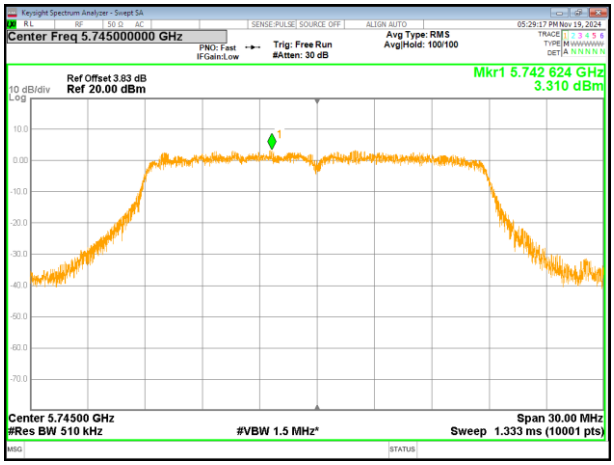
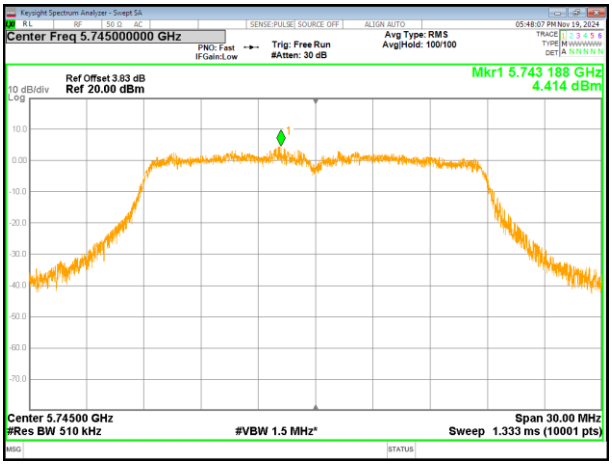
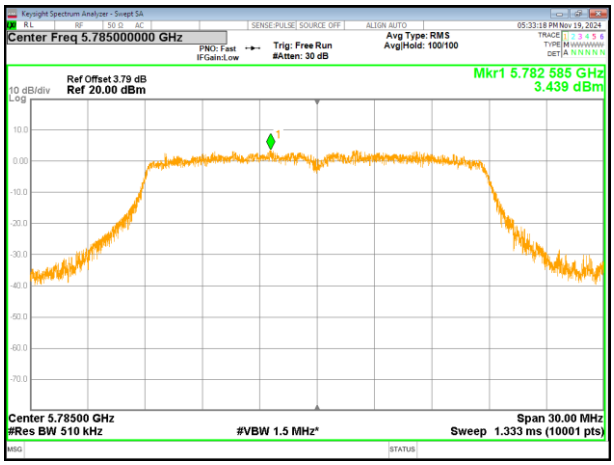
(802.11a) PSD plot on channel 149



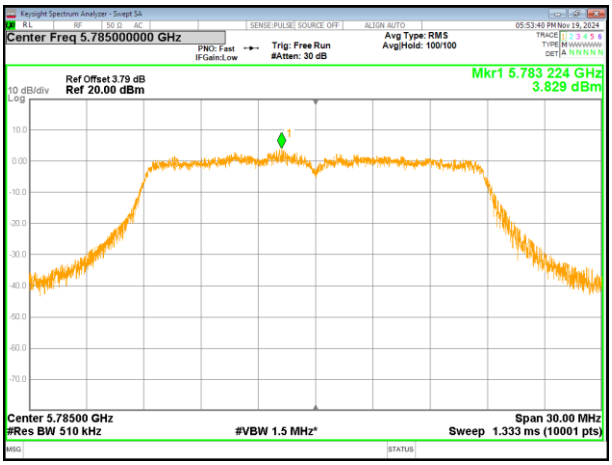
(802.11n20) PSD plot on channel 149



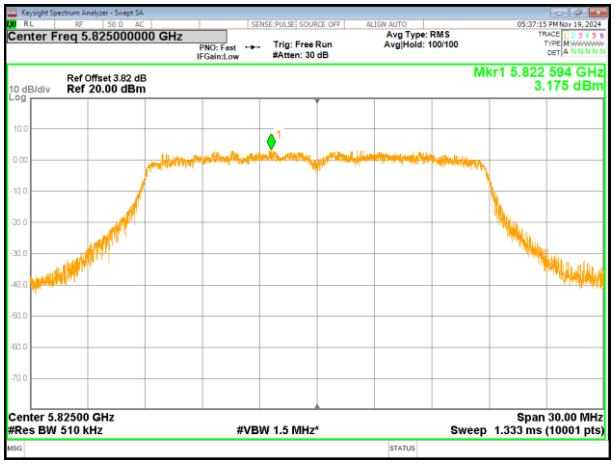
(802.11a) PSD plot on channel 157



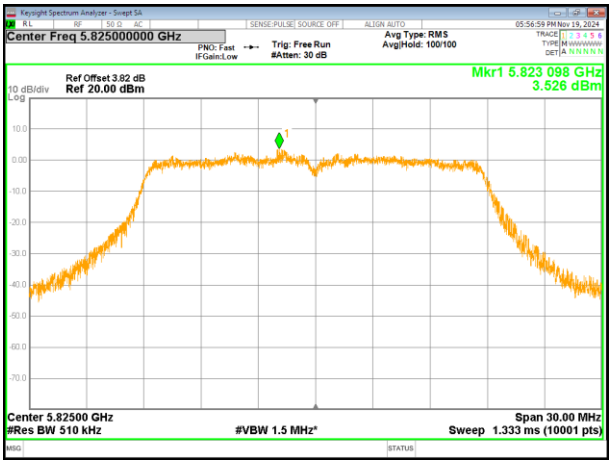
(802.11n20) PSD plot on channel 157



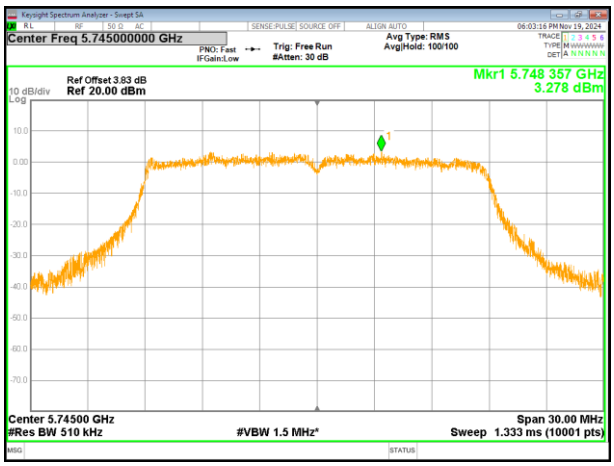
(802.11a) PSD plot on channel 165



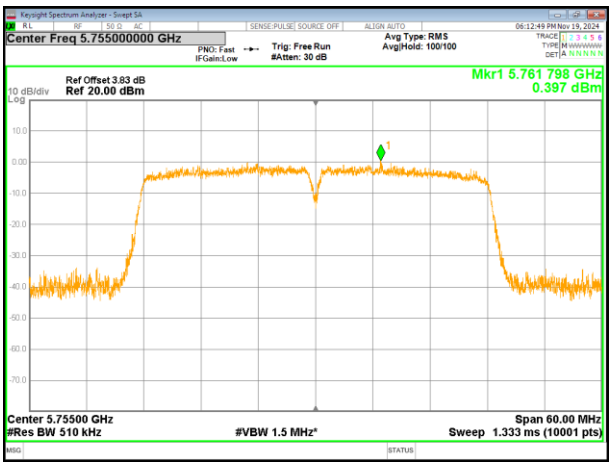
(802.11n20) PSD plot on channel 165



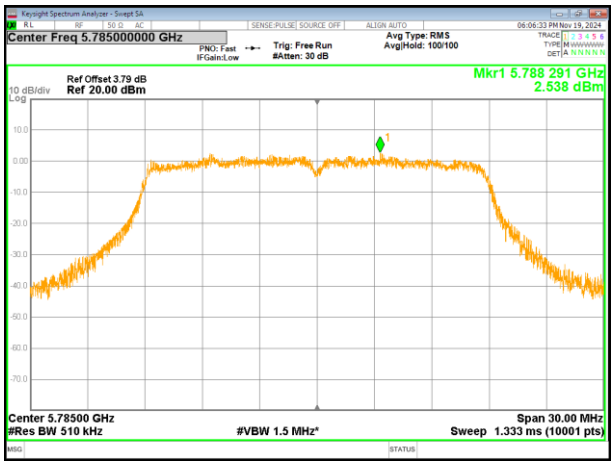
(802.11ac20) PSD plot on channel 149



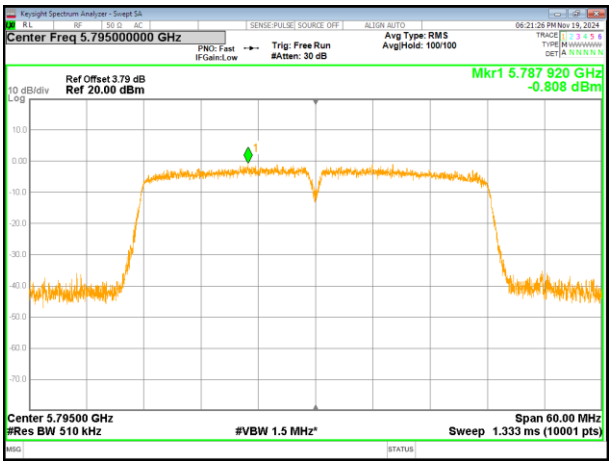
(802.11n40) PSD plot on channel 151



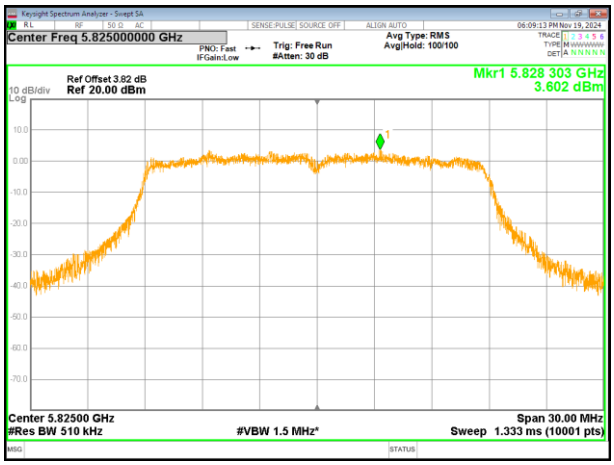
(802.11ac20) PSD plot on channel 157



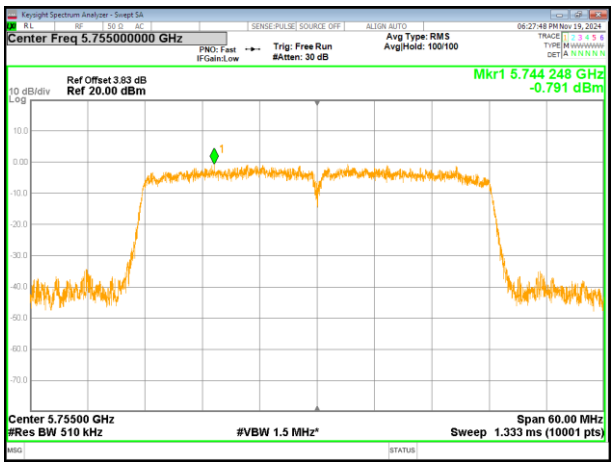
(802.11n40) PSD plot on channel 159



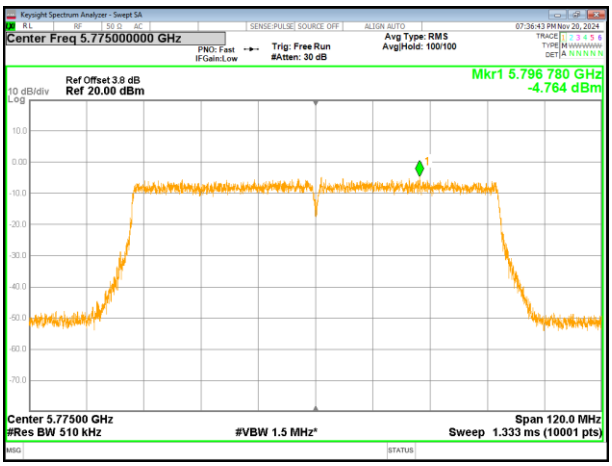
(802.11ac20) PSD plot on channel 165



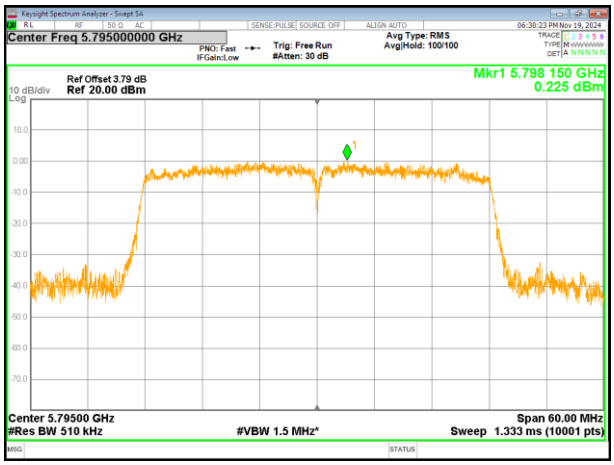
(802.11ac40) PSD plot on channel 151



(802.11ac80) PSD plot on channel 155

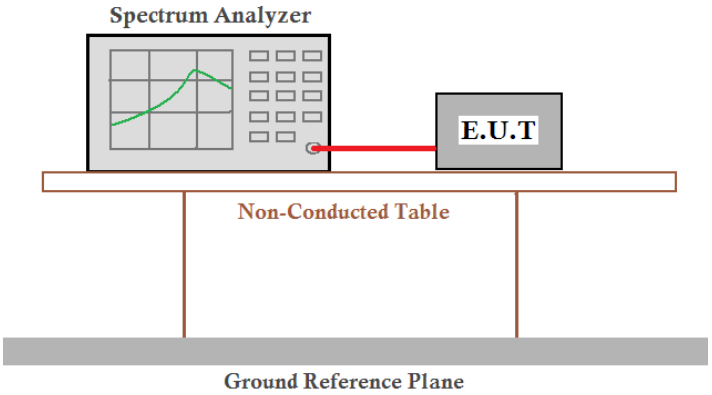


(802.11ac40) PSD plot on channel 159



4.7 Band edge

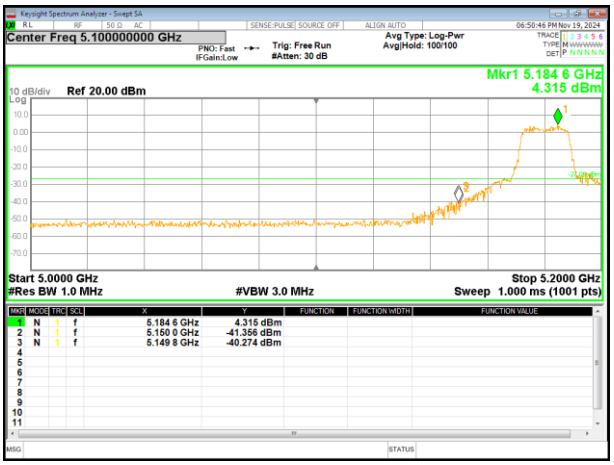
4.7.1 Conducted test Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205
Test Method:	ANSI C63.10: 2013
Limit:	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.
Test setup:	
Test Procedure:	1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator. 2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range. 3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span. 4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency. 5. Repeat above procedures until all measured frequencies were complete..
Test Instruments:	Refer to section 3.0 for details
Test mode:	Refer to section 2.2 for details
Test environment:	Temp.: 26.5℃ Humid.: 47%RH
Test voltage:	AC 120V
Test results:	Pass

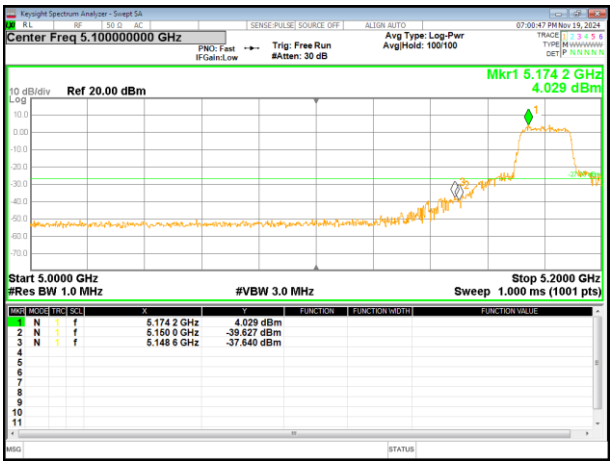
Remark: Due to the margin value of the sideband test being greater than the antenna gain value, the test meets the requirements

5.180~5.240 GHz

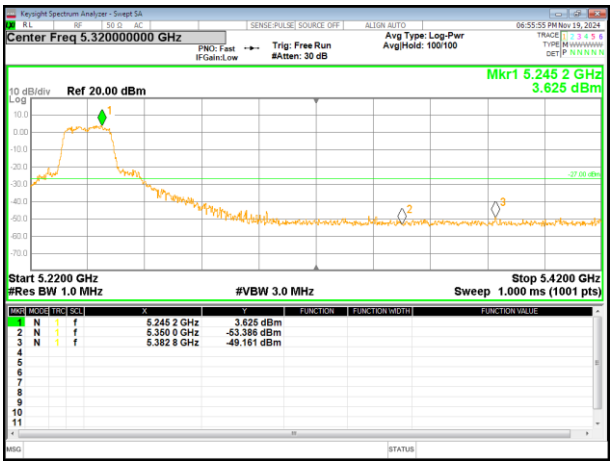
(802.11a) Band Edge, Left Side



(802.11n20) Band Edge, Left Side



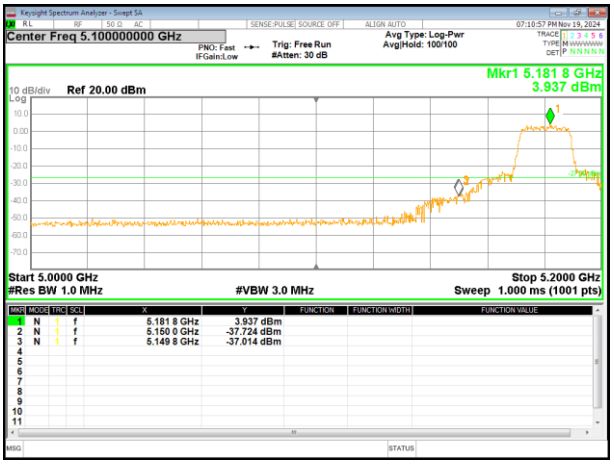
(802.11a) Band Edge, Right Side



(802.11n20) Band Edge, Right Side

5.180~5.240 GHz

(802.11ac20) Band Edge, Left Side



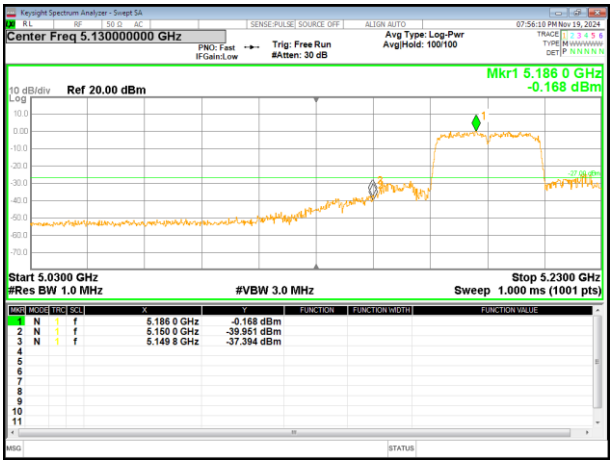
(802.11n40) Band Edge, Left Side

(802.11ac20) Band Edge, Right Side

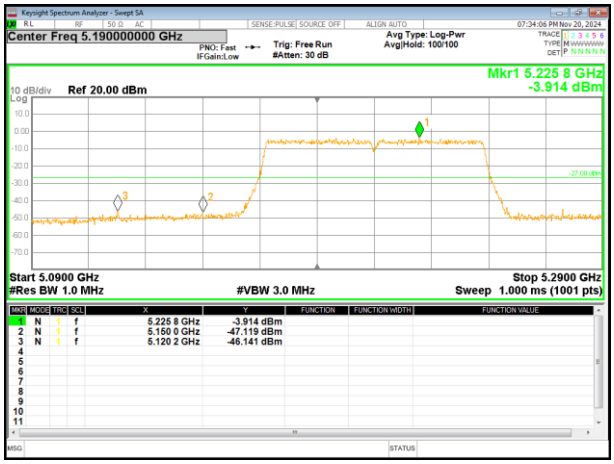
(802.11n40) Band Edge, Right Side

5.180~5.240 GHz

(802.11ac40) Band Edge, Left Side



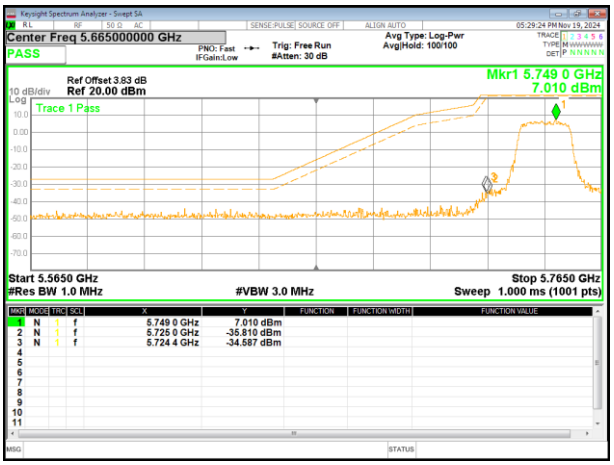
(802.11ac80) Band Edge



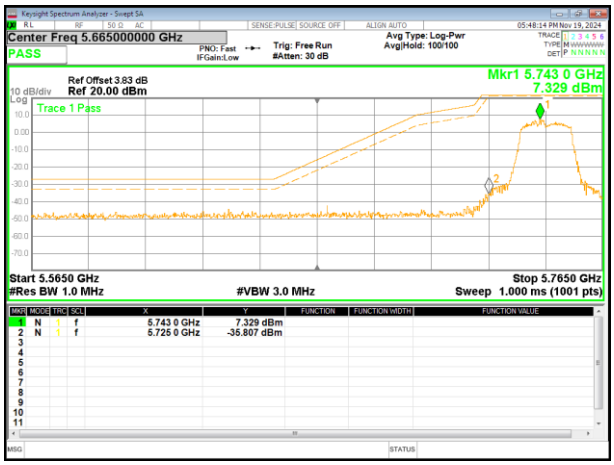
(802.11ac40) Band Edge, Right Side

5.745~5.825 GHz

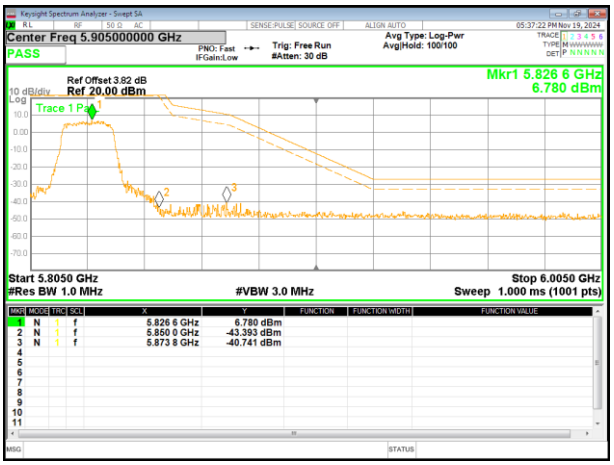
(802.11a) Band Edge, Left Side



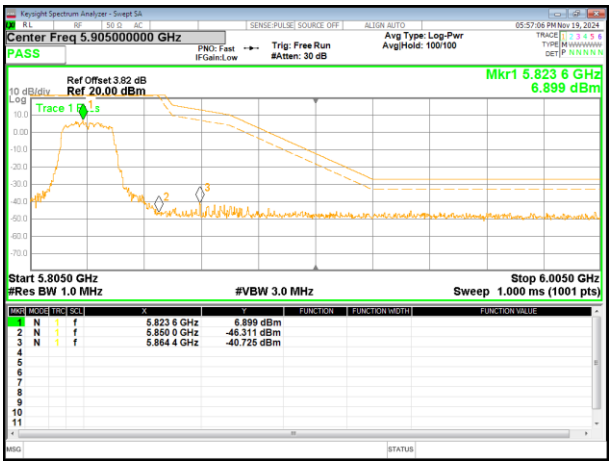
(802.11n20) Band Edge, Left Side



(802.11a) Band Edge, Right Side

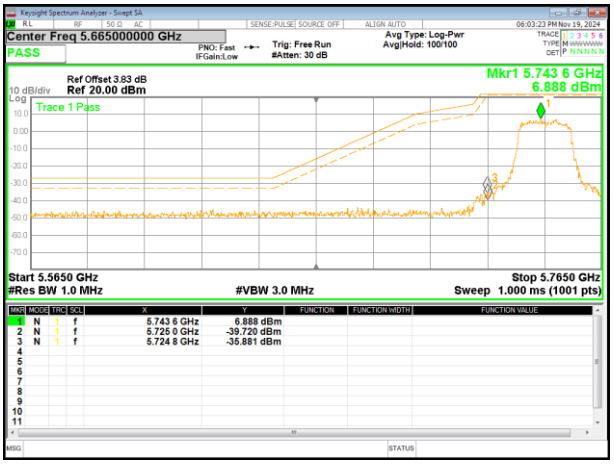


(802.11n20) Band Edge, Right Side

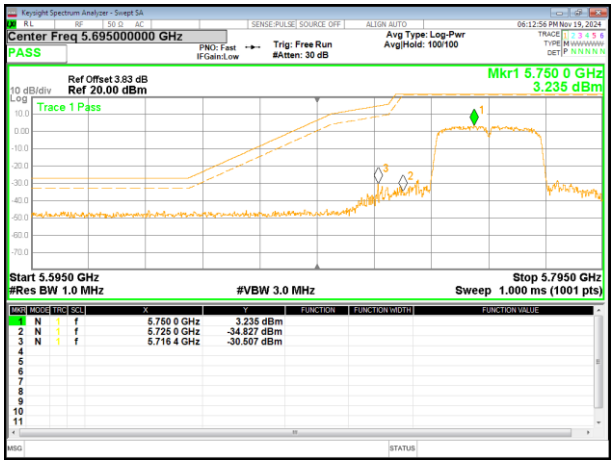


5.745~5.825 GHz

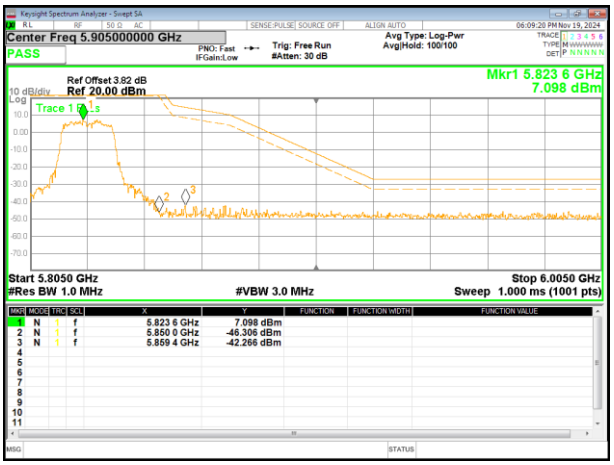
(802.11ac20) Band Edge, Left Side



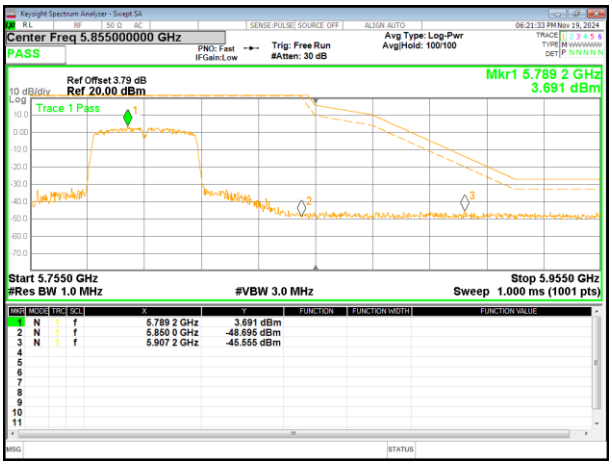
(802.11n40) Band Edge, Left Side



(802.11ac20) Band Edge, Right Side

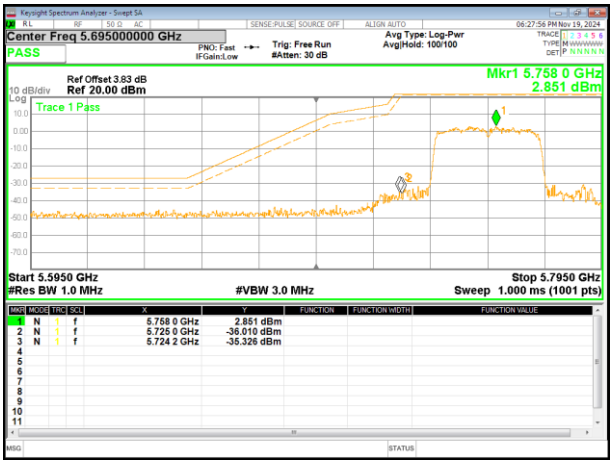


(802.11n40) Band Edge, Right Side

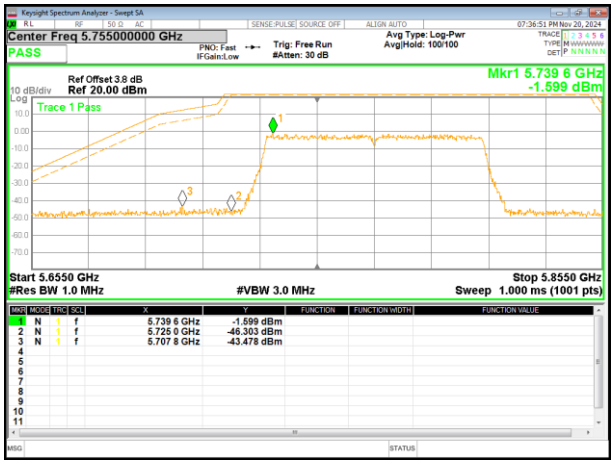


5.745~5.825 GHz

(802.11ac40) Band Edge, Left Side



(802.11ac80) Band Edge



(802.11ac40) Band Edge, Right Side

4.8 Spurious Emission

4.8.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209, Part 15E Section 15.407(b)(4)
Test Method:	ANSI C63.10:2013
Test Frequency Range:	9kHz to 40GHz
Test site:	Measurement Distance: 3m

Receiver setup:

Frequency	Detector	RBW	VBW	Value
9kHz-150KHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	AV	1MHz	3MHz	Average Value

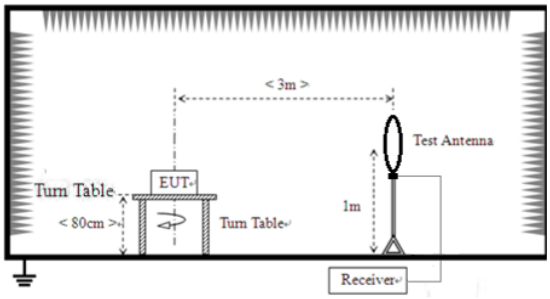
Limit:

Frequency	Limit (uV/m)	Value	Measurement Distance
0.009MHz-0.490MHz	2400/F(KHz)	QP	300m
0.490MHz-1.705MHz	24000/F(KHz)	QP	300m
1.705MHz-30MHz	30	QP	30m
30MHz-88MHz	100	QP	3m
88MHz-216MHz	150	QP	
216MHz-960MHz	200	QP	
960MHz-1GHz	500	QP	

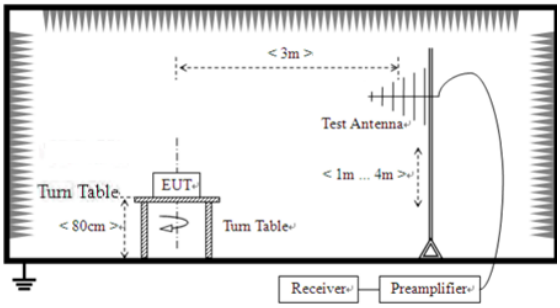
Frequency	Limit (dBm/MHz)	Remark
Above 1GHz	-27.0	Peak Value

Test setup:

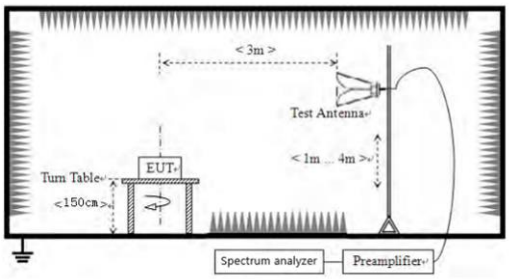
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz

	
Test Procedure:	1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.
Test Instruments:	Refer to section 3.0 for details
Test mode:	Refer to section 2.2 for details
Test results:	Pass

Remarks:

1. *The report only shows the worst mode.*
2. *Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.*

Measurement Data:

9 kHz ~ 30 MHz

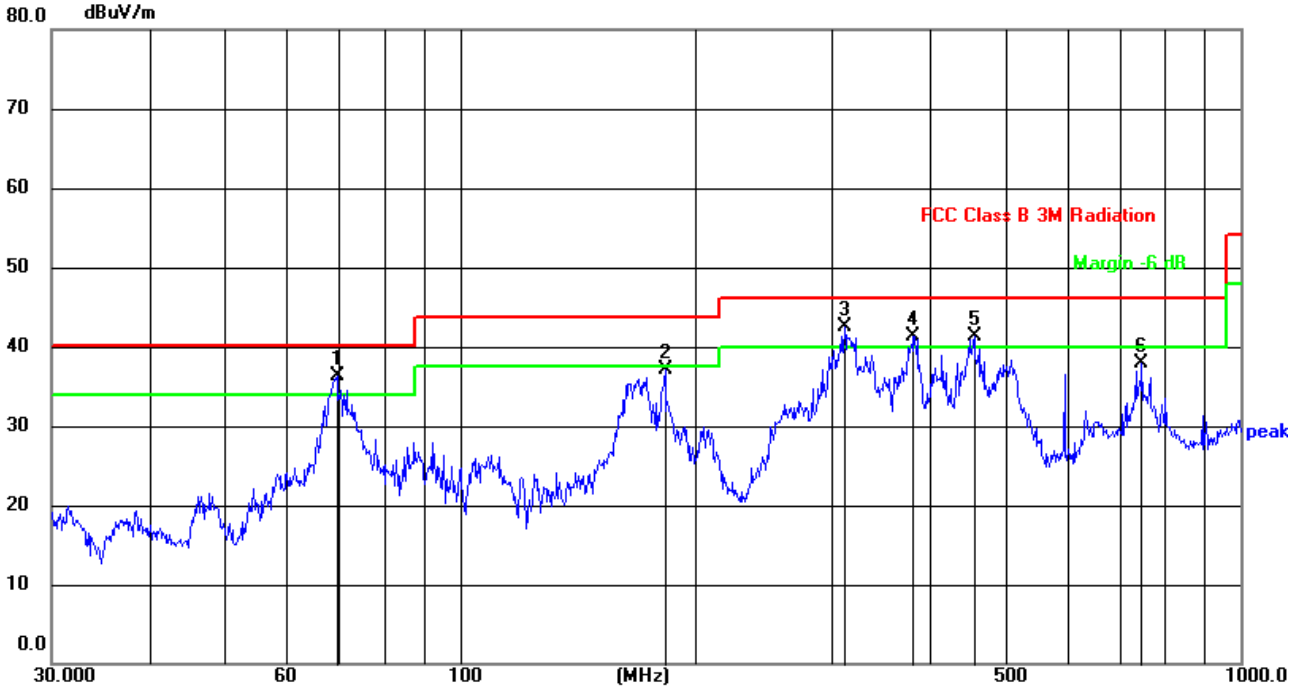
The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

Below 1GHz

Remark: The test data shows only the worst case 802.11ac20 mode.

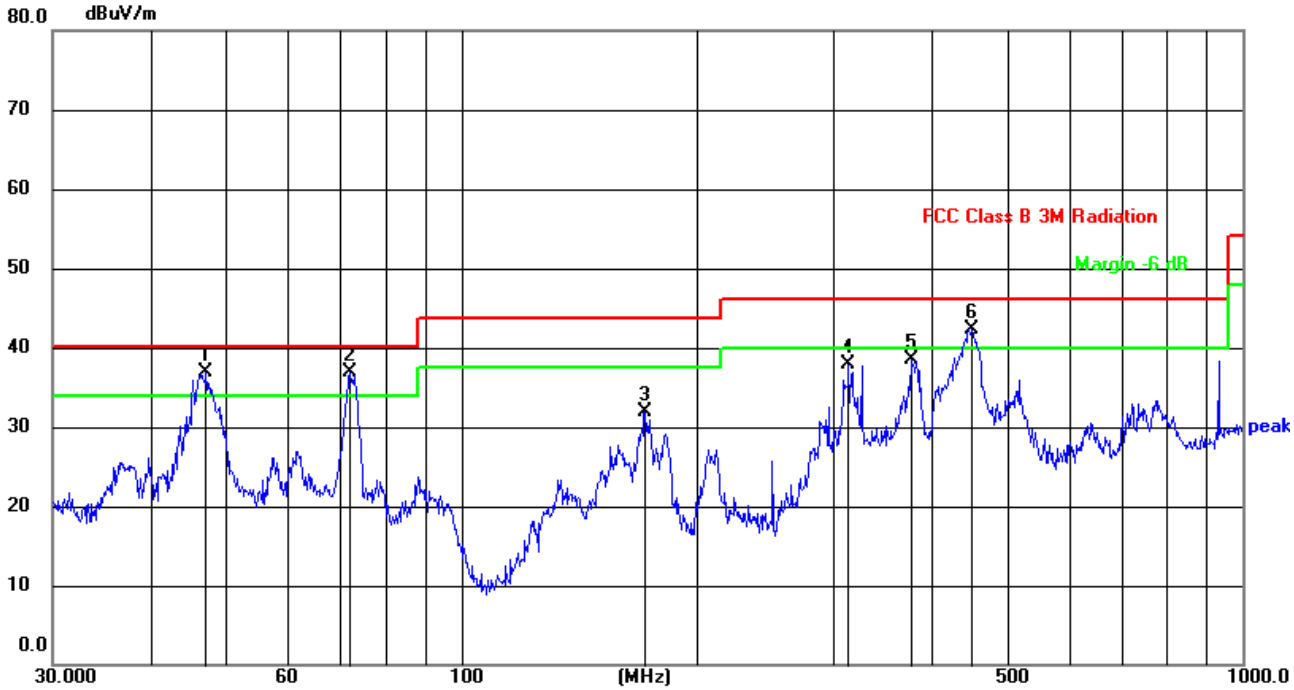
Temperature:	26.5℃	Relative Humidity:	47%
Pressure:	101.2kPar	Test Voltage :	AC 120V
Test Mode :	5.2G TX- 802.11ac20(5240MHz)		

Horizontal:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	69.6003	60.48	-24.09	36.39	40.00	-3.61	QP
2	183.2005	59.75	-22.70	37.05	43.50	-6.45	QP
3	311.0865	62.36	-19.83	42.53	46.00	-3.47	QP
4	381.2485	59.34	-17.95	41.39	46.00	-4.61	QP
5	455.9057	56.75	-15.54	41.21	46.00	-4.79	QP
6	747.4823	46.01	-8.17	37.84	46.00	-8.16	QP

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	47.1597	58.29	-21.46	36.83	40.00	-3.17	QP
2	72.0841	61.43	-24.56	36.87	40.00	-3.13	QP
3	171.9944	53.23	-21.26	31.97	43.50	-11.53	QP
4	313.2760	57.62	-19.74	37.88	46.00	-8.12	QP
5	377.2590	56.59	-18.08	38.51	46.00	-7.49	QP
6	451.1349	57.90	-15.54	42.36	46.00	-3.64	QP

Remarks:
1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Above 1GHz:

Remark: The test data shows only the worst case 802.11ac20 mode.

Temperature:	26.5℃	Relative Humidity:	47%
Pressure:	101.2kPar	Test Voltage :	AC 120V
Test Mode :	5.2G TX- 802.11ac20		

Polar (H/V)	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB	
Low Channel:5180MHz									
V	10360.00	52.23	46.20	8.27	38.50	52.80	68.20	-15.40	PK
V	10360.00	41.83	46.20	8.27	38.50	42.40	54.00	-11.60	AV
V	15540.00	49.22	46.30	10.35	38.70	51.97	74.00	-22.03	PK
V	15540.00	38.79	46.30	10.35	38.70	41.54	54.00	-12.46	AV
V	20720.00	58.68	57.40	11.93	37.80	51.01	68.20	-17.19	PK
V	20720.00	48.26	57.40	11.93	37.80	40.59	54.00	-13.41	AV
V	25900.00	56.29	56.50	13.45	39.70	52.94	68.20	-15.26	PK
V	25900.00	45.46	56.50	13.45	39.70	42.11	54.00	-11.89	AV
V	31080.00	50.05	56.10	16.12	41.60	51.67	68.20	-16.53	PK
V	31080.00	43.24	56.10	16.12	41.60	44.86	54.00	-9.14	AV
V	36260.00	47.16	56.80	18.29	42.80	51.45	68.20	-16.75	PK
V	36260.00	39.76	56.80	18.29	42.80	44.05	54.00	-9.95	AV
H	10360.00	52.22	46.20	8.27	38.50	52.79	68.20	-15.41	PK
H	10360.00	40.40	46.20	8.27	38.50	40.97	54.00	-13.03	AV
H	15540.00	48.26	46.30	10.35	38.70	51.01	74.00	-22.99	PK
H	15540.00	36.25	46.30	10.35	38.70	39.00	54.00	-15.00	AV
H	20720.00	61.00	57.40	11.93	37.80	53.33	68.20	-14.87	PK
H	20720.00	49.23	57.40	11.93	37.80	41.56	54.00	-12.44	AV
H	25900.00	57.30	56.50	13.45	39.70	53.95	68.20	-14.25	PK
H	25900.00	45.48	56.50	13.45	39.70	42.13	54.00	-11.87	AV
H	31080.00	50.65	56.10	16.12	41.60	52.27	68.20	-15.93	PK
H	31080.00	43.20	56.10	16.12	41.60	44.82	54.00	-9.18	AV
H	36260.00	46.34	56.80	18.29	42.80	50.63	68.20	-17.57	PK
H	36260.00	39.87	56.80	18.29	42.80	44.16	54.00	-9.84	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:5200MHz									
V	10400.00	51.23	46.20	8.27	38.50	51.80	68.20	-16.40	PK
V	10400.00	41.58	46.20	8.27	38.50	42.15	54.00	-11.85	AV
V	15600.00	49.54	46.30	10.35	38.40	51.99	74.00	-22.01	PK
V	15600.00	40.45	46.30	10.35	38.40	42.90	54.00	-11.10	AV
V	20800.00	59.94	57.40	11.93	37.80	52.27	68.20	-15.93	PK
V	20800.00	49.83	57.40	11.93	37.80	42.16	54.00	-11.84	AV
V	26000.00	54.86	56.50	13.45	39.80	51.61	68.20	-16.59	PK
V	26000.00	46.76	56.50	13.45	39.80	43.51	54.00	-10.49	AV
V	31200.00	52.23	56.10	16.12	41.60	53.85	68.20	-14.35	PK
V	31200.00	45.33	56.10	16.12	41.60	46.95	54.00	-7.05	AV
V	36400.00	48.56	56.80	18.29	42.80	52.85	68.20	-15.35	PK
V	36400.00	41.22	56.80	18.29	42.80	45.51	54.00	-8.49	AV
H	10400.00	51.87	46.20	8.27	38.50	52.44	68.20	-15.76	PK
H	10400.00	41.93	46.20	8.27	38.50	42.50	54.00	-11.50	AV
H	15600.00	49.52	46.30	10.35	38.40	51.97	74.00	-22.03	PK
H	15600.00	40.44	46.30	10.35	38.40	42.89	54.00	-11.11	AV
H	20800.00	58.85	57.40	11.93	37.80	51.18	68.20	-17.02	PK
H	20800.00	47.65	57.40	11.93	37.80	39.98	54.00	-14.02	AV
H	26000.00	54.59	56.50	13.45	39.80	51.34	68.20	-16.86	PK
H	26000.00	45.87	56.50	13.45	39.80	42.62	54.00	-11.38	AV
H	31200.00	52.47	56.10	16.12	41.60	54.09	68.20	-14.11	PK
H	31200.00	45.08	56.10	16.12	41.60	46.70	54.00	-7.30	AV
H	36400.00	48.45	56.80	18.29	42.80	52.74	68.20	-15.46	PK
H	36400.00	41.73	56.80	18.29	42.80	46.02	54.00	-7.98	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5240MHz									
V	10480.00	47.93	46.20	8.27	38.60	48.60	68.20	-19.60	PK
V	10480.00	37.50	46.20	8.27	38.60	38.17	54.00	-15.83	AV
V	15720.00	45.46	46.30	10.35	38.40	47.91	74.00	-26.09	PK
V	15720.00	35.15	46.30	10.35	38.40	37.60	54.00	-16.40	AV
V	20960.00	55.96	57.40	11.93	37.50	47.99	68.20	-20.21	PK
V	20960.00	47.06	57.40	11.93	37.50	39.09	54.00	-14.91	AV
V	26200.00	51.79	56.50	13.45	40.10	48.84	68.20	-19.36	PK
V	26200.00	41.93	56.50	13.45	40.10	38.98	54.00	-15.02	AV
V	31440.00	53.47	56.10	16.12	41.30	54.79	68.20	-13.41	PK
V	31440.00	46.17	56.10	16.12	41.30	47.49	54.00	-6.51	AV
V	36680.00	49.05	56.80	18.29	43.10	53.64	68.20	-14.56	PK
V	36680.00	41.87	56.80	18.29	43.10	46.46	54.00	-7.54	AV
H	10480.00	48.15	46.20	8.27	38.60	48.82	68.20	-19.38	PK
H	10480.00	37.55	46.20	8.27	38.60	38.22	54.00	-15.78	AV
H	15720.00	45.79	46.30	10.35	38.40	48.24	74.00	-25.76	PK
H	15720.00	35.30	46.30	10.35	38.40	37.75	54.00	-16.25	AV
H	20960.00	56.18	57.40	11.93	37.50	48.21	68.20	-19.99	PK
H	20960.00	46.88	57.40	11.93	37.50	38.91	54.00	-15.09	AV
H	26200.00	51.48	56.50	13.45	40.10	48.53	68.20	-19.67	PK
H	26200.00	41.27	56.50	13.45	40.10	38.32	54.00	-15.68	AV
H	31440.00	52.80	56.10	16.12	41.30	54.12	68.20	-14.08	PK
H	31440.00	46.60	56.10	16.12	41.30	47.92	54.00	-6.08	AV
H	36680.00	49.26	56.80	18.29	43.10	53.85	68.20	-14.35	PK
H	36680.00	42.10	56.80	18.29	43.10	46.69	54.00	-7.31	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Temperature:	26.5℃	Relative Humidity:	47%
Pressure:	101.2kPar	Test Voltage :	AC 120V
Test Mode :	5.8G TX- 802.11ac20		

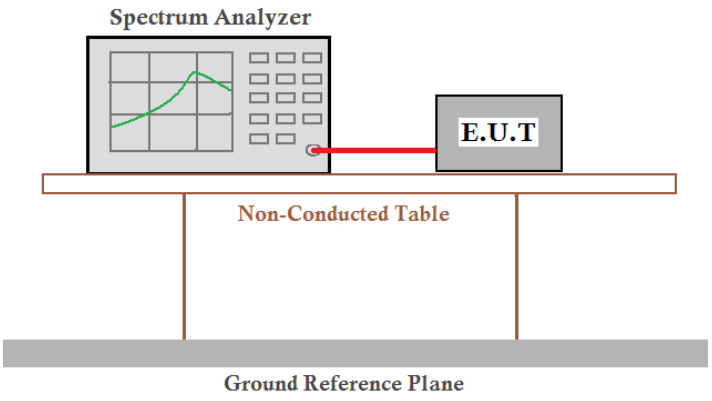
Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenn Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Typ
Low Channel:5745MHz									
V	11490.00	47.29	46.10	8.77	39.10	49.06	74.00	-24.94	PK
V	11490.00	39.02	46.10	8.77	39.10	40.79	54.00	-13.21	AV
V	17235.00	44.79	47.60	11.10	38.70	46.99	68.20	-21.21	PK
V	17235.00	37.44	47.60	11.10	38.70	39.64	54.00	-14.36	AV
V	22980.00	53.62	56.90	12.73	37.70	47.15	74.00	-26.85	PK
V	22980.00	45.57	56.90	12.73	37.70	39.10	54.00	-14.90	AV
V	28725.00	50.37	55.60	14.25	40.30	49.32	68.20	-18.88	PK
V	28725.00	41.85	55.60	14.25	40.30	40.80	54.00	-13.20	AV
V	34470.00	49.04	55.90	17.26	42.10	52.50	68.20	-15.70	PK
V	34470.00	42.69	55.90	17.26	42.10	46.15	54.00	-7.85	AV
H	11490.00	47.69	46.10	8.77	39.10	49.46	74.00	-24.54	PK
H	11490.00	38.84	46.10	8.77	39.10	40.61	54.00	-13.39	AV
H	17235.00	45.91	47.60	11.10	38.70	48.11	68.20	-20.09	PK
H	17235.00	37.85	47.60	11.10	38.70	40.05	54.00	-13.95	AV
H	22980.00	55.83	56.90	12.73	37.70	49.36	74.00	-24.64	PK
H	22980.00	45.36	56.90	12.73	37.70	38.89	54.00	-15.11	AV
H	28725.00	52.42	55.60	14.25	40.30	51.37	68.20	-16.83	PK
H	28725.00	42.44	55.60	14.25	40.30	41.39	54.00	-12.61	AV
H	34470.00	48.13	55.90	17.26	42.10	51.59	68.20	-16.61	PK
H	34470.00	41.85	55.90	17.26	42.10	45.31	54.00	-8.69	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:5785MHz									
V	11570.00	47.08	46.10	8.77	39.10	48.85	74.00	-25.15	PK
V	11570.00	38.83	46.10	8.77	39.10	40.60	54.00	-13.40	AV
V	17355.00	44.62	47.60	11.10	38.70	46.82	68.20	-21.38	PK
V	17355.00	37.22	47.60	11.10	38.70	39.42	54.00	-14.58	AV
V	23140.00	53.40	56.90	12.73	37.70	46.93	74.00	-27.07	PK
V	23140.00	45.33	56.90	12.73	37.70	38.86	54.00	-15.14	AV
V	28925.00	50.16	55.60	14.25	40.30	49.11	68.20	-19.09	PK
V	28925.00	41.58	55.60	14.25	40.30	40.53	54.00	-13.47	AV
V	34710.00	47.90	55.90	17.26	42.40	51.66	68.20	-16.55	PK
V	34710.00	42.26	55.90	17.26	42.40	46.02	54.00	-7.98	AV
H	11570.00	47.50	46.10	8.77	39.10	49.27	74.00	-24.73	PK
H	11570.00	38.63	46.10	8.77	39.10	40.40	54.00	-13.61	AV
H	17355.00	45.65	47.60	11.10	38.70	47.85	68.20	-20.35	PK
H	17355.00	37.66	47.60	11.10	38.70	39.86	54.00	-14.14	AV
H	23140.00	55.62	56.90	12.73	37.70	49.15	74.00	-24.85	PK
H	23140.00	45.11	56.90	12.73	37.70	38.64	54.00	-15.36	AV
H	28925.00	52.18	55.60	14.25	40.30	51.13	68.20	-17.07	PK
H	28925.00	42.25	55.60	14.25	40.30	41.20	54.00	-12.80	AV
H	34710.00	47.34	55.90	17.26	42.40	51.10	68.20	-17.10	PK
H	34710.00	41.58	55.90	17.26	42.40	45.34	54.00	-8.66	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5825MHz									
V	11650.00	48.13	46.10	8.77	39.10	49.90	74.00	-24.10	PK
V	11650.00	39.02	46.10	8.77	39.10	40.79	54.00	-13.21	AV
V	17475.00	45.98	47.90	11.23	38.90	48.21	68.20	-19.99	PK
V	17475.00	38.29	47.90	11.23	38.90	40.52	54.00	-13.48	AV
V	23300.00	55.72	57.10	12.73	37.80	49.15	68.20	-19.05	PK
V	23300.00	46.32	57.10	12.73	37.80	39.75	54.00	-14.25	AV
V	29125.00	52.45	55.80	14.25	40.50	51.40	68.20	-16.80	PK
V	29125.00	43.53	55.80	14.25	40.50	42.48	54.00	-11.52	AV
V	34950.00	47.79	56.30	17.91	42.50	51.90	68.20	-16.30	PK
V	34950.00	41.54	56.30	17.91	42.50	45.65	54.00	-8.35	AV
H	11650.00	50.15	46.10	8.77	39.10	51.92	74.00	-22.08	PK
H	11650.00	41.41	46.10	8.77	39.10	43.18	54.00	-10.82	AV
H	17475.00	47.28	47.90	11.23	38.90	49.51	68.20	-18.69	PK
H	17475.00	39.55	47.90	11.23	38.90	41.78	54.00	-12.22	AV
H	23300.00	57.14	57.10	12.73	37.80	50.57	68.20	-17.63	PK
H	23300.00	47.72	57.10	12.73	37.80	41.15	54.00	-12.85	AV
H	29125.00	53.52	55.80	14.25	40.50	52.47	68.20	-15.73	PK
H	29125.00	48.13	55.80	14.25	40.50	47.08	54.00	-6.92	AV
H	34950.00	47.70	56.30	17.91	42.50	51.81	68.20	-16.39	PK
H	34950.00	41.53	56.30	17.91	42.50	45.64	54.00	-8.36	AV

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

4.8.2 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.209, Part 15E Section 15.407(b)(4)	
Test Method:	ANSI C63.10:2013	
Limit:	-27dBm/MHz	
Test setup:		
Test Instruments:	Refer to section 3.0 for details	
Test mode:	Refer to section 2.2 for details	
Test environment:	Temp.: 26.5℃	Humid.:47%RH
Test voltage:	AC 120V	
Test results:	Pass	

Remark:

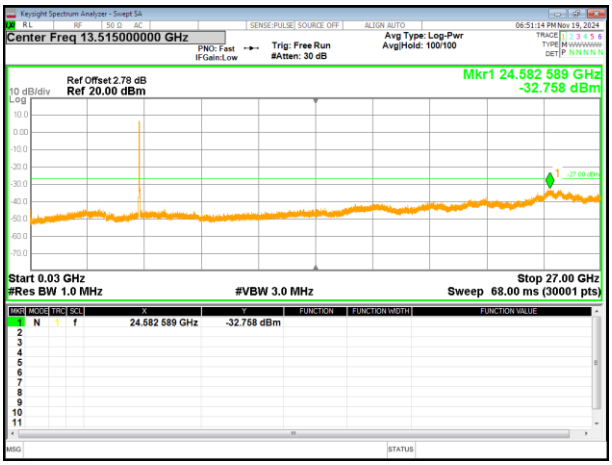
1. Antenna gain and cable loss data included in Offset.

2. We tested 30MHz-40GHz frequency and found 27GHz-40GHz test data was very lower (close to the noise of the spectrum analyzer). The test report only showed data for 30MHz-27GHz

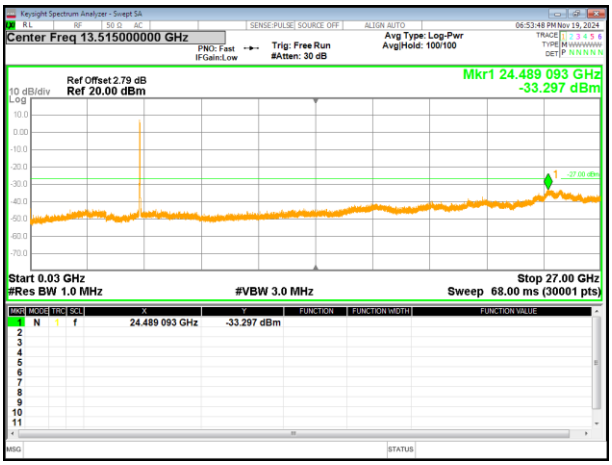
5180-5240MHz

Test Plot

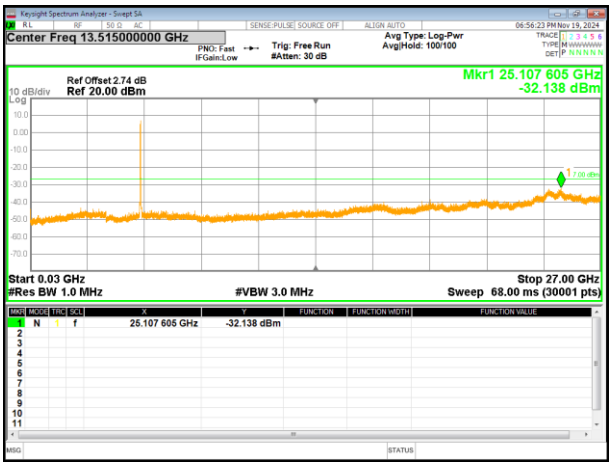
802.11a on channel 36



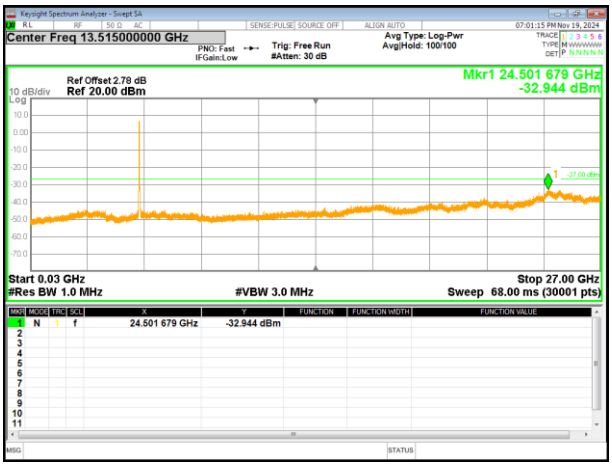
802.11a on channel 40



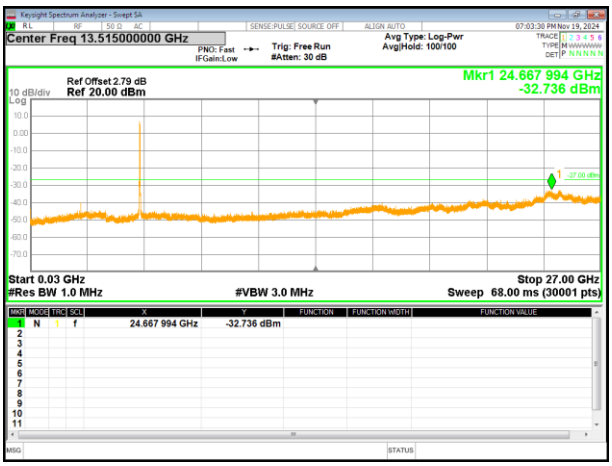
802.11a on channel 48



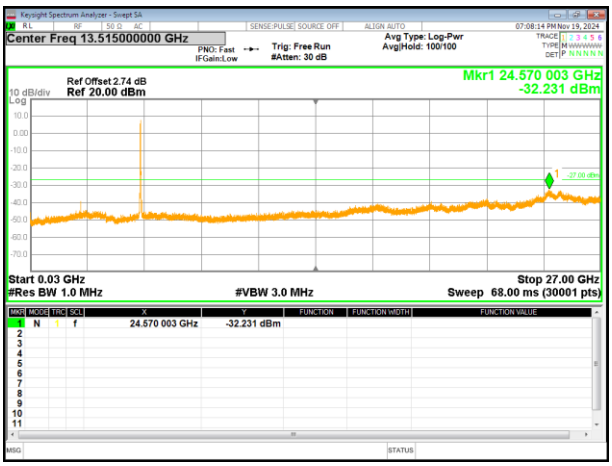
802.11n20 on channel 36



802.11n20 on channel 40

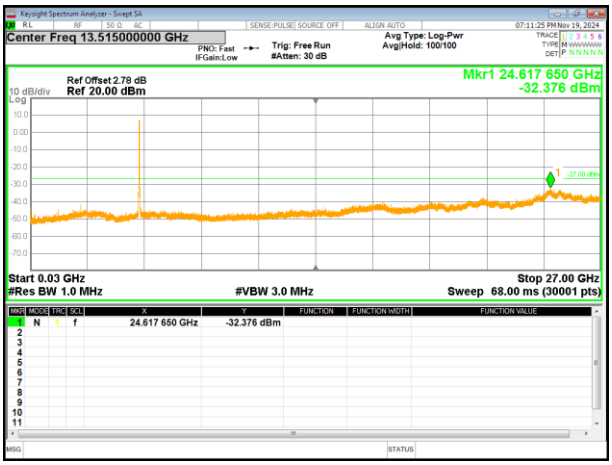


802.11n20 on channel 48

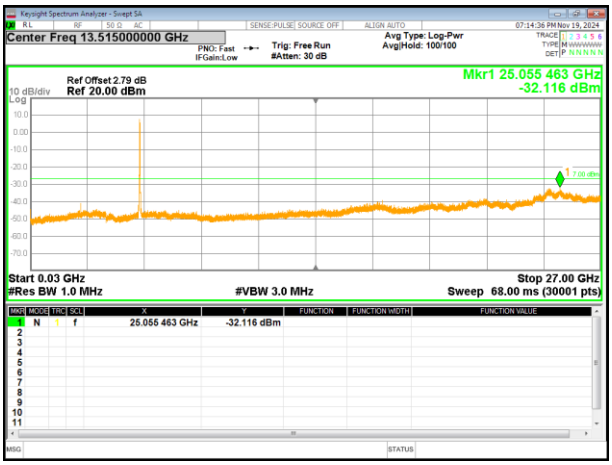


Test Plot

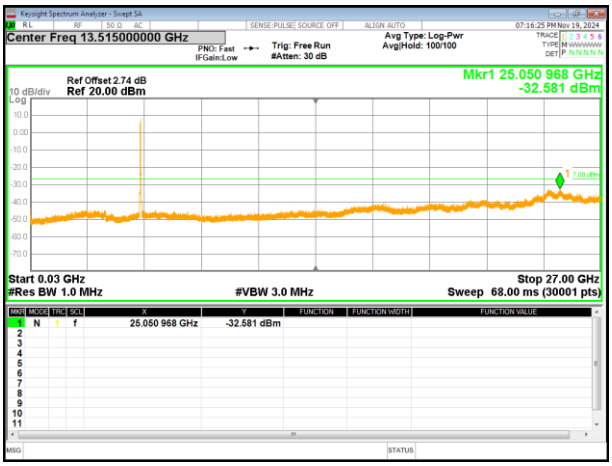
802.11ac20 on channel 36



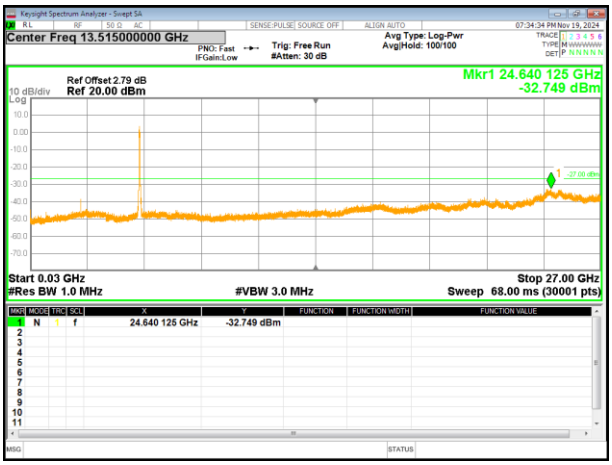
802.11ac20 on channel 40



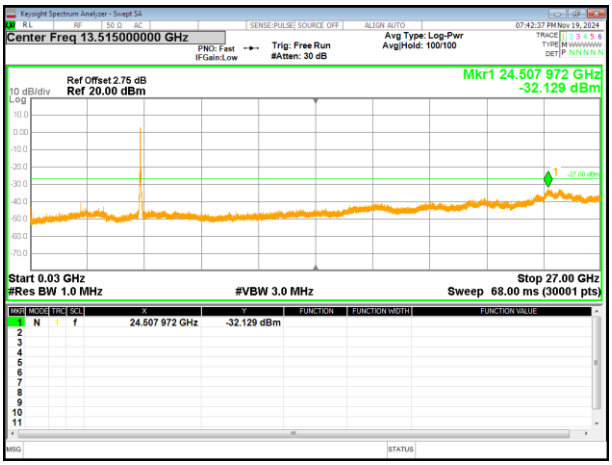
802.11ac20 on channel 48



802.11n40 on channel 38

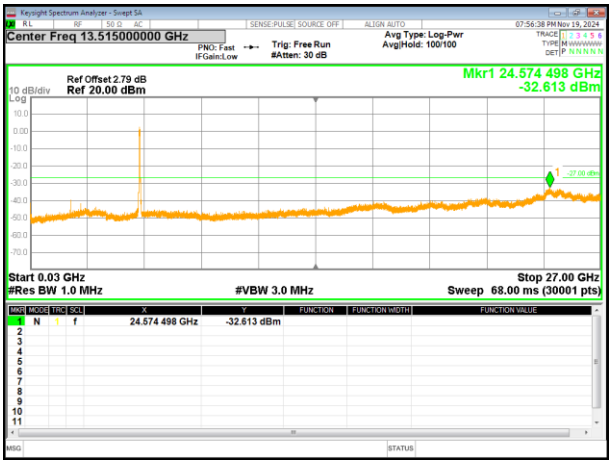


802.11n40 on channel 46

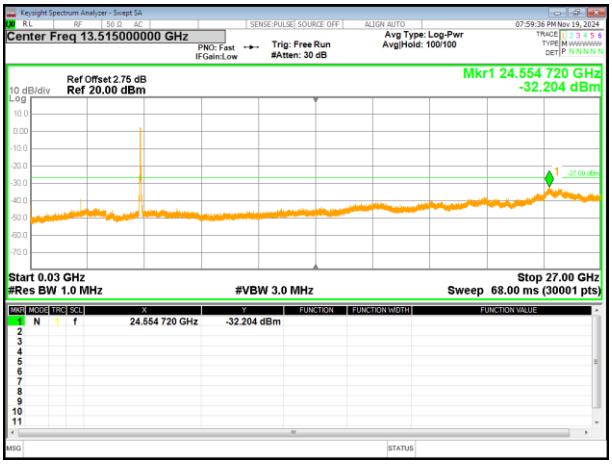


Test Plot

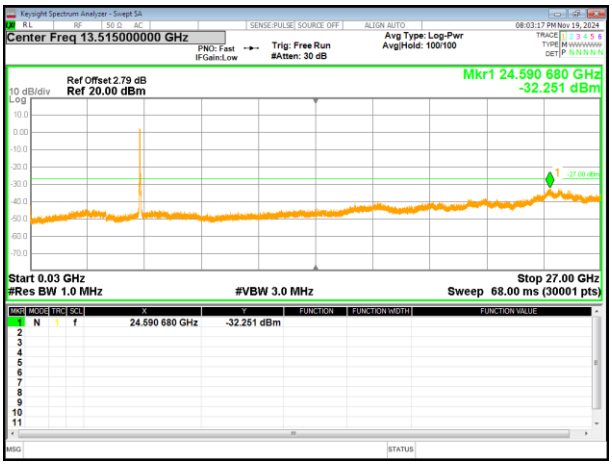
802.11ac40 on channel 38



802.11ac40 on channel 46



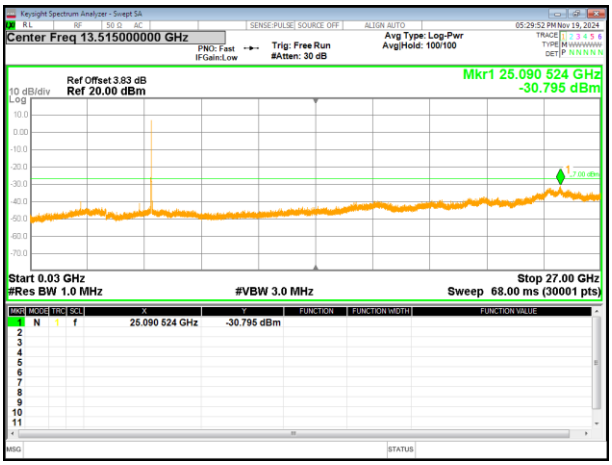
802.11ac80 on channel 42



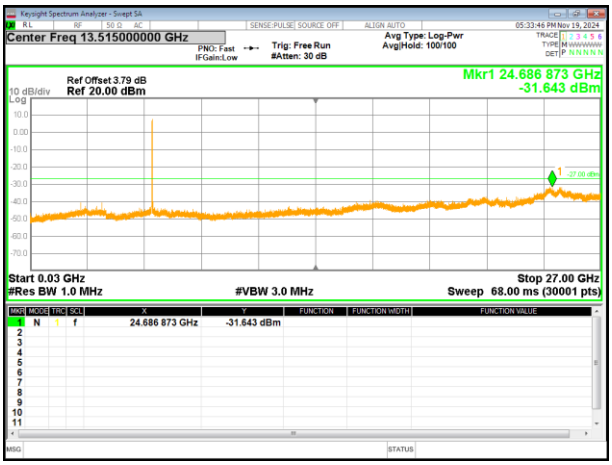
5745-5825MHz

Test Plot

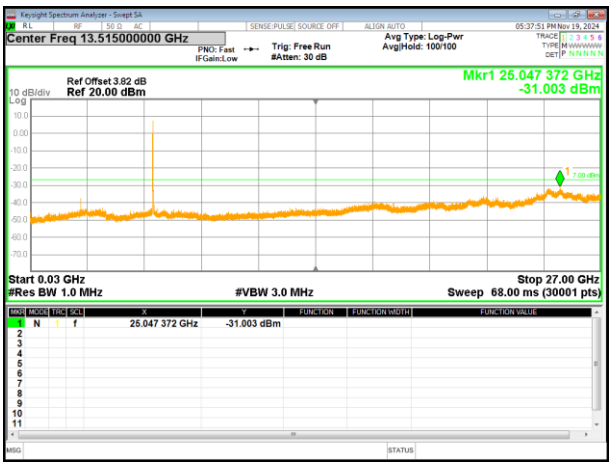
802.11a on channel 149



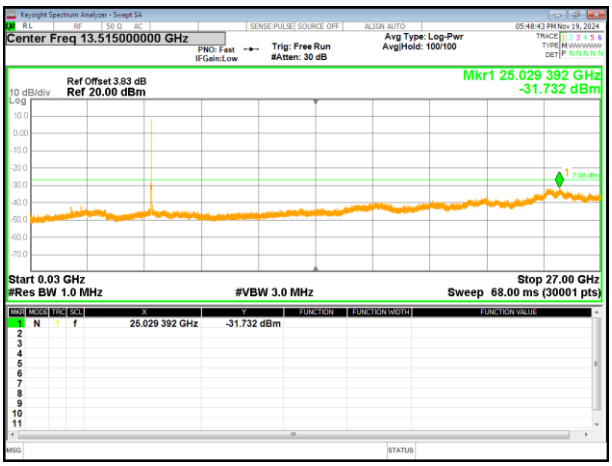
802.11a on channel 157



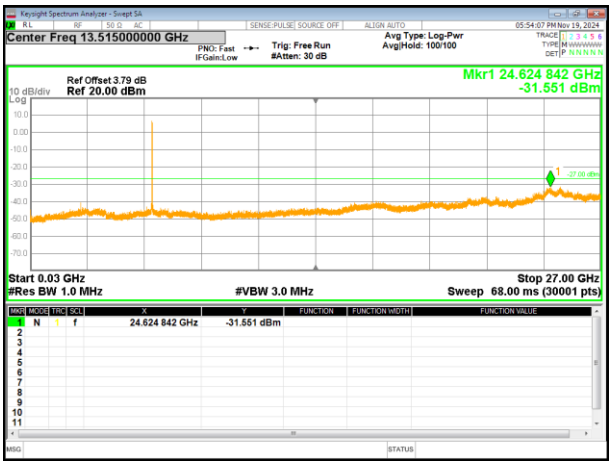
802.11a on channel 165



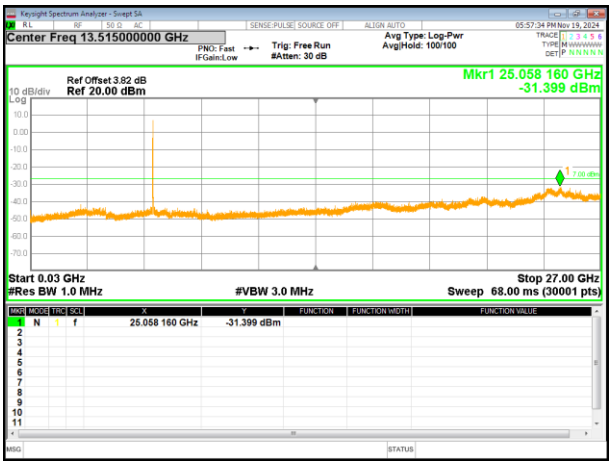
802.11n20 on channel 149



802.11n20 on channel 157

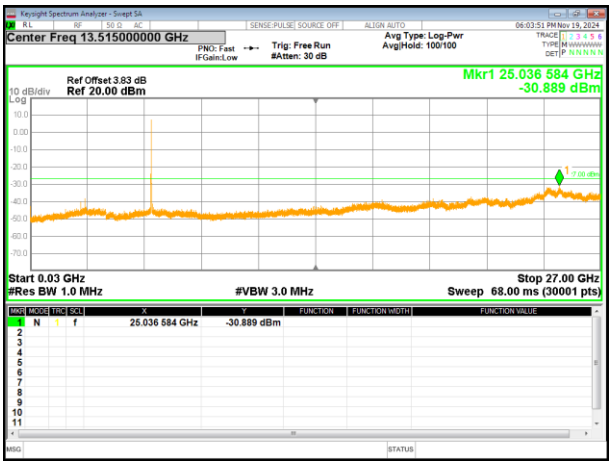


802.11n20 on channel 165

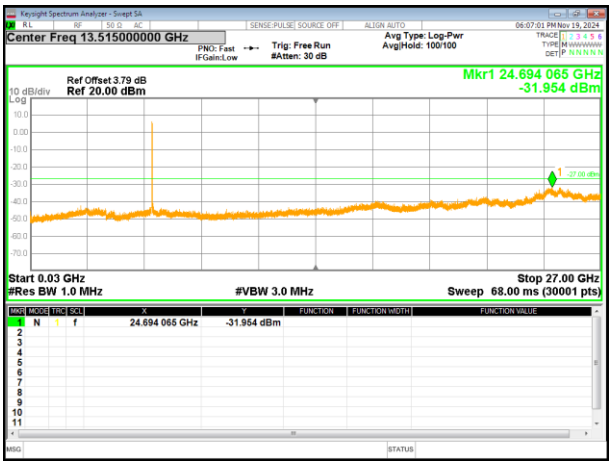


Test Plot

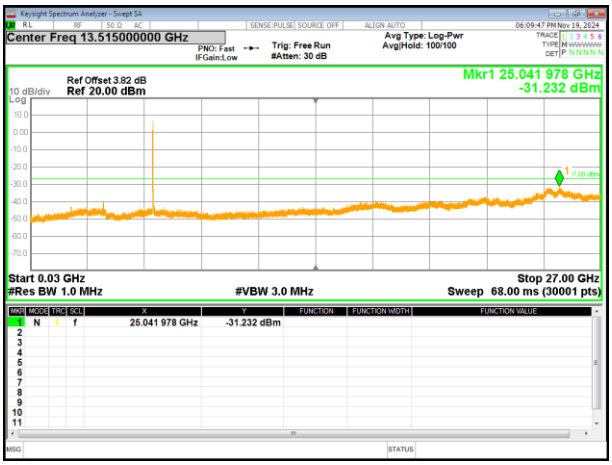
802.11ac20 on channel 149



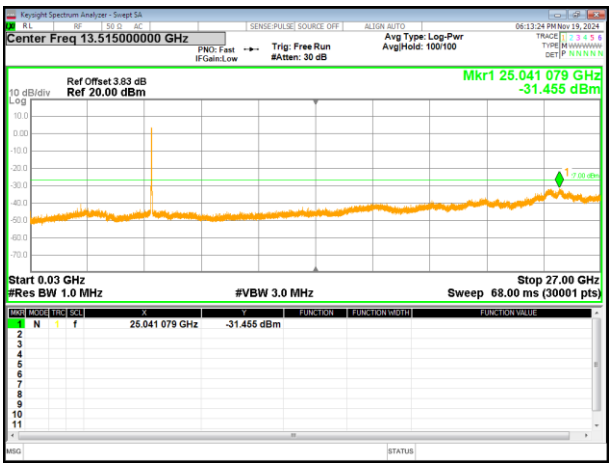
802.11ac20 on channel 157



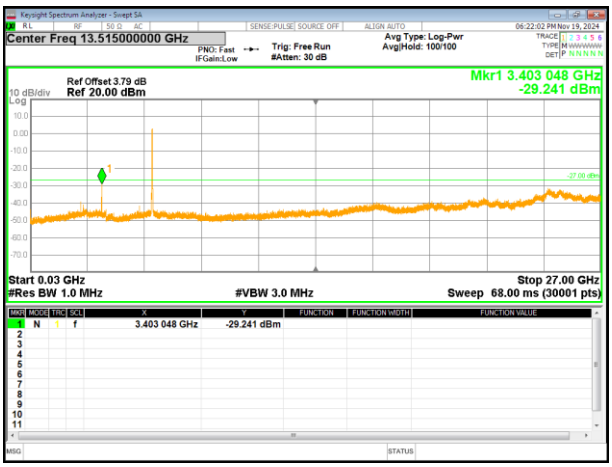
802.11ac20 on channel 165



802.11n40 on channel 151

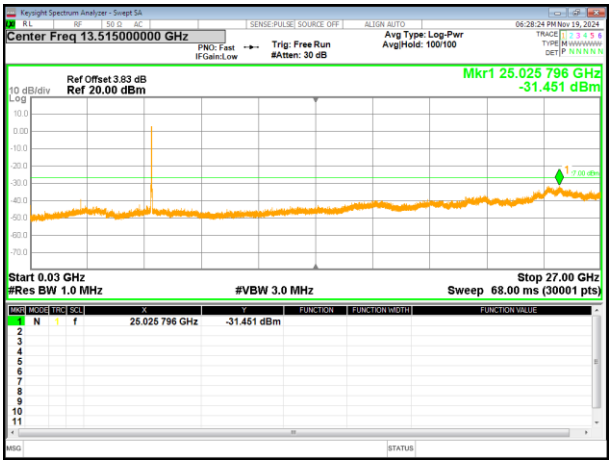


802.11n40 on channel 159

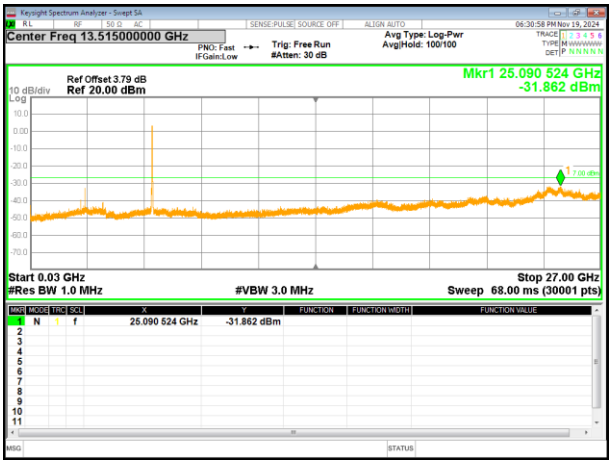


Test Plot

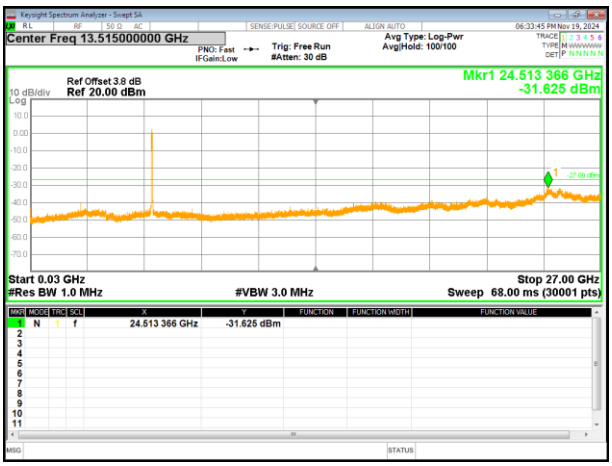
802.11ac40 on channel 151



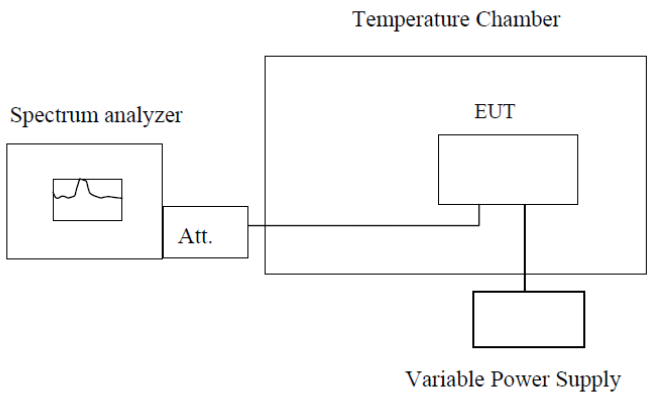
802.11ac40 on channel 159



802.11ac80 on channel 155



4.9 Frequency stability

Test Requirement:	FCC Part15 C Section 15.407(g)
Test Method:	ANSI C63.10:2013, FCC Part 2.1055
Limit:	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
Test Procedure:	a. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage. b. Turn the EUT on and couple its output to a spectrum analyzer. c. Turn the EUT off and set the chamber to the highest temperature specified. d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes. e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature. f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minute s. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test Instruments:	Refer to section 3.0 for details
Test mode:	Refer to section 2.2 for details
Test results:	Pass

Remark: Set the EUT transmits at un-modulation mode to test frequency stability.

Measurement data:

Frequency stability versus Temp.					
Power Supply: AC 120V					
Temp. (°C)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
-30	5180	5180.05	5179.95	5180.01	5181.06
	5190	5190.04	5189.97	5190.88	5191.08
	5200	5200.04	5199.95	5199.91	5201.07
	5210	5210.04	5209.93	5209.88	5211.07
	5220	5220.04	5219.95	5219.90	5221.08
	5230	5230.04	5229.94	5229.89	5231.10
	5240	5240.01	5239.95	5239.90	5241.09
-20	5180	5180.04	5179.93	5179.89	5181.08
	5190	5190.03	5189.92	5189.89	5191.08
	5200	5200.04	5199.93	5199.88	5201.08
	5210	5210.03	5209.92	5209.87	5211.09
	5220	5220.05	5219.94	5219.88	5221.08
	5230	5230.03	5229.92	5299.88	5231.08
	5240	5240.04	5239.94	5239.88	5241.06
-10	5180	5180.05	5179.94	5179.87	5181.06
	5190	5190.04	5189.93	5189.88	5191.08
	5200	5200.04	5199.93	5199.87	5201.07
	5210	5210.04	5209.94	5209.87	5211.07
	5220	5220.04	5219.93	5219.88	5221.08
	5230	5230.04	5229.93	5229.90	5231.10
	5240	5240.01	5239.90	5239.87	5241.07
0	5180	5179.82	5179.92	5179.88	5181.07
	5190	5200.00	5189.93	5189.87	5191.08
	5200	5199.99	5199.92	5199.88	5201.07
	5210	5210.05	5209.92	5209.87	5301.10
	5220	5220.04	5219.93	5219.89	5221.07
	5230	5230.02	5229.95	5229.87	5231.10
	5240	5240.04	5239.92	5239.89	5241.08
10	5180	5180.03	5179.93	5179.89	5181.07
	5190	5190.04	5189.92	5189.89	5191.07
	5200	5200.03	5199.93	5199.88	5201.08
	5210	5210.03	5209.92	5209.89	5211.07
	5220	5220.03	5219.94	5219.88	5221.09
	5230	5230.05	5229.92	5229.88	5231.07
	5240	5240.04	5239.94	5239.85	5241.09
20	5180	5180.10	5179.18	5180.14	5180.84
	5190	5190.05	5189.97	5190.18	5191.10

	5200	5200.04	5199.96	5200.19	5201.13
	5210	5210.05	5209.98	5210.18	5211.12
	5220	5220.04	5219.96	5220.21	5221.11
	5230	5230.04	5229.98	5230.18	5231.14
	5240	5240.01	5239.96	5240.20	5241.13
30	5180	5180.03	5179.97	5180.19	5181.12
	5190	5190.04	5189.96	5190.18	5191.12
	5200	5200.03	5199.97	5200.19	5201.12
	5210	5210.03	5209.96	5210.18	5201.11
	5220	5220.04	5219.98	5220.21	5221.13
	5230	5230.06	5229.96	5230.18	5231.12
	5240	5240.03	5239.98	5240.20	5241.12
40	5180	5180.04	5179.97	5179.98	5181.10
	5190	5190.03	5189.97	5190.15	5191.11
	5200	5200.04	5199.96	5200.15	5201.10
	5210	5210.03	5209.98	5210.20	5211.11
	5220	5220.05	5219.96	5220.19	5221.12
	5230	5230.03	5229.98	5230.18	5231.14
	5240	5240.05	5239.96	5240.20	5241.11
50	5180	5180.04	5179.97	5180.19	5181.07
	5190	5190.03	5189.96	5190.18	5191.10
	5200	5200.04	5199.97	5200.19	5201.13
	5210	5210.03	5209.96	5210.18	5211.12
	5220	5220.05	5219.98	5220.21	5221.11
	5230	5230.03	5229.96	5230.18	5231.14
	5240	5240.05	5239.98	5240.20	5241.13

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VAC)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
AC102V	5180	5179.95	5179.97	5180.21	5181.24
	5190	5189.94	5199.97	5190.20	5201.12
	5200	5199.94	5200.00	5200.21	5201.14
	5210	5209.94	5209.97	5210.20	5211.12
	5220	5219.94	5219.99	5220.23	5221.14
	5230	5229.93	5229.98	5230.20	5231.14
	5240	5239.91	5239.99	5240.22	5241.15
AC120V	5180	5179.93	5179.99	5180.21	5181.12
	5190	5189.93	5180.09	5190.21	5191.13
	5200	5199.94	5199.97	5200.20	5201.12
	5210	5209.93	5210.00	5210.21	5211.11
	5220	5219.95	5219.97	5220.20	5221.13
	5230	5229.93	5229.99	5230.22	5231.13
	5240	5239.94	5239.98	5240.20	5241.13
AC138V	5180	5179.95	5179.98	5180.20	5181.10
	5190	5189.94	5189.98	5190.21	5191.12
	5200	5199.94	5199.97	5200.20	5201.11
	5210	5209.94	5209.98	5210.20	5211.11
	5220	5219.94	5219.97	5220.21	5221.12
	5230	5229.93	5229.97	5230.23	5231.15
	5240	5239.91	5239.95	5240.20	5241.12

Frequency stability versus Temp.					
Power Supply: AC 120V					
Temp. (°C)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
-30	5745	5744.88	5745.00	5745.20	5746.23
	5755	5754.89	5755.00	5755.21	5756.22
	5775	5774.91	5775.00	5775.23	5776.23
	5785	5784.89	5784.99	5785.20	5786.24
	5795	5794.88	5795.00	5795.20	5796.26
	5825	5824.88	5824.93	5825.20	5826.26
-20	5745	5744.88	5745.01	5745.20	5746.24
	5755	5754.90	5755.01	5755.22	5756.25
	5775	5774.89	5775.01	5775.20	5776.24
	5785	5784.90	5785.01	5785.21	5786.23
	5795	5794.90	5795.00	5795.21	5796.23
	5825	5824.88	5825.01	5825.22	5826.27
-10	5745	5744.89	5745.00	5745.21	5745.86
	5755	5754.92	5755.00	5755.22	5756.24
	5775	5774.91	5775.02	5775.22	5776.25
	5785	5784.89	5785.00	5785.21	5786.25
	5795	5794.88	5795.00	5795.20	5796.24
	5825	5824.82	5825.00	5825.21	5826.24
0	5745	5744.89	5744.99	5745.21	5746.23
	5755	5754.91	5755.00	5755.22	5756.25
	5775	5774.89	5775.00	5775.22	5776.26
	5785	5784.90	5785.01	5785.21	5786.24
	5795	5794.89	5795.02	5795.20	5796.23
	5825	5824.90	5825.00	5825.21	5826.17
10	5745	5744.89	5745.00	5745.20	5746.22
	5755	5754.91	5755.01	5755.21	5756.24
	5775	5774.89	5775.02	5775.20	5776.26
	5785	5784.90	5785.00	5785.19	5786.23
	5795	5794.89	5795.02	5795.20	5796.23
	5825	5824.90	5825.02	5825.13	5826.24
20	5745	5744.90	5745.02	5745.21	5746.23
	5755	5754.91	5754.99	5755.23	5756.25
	5775	5774.90	5775.02	5775.21	5776.23
	5785	5784.88	5785.02	5785.20	5786.26
	5795	5794.88	5795.01	5795.19	5796.25
	5825	5824.91	5825.03	5825.23	5826.27
30	5745	5744.89	5745.01	5745.20	5746.25
	5755	5754.90	5755.01	5755.22	5756.22
	5775	5774.91	5775.01	5775.22	5776.25
	5785	5784.89	5785.01	5785.20	5786.25
	5795	5794.88	5795.00	5795.22	5796.25
	5825	5824.88	5825.01	5825.22	5826.27
40	5745	5744.90	5744.99	5745.21	5746.22
	5755	5754.91	5755.02	5755.22	5756.25
	5775	5774.90	5775.00	5775.22	5776.26
	5785	5784.88	5785.01	5785.21	5786.24

	5795	5794.88	5795.01	5795.20	5796.23
	5825	5824.91	5825.02	5825.21	5826.17
50	5745	5744.90	5745.02	5745.21	5746.23
	5755	5754.89	5754.99	5755.23	5756.25
	5775	5774.90	5775.02	5775.21	5776.23
	5785	5784.88	5785.02	5785.20	5786.26
	5795	5794.88	5795.01	5795.19	5796.25
	5825	5824.91	5825.03	5825.23	5826.27

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VAC)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
AC102V	5745	5745.00	5745.00	5745.18	5746.22
	5755	5755.01	5755.00	5755.20	5756.24
	5775	5775.01	5775.00	5775.20	5776.23
	5785	5785.01	5784.99	5785.18	5786.24
	5795	5795.02	5795.00	5795.20	5796.24
	5825	5825.00	5824.93	5825.20	5826.25
AC120V	5745	5745.00	5745.01	5745.18	5746.23
	5755	5755.01	5755.01	5755.20	5756.25
	5775	5775.01	5775.01	5775.18	5776.24
	5785	5785.01	5785.01	5785.19	5786.22
	5795	5795.02	5795.00	5795.19	5796.22
	5825	5825.00	5825.01	5825.20	5826.26
AC138V	5745	5745.02	5745.02	5745.19	5746.22
	5755	5755.03	5754.99	5755.21	5756.24
	5775	5775.01	5775.02	5775.19	5776.23
	5785	5785.00	5785.02	5785.18	5786.25
	5795	5794.99	5795.01	5795.17	5796.25
	5825	5825.03	5825.03	5825.21	5826.26

5 Test Setup Photo

Reference to the **appendix I** for details.

6 EUT Constructional Details

Reference to the **appendix II** for details.

------END------