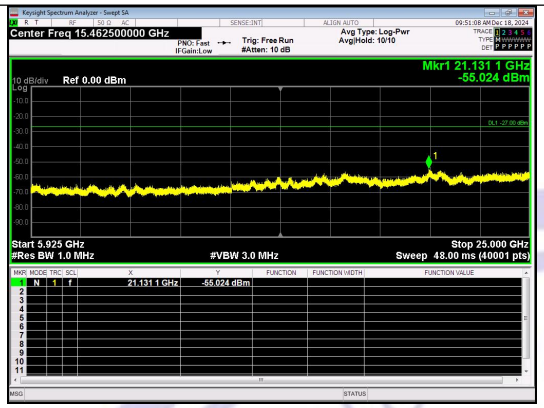
Spurious Emission:5925~25000.0 MHz
IEEE 802.11n_Channel 159_40MHz_Antenna 0



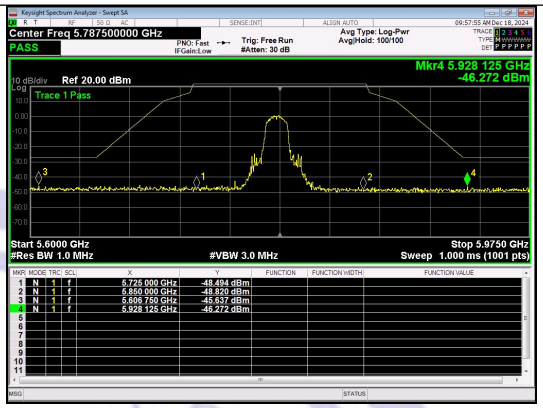
Out Of Band Emission
IEEE 802.11ac_Channel 149_20MHz_Antenna 0



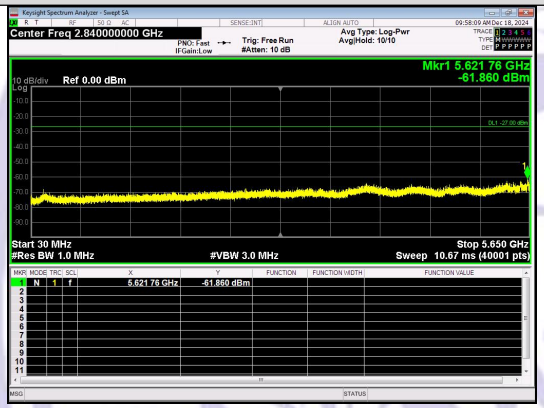
Spurious Emission:30.0~5650 MHz
IEEE 802.11ac_Channel 149_20MHz_Antenna 0



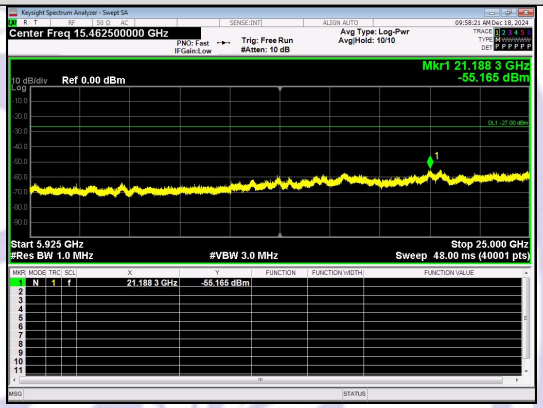
Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac_Channel 149_20MHz_Antenna 0



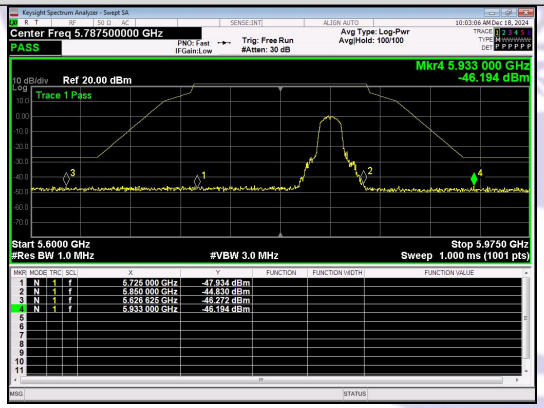
Out Of Band Emission
IEEE 802.11ac_Channel 157_20MHz_Antenna 0



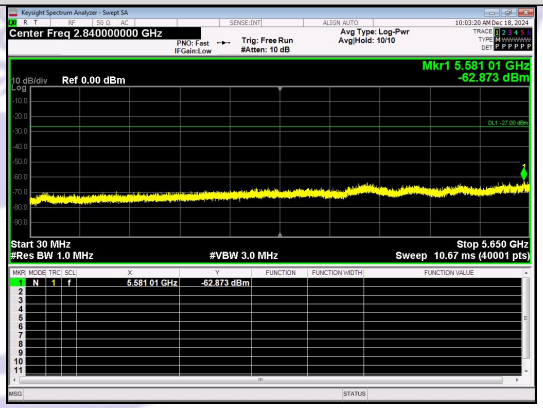
Spurious Emission:30.0~5650 MHz
IEEE 802.11ac_Channel 157_20MHz_Antenna 0



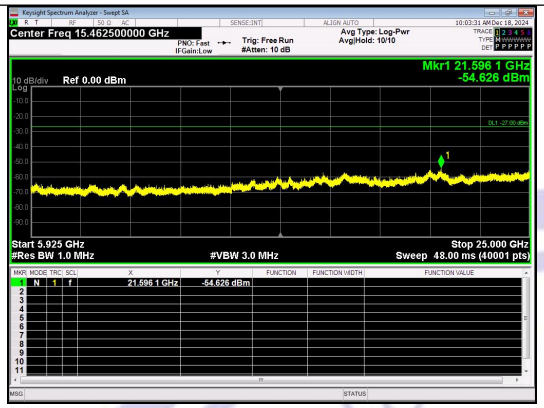
Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac_Channel 157_20MHz_Antenna 0



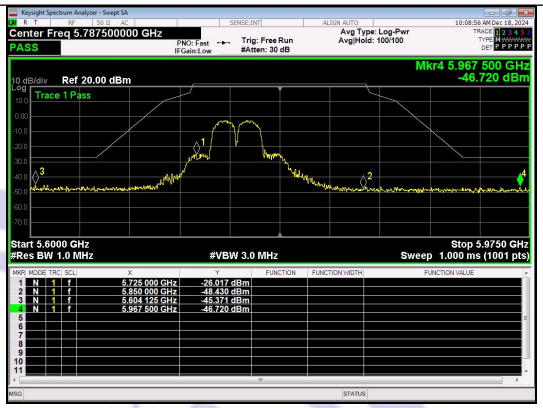
Out Of Band Emission
IEEE 802.11ac_Channel 165_20MHz_Antenna 0



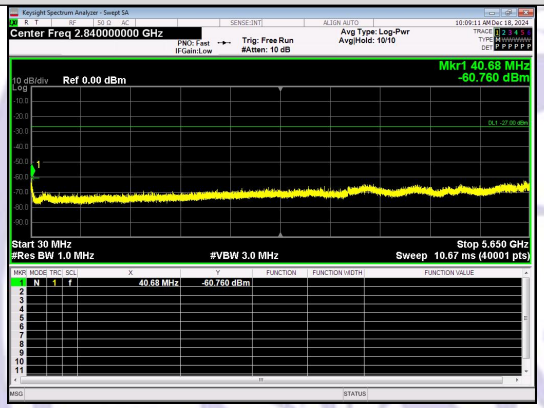
Spurious Emission:30.0~5650 MHz
IEEE 802.11ac_Channel 165_20MHz_Antenna 0



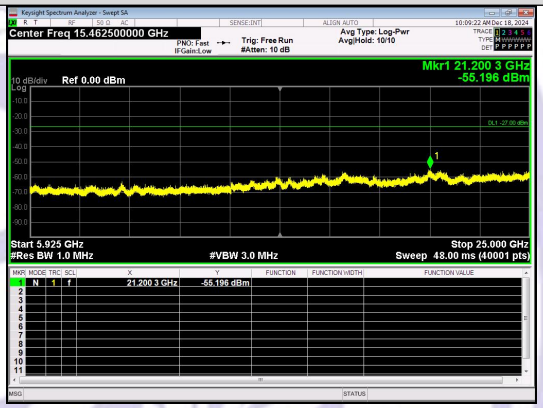
Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac_Channel 165_20MHz_Antenna 0



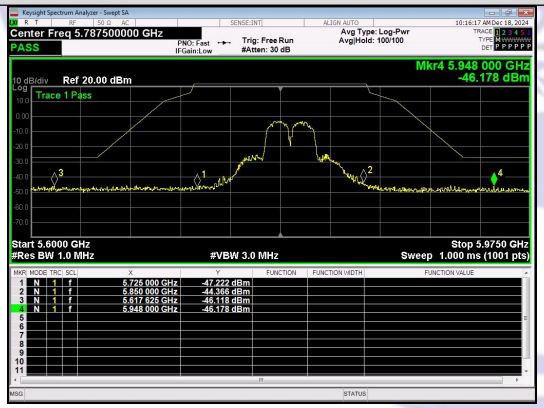
Out Of Band Emission
IEEE 802.11ac_Channel 151_40MHz_Antenna 0



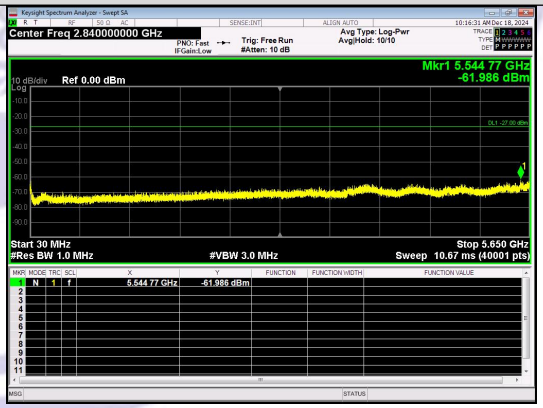
Spurious Emission:30.0~5650 MHz
IEEE 802.11ac_Channel 151_40MHz_Antenna 0



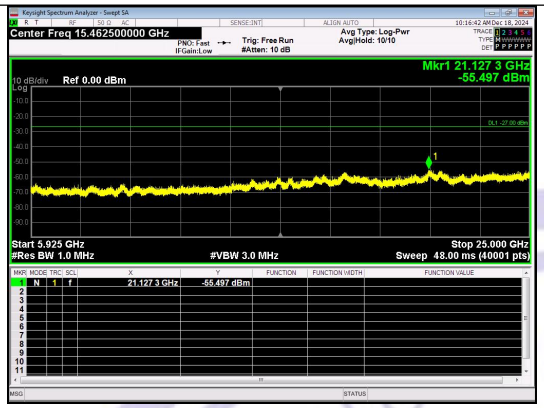
Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac_Channel 151_40MHz_Antenna 0



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

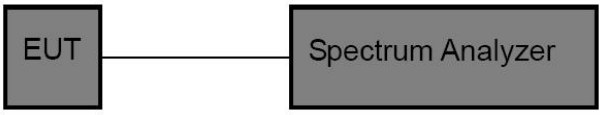
Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

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

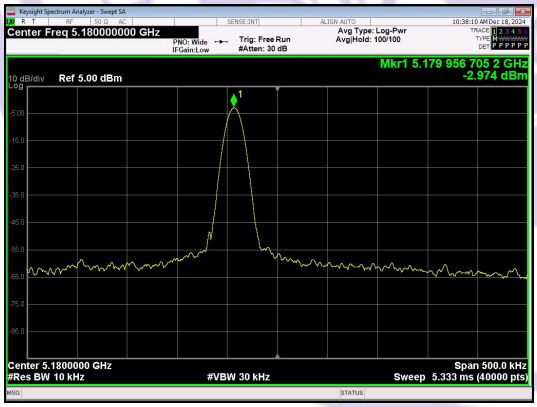
1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 106 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).

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.

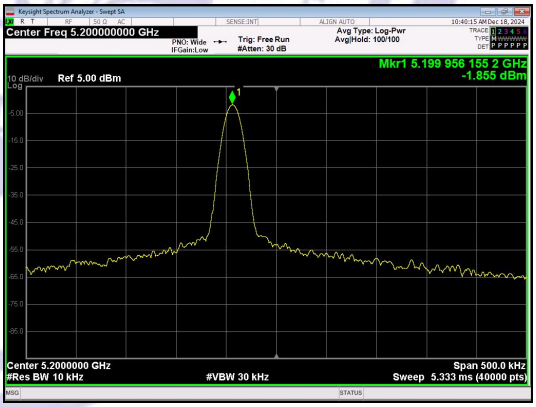
12.4 Test Data

Condition	Ch.	Antenna	Center Frequency (MHz)	Calculated Value of Center Frequency(MHz)	Result (ppm)	Limit (ppm)	State
NT/NV	36	0	5180.0	5179.956705	-8.36	Within authorized band	PASS
	40		5200.0	5199.956155	-8.43		PASS
	38		5190.0	5189.965793	-6.59		PASS
	46		5230.0	5229.960555	-7.54		PASS
	48		5240.0	5239.957293	-8.15		PASS
	149		5745.0	5744.960018	-6.96		PASS
	157		5785.0	5784.956955	-7.44		PASS
	165		5825.0	5824.955230	-7.69		PASS
	151		5755.0	5754.956743	-7.52		PASS
	159		5795.0	5794.958043	-7.24		PASS



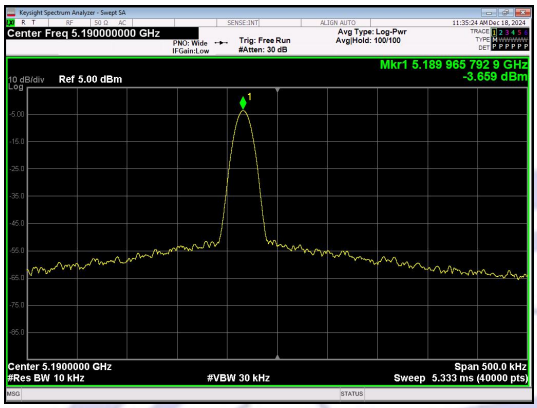
NT/NV_Antenna 0

IEEE 802.11a_Channel 36_20MHz



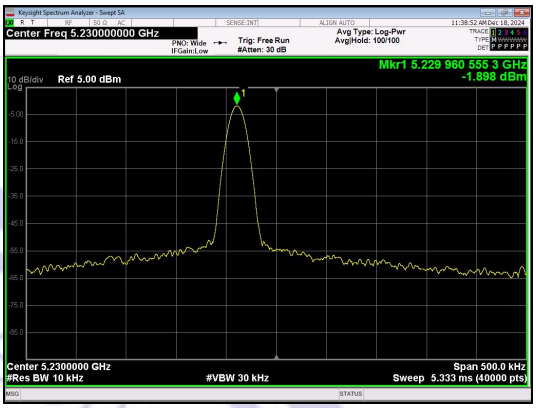
NT/NV_Antenna 0

IEEE 802.11a_Channel 40_20MHz



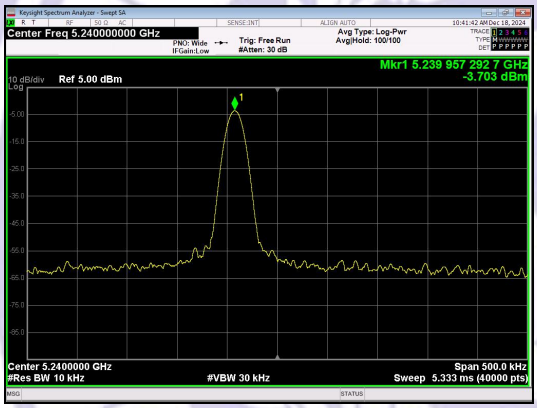
NT/NV_Antenna 0

IEEE 802.11n_Channel 38_40MHz



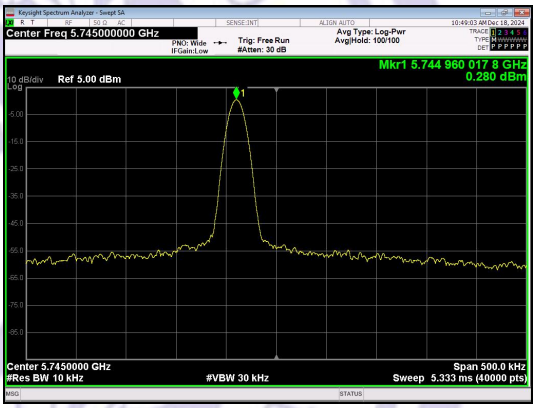
NT/NV_Antenna 0

IEEE 802.11n_Channel 46_40MHz



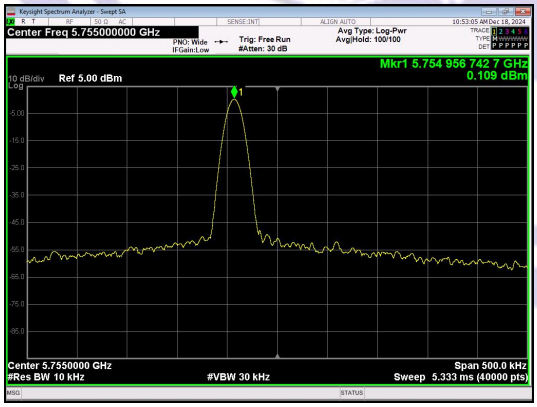
NT/NV_Antenna 0

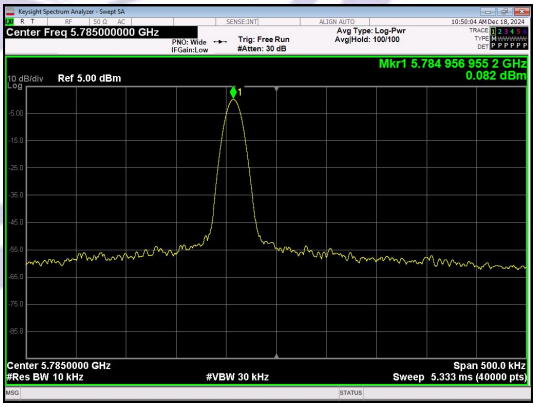
IEEE 802.11a_Channel 48_20MHz

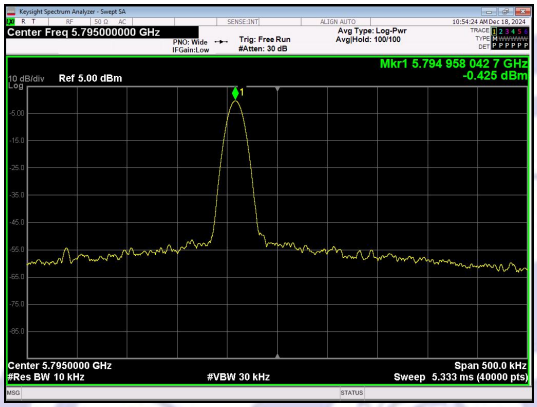
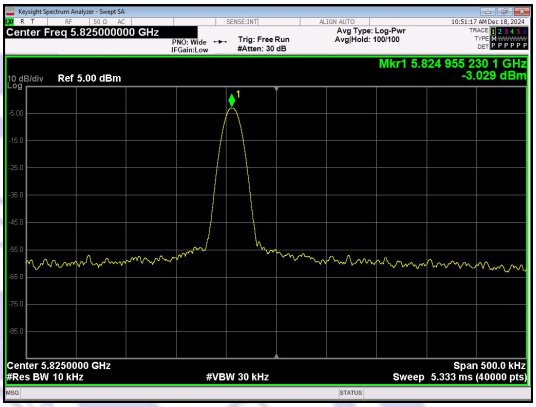


NT/NV_Antenna 0

IEEE 802.11a_Channel 149_20MHz





NT/NV_Antenna 0 IEEE 802.11n_Channel 151_40MHz	NT/NV_Antenna 0 IEEE 802.11a_Channel 157_20MHz
	
NT/NV_Antenna 0 IEEE 802.11n_Channel 159_40MHz	NT/NV_Antenna 0 IEEE 802.11a_Channel 165_20MHz

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

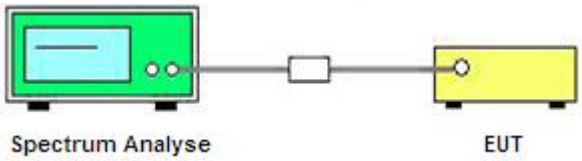
1). Set the Centre frequency of the spectrum analyzer to the transmitting frequency;

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

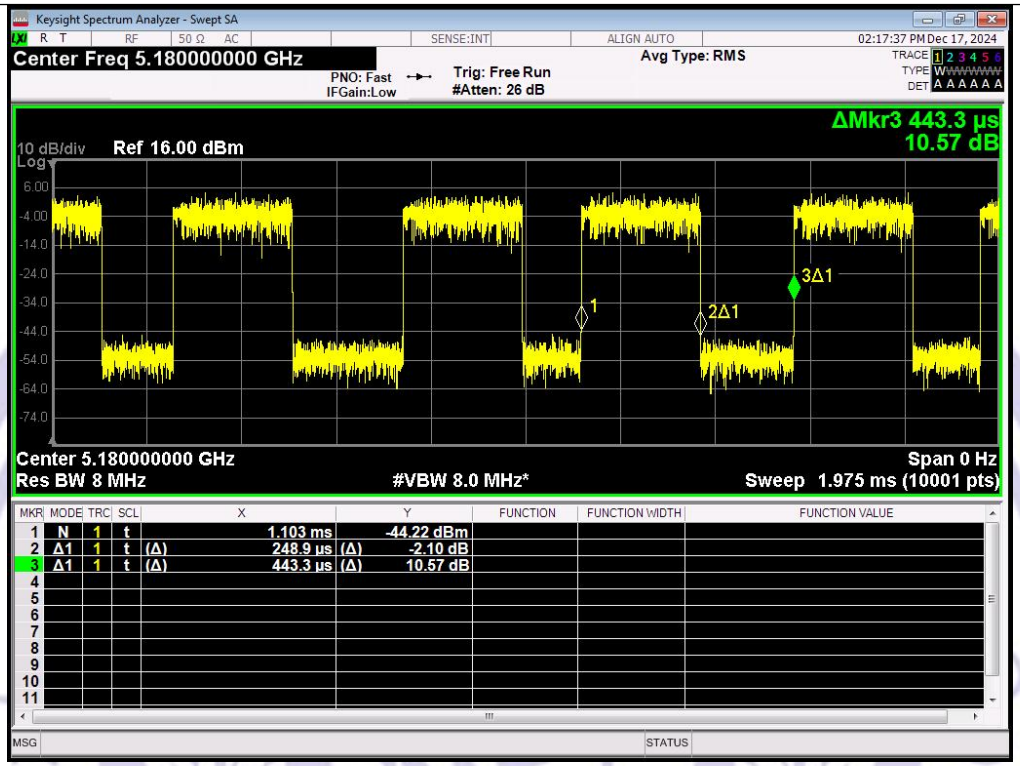
The EUT was programmed to be in continuously transmitting mode.

13.6 Test result

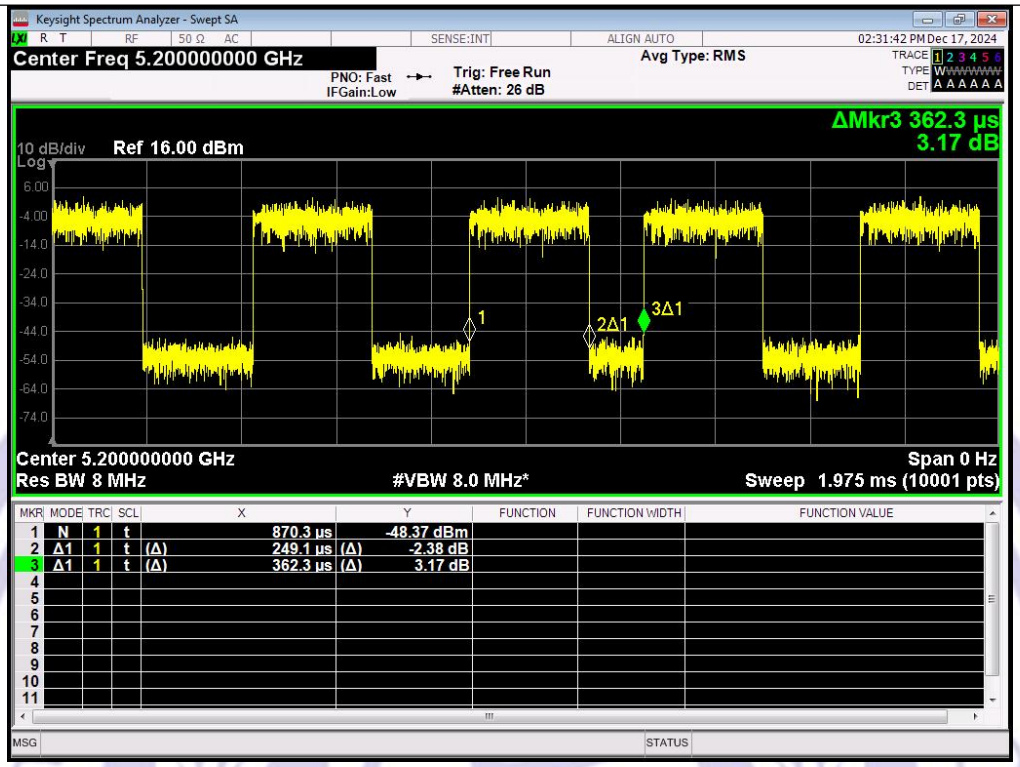
Mode	Channel	Antenna	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)
IEEE 802.11a	36	0	0.249	0.443	56.15	0.5615	2.5065
	40		0.249	0.362	68.76	0.6876	1.6266
	48		0.249	0.461	53.98	0.5398	2.6777
IEEE 802.11n_20	36		1.924	2.026	94.97	0.9497	0.2241
	40		1.924	2.044	94.13	0.9413	0.2627
	48		1.924	2.125	90.54	0.9054	0.4316
IEEE 802.11n_40	38		0.947	1.059	89.47	0.8947	0.4832
	46		0.947	1.148	82.44	0.8244	0.8386
IEEE 802.11ac_20	36		2.068	2.457	84.17	0.8417	0.7484
	40		2.068	2.493	82.95	0.8295	0.8118
	48		2.068	2.457	84.17	0.8417	0.7484
IEEE 802.11ac_40	38		2.068	2.547	81.19	0.8119	0.905
	46		2.068	2.466	83.86	0.8386	0.7645

Mode	Channel	Antenna	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)
IEEE 802.11a	149	0	0.249	0.371	67.11	0.6711	1.7321
	157		0.249	0.452	55.18	0.5518	2.5822
	165		0.249	0.398	62.50	0.6250	2.0412
IEEE 802.11n_20	149		1.924	2.089	92.10	0.9210	0.3574
	157		1.924	2.134	90.16	0.9016	0.4499
	165		1.924	2.053	93.72	0.9372	0.2817
IEEE 802.11n_40	151		0.947	1.085	87.23	0.8723	0.5933
	159		0.947	1.158	81.76	0.8176	0.8746
IEEE 802.11ac_20	149		2.068	2.421	85.42	0.8542	0.6844
	157		2.068	2.448	84.48	0.8448	0.7325
	165		2.070	2.467	83.90	0.8390	0.7624
IEEE 802.11ac_40	151		2.068	2.511	82.36	0.8236	0.8428
	159		2.068	2.520	82.06	0.8206	0.8587

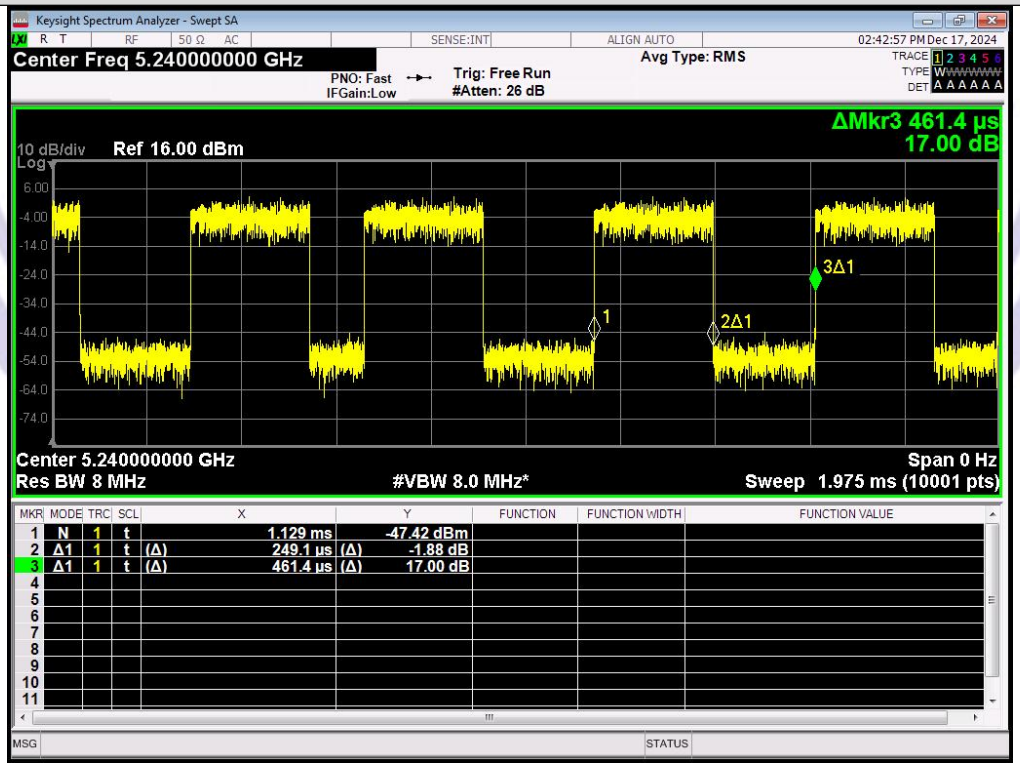
Test Graphs



IEEE 802.11a_20MHz_Channel 36



IEEE 802.11a_20MHz_Channel 40



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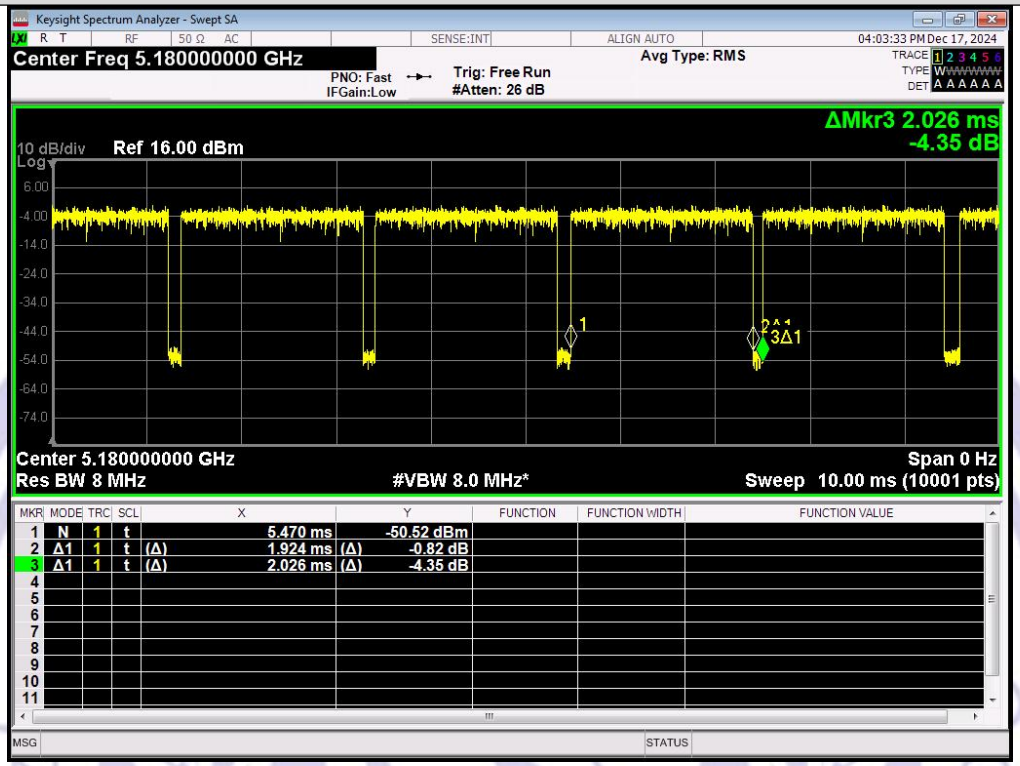

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