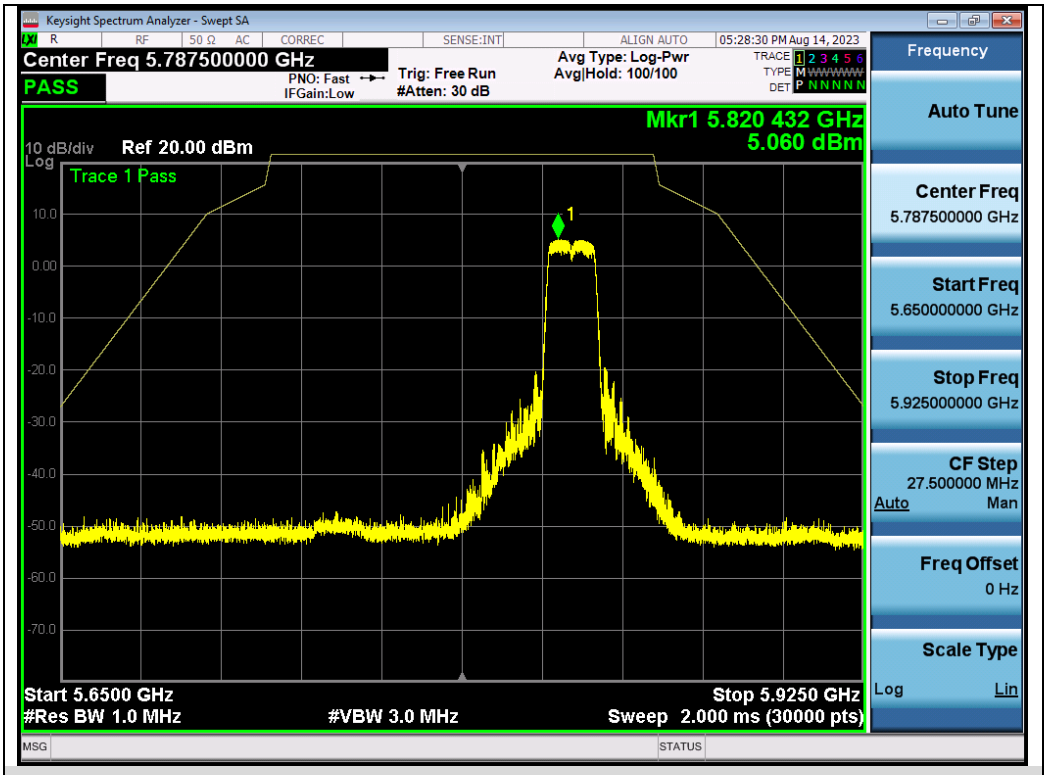
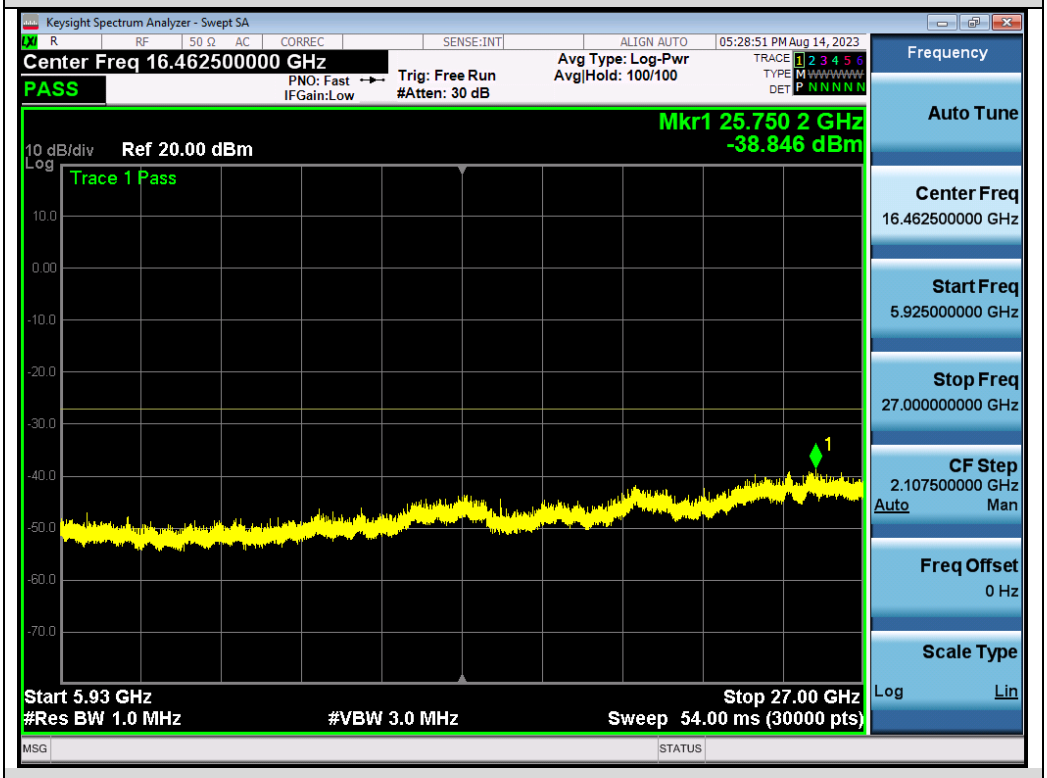
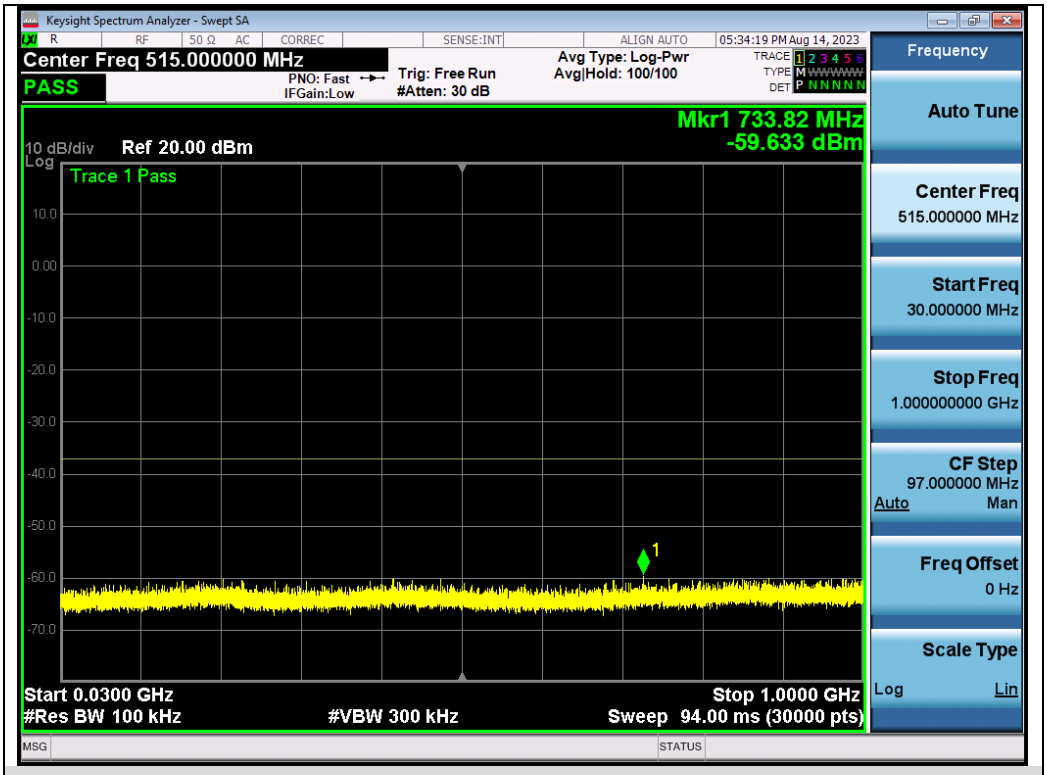


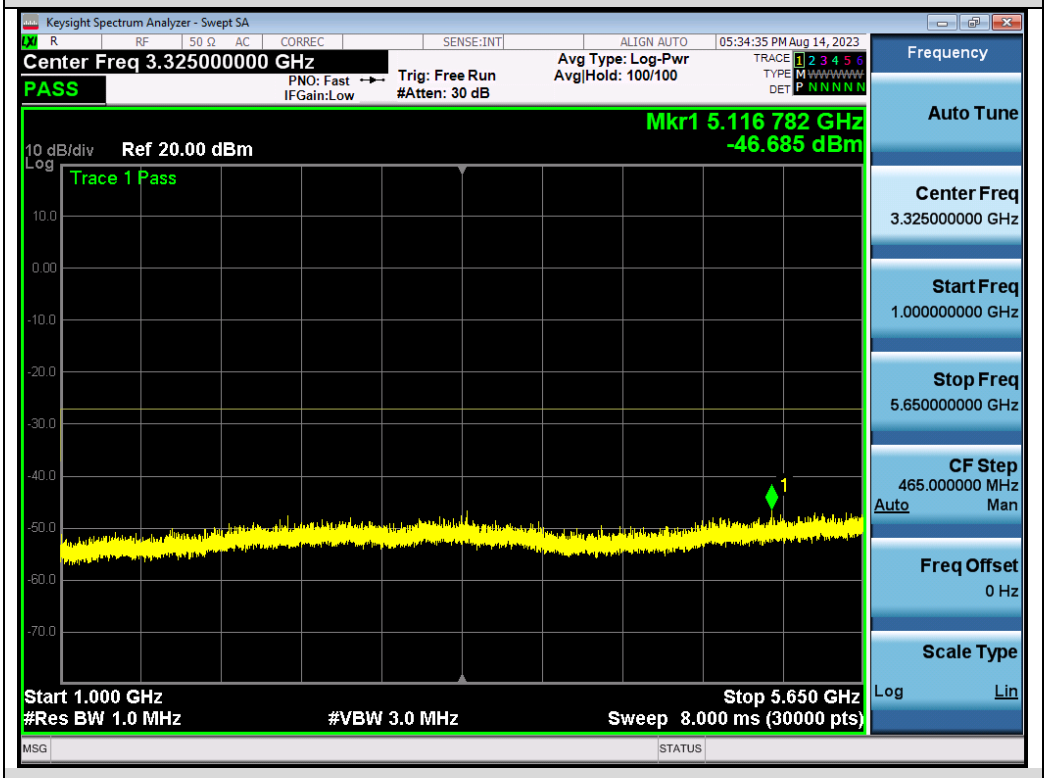
Test_Graph_802.11a_ANT1_5825_6Mbps_Frequency Band3



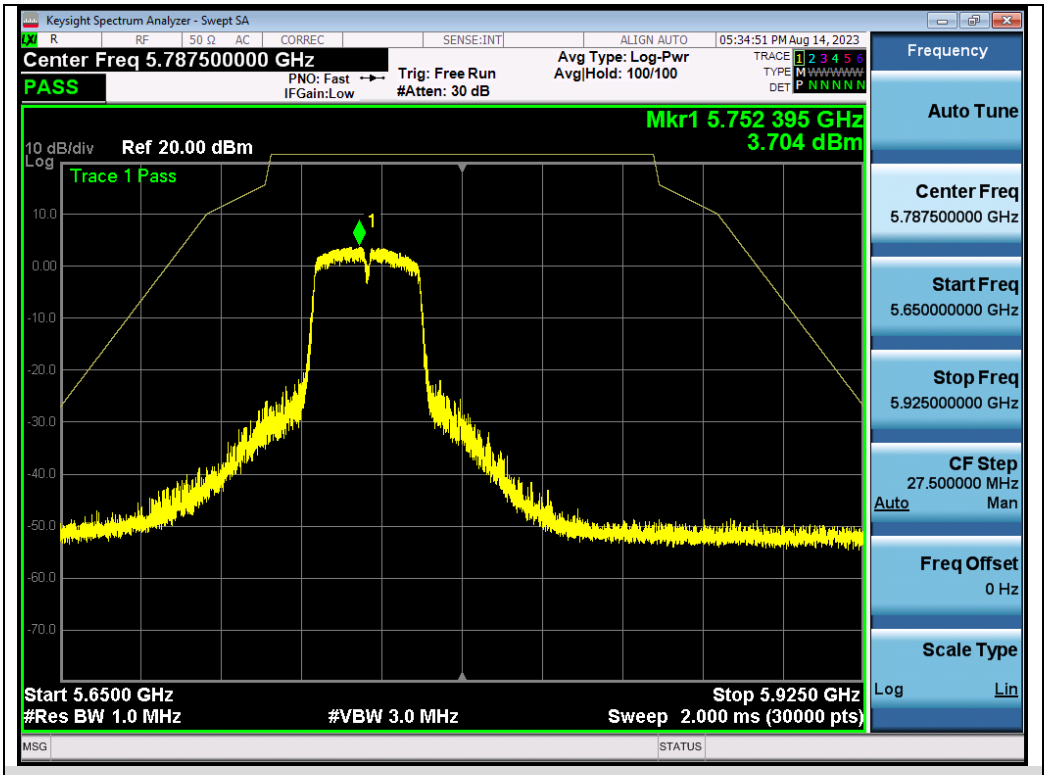
Test_Graph_802.11a_ANT1_5825_6Mbps_Frequency Band4



Test_Graph_802.11n40_ANT1_5755_MCS0_Frequency Band1

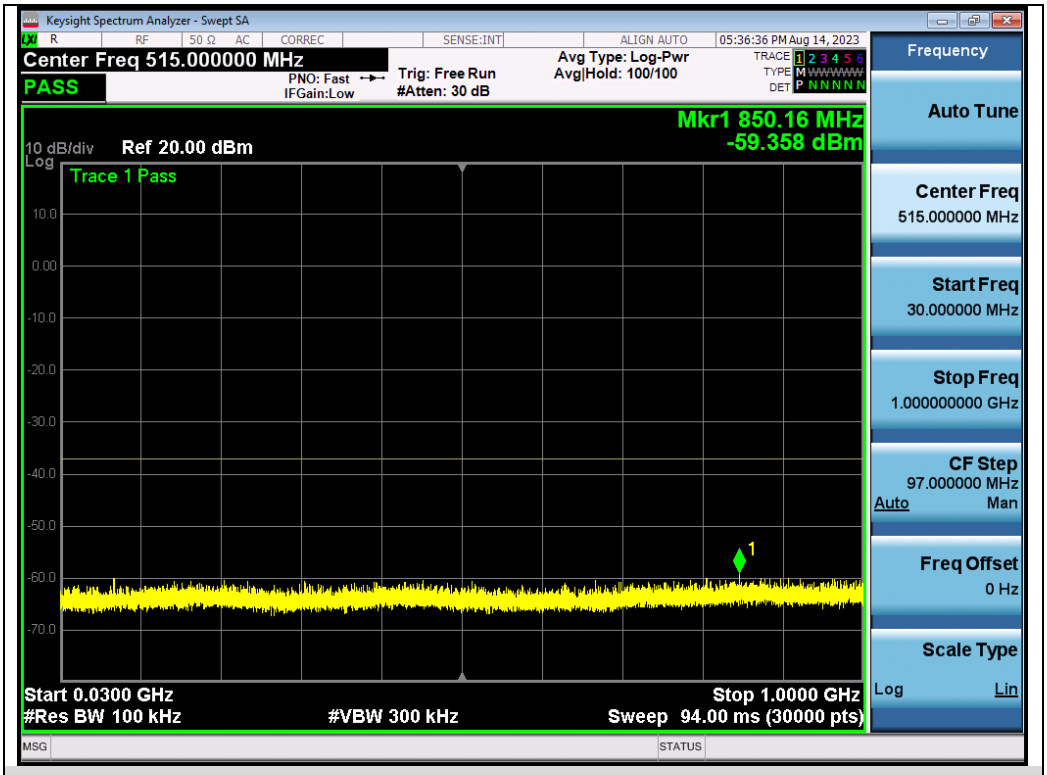


Test_Graph_802.11n40_ANT1_5755_MCS0_Frequency Band2



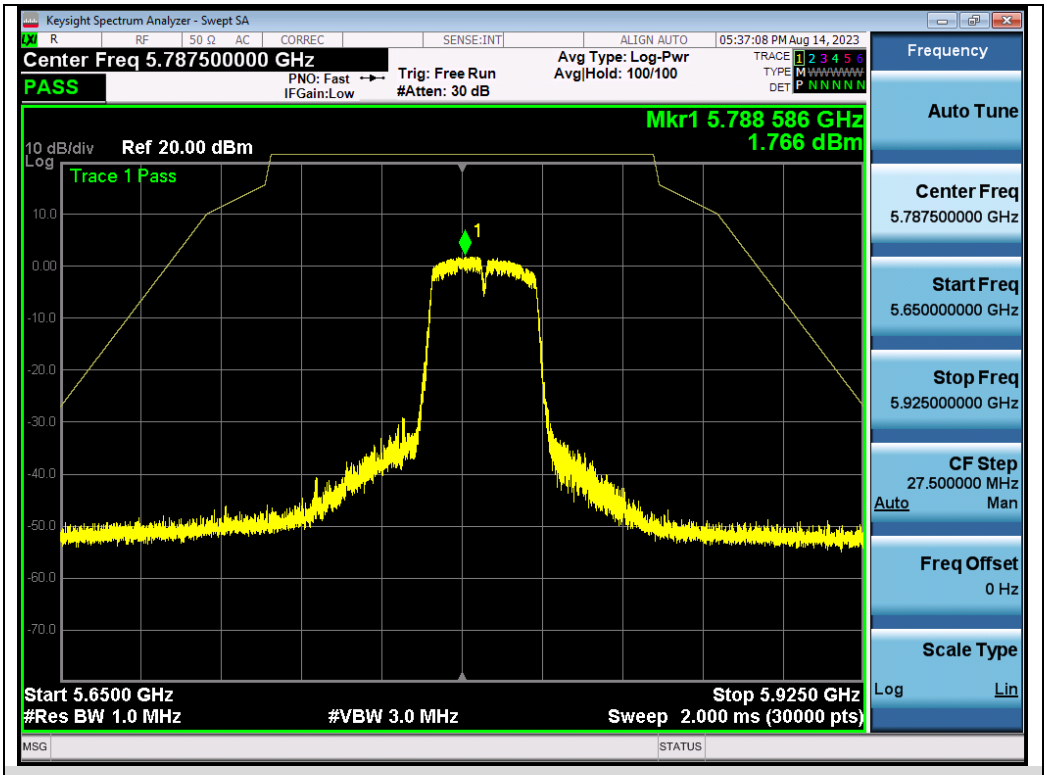
Test_Graph_802.11n40_ANT1_5755_MCS0_Frequency Band3

Test_Graph_802.11n40_ANT1_5755_MCS0_Frequency Band4

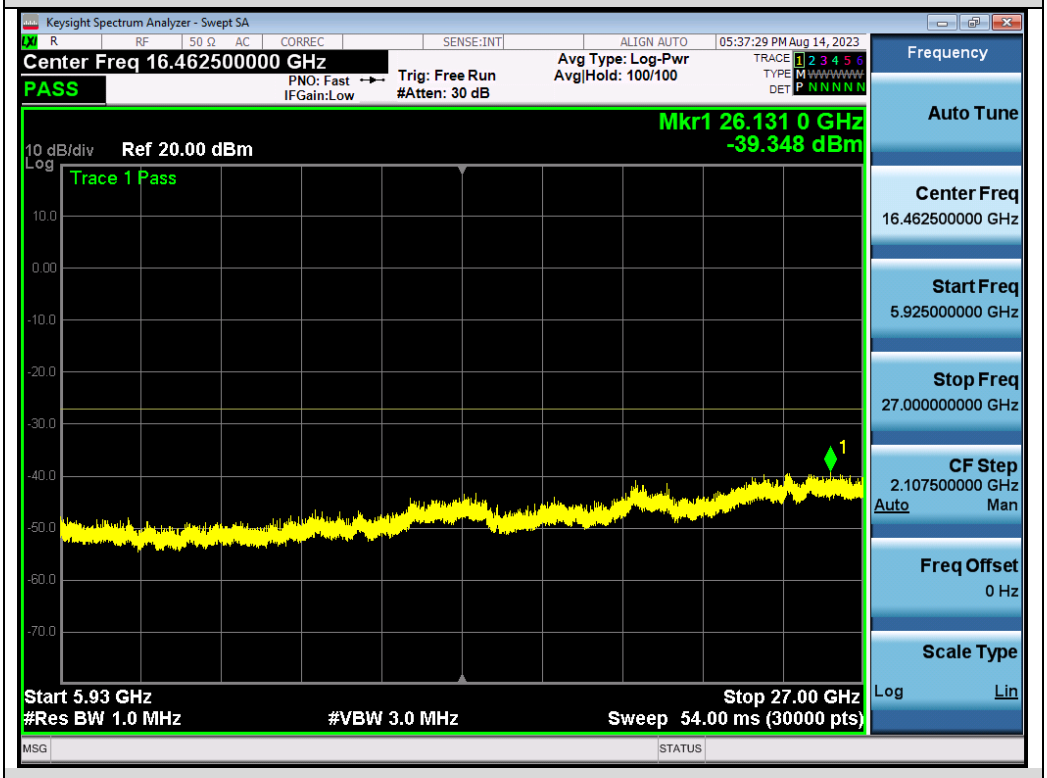


Test_Graph_802.11n40_ANT1_5795_MCS0_Frequency Band1

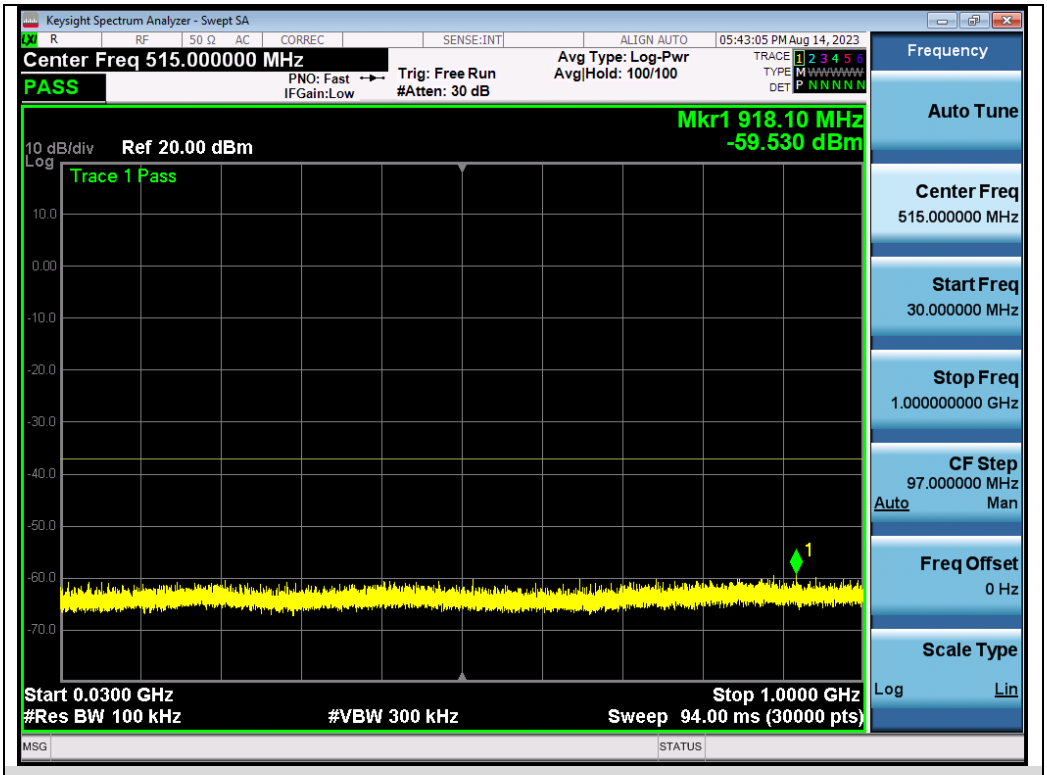
Test_Graph_802.11n40_ANT1_5795_MCS0_Frequency Band2



Test_Graph_802.11n40_ANT1_5795_MCS0_Frequency Band3

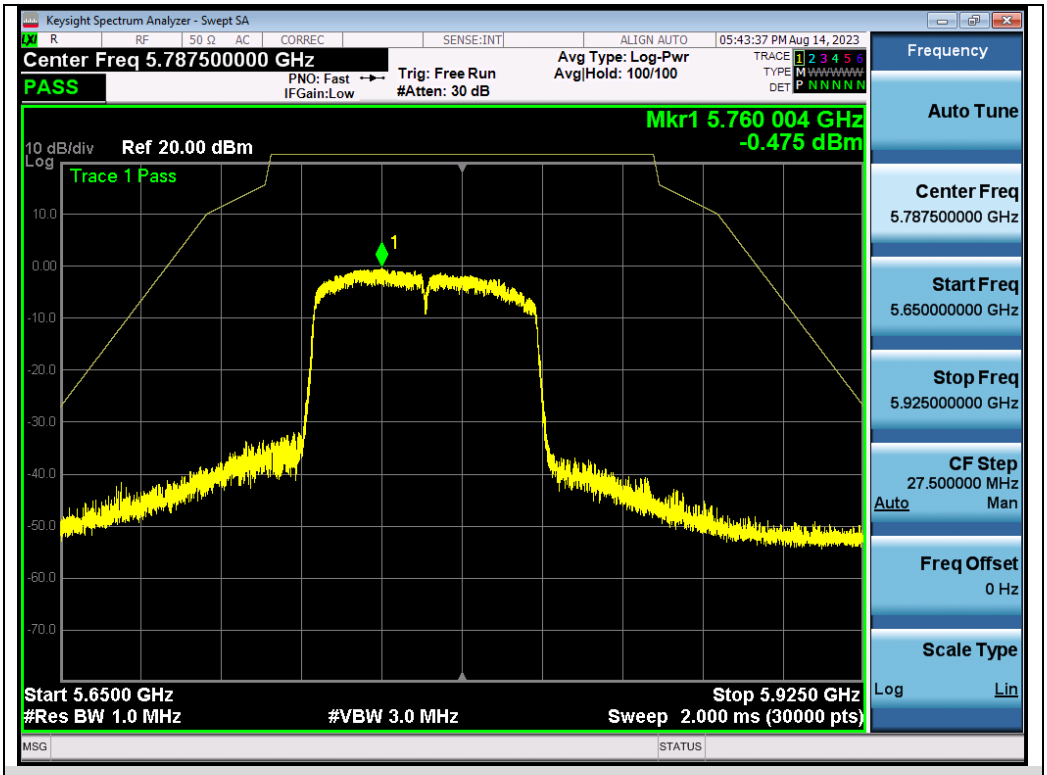


Test_Graph_802.11n40_ANT1_5795_MCS0_Frequency Band4



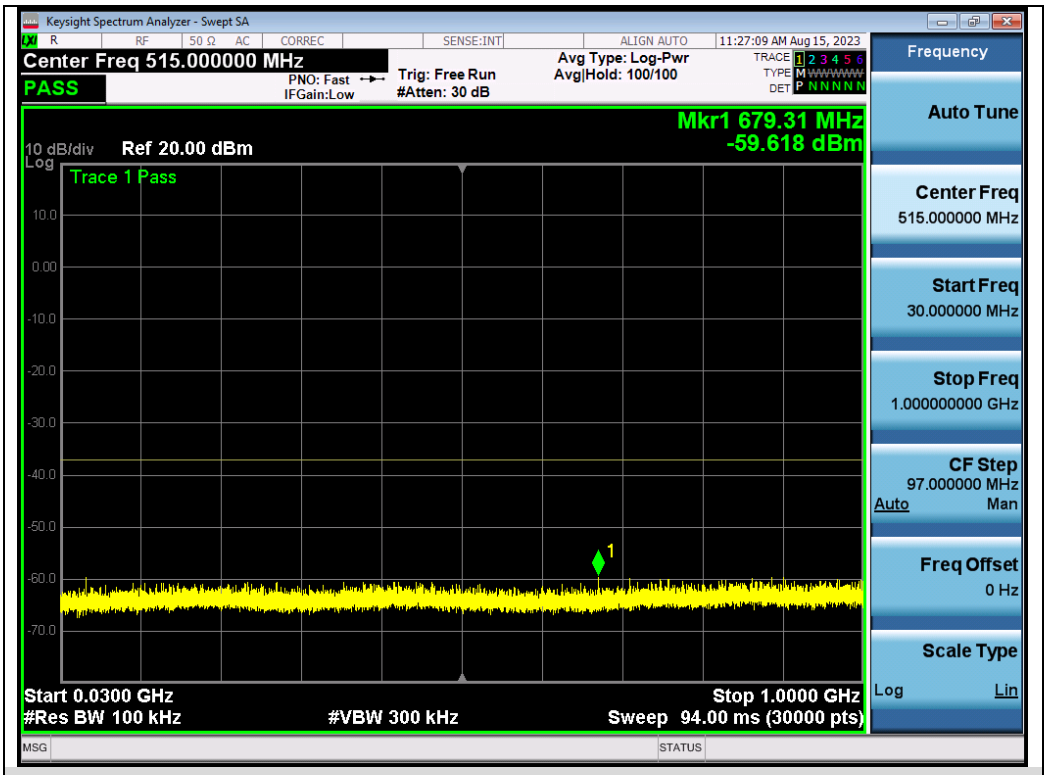
Test_Graph_802.11ac80_ANT1_5775_MCS9_Frequency Band1

Test_Graph_802.11ac80_ANT1_5775_MCS9_Frequency Band2



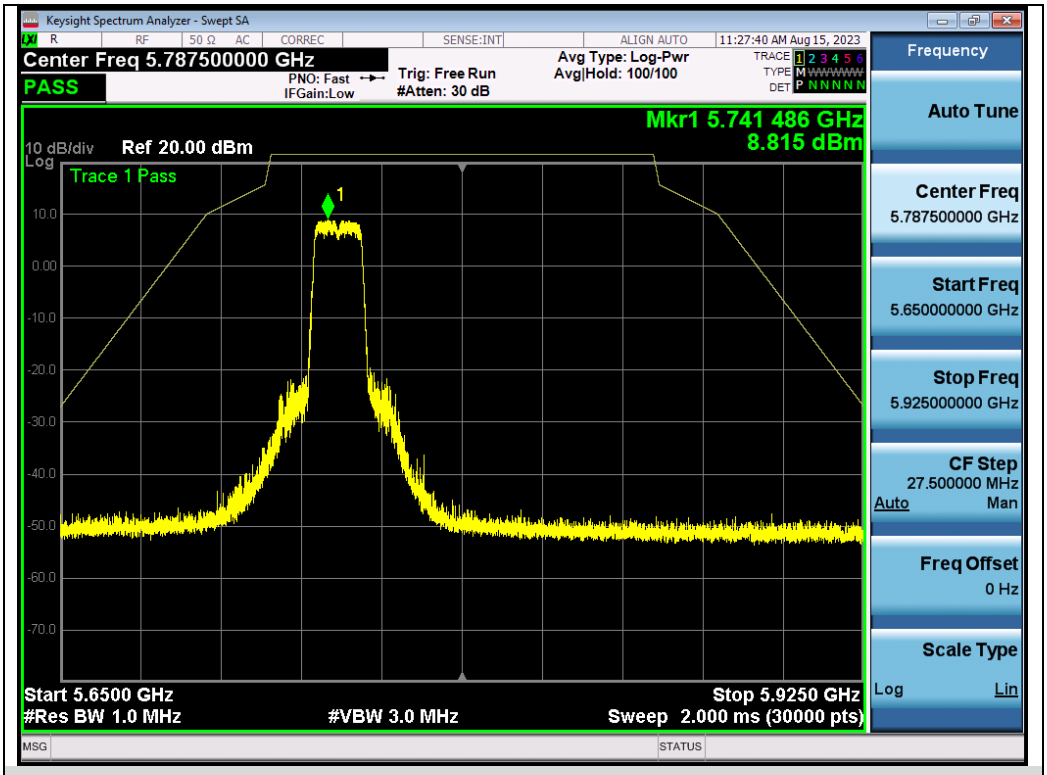
Test_Graph_802.11ac80_ANT1_5775_MCS9_Frequency Band3

Test_Graph_802.11ac80_ANT1_5775_MCS9_Frequency Band4



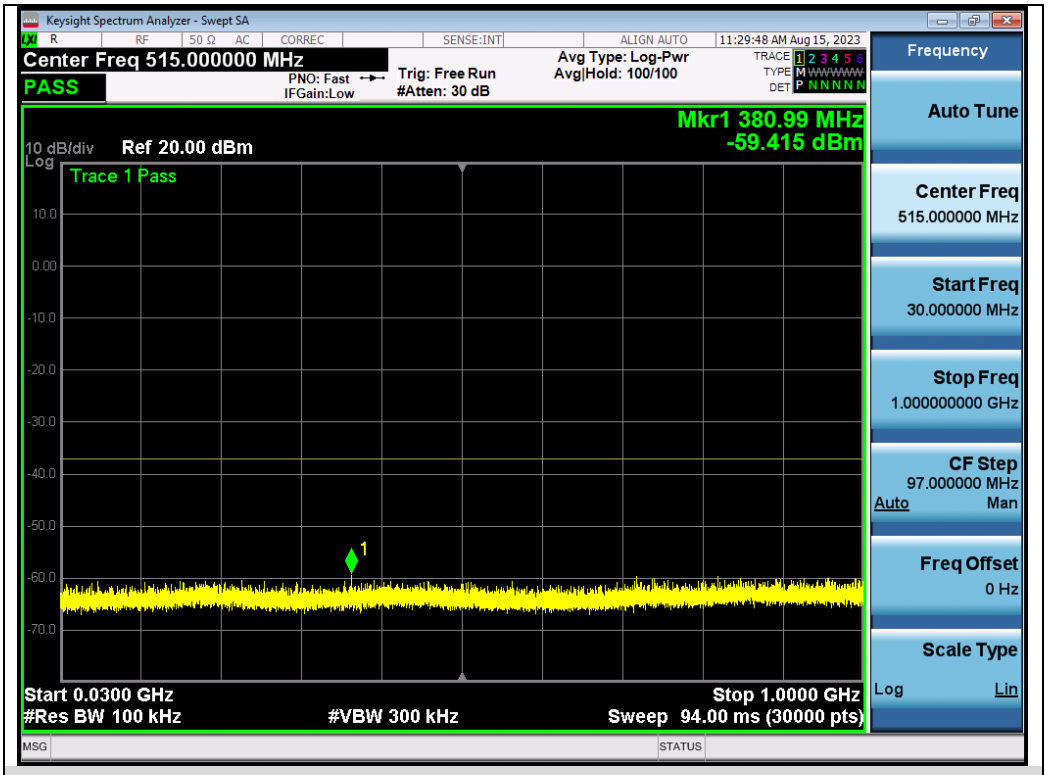
Test_Graph_802.11a_ANT2_5745_6Mbps_Frequency Band1

Test_Graph_802.11a_ANT2_5745_6Mbps_Frequency Band2

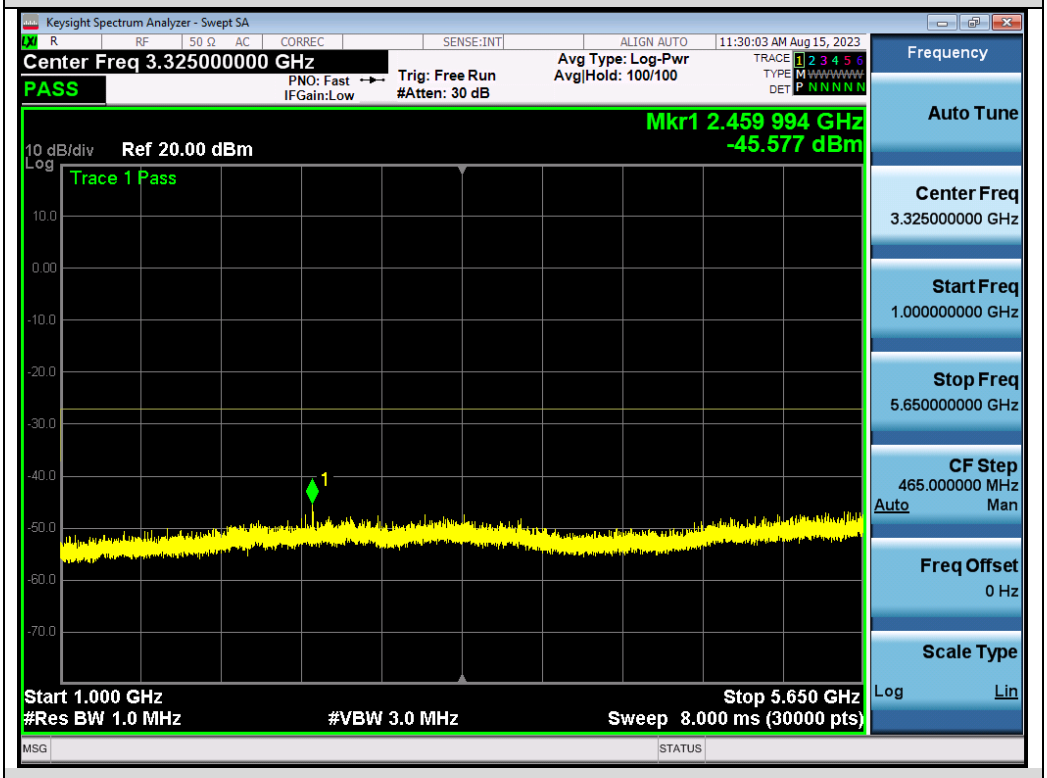


Test_Graph_802.11a_ANT2_5745_6Mbps_Frequency Band3

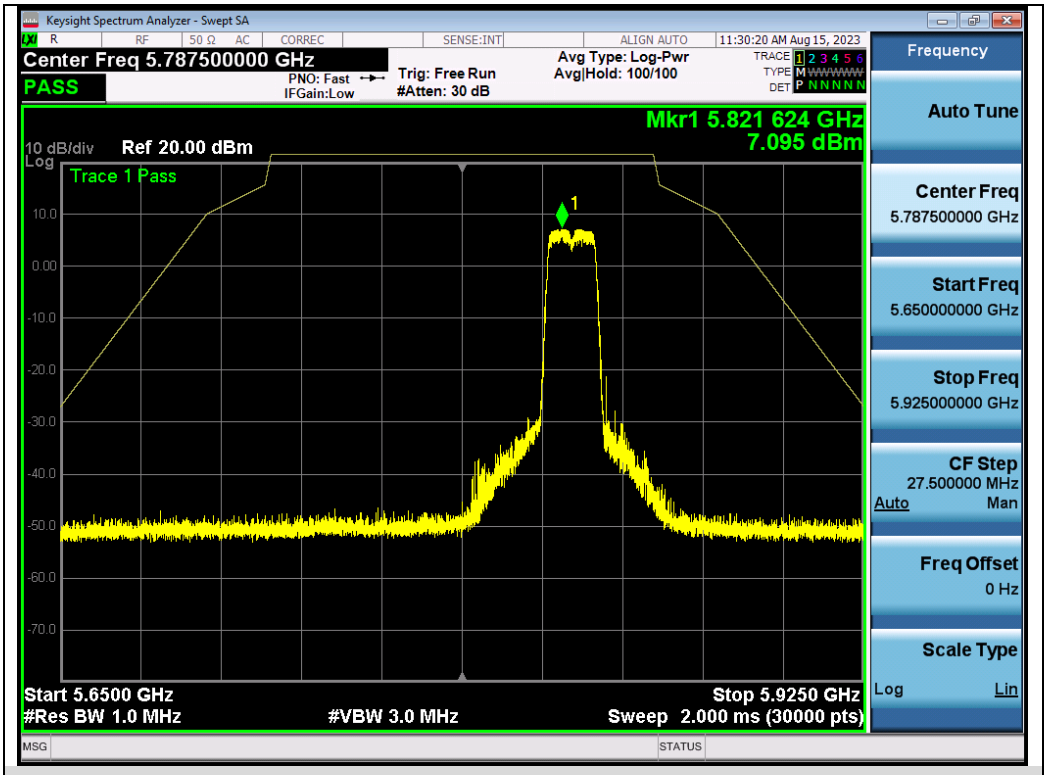
Test_Graph_802.11a_ANT2_5745_6Mbps_Frequency Band4



Test_Graph_802.11a_ANT2_5825_6Mbps_Frequency Band1

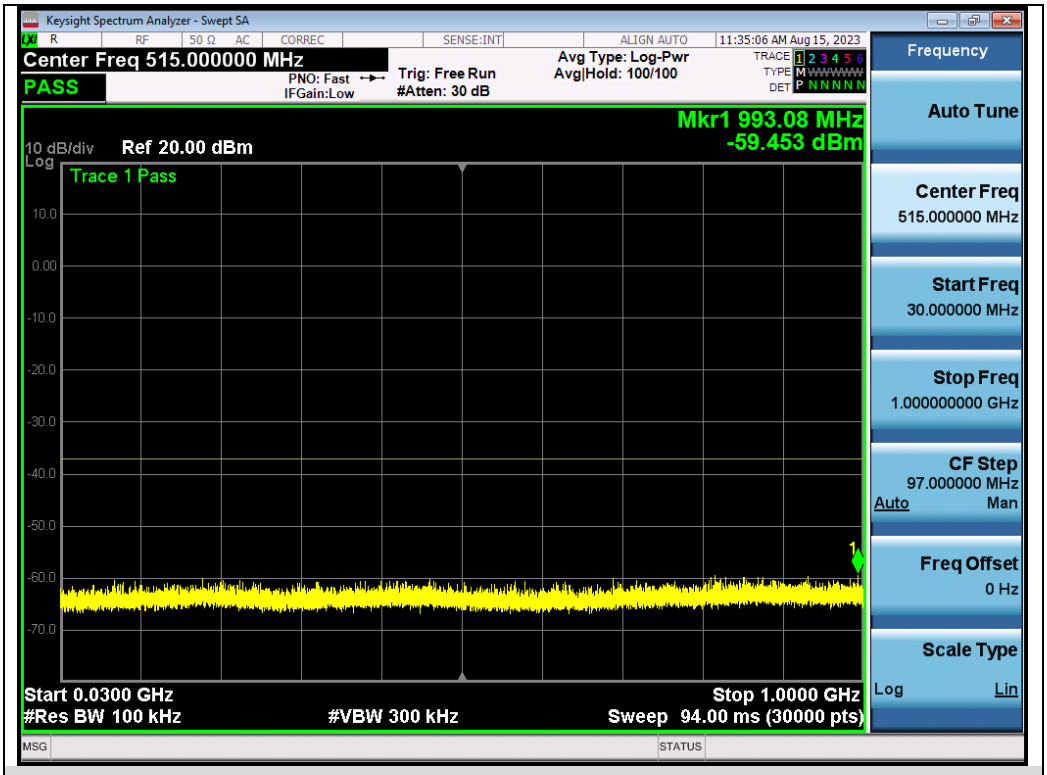


Test_Graph_802.11a_ANT2_5825_6Mbps_Frequency Band2

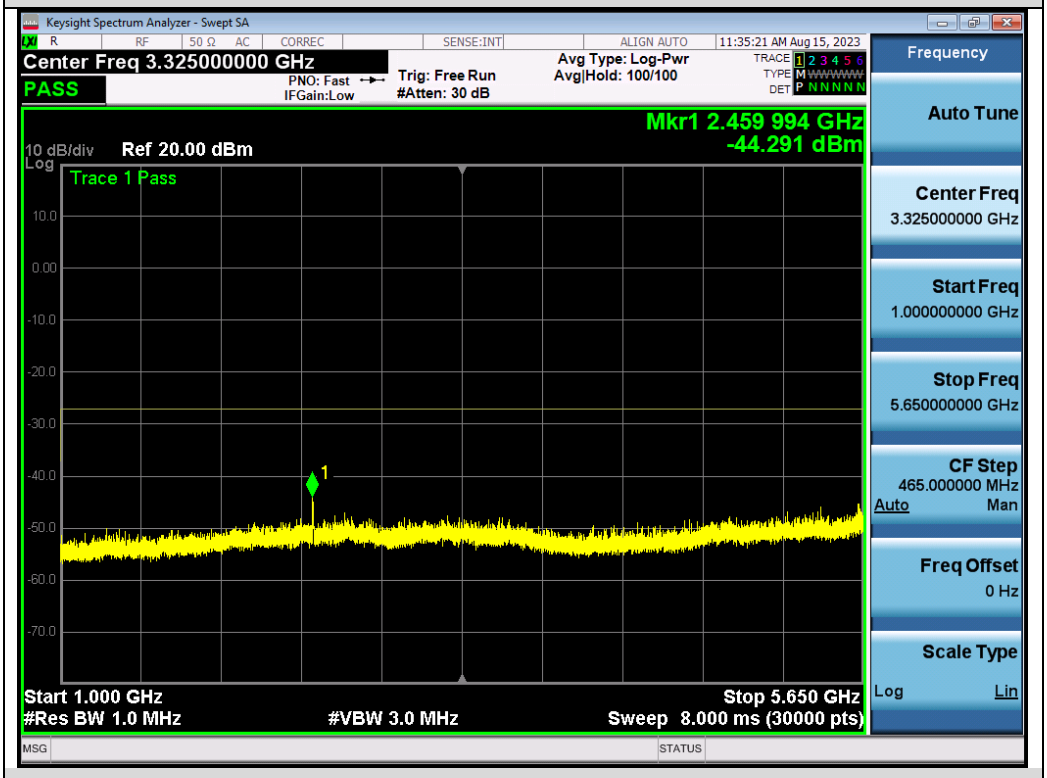


Test_Graph_802.11a_ANT2_5825_6Mbps_Frequency Band3

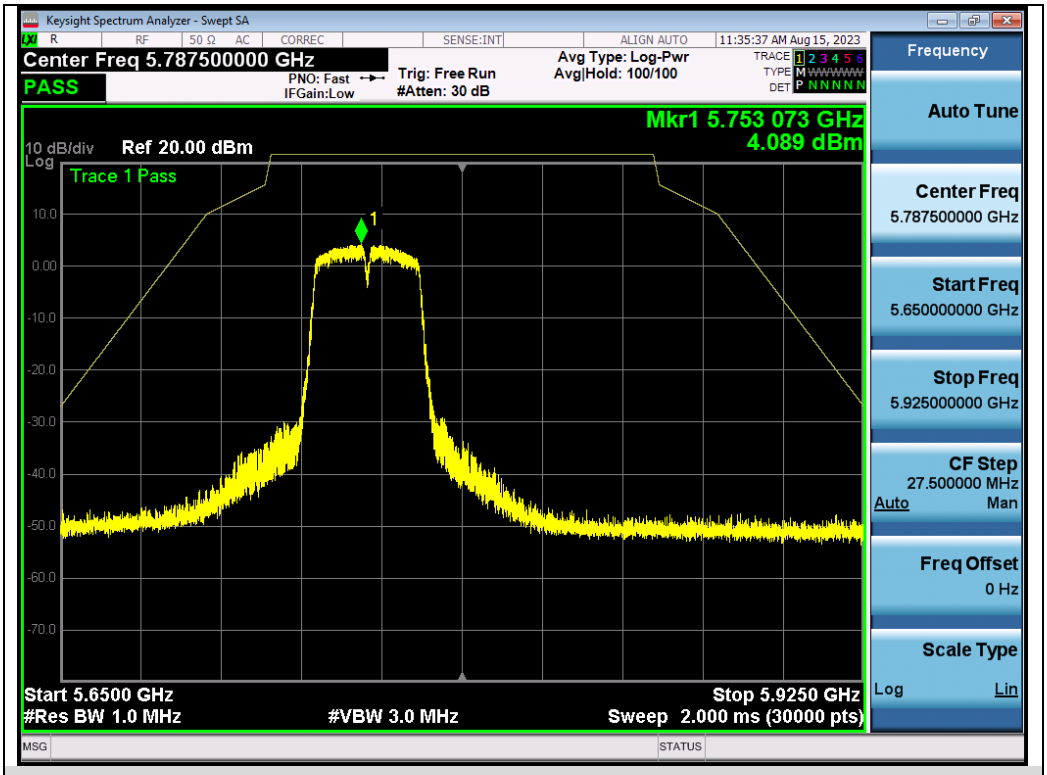
Test_Graph_802.11a_ANT2_5825_6Mbps_Frequency Band4



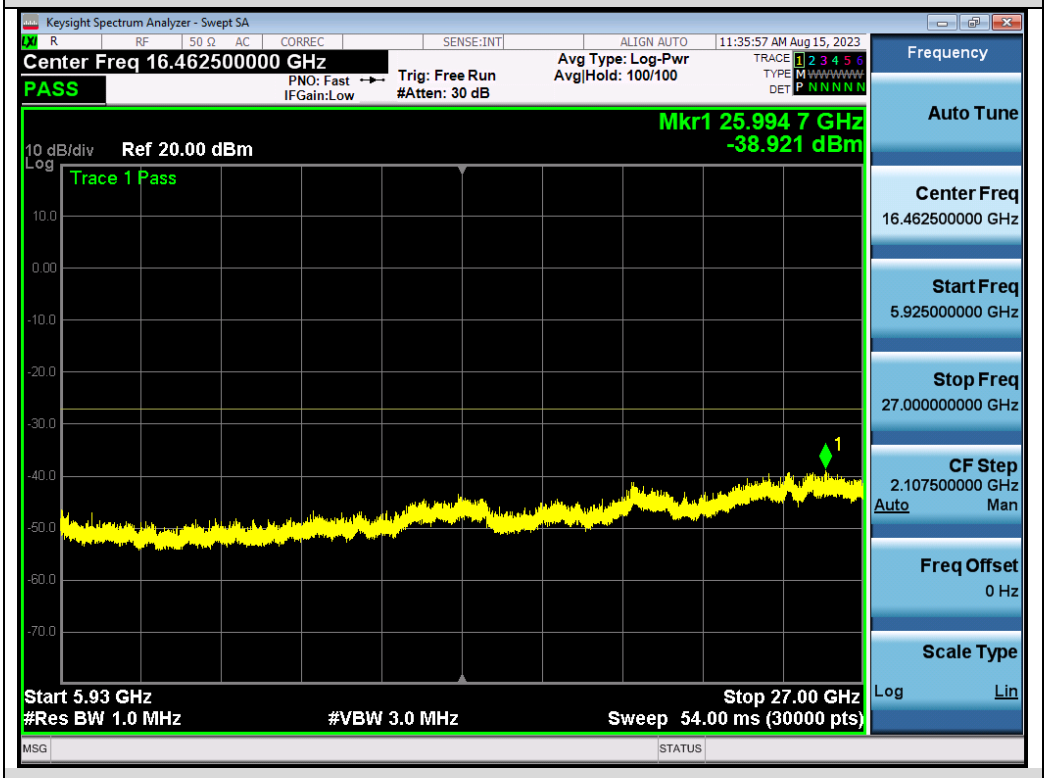
Test_Graph_802.11n40_ANT2_5755_MCS0_Frequency Band1



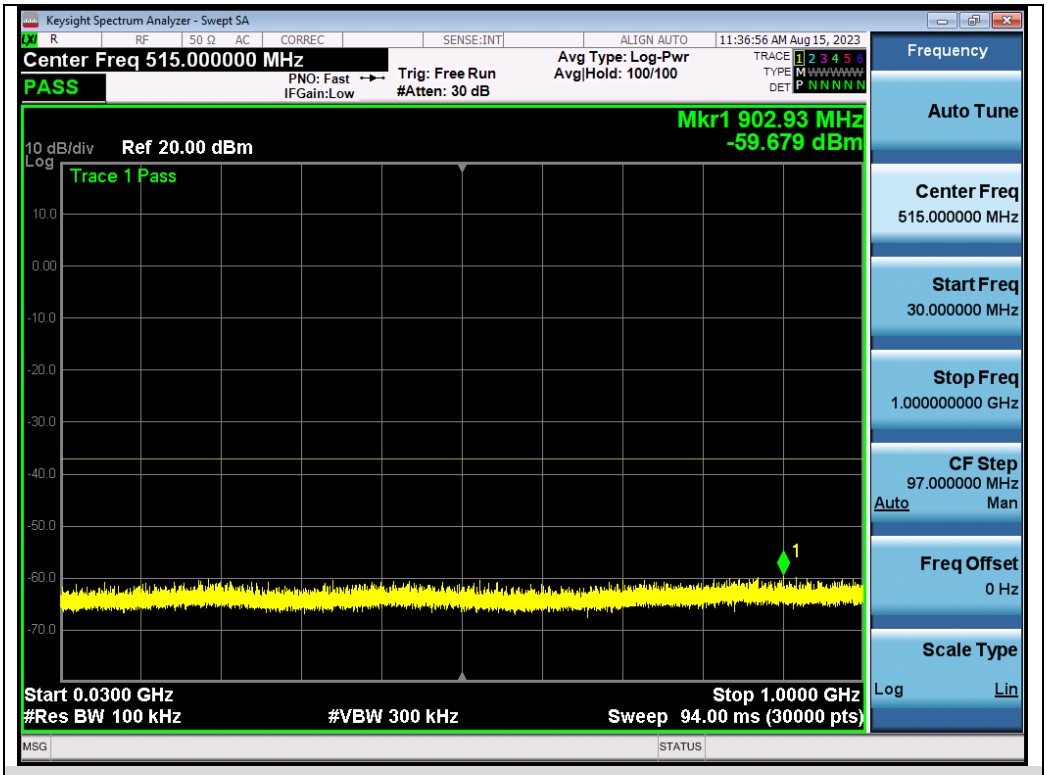
Test_Graph_802.11n40_ANT2_5755_MCS0_Frequency Band2



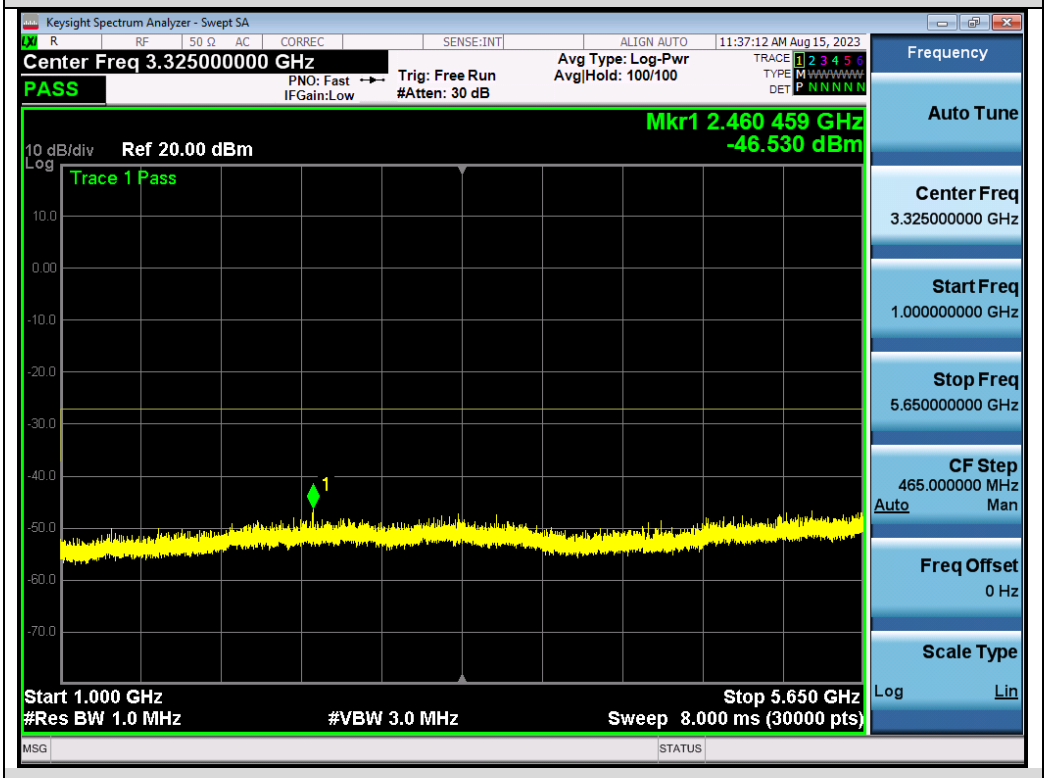
Test_Graph_802.11n40_ANT2_5755_MCS0_Frequency Band3



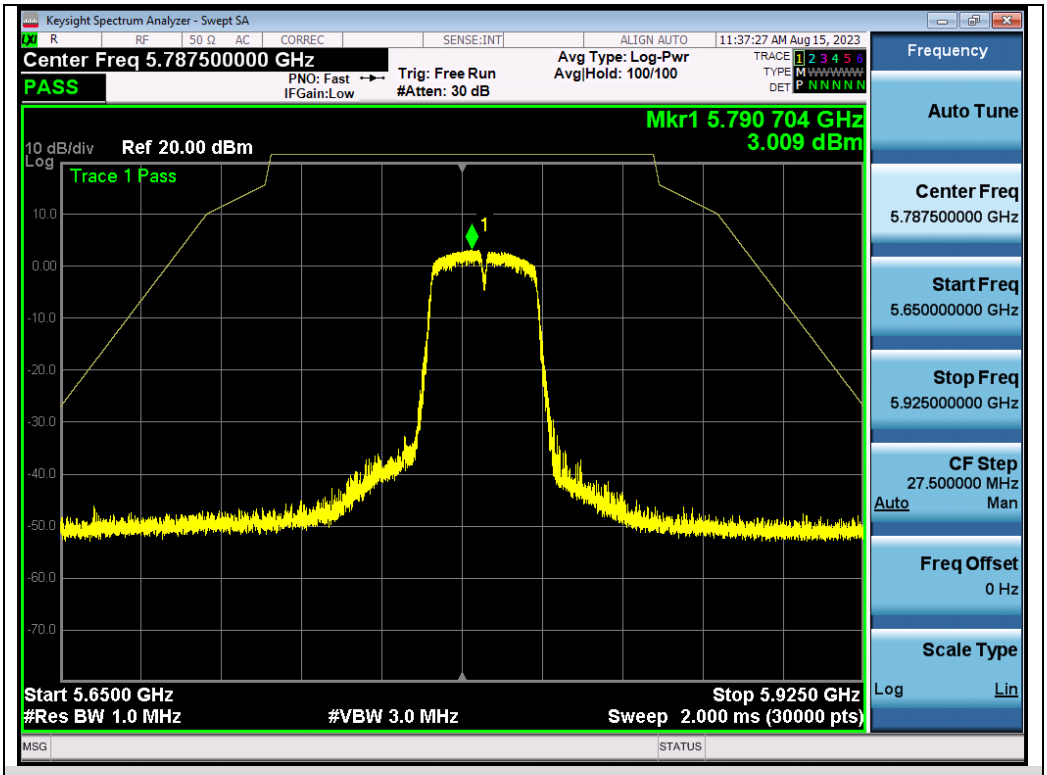
Test_Graph_802.11n40_ANT2_5755_MCS0_Frequency Band4



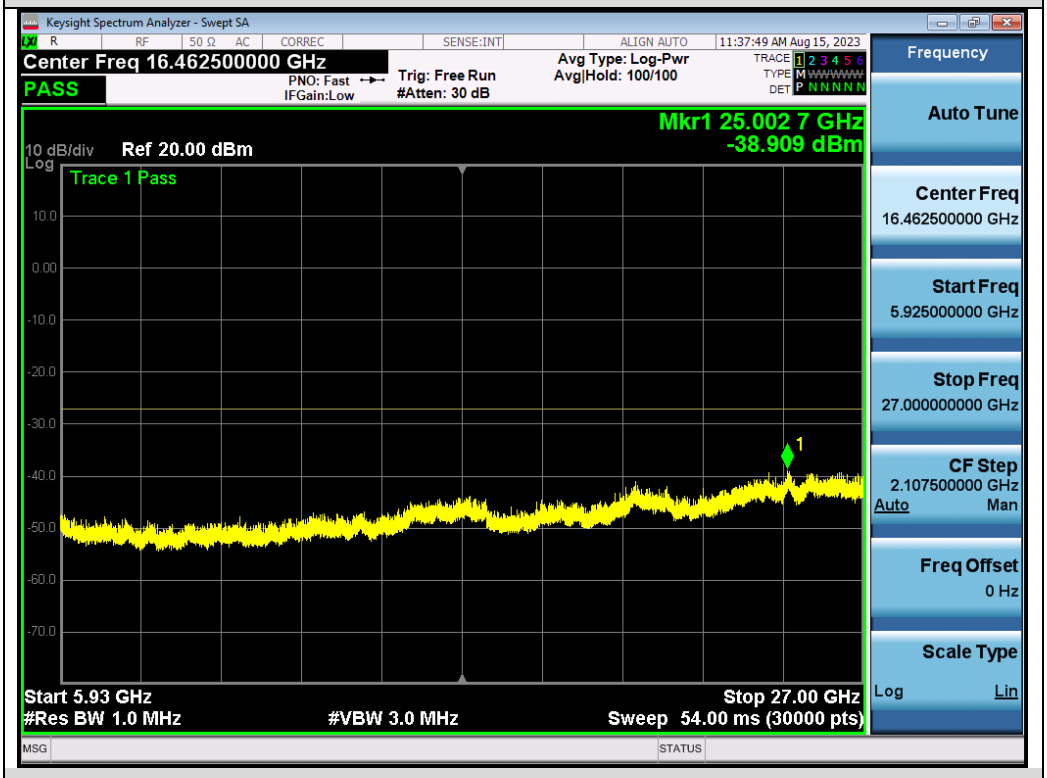
Test_Graph_802.11n40_ANT2_5795_MCS0_Frequency Band1



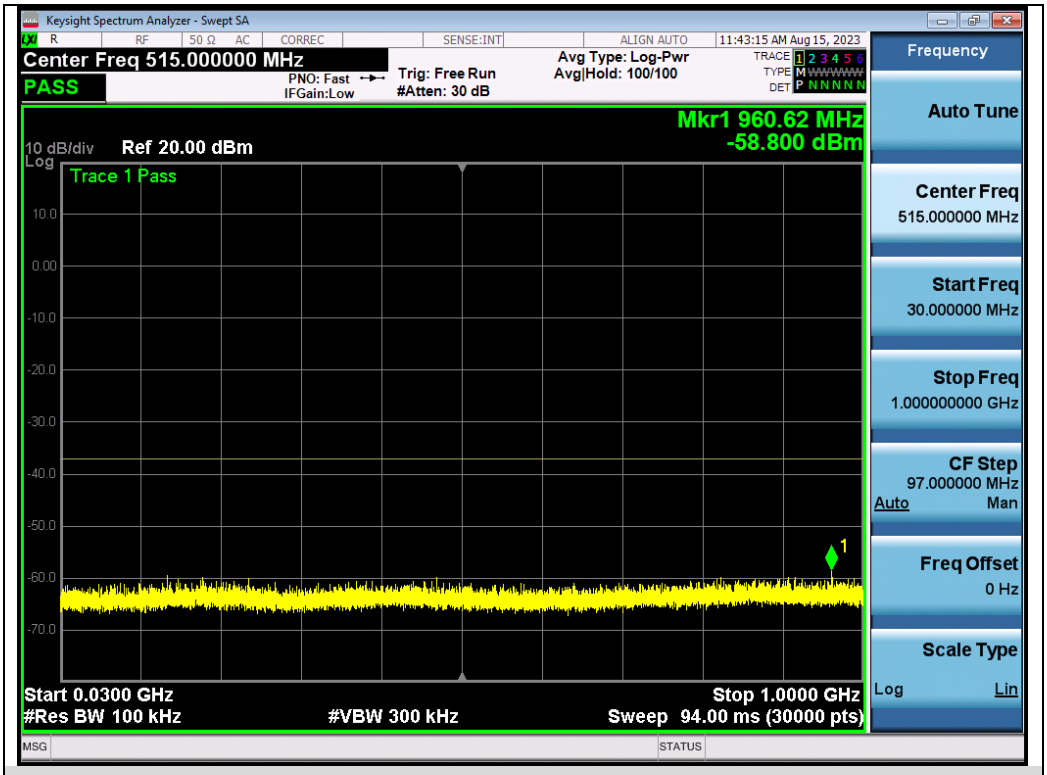
Test_Graph_802.11n40_ANT2_5795_MCS0_Frequency Band2



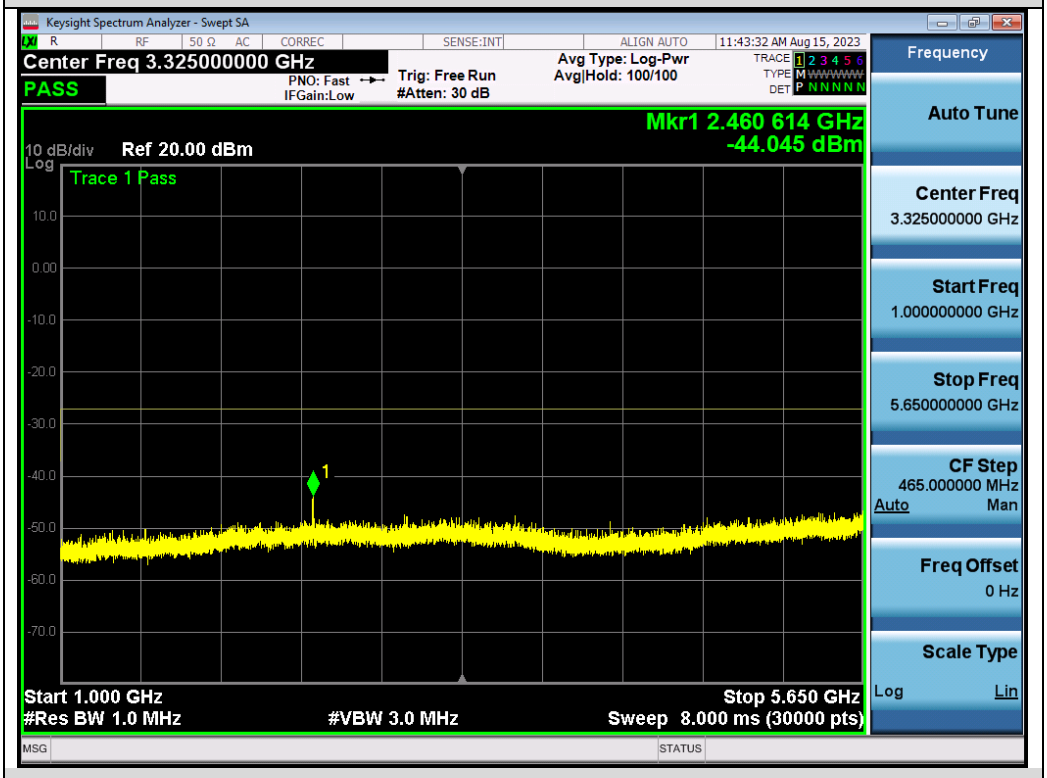
Test_Graph_802.11n40_ANT2_5795_MCS0_Frequency Band3



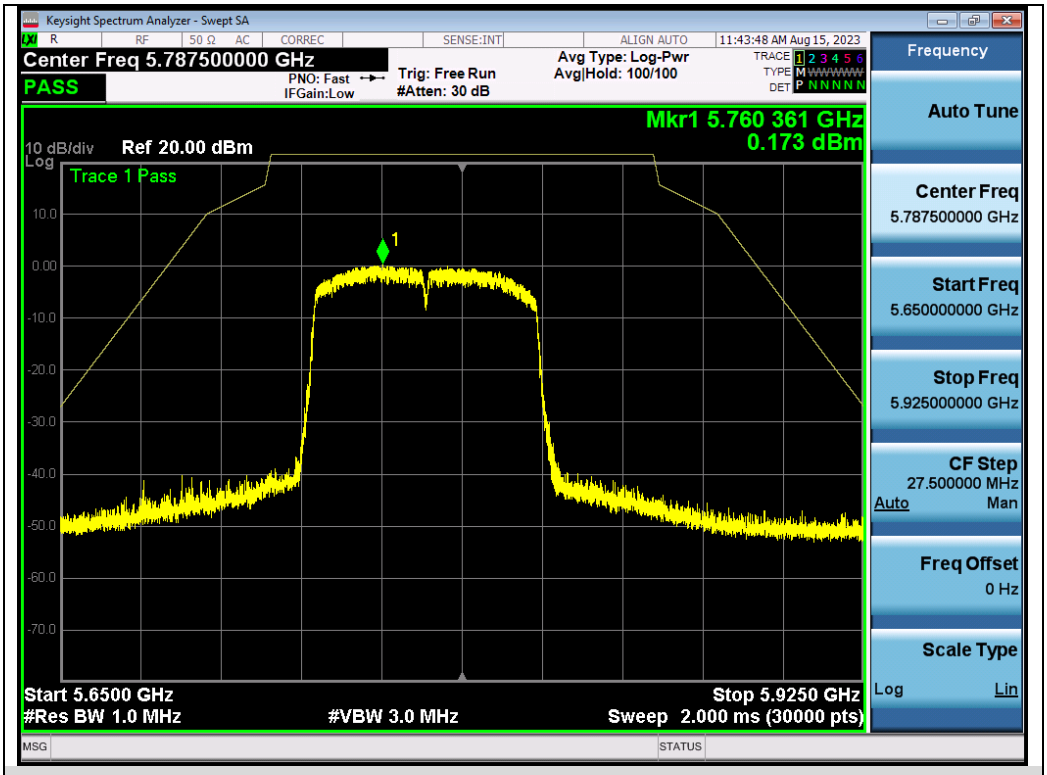
Test_Graph_802.11n40_ANT2_5795_MCS0_Frequency Band4



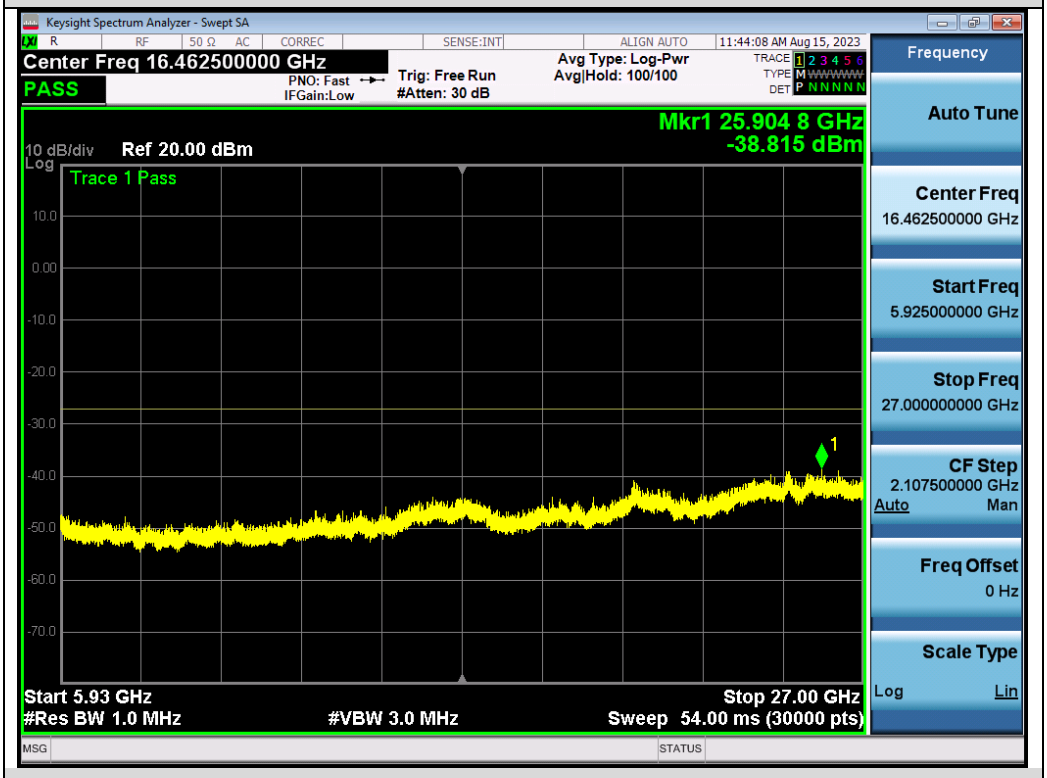
Test_Graph_802.11ac80_ANT2_5775_MCS9_Frequency Band1



Test_Graph_802.11ac80_ANT2_5775_MCS9_Frequency Band2



Test_Graph_802.11ac80_ANT2_5775_MCS9_Frequency Band3



Test_Graph_802.11ac80_ANT2_5775_MCS9_Frequency Band4

10. RADIATED EMISSION

10.1 LIMITS OF RADIATED EMISSION TEST

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

Frequency (MHz)	Field Strength (microvolts/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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Restricted bands	Applicable to	Limit	
	789033 D02 General UNII Test Procedures New Rules v02r01	Field strength at 3m (dBuV/m)	
		PK: 74	AV: 54
Out of the restricted bands	Applicable to	EIRP Limit (dBm/MHz)	Equivalent field Strength at 3m (dBuV/m)
	FCC 15.407(b)(1)	PK: -27	PK: 68.2
	15.407(b)(2)		
	15.407(b)(3)		
	15.407(b)(4)	See Note 2	

Note 1: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000 \quad \sqrt{30\ P}}{3}$$ μV/m, where P is the eirp (Watts).

Note 2: 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.

10.2 MEASUREMENT PROCEDURE

1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

The following table is the setting of spectrum analyzer and receiver.

Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.Section G) Unwanted emissions measurement.

(1) Procedure for Unwanted Emissions Measurements Below 1000MHz:

- RBW = 120 kHz
- VBW = 300 kHz
- Detector = Peak
- Trace mode = max hold

(2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz:

- RBW = 1 MHz
- VBW ≥ 3 MHz
- Detector = Peak
- Sweep time = auto
- Trace mode = max hold

(3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz:

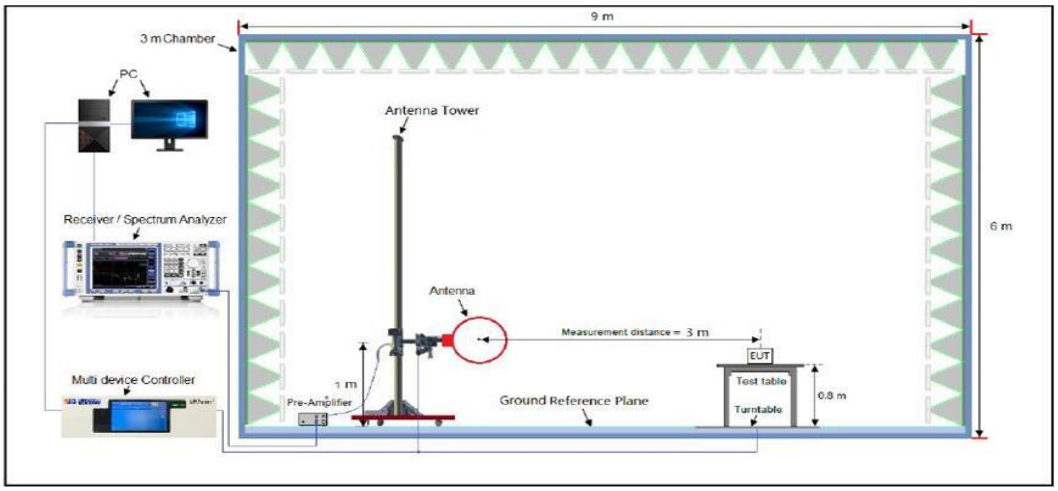
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

(4) Procedures for Average Unwanted Emissions Measurements Above 1000MHz:

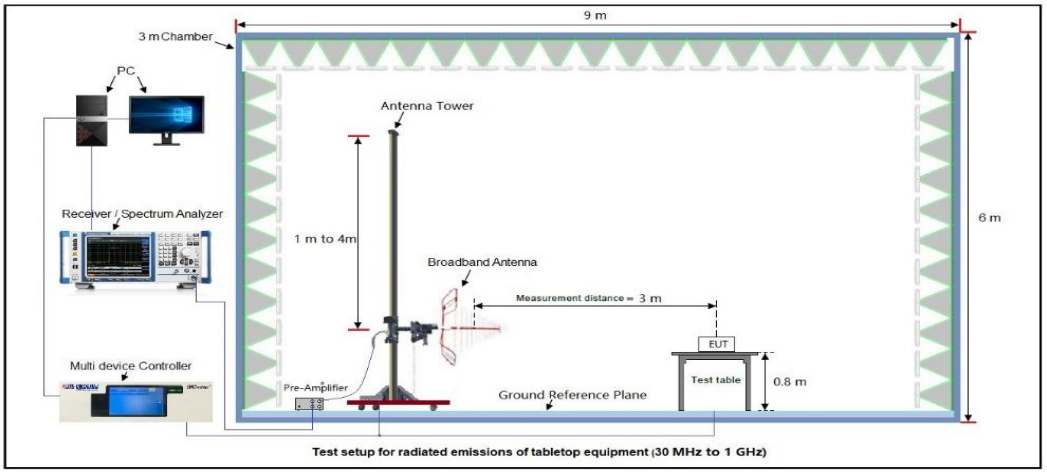
- RBW = 1 MHz
- VBW = 3 MHz • Detector = power averaging (rms), set span/(# of points in sweep) ≥ RBW/2.
- Averaging type = power averaging (RMS)
- The correction factor shall be offset is 10 log (1/x), where x is the duty cycle.

10.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

RADIATED EMISSION TEST SETUP 9KHz-30MHz

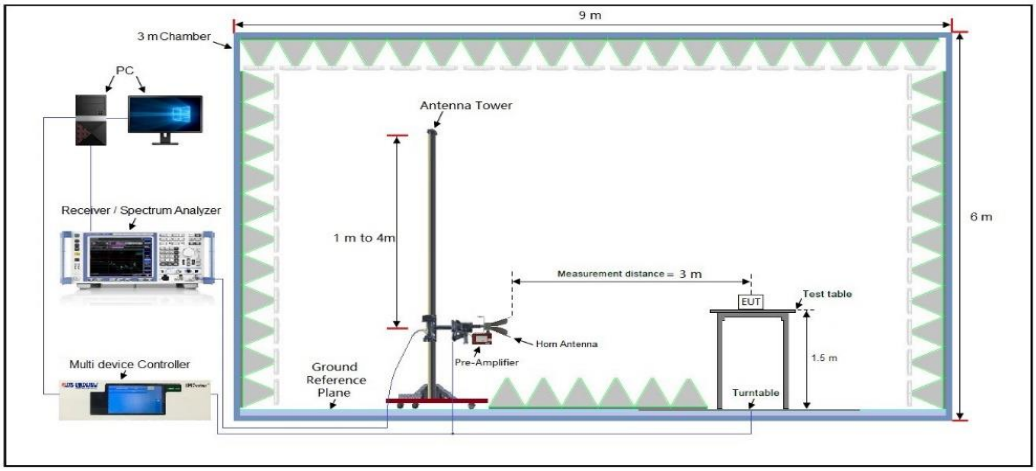


RADIATED EMISSION TEST SETUP 30MHz-1000MHz



Test setup for radiated emissions of tabletop equipment (30 MHz to 1 GHz)

RADIATED EMISSION TEST SETUP ABOVE 1000MHz



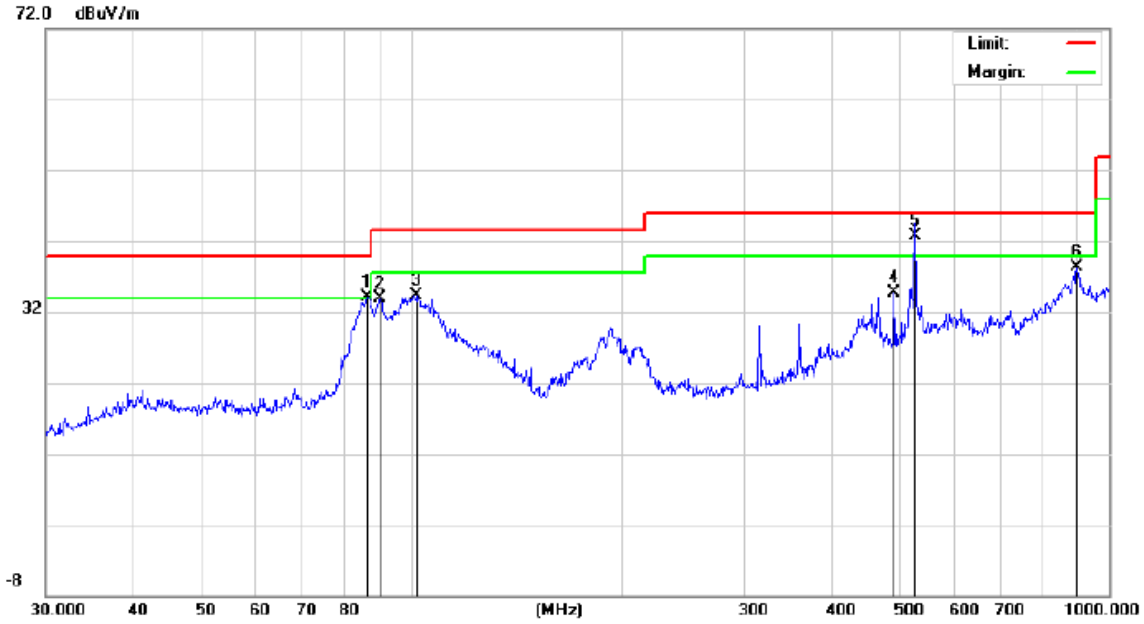
10.4 MEASUREMENT RESULT

Radiated Emission Below 30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

Radiated emission from 30MHz to 1000MHz

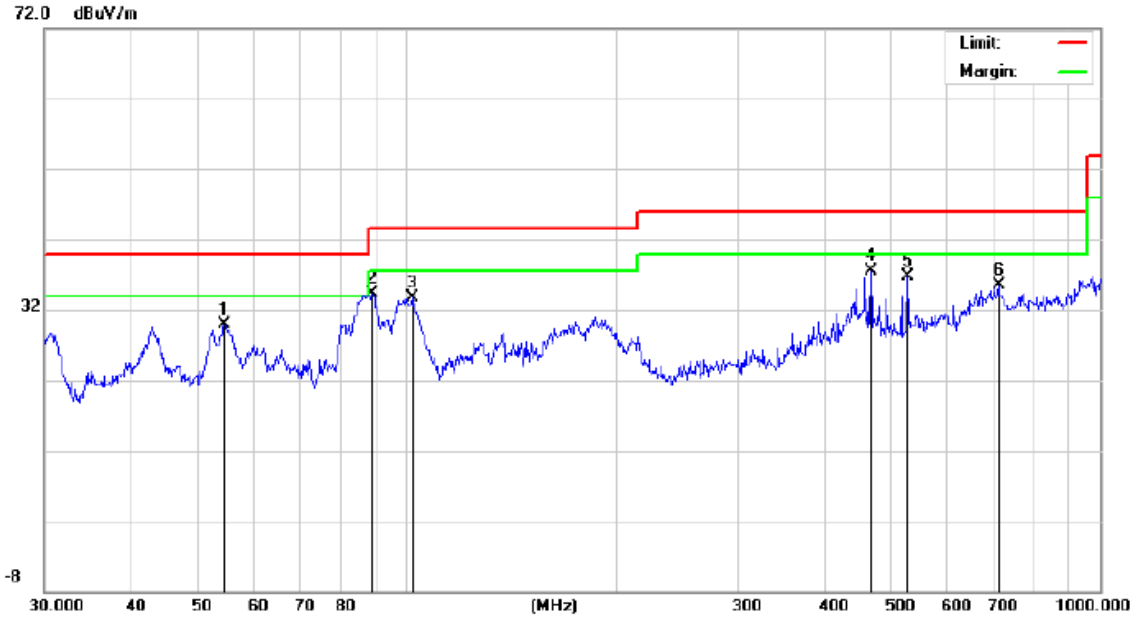
EUT	Portable Smart Projector 1080P	**Model Name**	VA-SP009
Temperature	25℃	**Relative Humidity**	60%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	802.11a20 5180MHz	**Antenna**	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	!	86.5029	20.08	14.11	34.19	40.00	-5.81	peak
2		90.2205	19.13	14.68	33.81	43.50	-9.69	peak
3		102.0014	18.07	16.22	34.29	43.50	-9.21	peak
4		492.4685	12.66	21.99	34.65	46.00	-11.35	peak
5	*	528.2458	17.98	24.66	42.64	46.00	-3.36	QP
6		900.1474	6.44	31.78	38.22	46.00	-7.78	peak

RESULT: PASS

EUT	Portable Smart Projector 1080P	**Model Name**	VA-SP009
Temperature	25℃	**Relative Humidity**	60%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	802.11a20 5180MHz	**Antenna**	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		54.4515	12.82	17.04	29.86	40.00	-10.14	peak
2		88.9637	18.54	15.69	34.23	43.50	-9.27	peak
3		101.6443	19.21	14.49	33.70	43.50	-9.80	peak
4	*	467.2348	12.84	24.69	37.53	46.00	-8.47	peak
5		528.2458	12.91	23.82	36.73	46.00	-9.27	peak
6		714.1734	6.93	28.60	35.53	46.00	-10.47	peak

RESULT: PASS

Note: All the antenna has been tested, All test channels had been tested. The 802.11a20 at 5180MHz is the worst case and recorded in the test report.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measurement - Limit.

The “Factor” value can be calculated automatically by software of measurement system.

Radiated emission above 1GHz

EUT	Portable Smart Projector 1080P	**Model Name**	VA-SP009
Temperature	25°C	**Relative Humidity**	60%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	802.11a20 5180MHz	**Antenna**	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10360.042	48.41	9.14	57.55	68.20	-10.65	peak
15540.063	42.66	10.22	52.88	74.00	-21.12	peak
15540.063	33.91	10.22	44.13	54.00	-9.87	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10360.042	48.76	9.14	57.90	68.20	-10.30	peak
15540.063	42.69	10.22	52.91	74.00	-21.09	peak
15540.063	32.39	10.22	42.61	54.00	-11.39	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5200MHz	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10400.042	47.83	9.14	56.97	68.20	-11.23	peak
15600.063	43.69	10.22	53.91	74.00	-20.09	peak
15600.063	33.71	10.22	43.93	54.00	-10.07	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10400.042	48.91	9.14	58.05	68.20	-10.15	peak
15600.063	42.37	10.22	52.59	74.00	-21.41	peak
15600.063	32.42	10.22	42.64	54.00	-11.36	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5240MHz	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10480.042	48.72	9.27	57.99	68.20	-10.21	peak
15720.063	42.61	10.38	52.99	74.00	-21.01	peak
15720.063	32.37	10.38	42.75	54.00	-11.25	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10480.042	47.68	9.27	56.95	68.20	-11.25	peak
15720.063	42.42	10.38	52.80	74.00	-21.20	peak
15720.063	33.66	10.38	44.04	54.00	-9.96	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated emission above 1GHz

EUT	Portable Smart Projector 1080P	**Model Name**	VA-SP009
Temperature	25°C	**Relative Humidity**	60%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	802.11a20 5260MHz	**Antenna**	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10520.051	47.36	9.31	56.67	68.20	-11.53	peak
15780.033	41.39	10.42	51.81	74.00	-22.19	peak
15780.033	32.85	10.42	43.27	54.00	-10.73	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10520.051	46.92	9.31	56.23	68.20	-11.97	peak
15780.033	40.37	10.42	50.79	74.00	-23.21	peak
15780.033	33.29	10.42	43.71	54.00	-10.29	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5300MHz	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10600.025	48.37	9.33	57.70	74.00	-16.30	peak
10600.025	32.91	9.33	42.24	54.00	-11.76	AVG
15900.036	46.30	10.44	56.74	74.00	-17.26	peak
15900.036	34.27	10.44	44.71	54.00	-9.29	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10600.025	47.39	9.33	56.72	74.00	-17.28	peak
10600.025	33.27	9.33	42.60	54.00	-11.40	AVG
15900.036	49.13	10.44	59.57	74.00	-14.43	peak
15900.036	33.24	10.44	43.68	54.00	-10.32	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5320MHz	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10640.055	49.67	9.35	59.02	74.00	-14.98	peak
10640.055	33.27	9.35	42.62	54.00	-11.38	AVG
15960.042	42.37	10.46	52.83	74.00	-21.17	peak
15960.042	31.32	10.46	41.78	54.00	-12.22	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10640.055	44.67	9.35	54.02	74.00	-19.98	peak
10640.055	31.02	9.35	40.37	54.00	-13.63	AVG
15960.042	40.66	10.46	51.12	74.00	-22.88	peak
15960.042	31.72	10.46	42.18	54.00	-11.82	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated emission above 1GHz

EUT	Portable Smart Projector 1080P	**Model Name**	VA-SP009
Temperature	25°C	**Relative Humidity**	60%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	802.11a20 5500MHz	**Antenna**	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11000.024	47.36	9.38	56.74	74.00	-17.26	peak
11000.024	33.21	9.38	42.59	54.00	-11.41	AVG
16500.033	49.13	10.51	59.64	68.20	-8.56	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11000.024	49.67	9.38	59.05	74.00	-14.95	peak
11000.024	34.27	9.38	43.65	54.00	-10.35	AVG
16500.033	50.39	10.51	60.90	68.20	-7.30	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5600MHz	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11200.035	46.37	9.38	55.75	74.00	-18.25	peak
11200.035	33.01	9.38	42.39	54.00	-11.61	AVG
16800.041	41.37	10.51	51.88	68.20	-16.32	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11200.035	43.67	9.38	53.05	74.00	-20.95	peak
11200.035	33.13	9.38	42.51	54.00	-11.49	AVG
16800.041	42.37	10.51	52.88	68.20	-15.32	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5700MHz	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11400.058	46.39	9.41	55.80	74.00	-18.20	peak
11400.058	33.34	9.41	42.75	54.00	-11.25	AVG
17100.042	45.37	10.5	55.87	68.20	-12.33	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11400.058	45.37	9.41	54.78	74.00	-19.22	peak
11400.058	34.29	9.41	43.70	54.00	-10.30	AVG
17100.042	47.13	10.5	57.63	68.20	-10.57	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5745MHz	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11490.042	49.12	9.42	58.54	74.00	-15.46	peak
11490.042	31.12	9.42	40.54	54.00	-13.46	AVG
17253.063	35.38	10.51	45.89	68.20	-22.31	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11490.042	48.69	9.42	58.11	74.00	-15.89	peak
11490.042	33.67	9.42	43.09	54.00	-10.91	AVG
17253.063	39.72	10.51	50.23	68.20	-17.97	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5785MHz	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11570.042	46.92	9.42	56.34	74.00	-17.66	peak
11570.042	33.76	9.42	43.18	54.00	-10.82	AVG
17355.063	33.70	10.51	44.21	68.20	-23.99	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11570.042	48.37	9.42	57.79	74.00	-16.21	peak
11570.042	34.69	9.42	44.11	54.00	-9.89	AVG
17355.063	41.39	10.51	51.90	68.20	-16.30	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5825MHz	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11650.042	48.69	9.62	58.31	74.00	-15.69	peak
11650.042	31.86	9.62	41.48	54.00	-12.52	AVG
17475.063	37.26	10.75	48.01	68.20	-20.19	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11650.042	27.00	9.62	36.62	74.00	-37.38	peak
11650.042	32.69	9.62	42.31	54.00	-11.69	AVG
17475.063	37.16	10.75	47.91	68.20	-20.29	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Note:

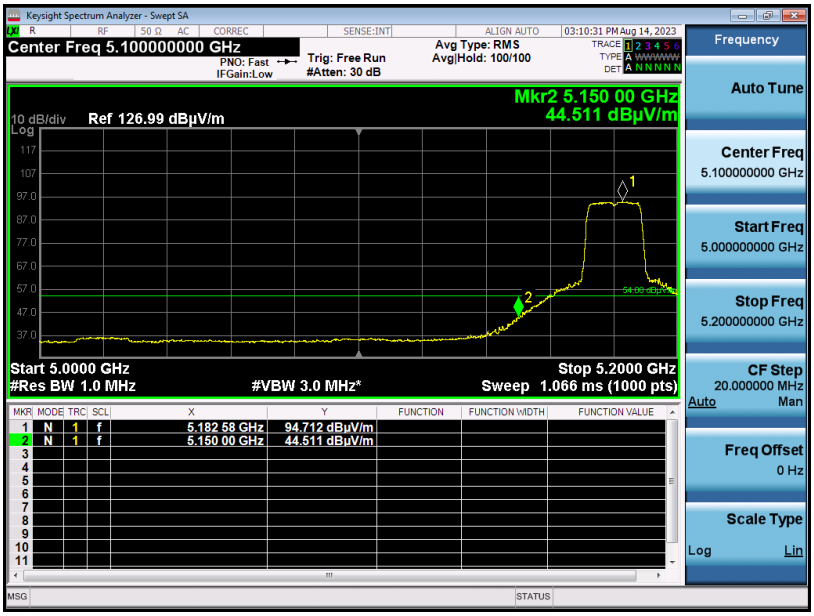
1. All the antenna has been tested, All test channels had been tested. The 802.11a20_ANT 1 is the worst case and recorded in the test report.
2. Other frequencies radiation emission from 1GHz to 40GHz at least have 20dB margin and not recorded in the test report.
3. Factor = Antenna Factor + Cable loss - Amplifier gain, Margin= Limit-Level.
4. The “Factor” value can be calculated automatically by software of measurement system.

Test result for band edge emission at restricted bands 5.150GHz~5.250GHz_ANT1

EUT	Portable Smart Projector 1080P	**Model Name**	VA-SP009
Temperature	25°C	**Relative Humidity**	60%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	802.11a20 5180MHz	**Antenna**	Horizontal

Test Graph for Peak Measurement

Test Graph for Average Measurement

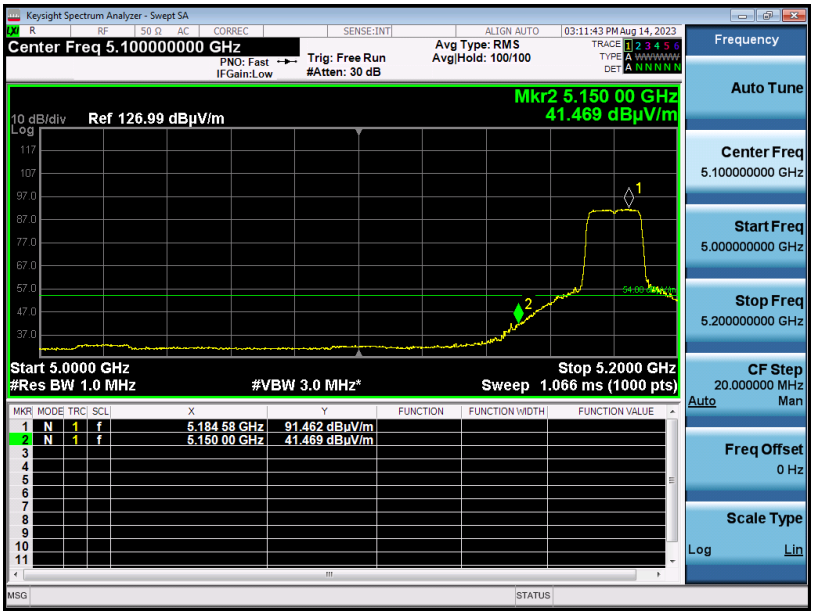


RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25℃	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Vertical

Test Graph for Peak Measurement

Test Graph for Average Measurement

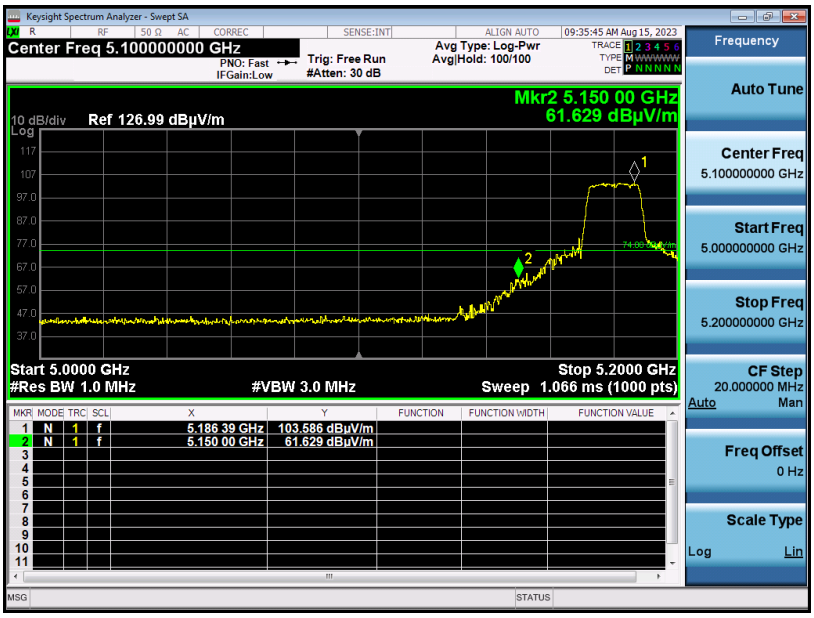


RESULT: PASS

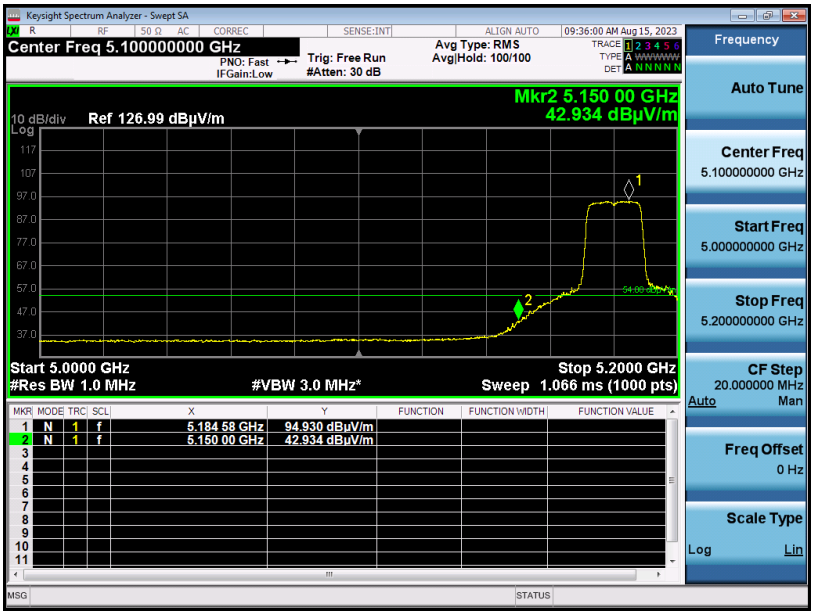
Test result for band edge emission at restricted bands 5.150GHz~5.250GHz_ANT2

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Horizontal

Test Graph for Peak Measurement



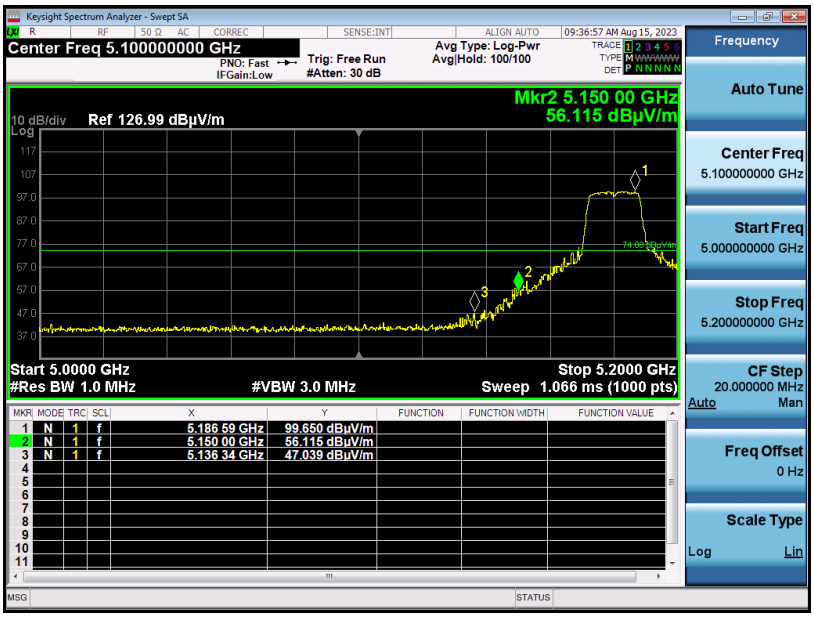
Test Graph for Average Measurement



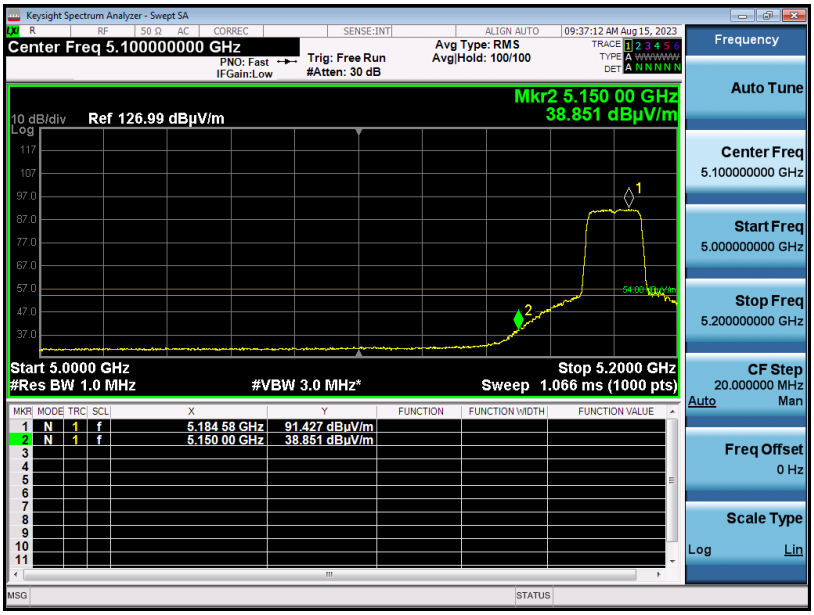
RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25℃	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement



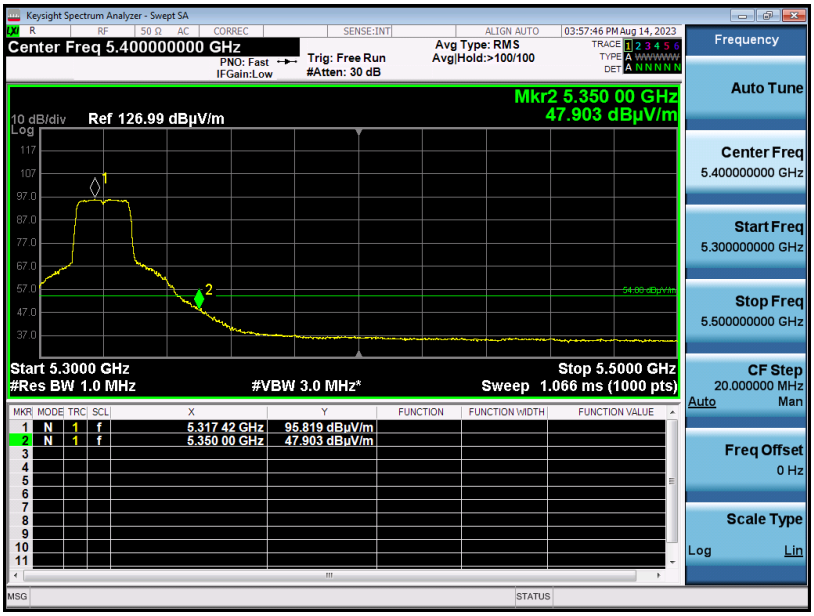
RESULT: PASS

Test result for band edge emission at restricted bands 5.25GHz~5.35GHz_ANT1

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5320MHz	Antenna	Horizontal

Test Graph for Peak Measurement

Test Graph for Average Measurement

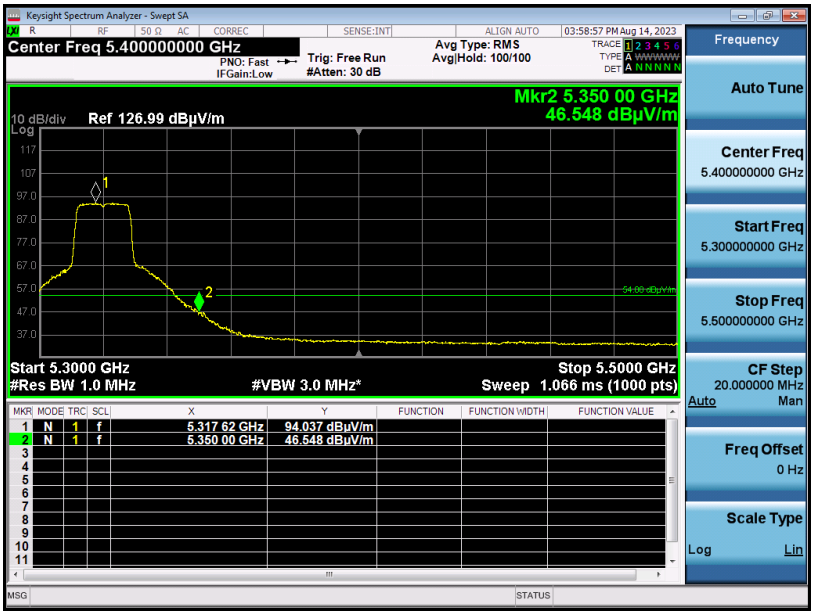


RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5320MHz	Antenna	Vertical

Test Graph for Peak Measurement

Test Graph for Average Measurement

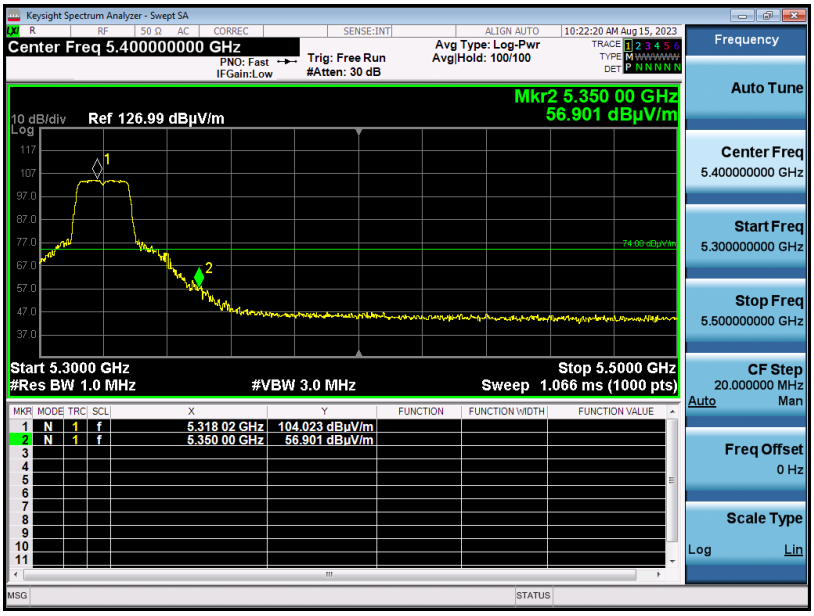


RESULT: PASS

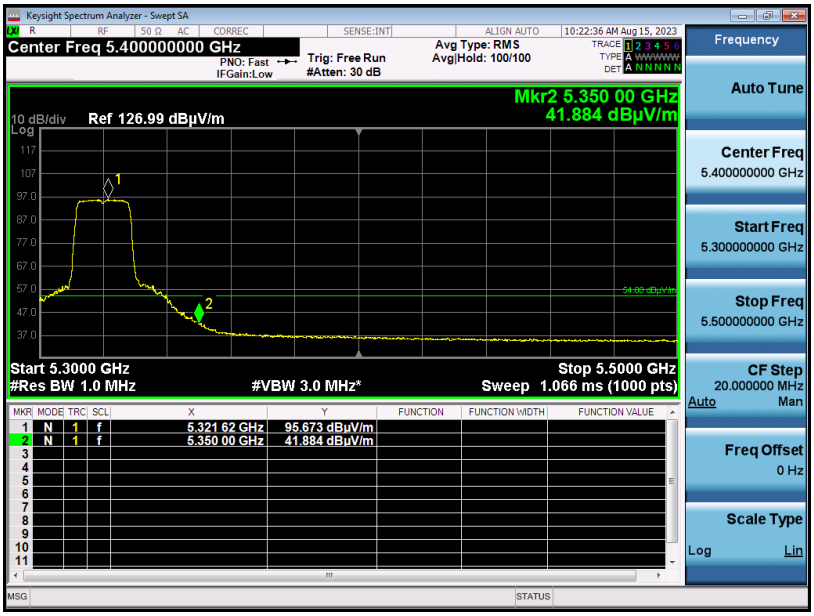
Test result for band edge emission at restricted bands 5.25GHz~5.35GHz_ANT2

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5320MHz	Antenna	Horizontal

Test Graph for Peak Measurement



Test Graph for Average Measurement

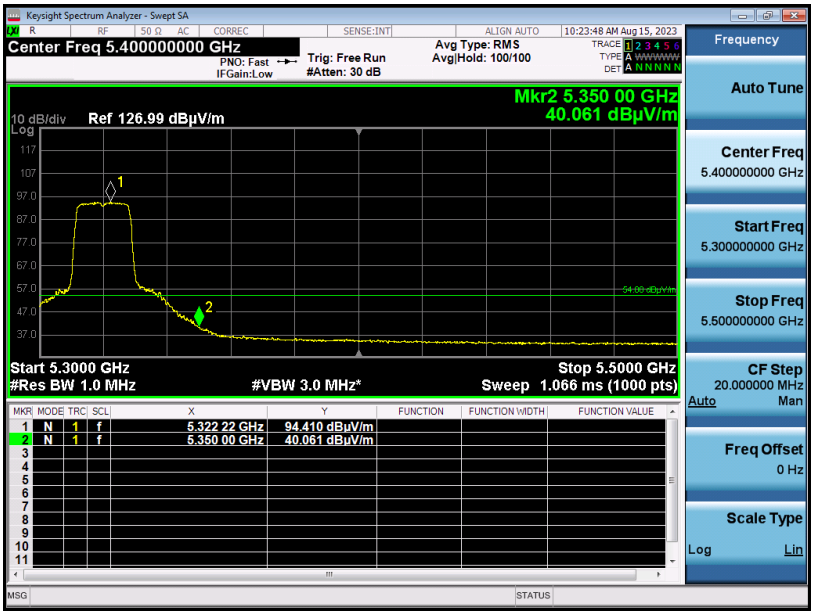


RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25℃	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5320MHz	Antenna	Vertical

Test Graph for Peak Measurement

Test Graph for Average Measurement



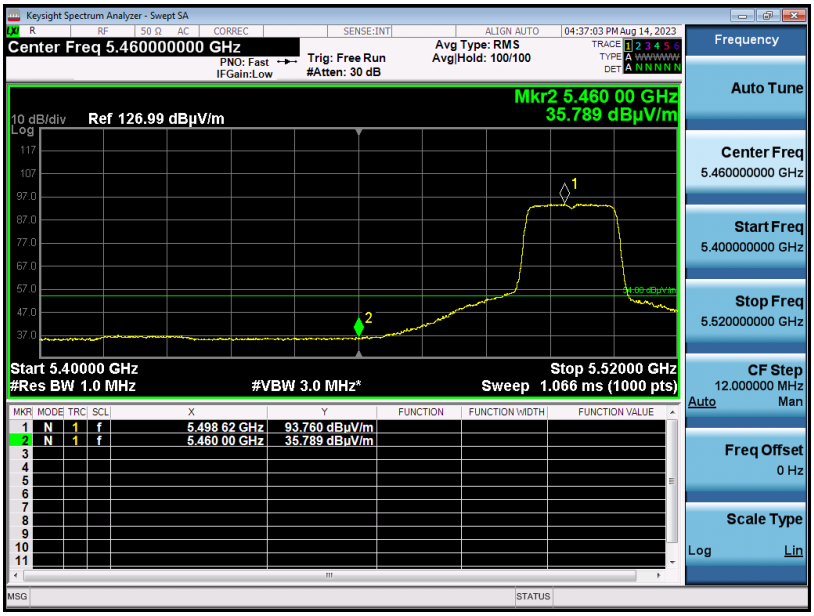
RESULT: PASS

Test result for band edge emission at restricted bands 5.470GHz~5.725GHz_ANT1

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5500MHz	Antenna	Horizontal

Test Graph for Peak Measurement

Test Graph for Average Measurement

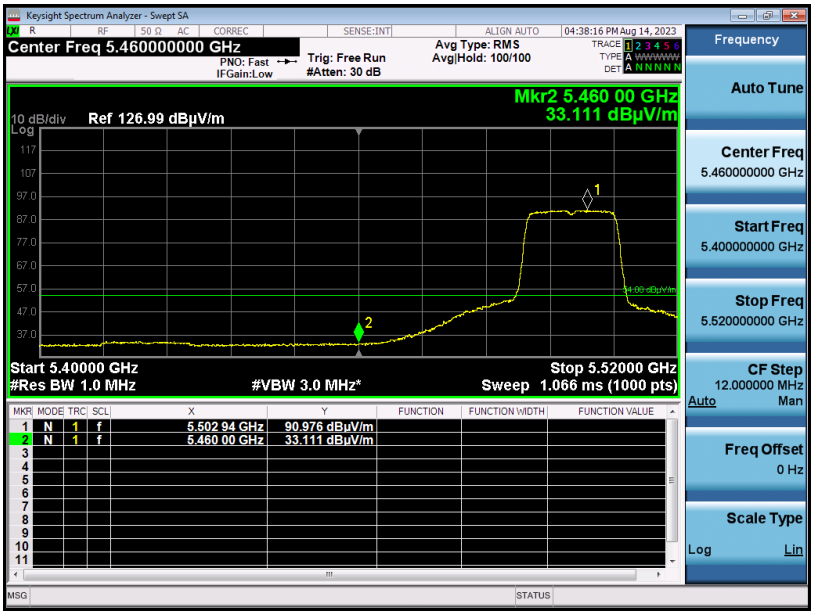


RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25℃	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5500MHz	Antenna	Vertical

Test Graph for Peak Measurement

Test Graph for Average Measurement

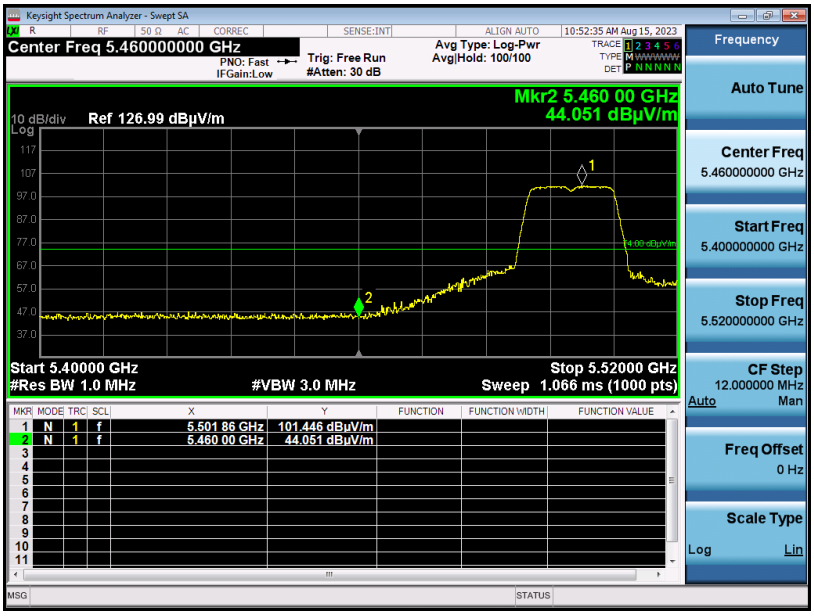


RESULT: PASS

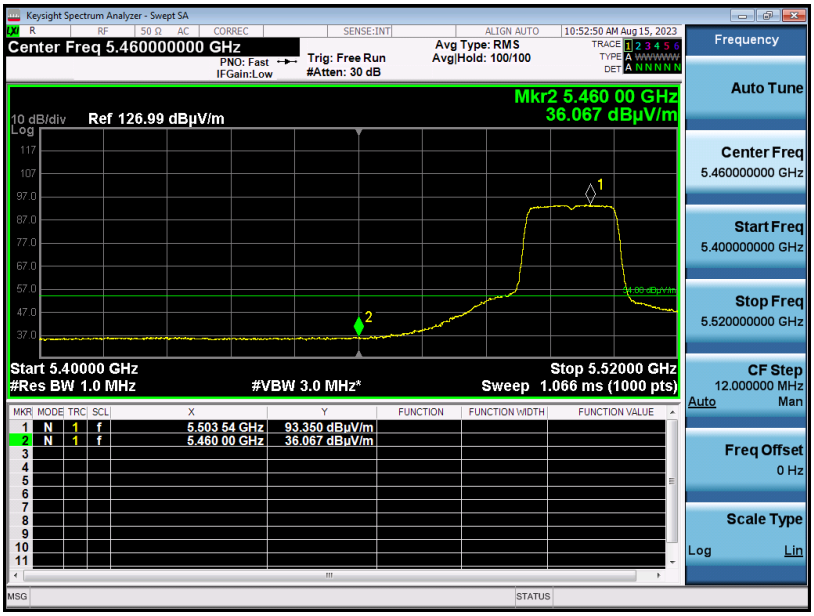
Test result for band edge emission at restricted bands 5.470GHz~5.725GHz_ANT2

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5500MHz	Antenna	Horizontal

Test Graph for Peak Measurement



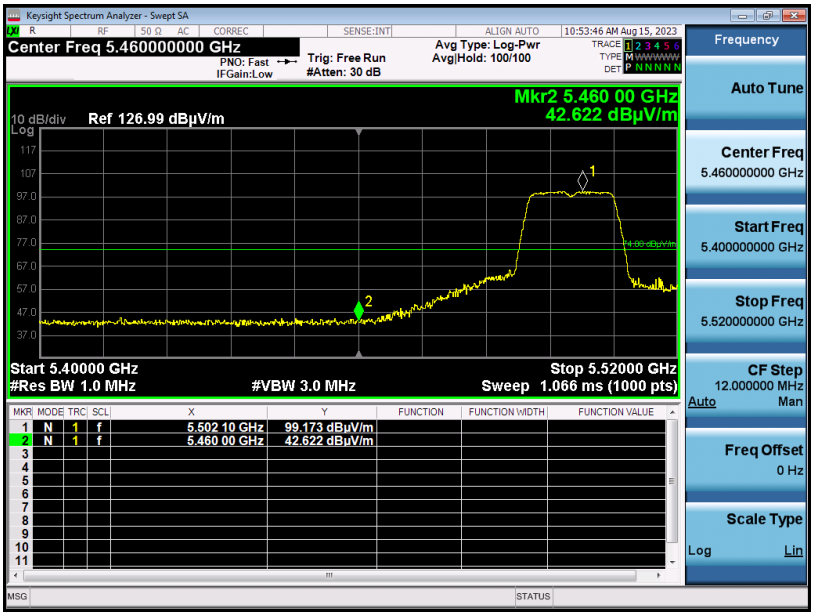
Test Graph for Average Measurement



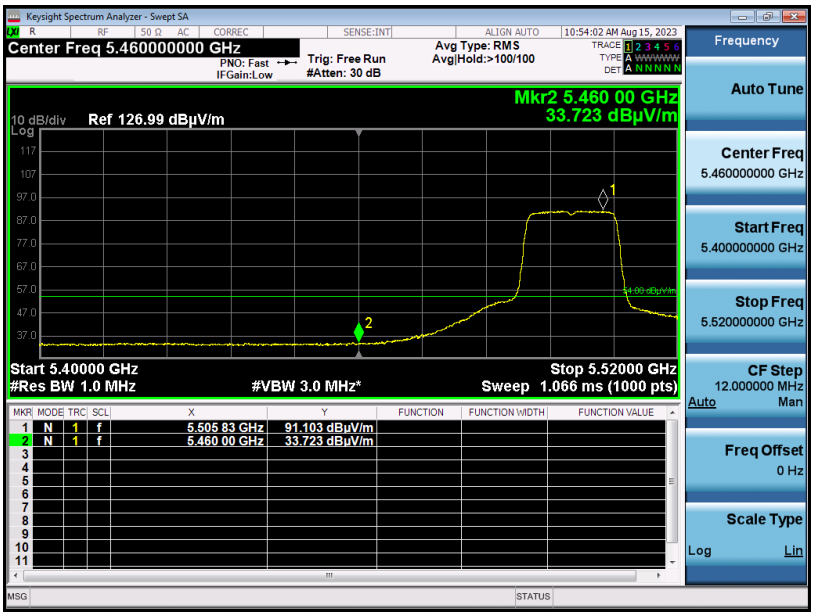
RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25℃	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5500MHz	Antenna	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement



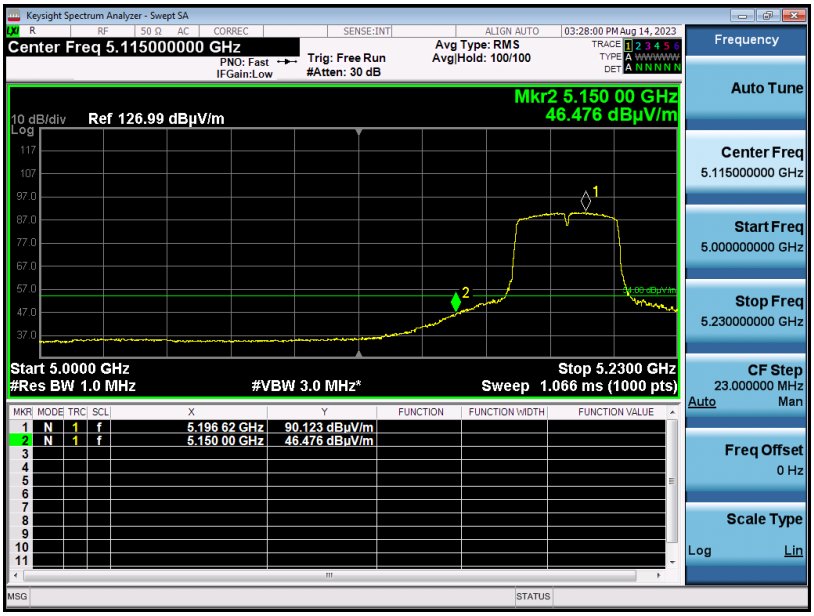
RESULT: PASS

Test result for band edge emission at restricted bands 5.150GHz~5.250GHz_MIMO

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n40 5190MHz	Antenna	Horizontal

Test Graph for Peak Measurement

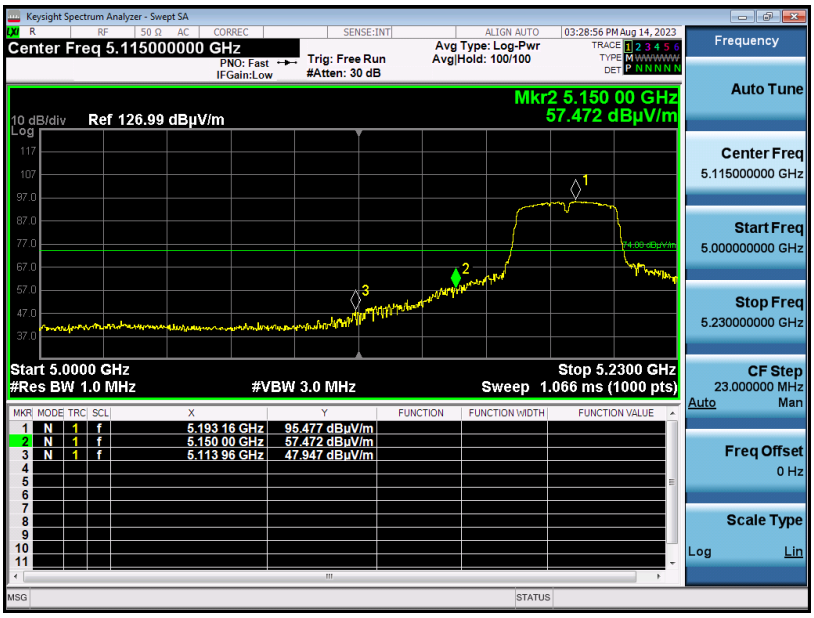
Test Graph for Average Measurement



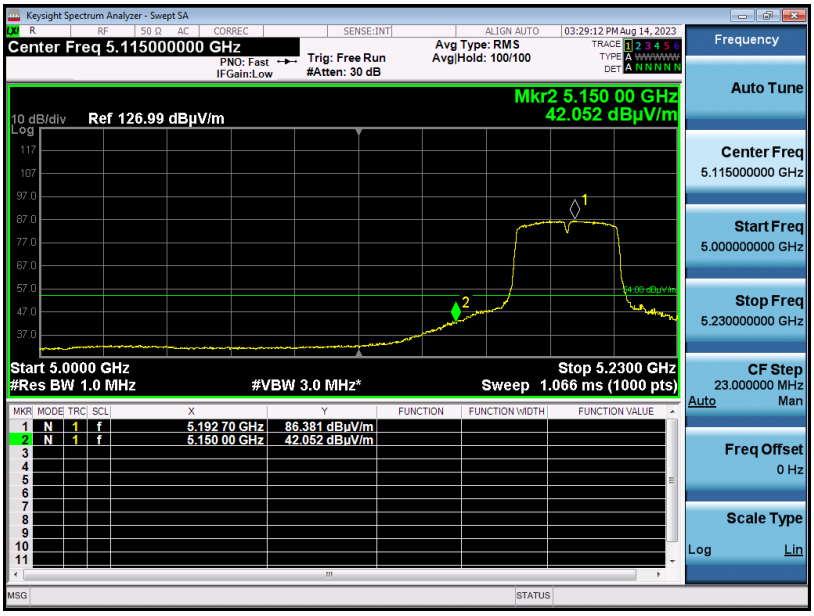
RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25℃	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n40 5190MHz	Antenna	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement

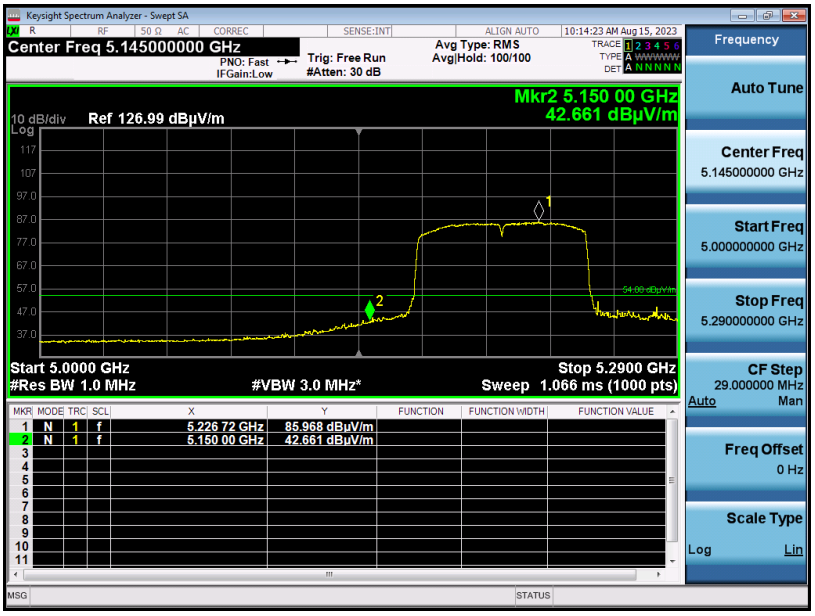


RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25℃	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11ac80 5210MHz	Antenna	Horizontal

Test Graph for Peak Measurement

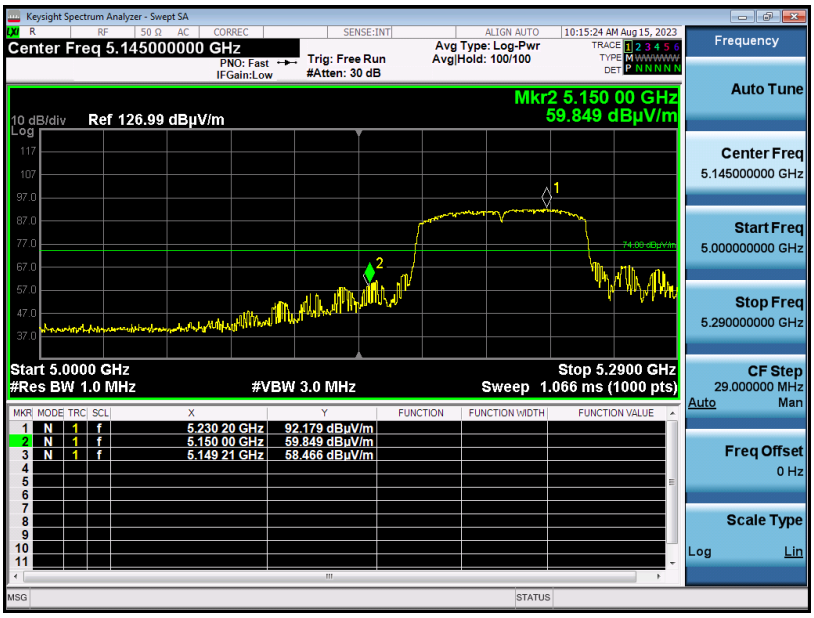
Test Graph for Average Measurement



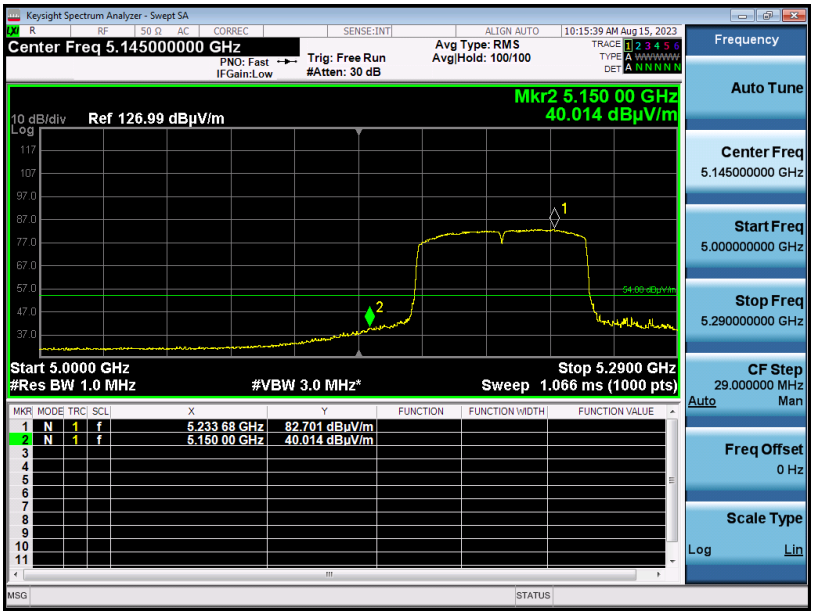
RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25℃	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11ac80 5210MHz	Antenna	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement



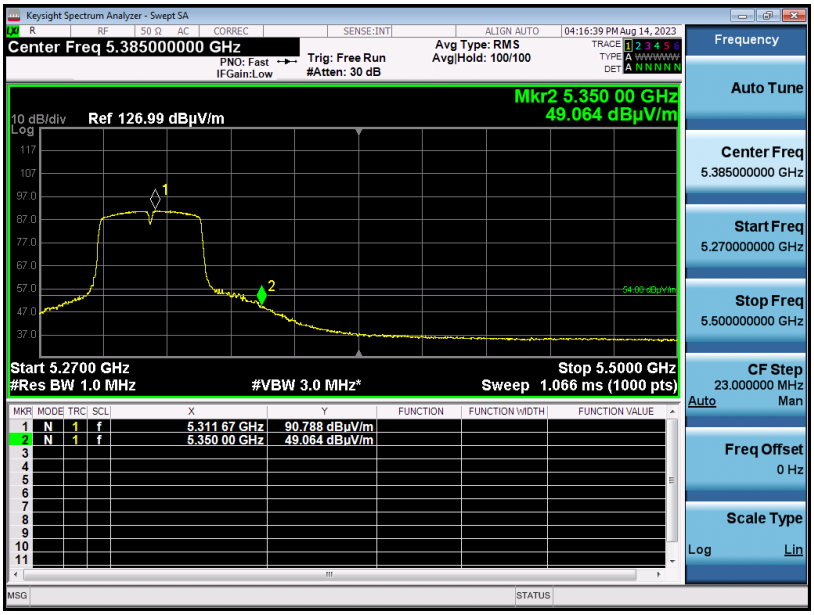
RESULT: PASS

Test result for band edge emission at restricted bands 5.25GHz~5.35GHz_MIMO

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25℃	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n40 5310MHz	Antenna	Horizontal

Test Graph for Peak Measurement

Test Graph for Average Measurement

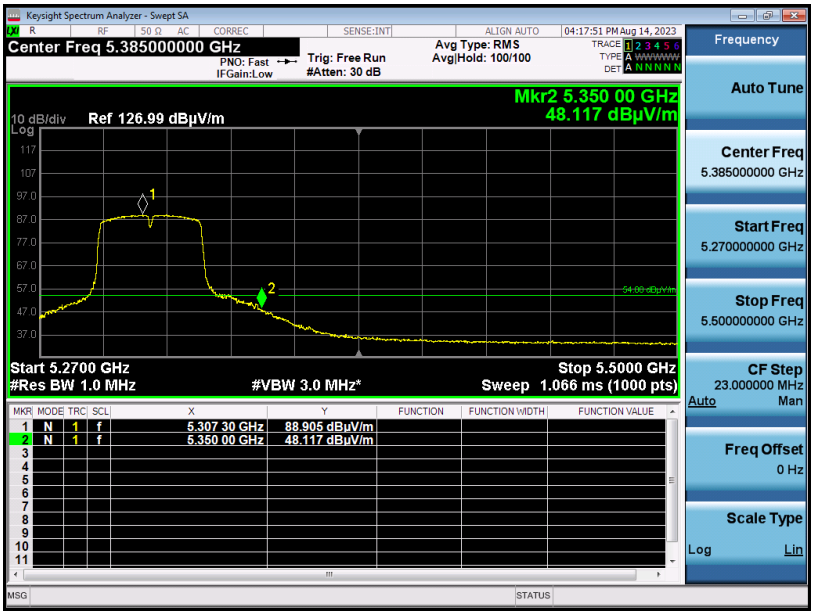


RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n40 5310MHz	Antenna	Vertical

Test Graph for Peak Measurement

Test Graph for Average Measurement

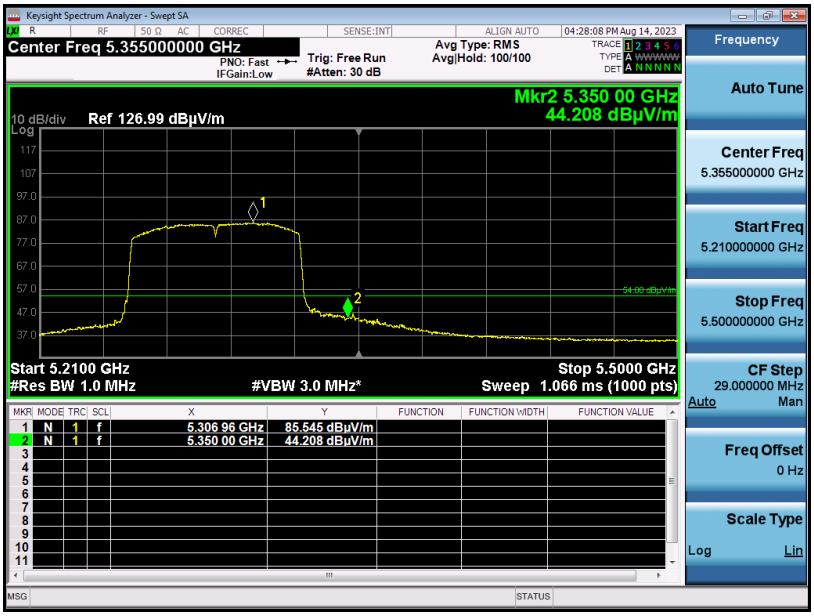


RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11ac80 5290MHz	Antenna	Horizontal

Test Graph for Peak Measurement

Test Graph for Average Measurement

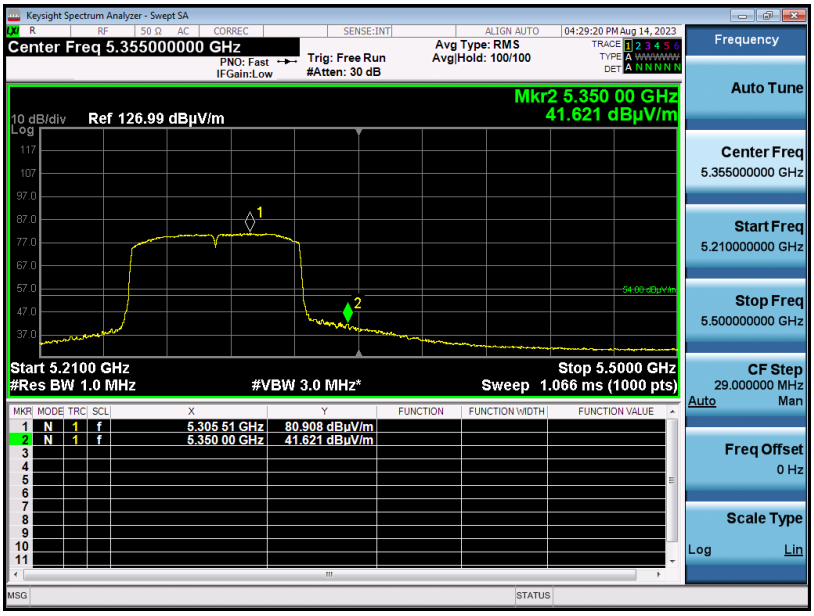


RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25℃	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11ac80 5290MHz	Antenna	Vertical

Test Graph for Peak Measurement

Test Graph for Average Measurement

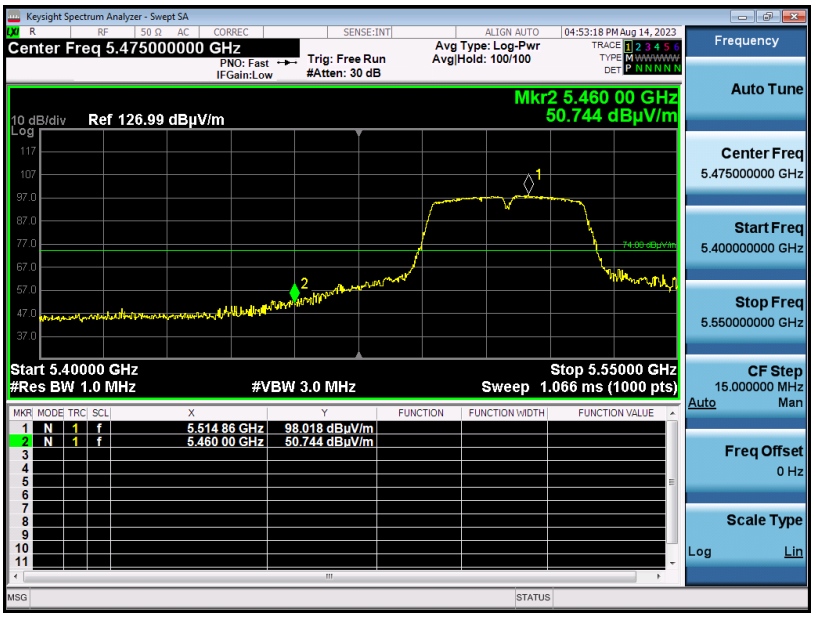


RESULT: PASS

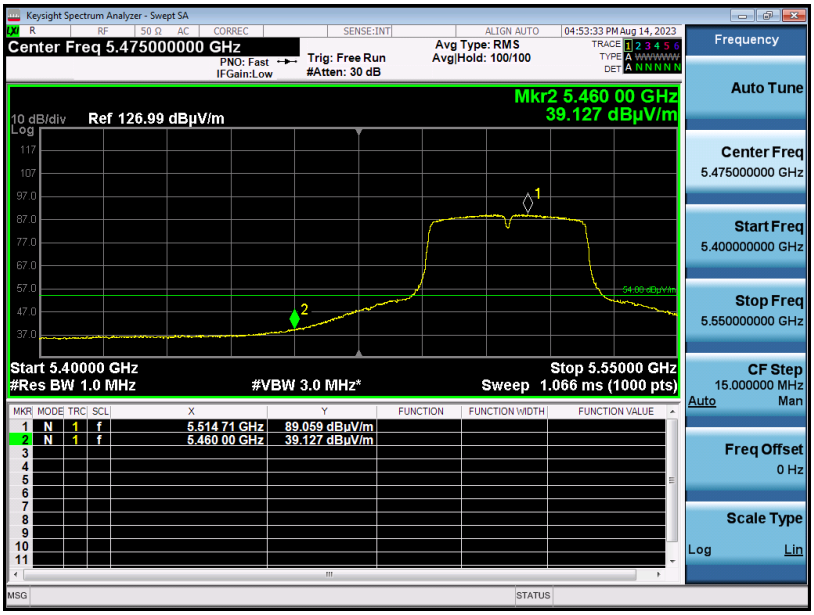
Test result for band edge emission at restricted bands 5.470GHz~5.725GHz_MIMO

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n40 5510MHz	Antenna	Horizontal

Test Graph for Peak Measurement



Test Graph for Average Measurement

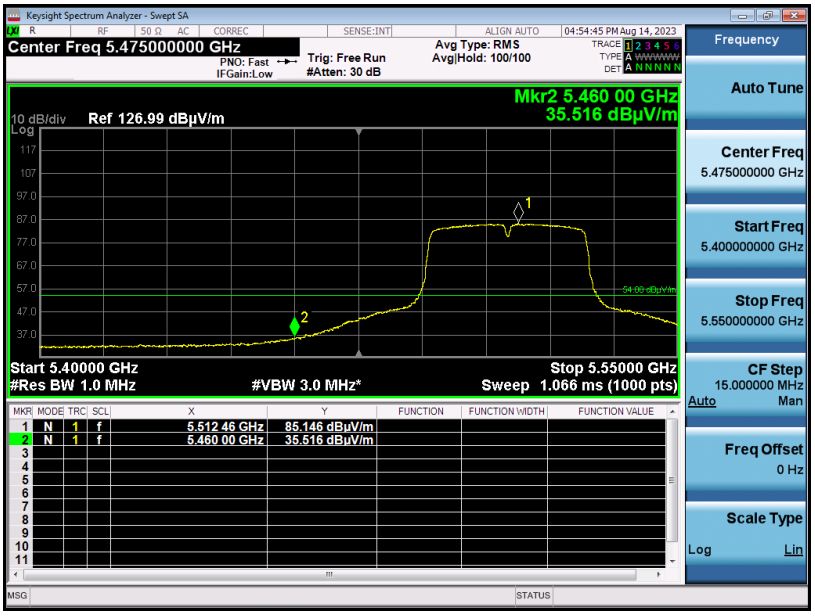


RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25℃	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n40 5510MHz	Antenna	Vertical

Test Graph for Peak Measurement

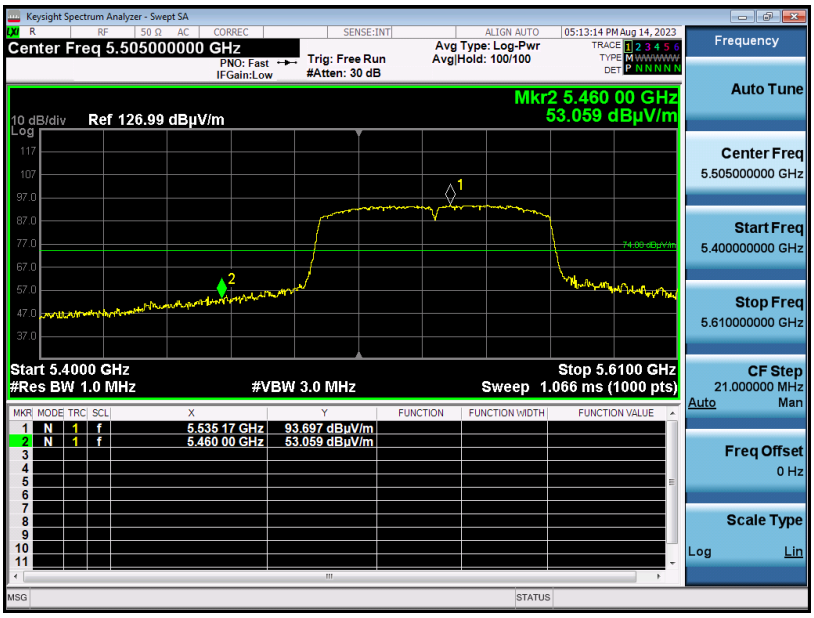
Test Graph for Average Measurement



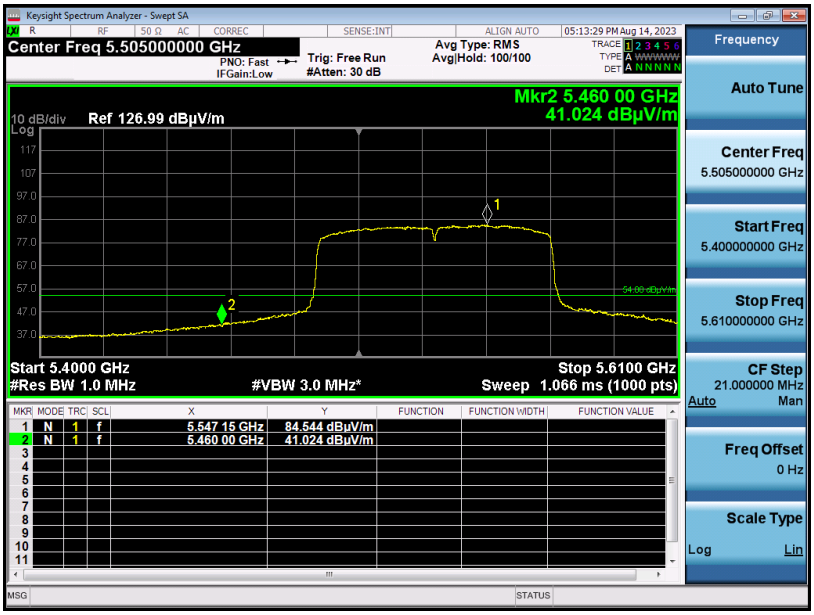
RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25℃	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11ac80 5530MHz	Antenna	Horizontal

Test Graph for Peak Measurement



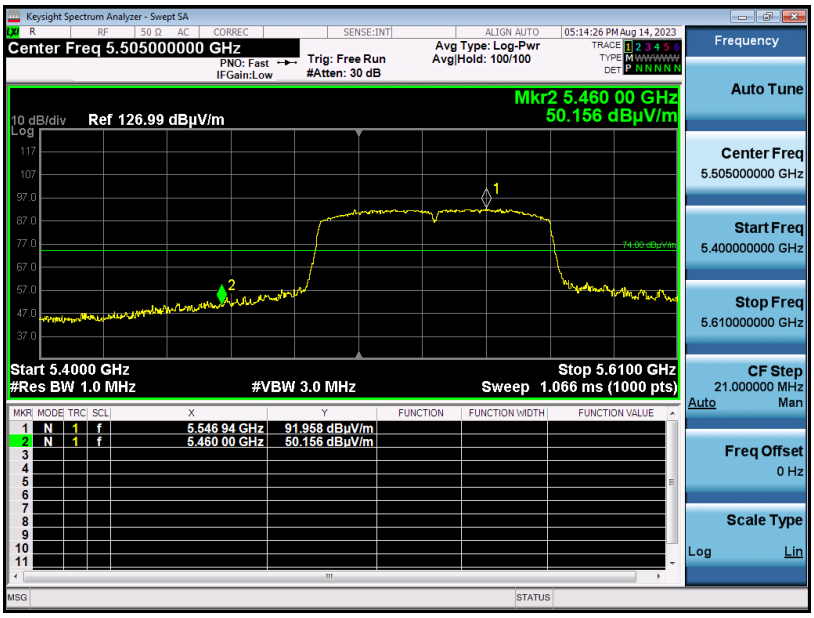
Test Graph for Average Measurement



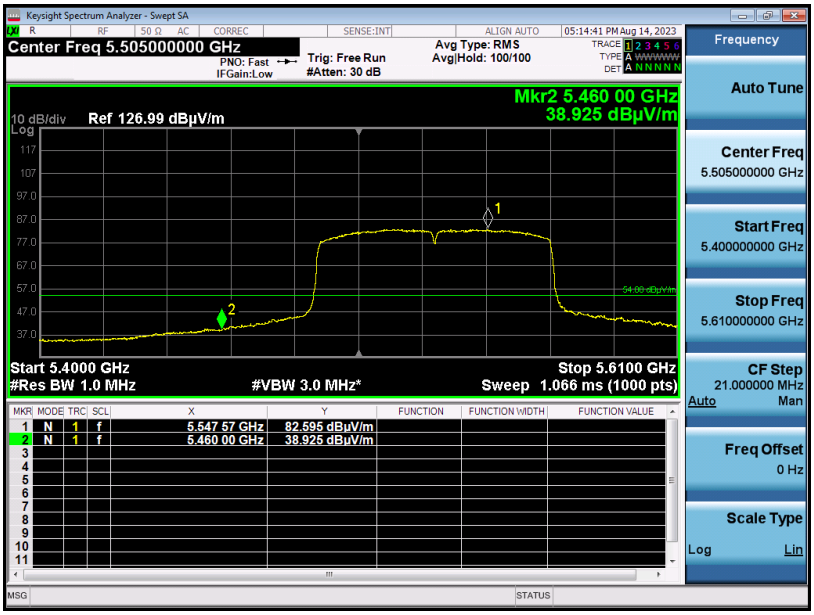
RESULT: PASS

EUT	Portable Smart Projector 1080P	Model Name	VA-SP009
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11ac80 5530MHz	Antenna	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement



RESULT: PASS

Note:

1. All antennas are pre-scanned, reflecting the corresponding worst mode for the capable MIMO mode and the non-MIMO mode for the single antenna as the worst data.
2. The factor had been edited in the “Input Correction” of the Spectrum Analyzer.
3. Only the data of band edge emission at the restricted band 4.5GHz-5.15GHz and 5.35GHz-5.46GHz record in the report. Other restricted band 7.25GHz-7.77GHz were considered as ambient noise. No recording in the test report.
4. The sideband standard of U-NII 3 frequency band is not defined, the transmitted signal does not fall in the restricted band, and the edge signal is far away from the edge of other restricted bands, and it is not recorded in the report.
5. The edge signal strength of U-NII 3 is far from the edge of the limit band, so there is no need to reflect it

11. AC POWER LINE CONDUCTED EMISSION TEST

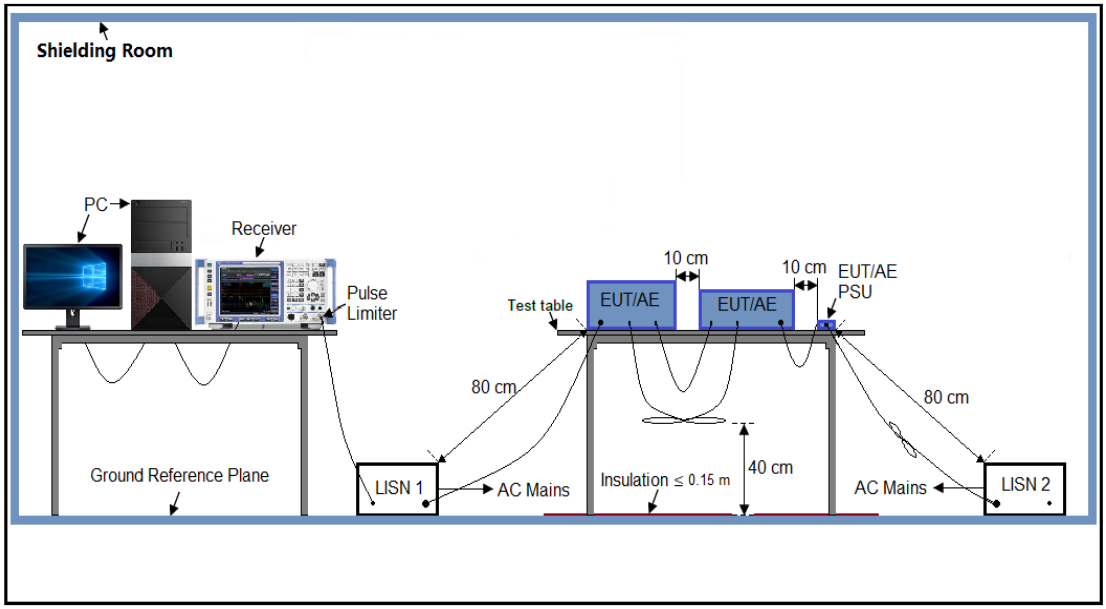
11.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P (dBμV)	Average (dBμV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.

11.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



11.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipment received AC120V/60Hz power from a LISN, if any.
5. The EUT received charging voltage by adapter which received 120V/60Hzpower by a LISN.
6. The test program was started. Emissions were measured on each current carrying line of the EUT using spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 Ohm load; the second scan had Line 1 connected to a 50 Ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

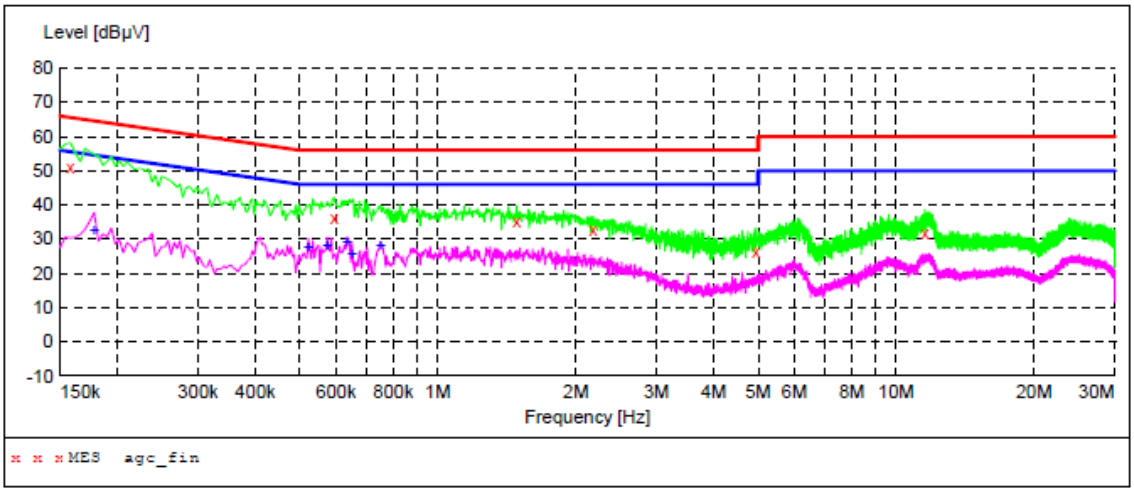
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

11.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case was reported on the Summary Data page.
4. The worst mode is 802.11n20 5180MHz, antenna 1 and antenna 2 work together.

11.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

AC POWER LINE CONDUCTED EMISSION TEST			
Test Mode	802.11n(20MHz)_5180MHz	LISN line	Hot Side



MEASUREMENT RESULT: "agc_fin"

2023/8/3 21:24

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.158000	51.10	6.1	66	14.5	QP	L1
0.594000	36.30	6.2	56	19.7	QP	L1
1.486000	35.10	6.2	56	20.9	QP	L1
2.182000	32.60	6.3	56	23.4	QP	L1
4.950000	26.30	6.3	56	29.7	QP	L1
11.542000	31.90	6.7	60	28.1	QP	L1

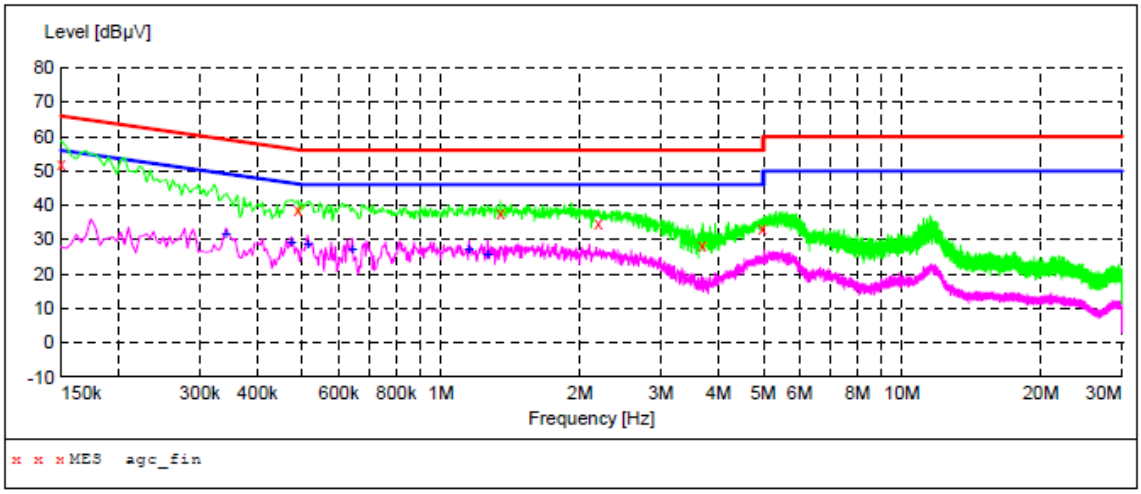
MEASUREMENT RESULT: "agc_fin2"

2023/8/3 21:24

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.178000	32.50	6.1	55	22.1	AV	L1
0.522000	27.80	6.2	46	18.2	AV	L1
0.574000	28.40	6.2	46	17.6	AV	L1
0.634000	29.10	6.2	46	16.9	AV	L1
0.650000	25.90	6.2	46	20.1	AV	L1
0.750000	28.40	6.2	46	17.6	AV	L1

RESULT: PASS

AC POWER LINE CONDUCTED EMISSION TEST			
Test Mode	802.11n(20MHz)_5180MHz	LISN line	Neutral Side



MEASUREMENT RESULT: "agc_fin"

2023/8/3 21:21

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000	51.90	6.1	66	14.1	QP	N
0.490000	38.60	6.1	56	17.6	QP	N
1.346000	37.50	6.2	56	18.5	QP	N
2.194000	34.90	6.3	56	21.1	QP	N
3.694000	28.30	6.3	56	27.7	QP	N
4.974000	33.40	6.3	56	22.6	QP	N

MEASUREMENT RESULT: "agc_fin2"

2023/8/3 21:21

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.342000	31.80	6.1	49	17.4	AV	N
0.474000	29.40	6.1	46	17.0	AV	N
0.514000	28.70	6.2	46	17.3	AV	N
0.642000	27.50	6.2	46	18.5	AV	N
1.150000	27.40	6.2	46	18.6	AV	N
1.262000	25.60	6.2	46	20.4	AV	N

RESULT: PASS

APPENDIX I: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC13454230712AP01

APPENDIX II: PHOTOGRAPHS OF EUT

Refer to the Report No.: AGC13454230712AP02

----END OF REPORT----

Conditions of Issuance of Test Reports

1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").

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3.The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.

4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.

5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.

6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.

7.Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.

8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.

9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.