

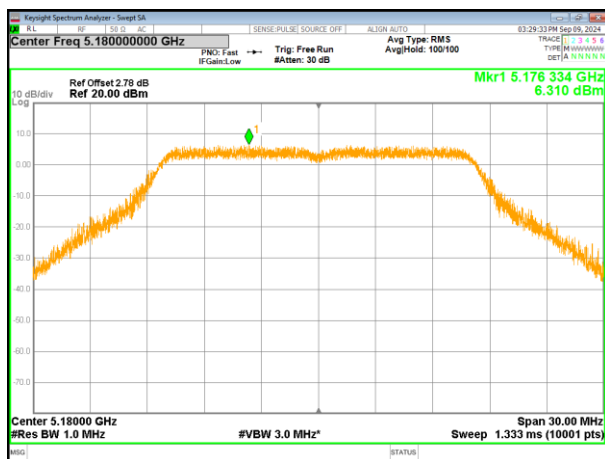
5180-5240MHz

Mode	Frequency	Measured Power Density (dBm/MHz)	Correction Factor (dB)	Total Measured Power Density (dBm/MHz)	Limit (dBm/MHz)
802.11 a	5180 MHz	6.310	0.08	6.390	11
	5200 MHz	6.316	0.08	6.396	11
	5240 MHz	6.516	0.08	6.596	11
802.11 n20	5180 MHz	6.919	0.37	7.289	11
	5200 MHz	6.969	0.37	7.339	11
	5240 MHz	6.914	0.37	7.284	11
802.11 ac20	5180 MHz	7.643	0.13	7.773	11
	5200 MHz	6.925	0.13	7.055	11
	5240 MHz	6.619	0.15	6.769	11
802.11 n40	5190 MHz	2.071	0.57	2.641	11
	5230 MHz	2.338	0.57	2.908	11
802.11 ac40	5190 MHz	3.636	0.57	4.206	11
	5230 MHz	2.440	0.57	3.010	11
802.11 ac80	5210 MHz	0.114	0.92	1.034	11

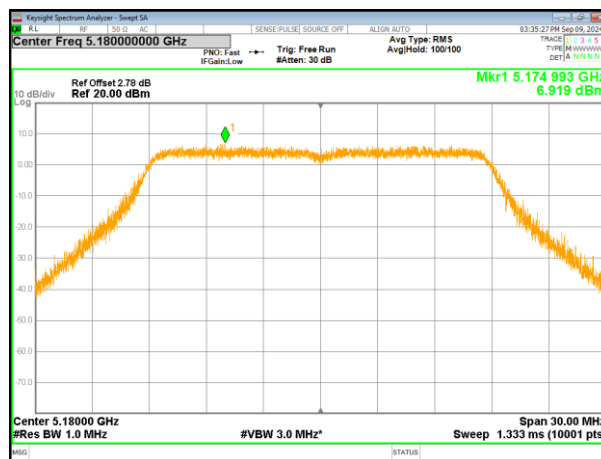
e.i.r.p spectral density

Mode	Frequency	Measured Power Density (dBm/MHz)	ANT Gain(dBi)	e.i.r.p. spectral density	Limit (dBm/MHz)
802.11 a	5180 MHz	6.390	1.50	7.890	10
	5200 MHz	6.396	1.50	7.896	10
	5240 MHz	6.596	1.50	8.096	10
802.11 n20	5180 MHz	7.289	1.50	8.789	10
	5200 MHz	7.339	1.50	8.839	10
	5240 MHz	7.284	1.50	8.784	10
802.11 ac20	5180 MHz	7.773	1.50	9.273	10
	5200 MHz	7.055	1.50	8.555	10
	5240 MHz	6.769	1.50	8.269	10
802.11 n40	5190 MHz	2.641	1.50	4.141	10
	5230 MHz	2.908	1.50	4.408	10
802.11 ac40	5190 MHz	4.206	1.50	5.706	10
	5230 MHz	3.010	1.50	4.510	10
802.11 ac80	5210 MHz	1.034	1.50	2.534	10

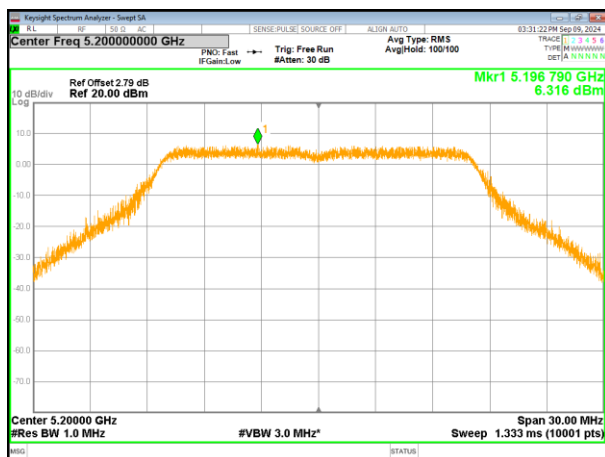
(802.11a) PSD plot on channel 36



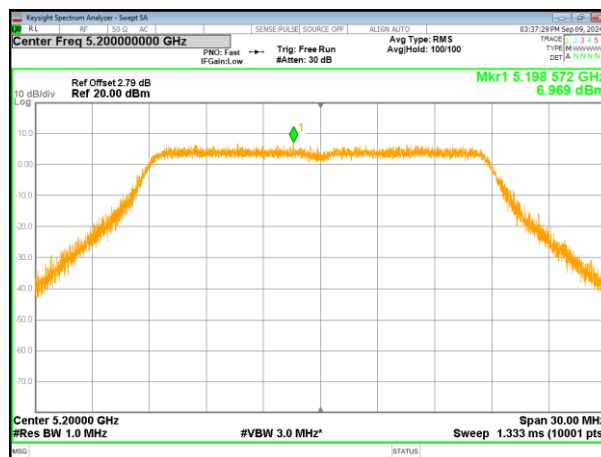
(802.11n20) PSD plot on channel 36



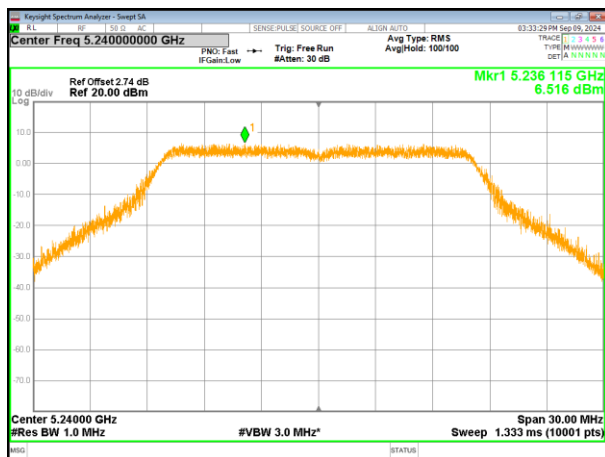
(802.11a) PSD plot on channel 40



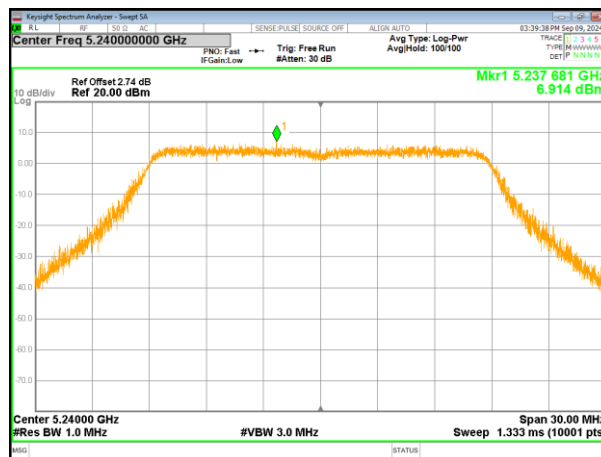
(802.11n20) PSD plot on channel 40



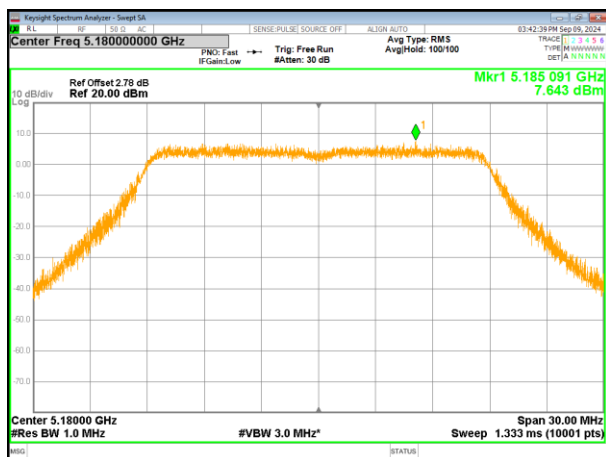
(802.11a) PSD plot on channel 48



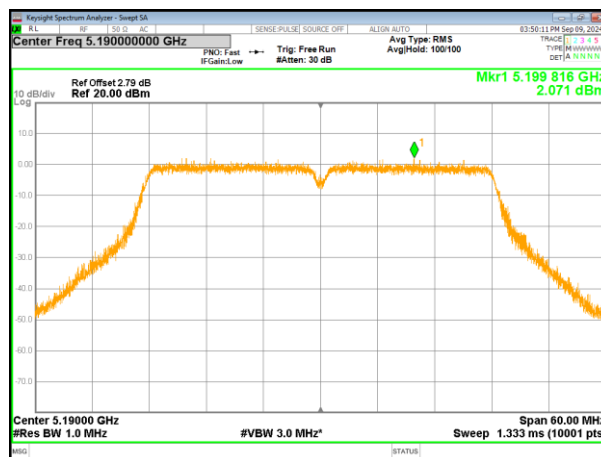
(802.11n20) PSD plot on channel 48



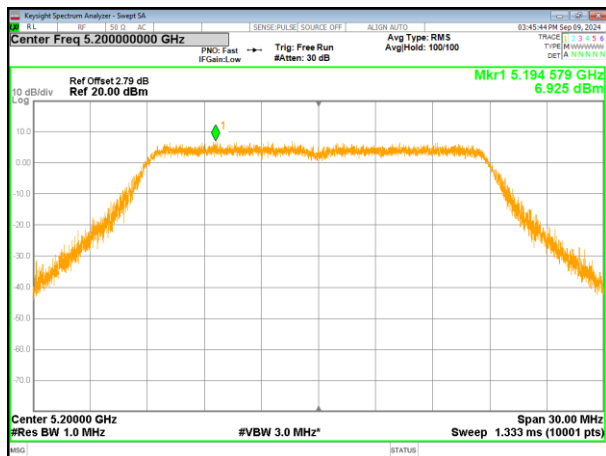
(802.11ac20) PSD plot on channel 36



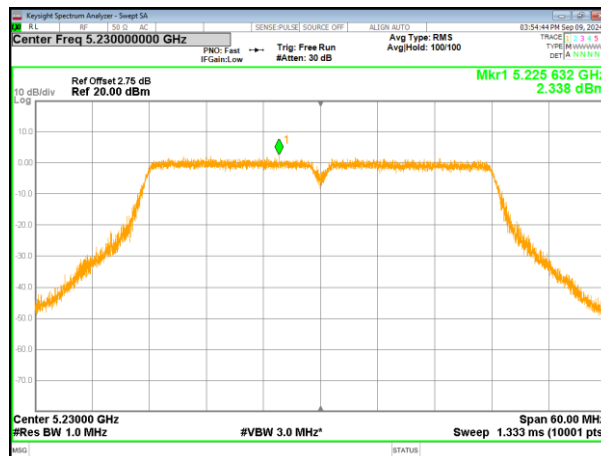
(802.11n40) PSD plot on channel 38



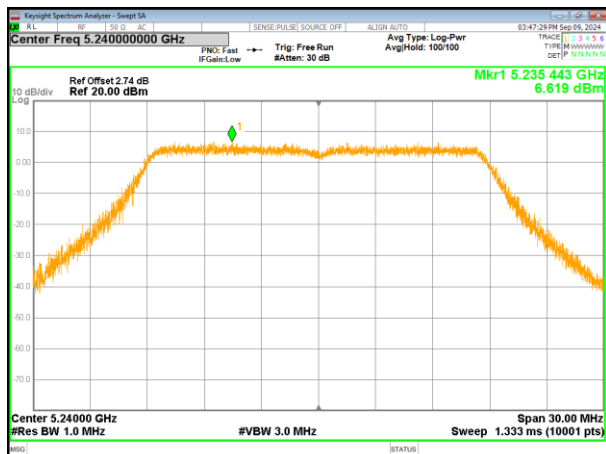
(802.11ac20) PSD plot on channel 40



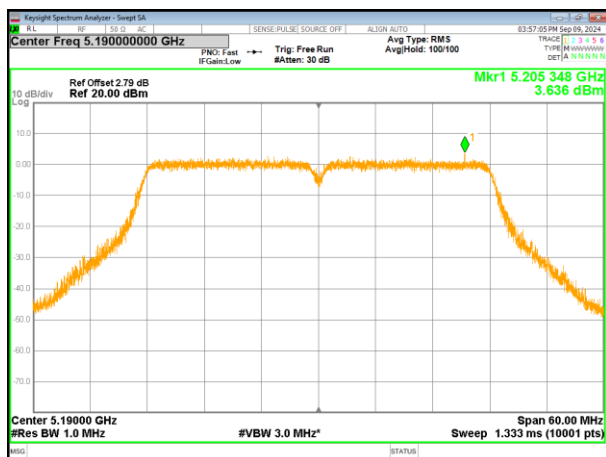
(802.11n40) PSD plot on channel 46



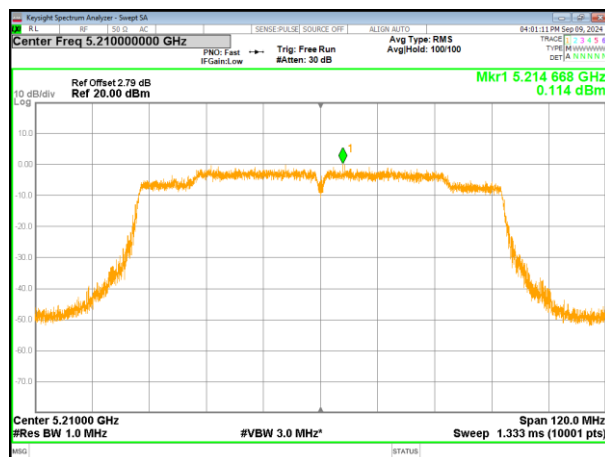
(802.11ac20) PSD plot on channel 48



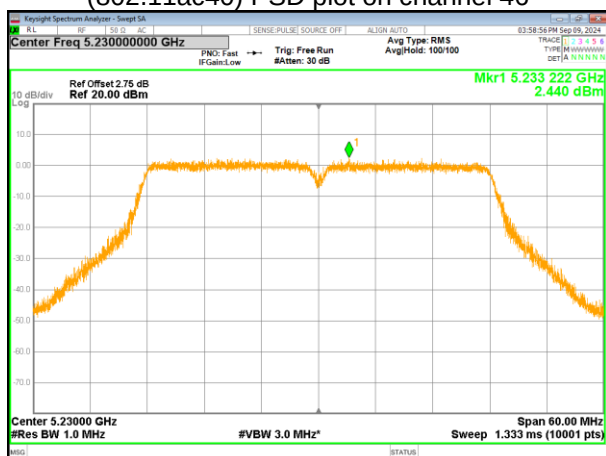
(802.11ac40) PSD plot on channel 38



(802.11ac80) PSD plot on channel 42



(802.11ac40) PSD plot on channel 46



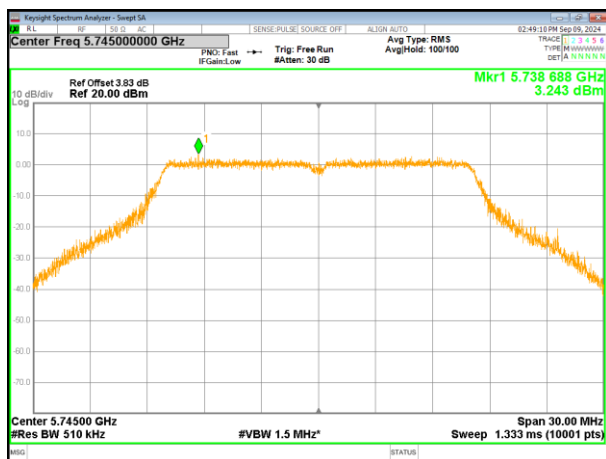
5745-5825MHz

Mode	Frequency	Measured Power Density (dBm/510KHz)	Measured Power Density (dBm/500KHz)	Correction Factor (dB)	Total Measured Power Density (dBm/500KHz)	Limit (dBm/500KHz)
802.11 a	5745 MHz	3.243	3.157	0.11	3.267	30
	5785 MHz	3.678	3.592	0.11	3.702	30
	5825 MHz	3.236	3.150	0.11	3.26	30
802.11 n20	5745 MHz	3.087	3.001	0.13	3.131	30
	5785 MHz	3.391	3.305	0.13	3.435	30
	5825 MHz	4.235	4.149	0.13	4.279	30
802.11ac20	5745 MHz	3.282	3.196	0.21	3.406	30
	5785 MHz	3.941	3.855	0.21	4.065	30
	5825 MHz	3.559	3.473	0.21	3.683	30
802.11 n40	5755 MHz	0.685	0.599	0.51	1.109	30
	5795 MHz	0.693	0.607	0.51	1.117	30
802.11ac40	5755 MHz	0.710	0.624	0.36	0.984	30
	5795 MHz	-1.948	-2.034	0.36	-1.674	30
802.11ac80	5775 MHz	-5.105	-5.191	0.39	-4.801	30

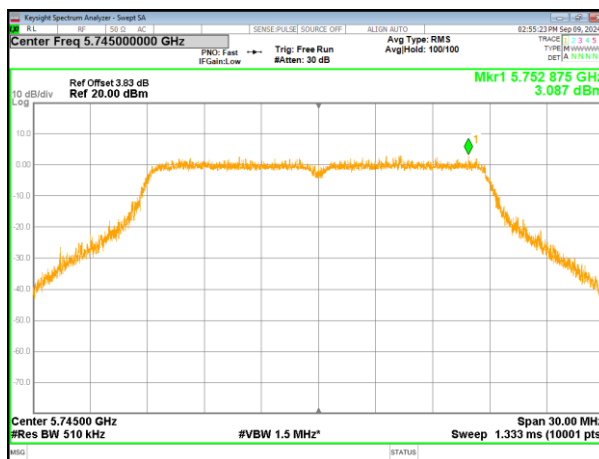
Note: 1. If the measurement is X dBm/510kHz, thus $X \text{ dBm/510kHz} = (10^{X/10}) * (500 / 510) \text{ dBm/500kHz}$

2. Correction Factor (dB)= duty cycle factor

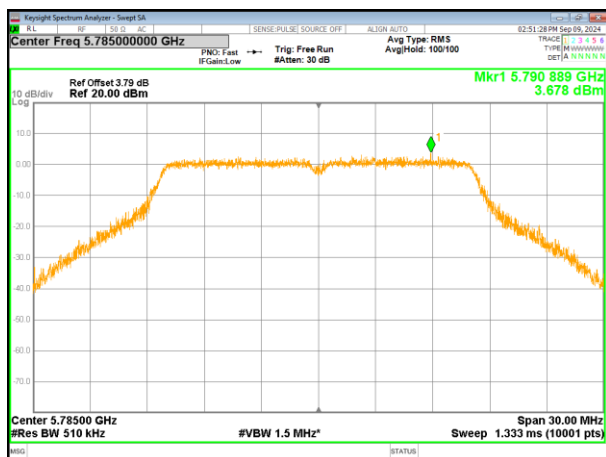
(802.11a) PSD plot on channel 149



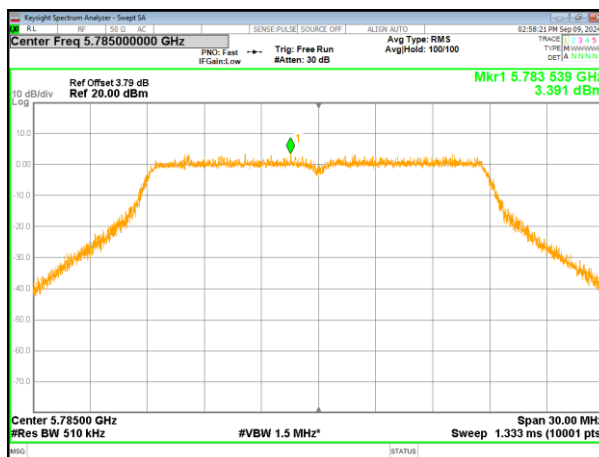
(802.11n20) PSD plot on channel 149



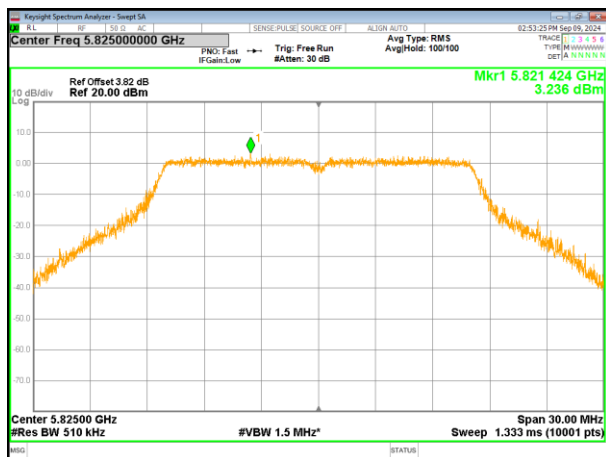
(802.11a) PSD plot on channel 157



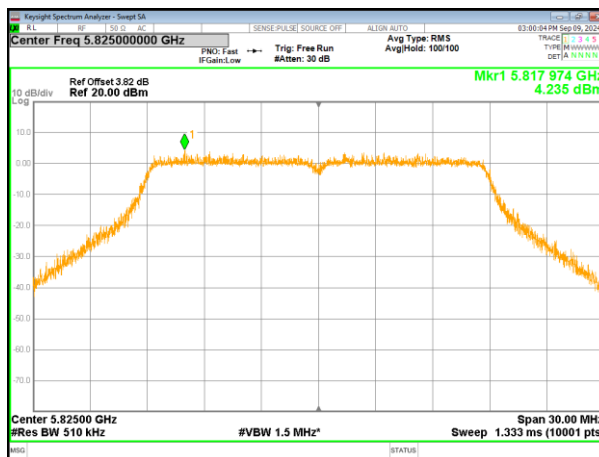
(802.11n20) PSD plot on channel 157



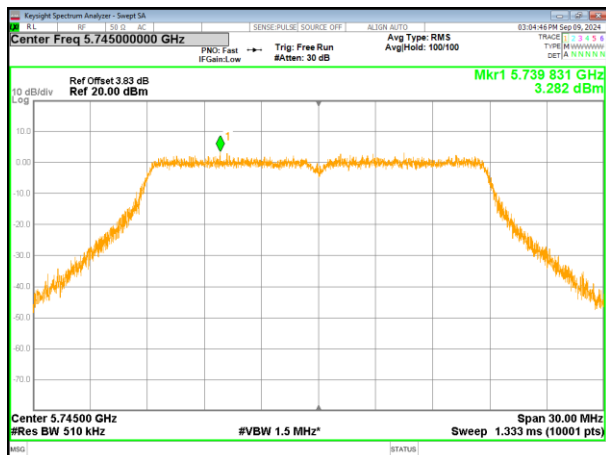
(802.11a) PSD plot on channel 165



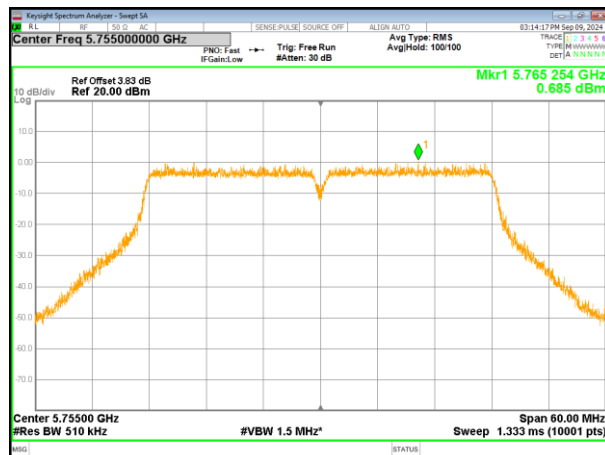
(802.11n20) PSD plot on channel 165



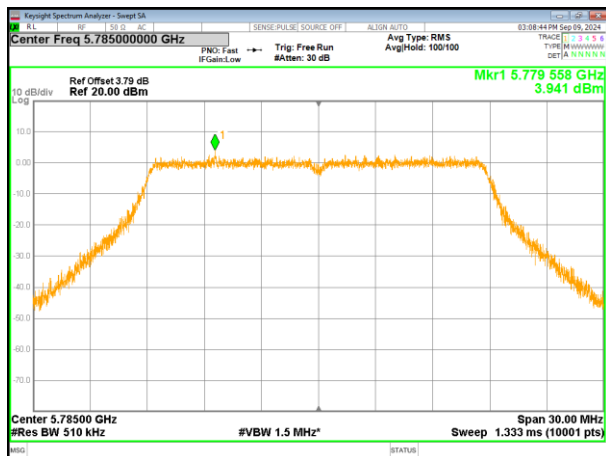
(802.11ac20) PSD plot on channel 149



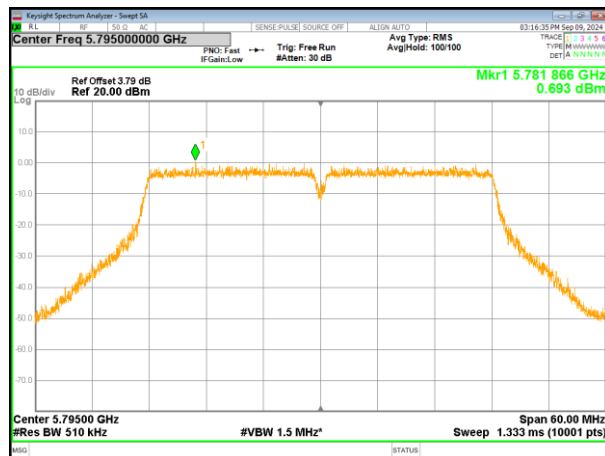
(802.11n40) PSD plot on channel 151



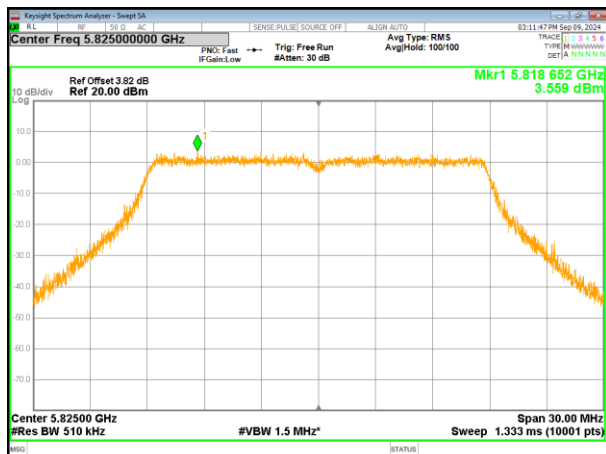
(802.11ac20) PSD plot on channel 157



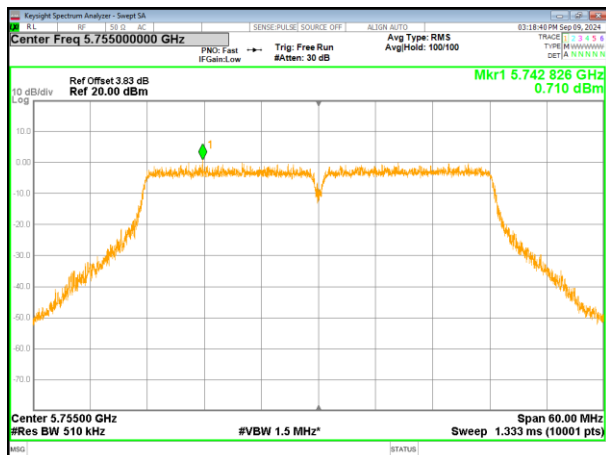
(802.11n40) PSD plot on channel 159



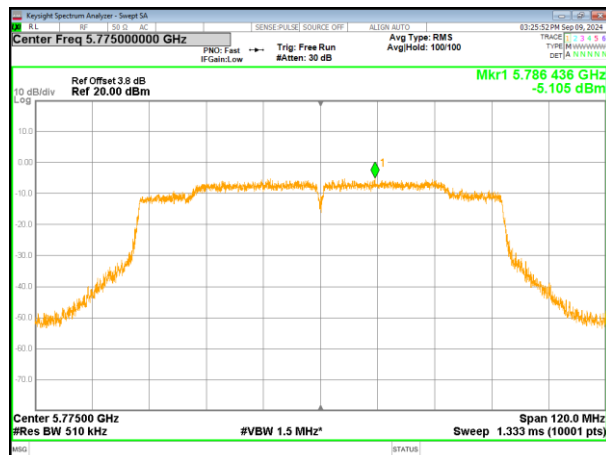
(802.11ac20) PSD plot on channel 165



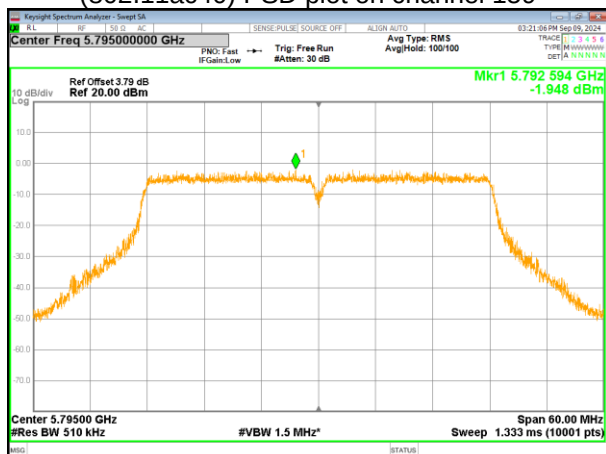
(802.11ac40) PSD plot on channel 151



(802.11ac80) PSD plot on channel 155

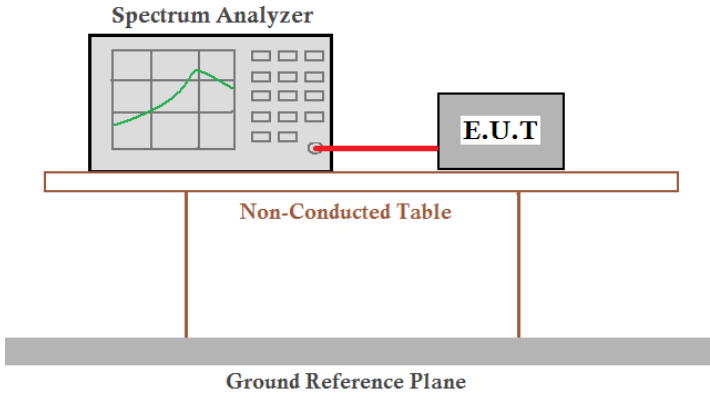


(802.11ac40) PSD plot on channel 159



4.7 Band edge

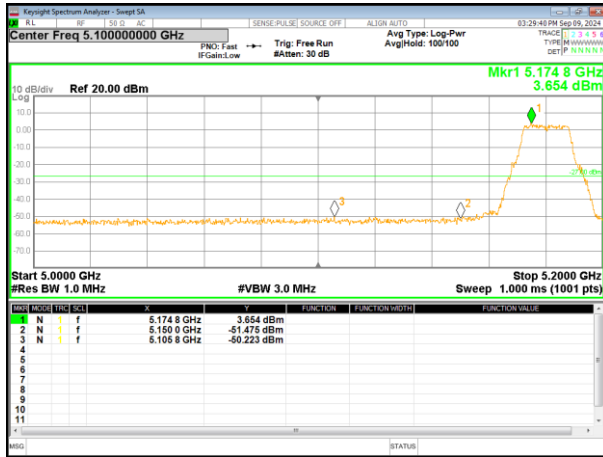
4.7.1 Conducted test Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205, RSS-247 §6.2.1.2&6.2.4.3	
Test Method:	ANSI C63.10: 2013, RSS-Gen	
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:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.	
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.: 23.5°C	Humid.: 54%RH
Test voltage:	DC19V	
Test results:	Pass	

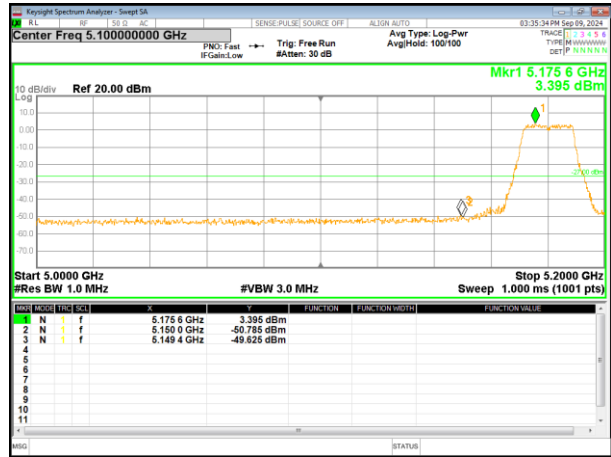
Remark: Due to the margin value of the sideband test being greater than the antenna gain value, the test meets the requirements

5.180~5.240 GHz

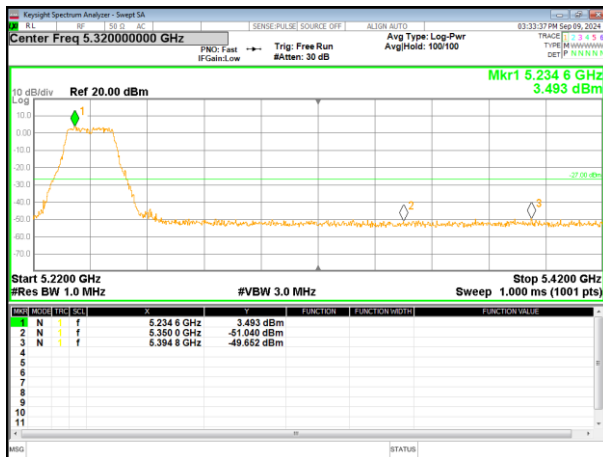
(802.11a) Band Edge, Left Side



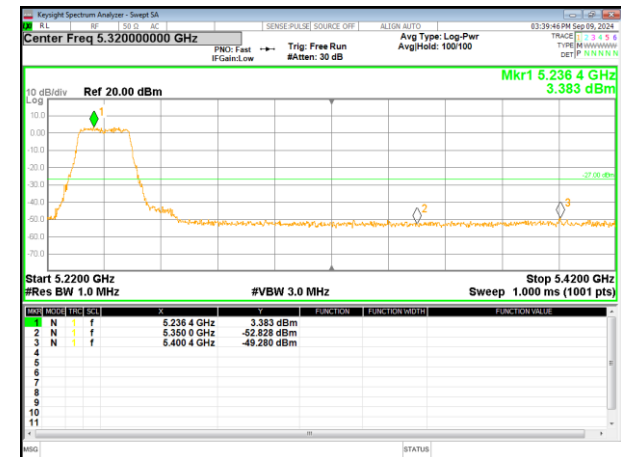
(802.11n20) Band Edge, Left Side



(802.11a) Band Edge, Right Side

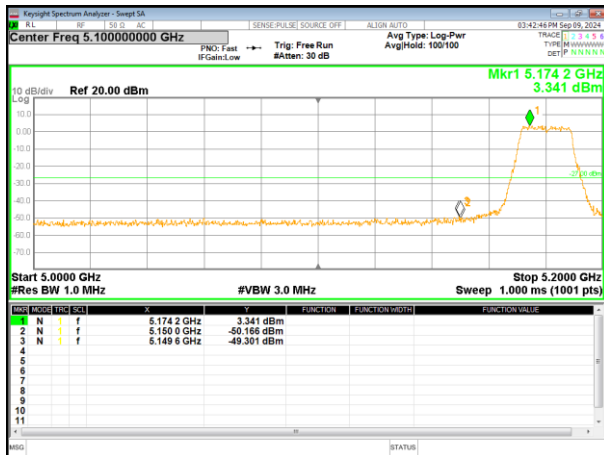


(802.11n20) Band Edge, Right Side

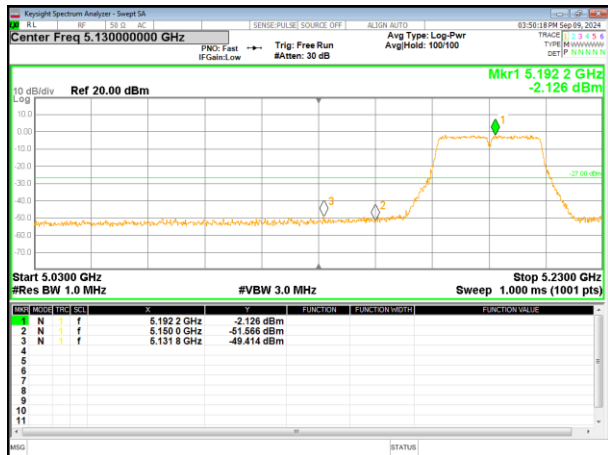


Remark: The antenna gain and cable loss were not compensated in the test data, and the margin value of the Band Edge test was greater than the sum of the antenna gain and cable loss, so the test met the requirements

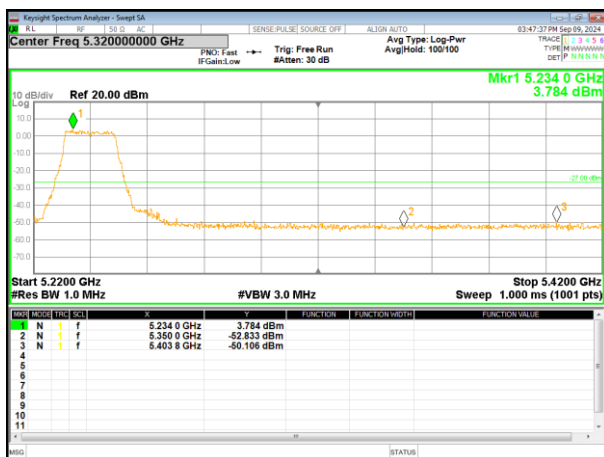
(802.11ac20) Band Edge, Left Side



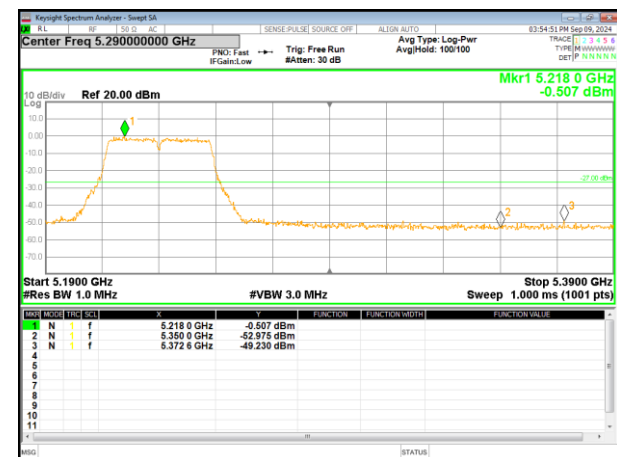
(802.11n40) Band Edge, Left Side



(802.11ac20) Band Edge, Right Side

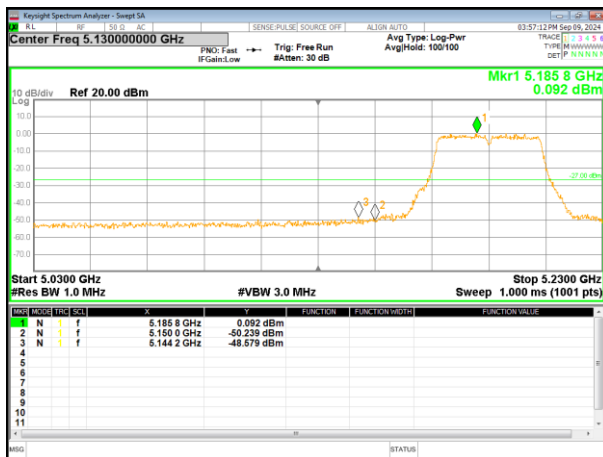


(802.11n40) Band Edge, Right Side

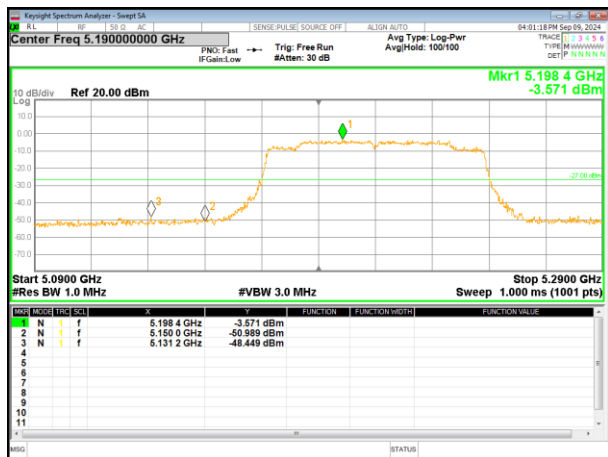


Remark: The antenna gain and cable loss were not compensated in the test data, and the margin value of the Band Edge test was greater than the sum of the antenna gain and cable loss, so the test met the requirements

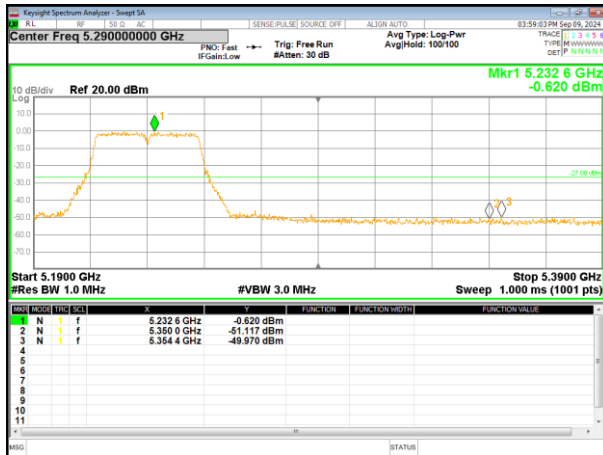
(802.11ac40) Band Edge, Left Side



(802.11ac80) Band Edge



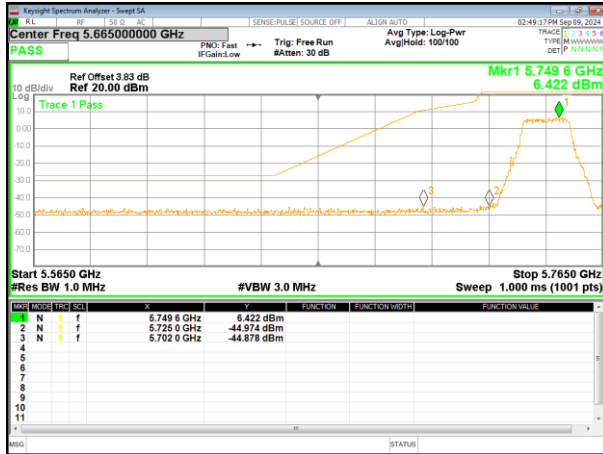
(802.11ac40) Band Edge, Right Side



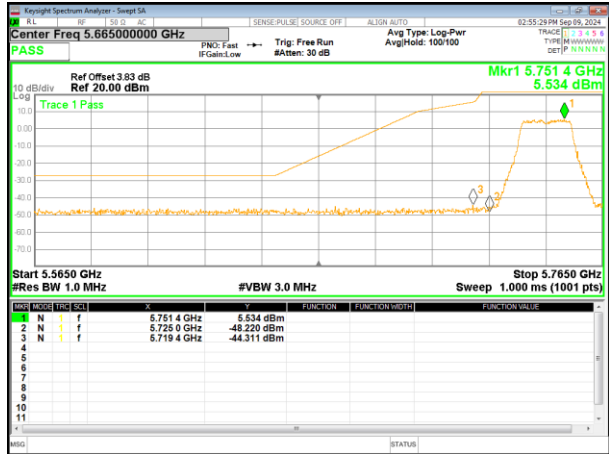
Remark: The antenna gain and cable loss were not compensated in the test data, and the margin value of the Band Edge test was greater than the sum of the antenna gain and cable loss, so the test met the requirements

5.745~5.825 GHz

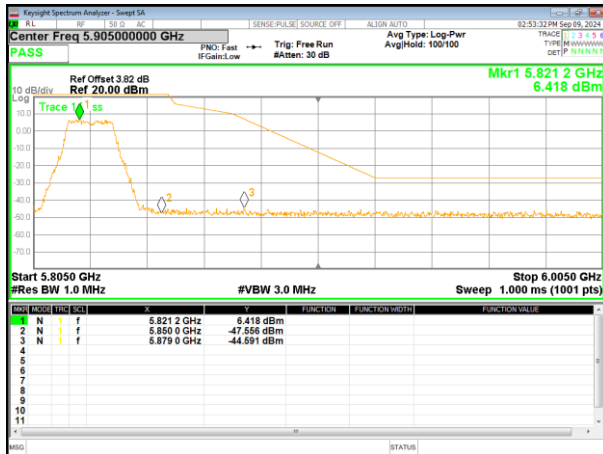
(802.11a) Band Edge, Left Side



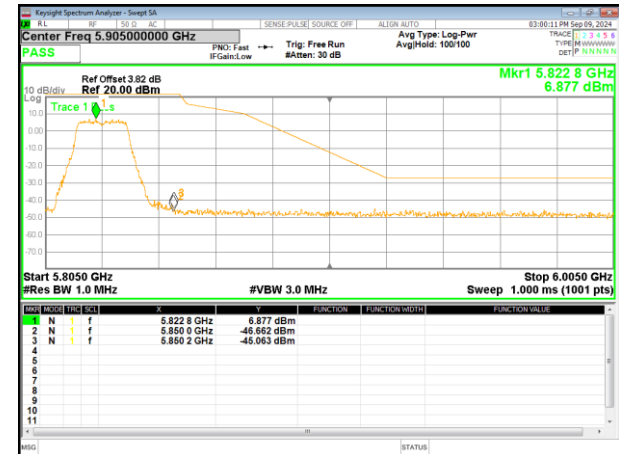
(802.11n20) Band Edge, Left Side



(802.11a) Band Edge, Right Side

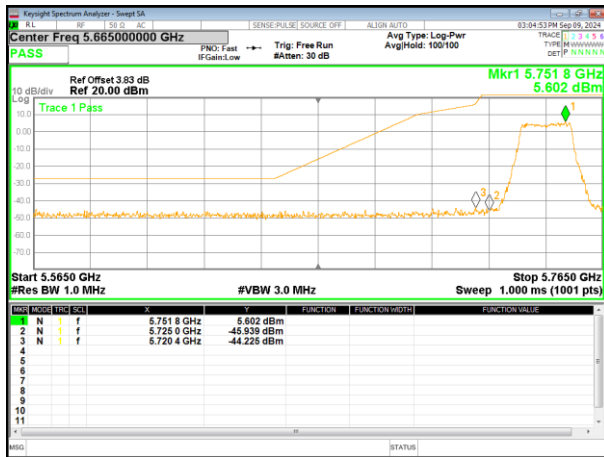


(802.11n20) Band Edge, Right Side

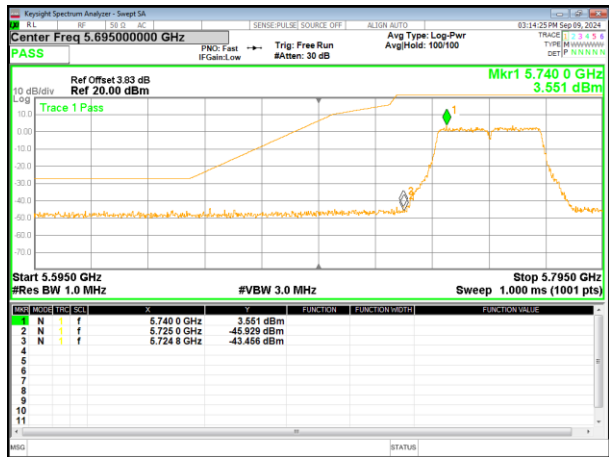


Remark: Antenna gain and cable loss data included in Offset.

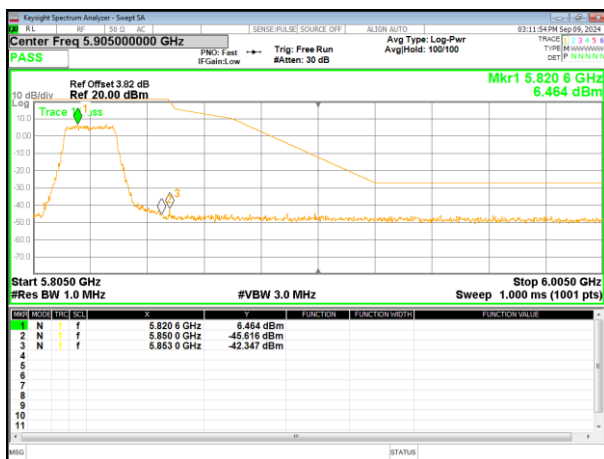
(802.11ac20) Band Edge, Left Side



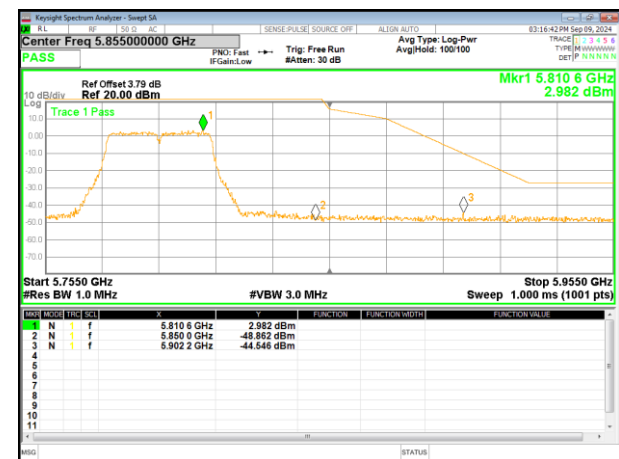
(802.11n40) Band Edge, Left Side



(802.11ac20) Band Edge, Right Side

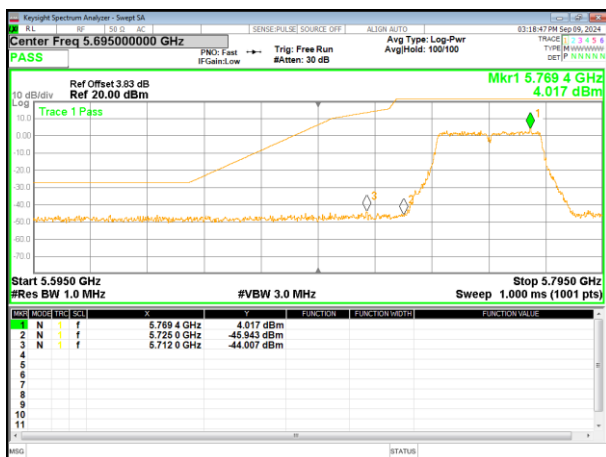


(802.11n40) Band Edge, Right Side

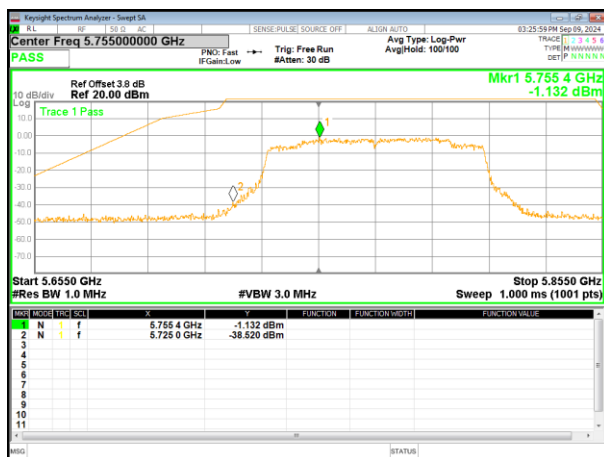


Remark: Antenna gain and cable loss data included in Offset.

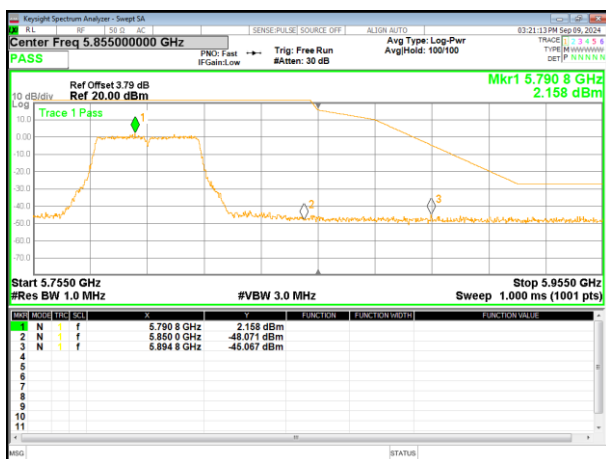
(802.11ac40) Band Edge, Left Side



(802.11ac80) Band Edge



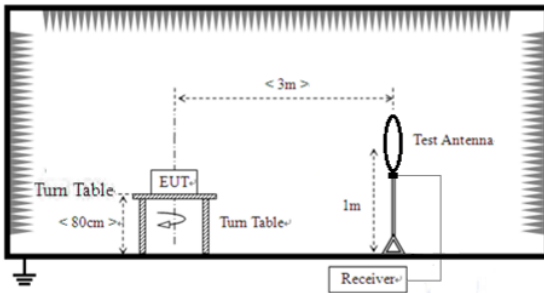
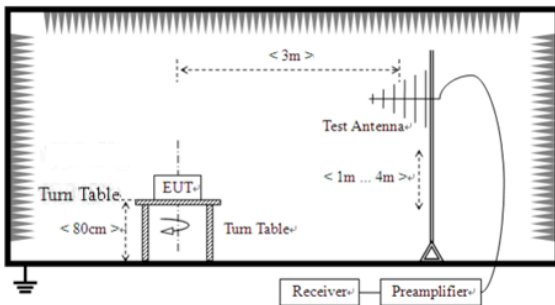
(802.11ac40) Band Edge, Right Side

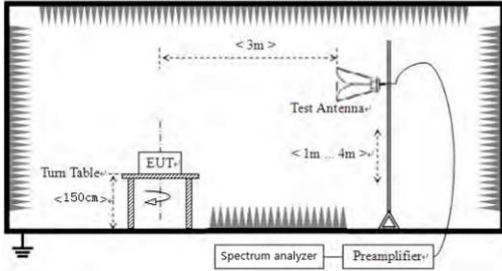


Remark: Antenna gain and cable loss data included in Offset.

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) RSS-247 §6.2.1.2&6.2.4.3				
Test Method:	ANSI C63.10:2013, , RSS-Gen				
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				
					
Test setup:	For radiated emissions from 30MHz to 1GHz				
					

	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

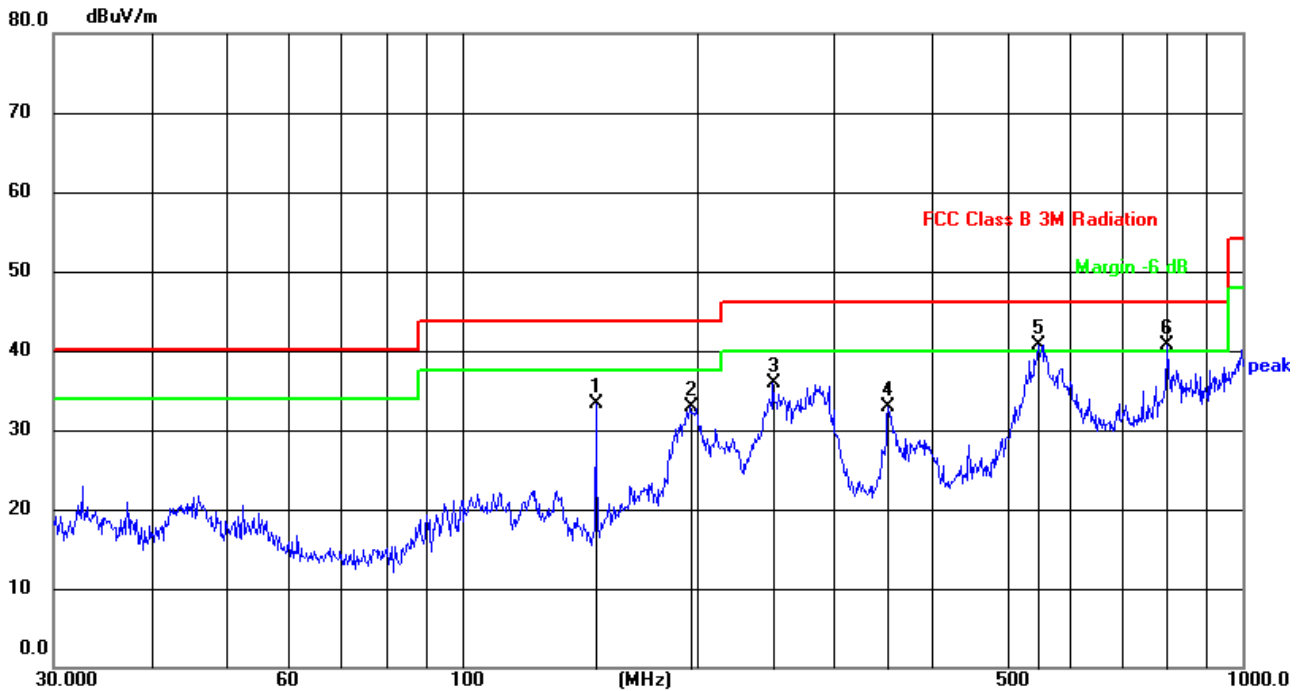
The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

Below 1GHz

Remark: The test data shows only the worst case 802.11n20 mode.

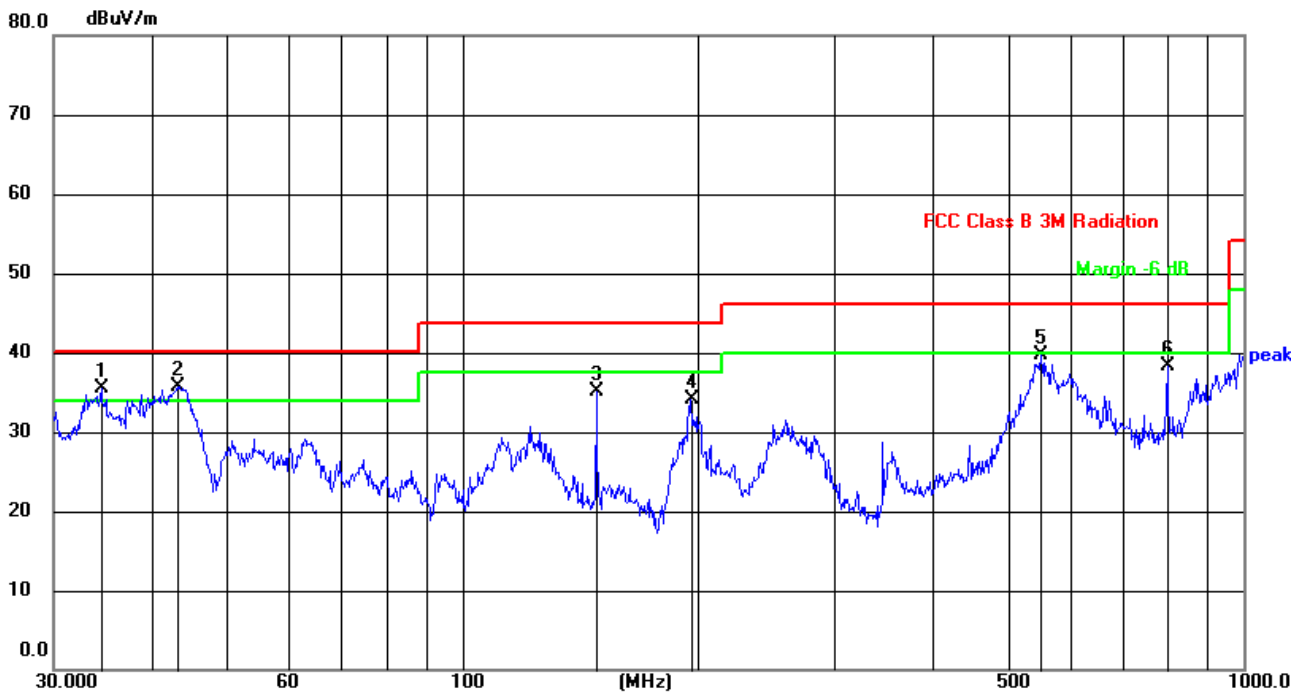
Temperature:	23.5℃	Relative Humidity:	54%
Pressure:	101.2kPa	Test Voltage :	DC19V
Test Mode :	5.2G TX- 802.11n20 (5200MHz)		

Horizontal:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	148.4410	54.05	-20.68	33.37	43.50	-10.13	QP
2	195.8220	56.24	-23.26	32.98	43.50	-10.52	QP
3	250.3012	58.14	-22.25	35.89	46.00	-10.11	QP
4	351.7079	52.27	-19.32	32.95	46.00	-13.05	QP
5	547.0977	53.57	-12.91	40.66	46.00	-5.34	QP
6	801.7863	47.10	-6.49	40.61	46.00	-5.39	QP

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	34.5173	57.27	-21.81	35.46	40.00	-4.54	QP
2	43.2017	56.82	-21.09	35.73	40.00	-4.27	QP
3	148.4410	55.84	-20.68	35.16	43.50	-8.34	QP
4	195.8220	57.42	-23.26	34.16	43.50	-9.34	QP
5	550.9480	52.52	-12.82	39.70	46.00	-6.30	QP
6	798.9797	44.85	-6.53	38.32	46.00	-7.68	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.
3. The test data shows only the worst case 802.11n20 mode

Above 1GHz:

Remark: The test data shows only the worst case 802.11n20 mode.

Temperature:	23.5℃	Relative Humidity:	54%
Pressure:	101.2kPa	Test Voltage :	DC19V
Test Mode :	5.2G TX- 802.11n20		

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB	
Low Channel:5180MHz									
V	10360.00	46.43	46.20	8.27	38.50	47.00	68.20	-21.20	PK
V	10360.00	41.07	46.20	8.27	38.50	41.64	54.00	-12.36	AV
V	15540.00	50.74	46.30	10.35	38.70	53.49	74.00	-20.51	PK
V	15540.00	40.93	46.30	10.35	38.70	43.68	54.00	-10.32	AV
V	20720.00	54.39	57.40	11.93	37.80	46.72	68.20	-21.48	PK
V	20720.00	51.41	57.40	11.93	37.80	43.74	54.00	-10.26	AV
V	25900.00	50.08	56.50	13.45	39.70	46.73	68.20	-21.47	PK
V	25900.00	45.23	56.50	13.45	39.70	41.88	54.00	-12.12	AV
V	31080.00	48.16	56.10	16.12	41.60	49.78	68.20	-18.42	PK
V	31080.00	42.20	56.10	16.12	41.60	43.82	54.00	-10.18	AV
V	36260.00	45.39	56.80	18.29	42.80	49.68	68.20	-18.52	PK
V	36260.00	40.54	56.80	18.29	42.80	44.83	54.00	-9.17	AV
H	10360.00	45.49	46.20	8.27	38.50	46.06	68.20	-22.14	PK
H	10360.00	40.29	46.20	8.27	38.50	40.86	54.00	-13.14	AV
H	15540.00	50.11	46.30	10.35	38.70	52.86	74.00	-21.14	PK
H	15540.00	38.88	46.30	10.35	38.70	41.63	54.00	-12.37	AV
H	20720.00	54.25	57.40	11.93	37.80	46.58	68.20	-21.62	PK
H	20720.00	49.42	57.40	11.93	37.80	41.75	54.00	-12.25	AV
H	25900.00	51.27	56.50	13.45	39.70	47.92	68.20	-20.28	PK
H	25900.00	47.18	56.50	13.45	39.70	43.83	54.00	-10.17	AV
H	31080.00	48.04	56.10	16.12	41.60	49.66	68.20	-18.54	PK
H	31080.00	43.23	56.10	16.12	41.60	44.85	54.00	-9.15	AV
H	36260.00	44.39	56.80	18.29	42.80	48.68	68.20	-19.52	PK
H	36260.00	40.33	56.80	18.29	42.80	44.62	54.00	-9.38	AV

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Middle Channel:5200MHz									
V	10400.00	46.26	46.20	8.27	38.50	46.83	68.20	-21.37	PK
V	10400.00	40.87	46.20	8.27	38.50	41.44	54.00	-12.56	AV
V	15600.00	48.51	46.30	10.35	38.40	50.96	74.00	-23.04	PK
V	15600.00	37.83	46.30	10.35	38.40	40.28	54.00	-13.72	AV
V	20800.00	53.53	57.40	11.93	37.80	45.86	68.20	-22.34	PK
V	20800.00	48.56	57.40	11.93	37.80	40.89	54.00	-13.11	AV
V	26000.00	49.50	56.50	13.45	39.80	46.25	68.20	-21.95	PK
V	26000.00	45.21	56.50	13.45	39.80	41.96	54.00	-12.04	AV
V	31200.00	47.80	56.10	16.12	41.60	49.42	68.20	-18.78	PK
V	31200.00	43.12	56.10	16.12	41.60	44.74	54.00	-9.26	AV
V	36400.00	45.06	56.80	18.29	42.80	49.35	68.20	-18.85	PK
V	36400.00	40.00	56.80	18.29	42.80	44.29	54.00	-9.71	AV
H	10400.00	46.21	46.20	8.27	38.50	46.78	68.20	-21.42	PK
H	10400.00	41.97	46.20	8.27	38.50	42.54	54.00	-11.46	AV
H	15600.00	49.30	46.30	10.35	38.40	51.75	74.00	-22.25	PK
H	15600.00	38.37	46.30	10.35	38.40	40.82	54.00	-13.18	AV
H	20800.00	52.85	57.40	11.93	37.80	45.18	68.20	-23.02	PK
H	20800.00	47.92	57.40	11.93	37.80	40.25	54.00	-13.75	AV
H	26000.00	49.12	56.50	13.45	39.80	45.87	68.20	-22.33	PK
H	26000.00	44.53	56.50	13.45	39.80	41.28	54.00	-12.72	AV
H	31200.00	47.94	56.10	16.12	41.60	49.56	68.20	-18.64	PK
H	31200.00	42.71	56.10	16.12	41.60	44.33	54.00	-9.67	AV
H	36400.00	45.87	56.80	18.29	42.80	50.16	68.20	-18.04	PK
H	36400.00	40.50	56.80	18.29	42.80	44.79	54.00	-9.21	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)	Detect or Type
High Channel:5240MHz									
V	10480.00	44.40	46.20	8.27	38.60	45.07	68.20	-23.13	PK
V	10480.00	39.55	46.20	8.27	38.60	40.22	54.00	-13.78	AV
V	15720.00	48.17	46.30	10.35	38.40	50.62	74.00	-23.38	PK
V	15720.00	37.40	46.30	10.35	38.40	39.85	54.00	-14.15	AV
V	20960.00	53.96	57.40	11.93	37.50	45.99	68.20	-22.21	PK
V	20960.00	48.94	57.40	11.93	37.50	40.97	54.00	-13.03	AV
V	26200.00	50.90	56.50	13.45	40.10	47.95	68.20	-20.25	PK
V	26200.00	46.23	56.50	13.45	40.10	43.28	54.00	-10.72	AV
V	31440.00	48.33	56.10	16.12	41.30	49.65	68.20	-18.55	PK
V	31440.00	43.31	56.10	16.12	41.30	44.63	54.00	-9.37	AV
V	36680.00	44.12	56.80	18.29	43.10	48.71	68.20	-19.49	PK
V	36680.00	39.23	56.80	18.29	43.10	43.82	54.00	-10.18	AV
H	10480.00	43.26	46.20	8.27	38.60	43.93	68.20	-24.27	PK
H	10480.00	38.44	46.20	8.27	38.60	39.11	54.00	-14.89	AV
H	15720.00	48.41	46.30	10.35	38.40	50.86	74.00	-23.14	PK
H	15720.00	37.36	46.30	10.35	38.40	39.81	54.00	-14.19	AV
H	20960.00	53.44	57.40	11.93	37.50	45.47	68.20	-22.73	PK
H	20960.00	48.84	57.40	11.93	37.50	40.87	54.00	-13.13	AV
H	26200.00	47.79	56.50	13.45	40.10	44.84	68.20	-23.36	PK
H	26200.00	42.67	56.50	13.45	40.10	39.72	54.00	-14.28	AV
H	31440.00	47.23	56.10	16.12	41.30	48.55	68.20	-19.65	PK
H	31440.00	42.52	56.10	16.12	41.30	43.84	54.00	-10.16	AV
H	36680.00	45.17	56.80	18.29	43.10	49.76	68.20	-18.44	PK
H	36680.00	40.45	56.80	18.29	43.10	45.04	54.00	-8.96	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:	23.5℃	Relative Humidity:	54%
Pressure:	101.2kPa	Test Voltage :	DC19V
Test Mode :	5.8G TX- 802.11n20		

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)	Detect or Typ
Low Channel:5745MHz									
V	11490.00	48.97	46.10	8.77	39.10	50.74	74.00	-23.26	PK
V	11490.00	38.06	46.10	8.77	39.10	39.83	54.00	-14.17	AV
V	17235.00	43.81	47.60	11.10	38.70	46.01	68.20	-22.19	PK
V	17235.00	38.76	47.60	11.10	38.70	40.96	54.00	-13.04	AV
V	22980.00	57.32	56.90	12.73	37.70	50.85	74.00	-23.15	PK
V	22980.00	46.21	56.90	12.73	37.70	39.74	54.00	-14.26	AV
V	28725.00	47.60	55.60	14.25	40.30	46.55	68.20	-21.65	PK
V	28725.00	43.22	55.60	14.25	40.30	42.17	54.00	-11.83	AV
V	34470.00	46.48	55.90	17.26	42.10	49.94	68.20	-18.26	PK
V	34470.00	41.25	55.90	17.26	42.10	44.71	54.00	-9.29	AV
H	11490.00	48.51	46.10	8.77	39.10	50.28	74.00	-23.72	PK
H	11490.00	37.91	46.10	8.77	39.10	39.68	54.00	-14.32	AV
H	17235.00	43.73	47.60	11.10	38.70	45.93	68.20	-22.27	PK
H	17235.00	38.64	47.60	11.10	38.70	40.84	54.00	-13.16	AV
H	22980.00	56.43	56.90	12.73	37.70	49.96	74.00	-24.04	PK
H	22980.00	46.58	56.90	12.73	37.70	40.11	54.00	-13.89	AV
H	28725.00	48.98	55.60	14.25	40.30	47.93	68.20	-20.27	PK
H	28725.00	44.76	55.60	14.25	40.30	43.71	54.00	-10.29	AV
H	34470.00	46.41	55.90	17.26	42.10	49.87	68.20	-18.33	PK
H	34470.00	41.38	55.90	17.26	42.10	44.84	54.00	-9.16	AV

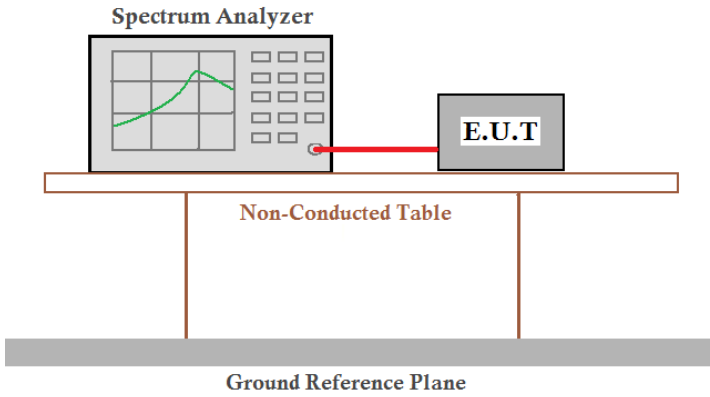
Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Middle Channel:5785MHz									
V	11570.00	49.52	46.10	8.77	39.10	51.29	74.00	-22.71	PK
V	11570.00	39.19	46.10	8.77	39.10	40.96	54.00	-13.04	AV
V	17355.00	43.41	47.60	11.10	38.70	45.61	68.20	-22.59	PK
V	17355.00	39.17	47.60	11.10	38.70	41.37	54.00	-12.63	AV
V	23140.00	59.09	56.90	12.73	37.70	52.62	74.00	-21.38	PK
V	23140.00	48.28	56.90	12.73	37.70	41.81	54.00	-12.19	AV
V	28925.00	49.09	55.60	14.25	40.30	48.04	68.20	-20.16	PK
V	28925.00	44.14	55.60	14.25	40.30	43.09	54.00	-10.91	AV
V	34710.00	45.40	55.90	17.26	42.40	49.16	68.20	-19.04	PK
V	34710.00	40.76	55.90	17.26	42.40	44.52	54.00	-9.48	AV
H	11570.00	48.74	46.10	8.77	39.10	50.51	74.00	-23.49	PK
H	11570.00	38.36	46.10	8.77	39.10	40.13	54.00	-13.87	AV
H	17355.00	43.82	47.60	11.10	38.70	46.02	68.20	-22.18	PK
H	17355.00	39.06	47.60	11.10	38.70	41.26	54.00	-12.74	AV
H	23140.00	60.25	56.90	12.73	37.70	53.78	74.00	-20.22	PK
H	23140.00	49.29	56.90	12.73	37.70	42.82	54.00	-11.18	AV
H	28925.00	48.21	55.60	14.25	40.30	47.16	68.20	-21.04	PK
H	28925.00	44.16	55.60	14.25	40.30	43.11	54.00	-10.89	AV
H	34710.00	45.71	55.90	17.26	42.40	49.47	68.20	-18.73	PK
H	34710.00	41.02	55.90	17.26	42.40	44.78	54.00	-9.22	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)	Detect or Type
High Channel:5825MHz									
V	11650.00	50.08	46.10	8.77	39.10	51.85	74.00	-22.15	PK
V	11650.00	39.15	46.10	8.77	39.10	40.92	54.00	-13.08	AV
V	17475.00	41.61	47.90	11.23	38.90	43.84	68.20	-24.36	PK
V	17475.00	37.18	47.90	11.23	38.90	39.41	54.00	-14.59	AV
V	23300.00	53.45	57.10	12.73	37.80	46.88	68.20	-21.32	PK
V	23300.00	48.52	57.10	12.73	37.80	41.95	54.00	-12.05	AV
V	29125.00	49.04	55.80	14.25	40.50	47.99	68.20	-20.21	PK
V	29125.00	43.93	55.80	14.25	40.50	42.88	54.00	-11.12	AV
V	34950.00	44.88	56.30	17.91	42.50	48.99	68.20	-19.21	PK
V	34950.00	40.61	56.30	17.91	42.50	44.72	54.00	-9.28	AV
H	11650.00	48.98	46.10	8.77	39.10	50.75	74.00	-23.25	PK
H	11650.00	38.49	46.10	8.77	39.10	40.26	54.00	-13.74	AV
H	17475.00	43.63	47.90	11.23	38.90	45.86	68.20	-22.34	PK
H	17475.00	38.62	47.90	11.23	38.90	40.85	54.00	-13.15	AV
H	23300.00	54.29	57.10	12.73	37.80	47.72	68.20	-20.48	PK
H	23300.00	50.30	57.10	12.73	37.80	43.73	54.00	-10.27	AV
H	29125.00	48.00	55.80	14.25	40.50	46.95	68.20	-21.25	PK
H	29125.00	42.74	55.80	14.25	40.50	41.69	54.00	-12.31	AV
H	34950.00	45.61	56.30	17.91	42.50	49.72	68.20	-18.48	PK
H	34950.00	40.18	56.30	17.91	42.50	44.29	54.00	-9.71	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) RSS-247 §6.2.1.2&6.2.4.3	
Test Method:	ANSI C63.10:2013 , RSS-Gen	
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.: 23.5°C	Humid.:54%RH
Test voltage:	DC19V	
Test results:	Pass	

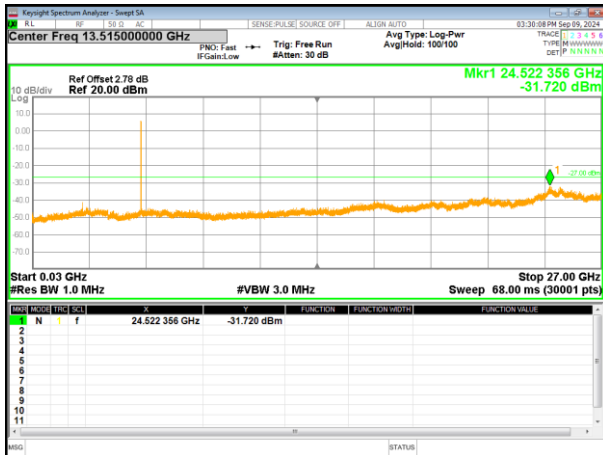
Remark:

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.

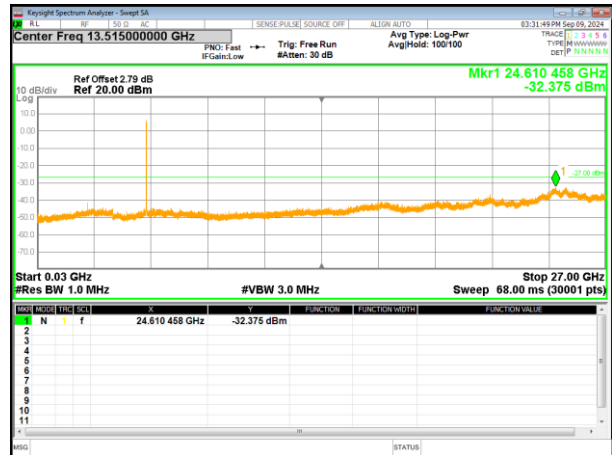
5180-5240MHz

Test Plot

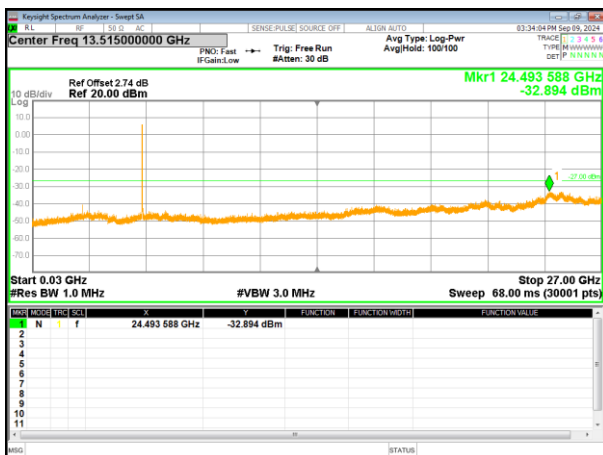
802.11a on channel 36



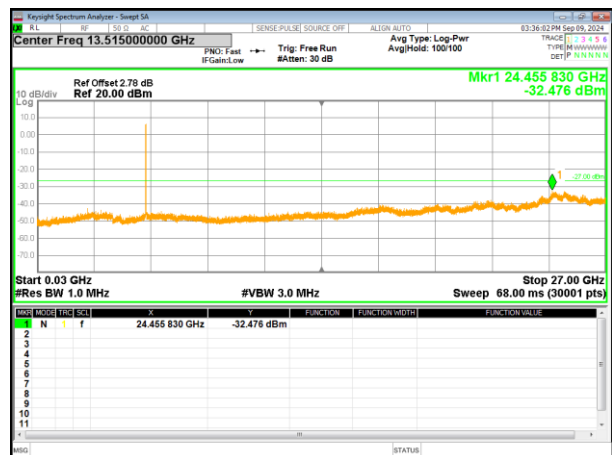
802.11a on channel 40



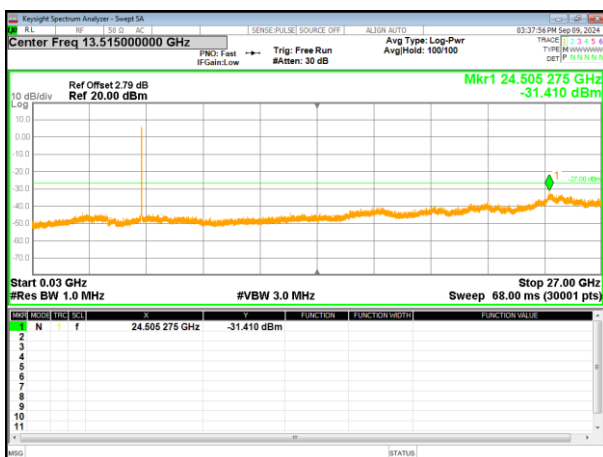
802.11a on channel 48



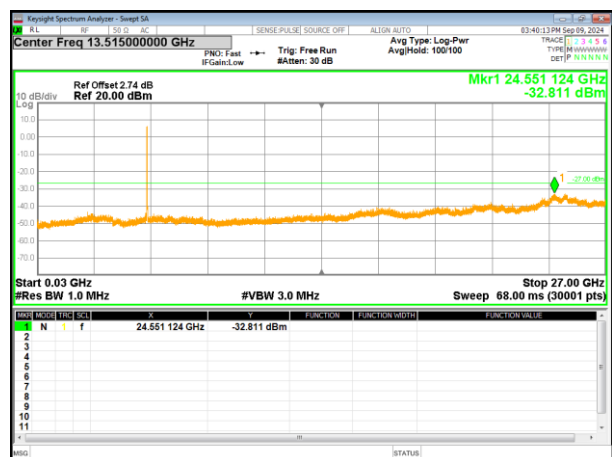
802.11n20 on channel 36



802.11n20 on channel 40

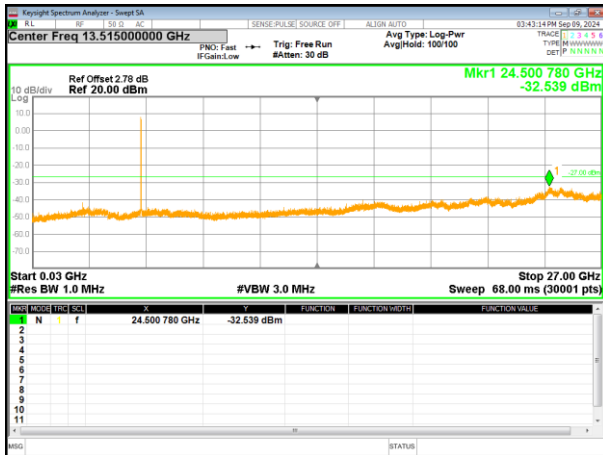


802.11n20 on channel 48

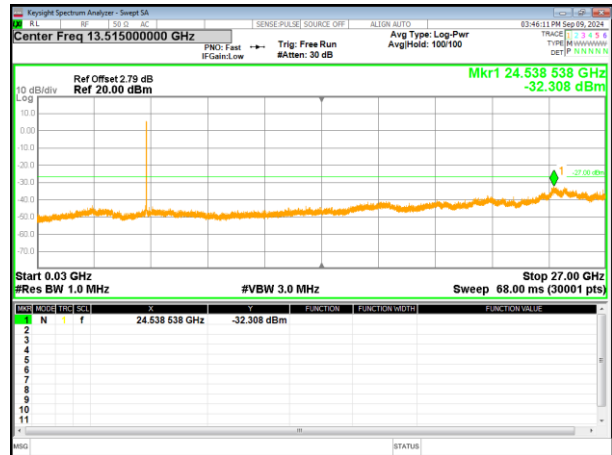


Test Plot

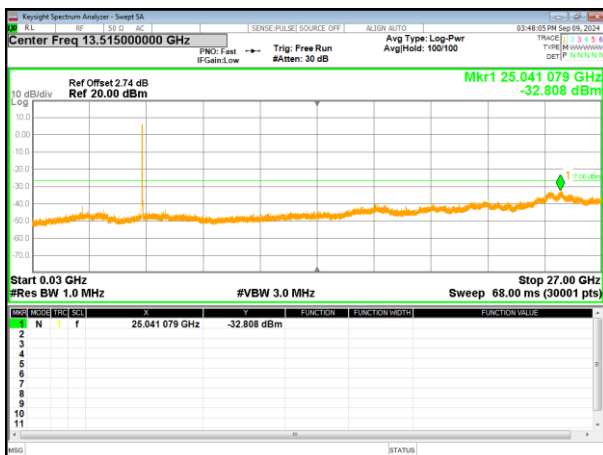
802.11ac20 on channel 36



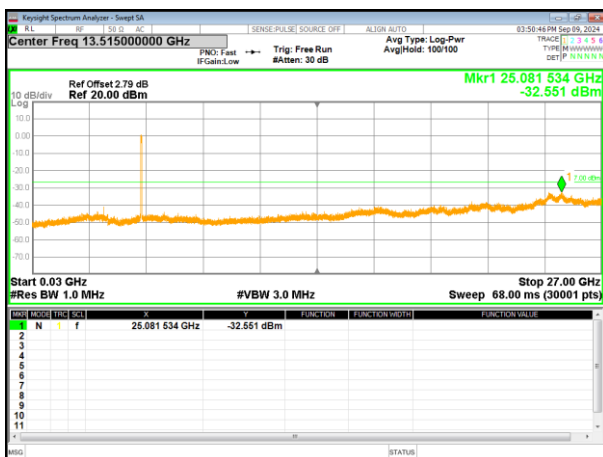
802.11ac20 on channel 40



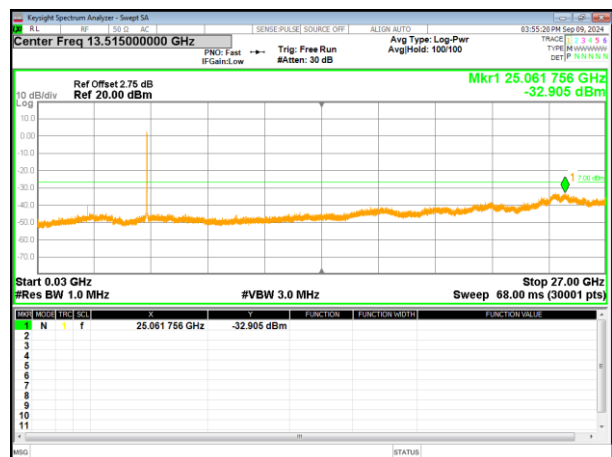
802.11ac20 on channel 48



802.11n40 on channel 38

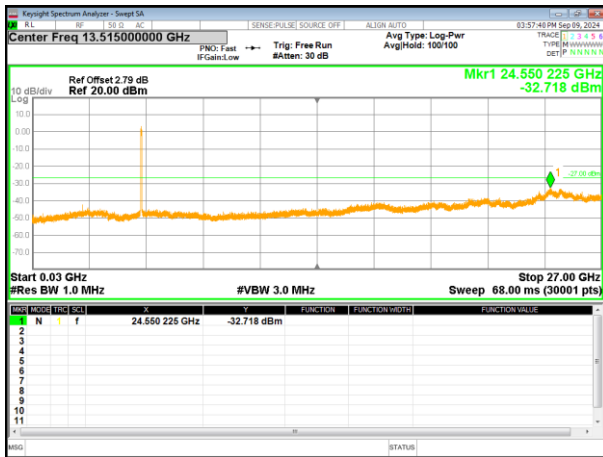


802.11n40 on channel 46

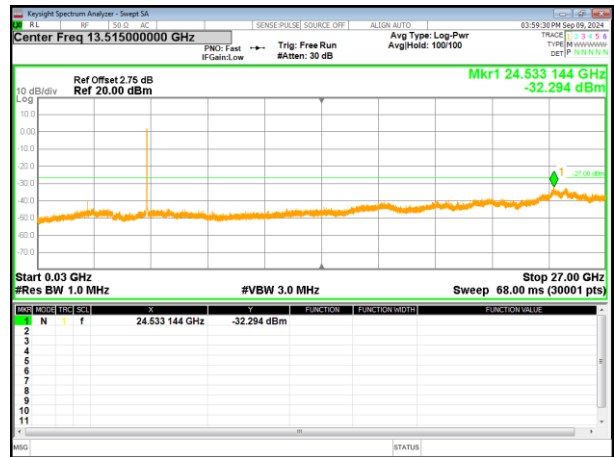


Test Plot

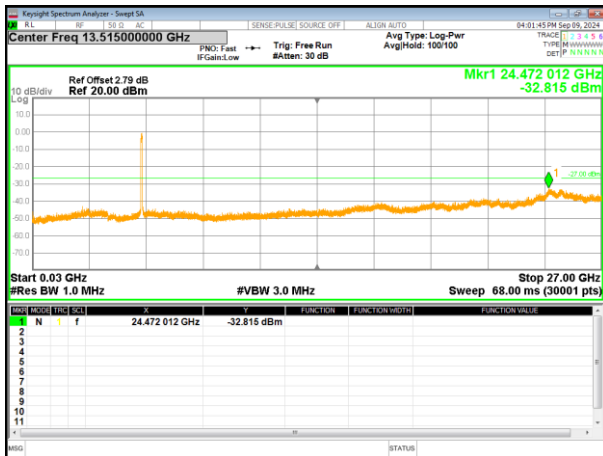
802.11ac40 on channel 38



802.11ac40 on channel 46



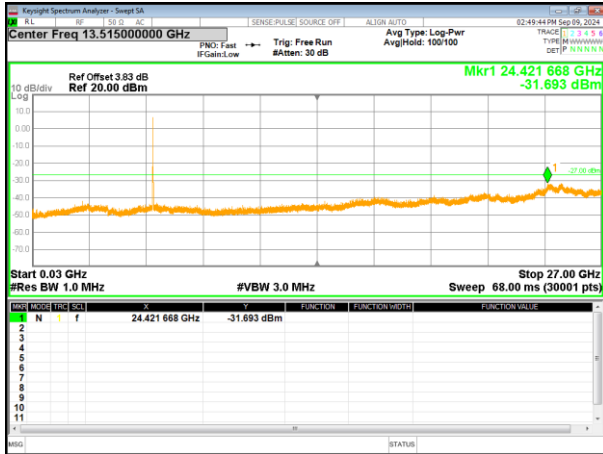
802.11ac80 on channel 42



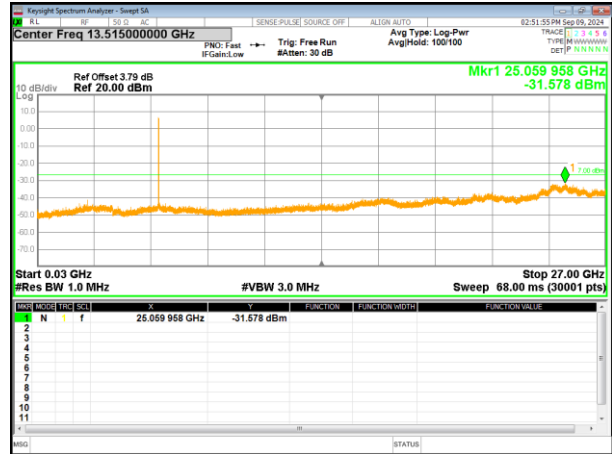
5745-5825MHz

Test Plot

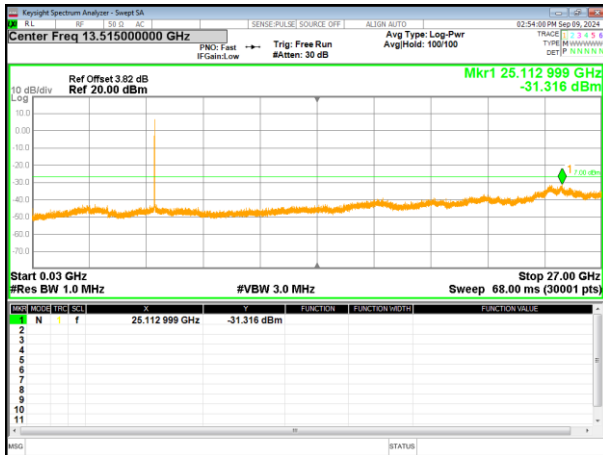
802.11a on channel 149



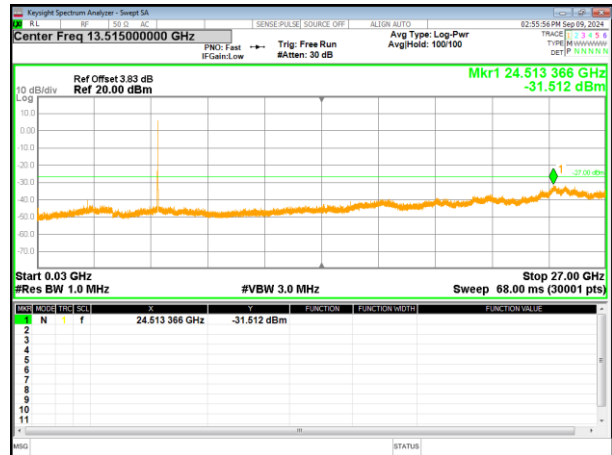
802.11a on channel 157



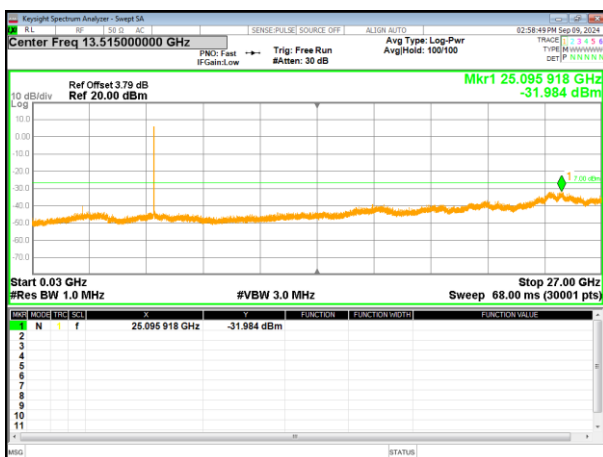
802.11a on channel 165



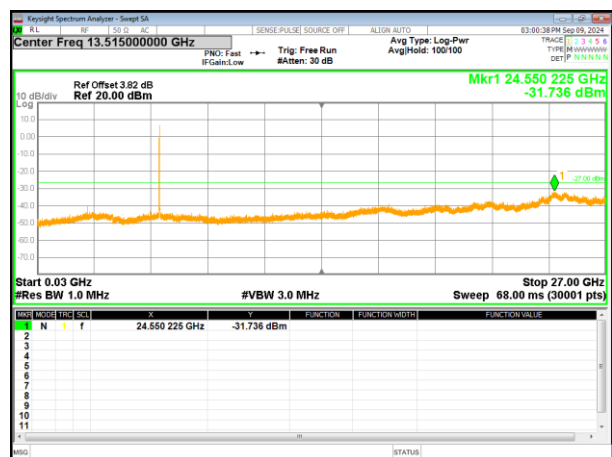
802.11n20 on channel 149



802.11n20 on channel 157

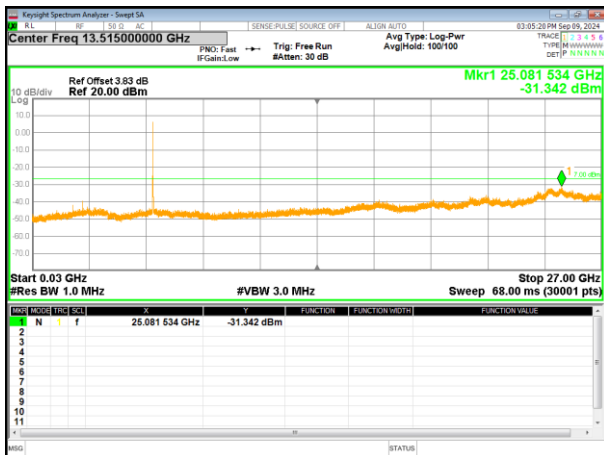


802.11n20 on channel 165

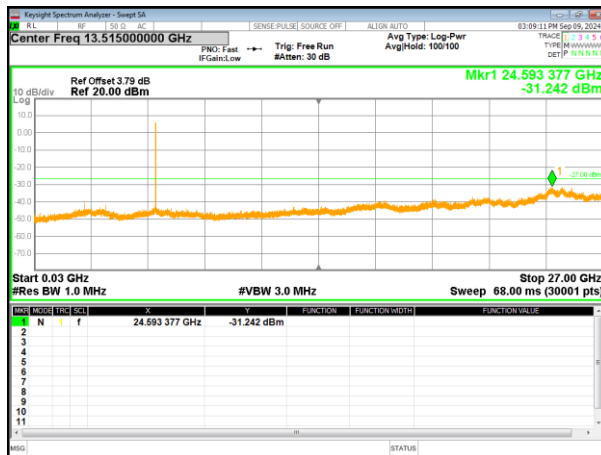


Test Plot

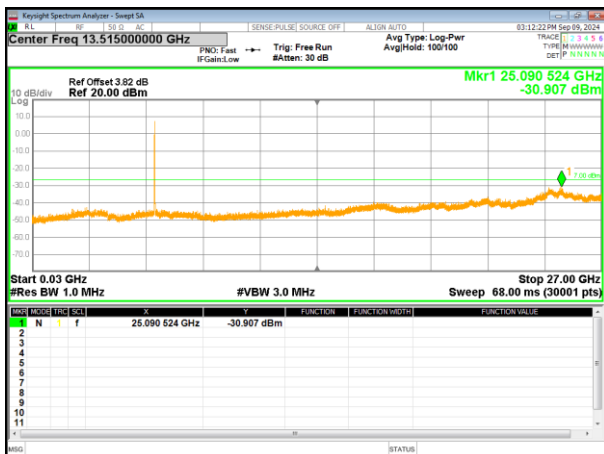
802.11ac20 on channel 149



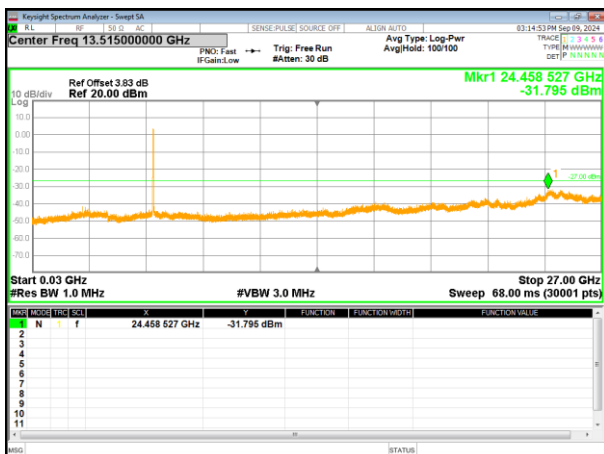
802.11ac20 on channel 157



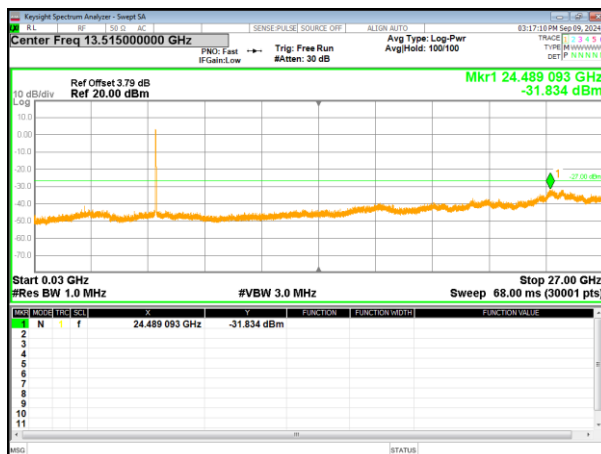
802.11ac20 on channel 165



802.11n40 on channel 151

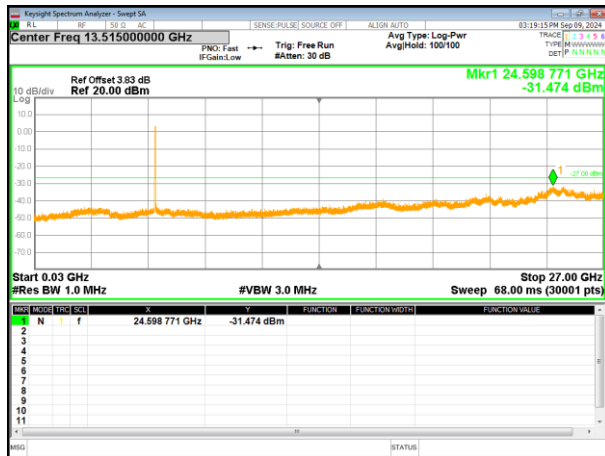


802.11n40 on channel 159

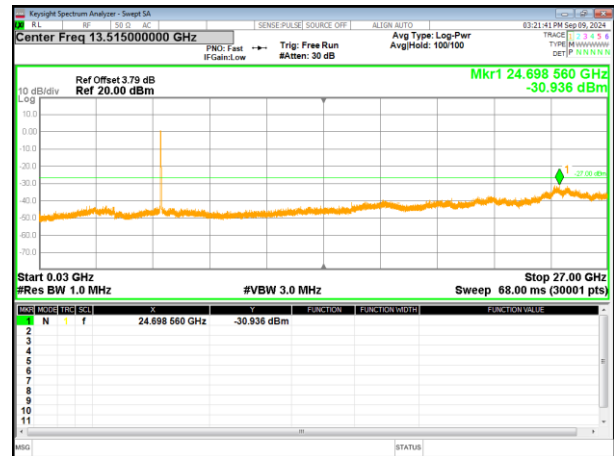


Test Plot

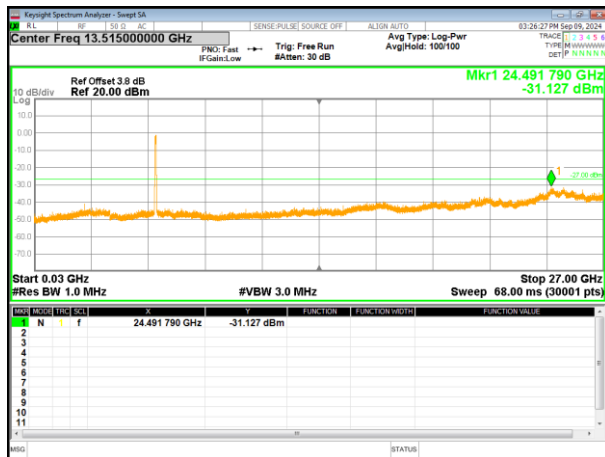
802.11ac40 on channel 151



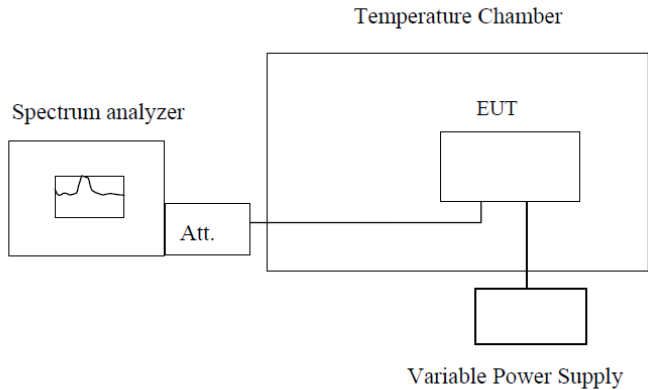
802.11ac40 on channel 159



802.11ac80 on channel 155



4.9 Frequency stability

Test Requirement:	FCC Part15 C Section 15.407(g) , RSS Gen§ 8.11
Test Method:	ANSI C63.10:2013, FCC Part 2.1055, RSS Gen
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: DC19V					
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
-30	5180	5179.971	5179.965	5179.976	5179.986
	5190	5189.965	5189.976	5189.977	5189.985
	5200	5199.978	5199.967	5199.968	5199.979
	5210	5209.982	5209.968	5299.976	5209.969
	5220	5219.968	5219.975	5219.968	5219.979
	5230	5229.961	5229.993	5229.989	5299.977
	5240	5179.971	5179.965	5239.967	5239.981
-20	5180	5179.763	5179.965	5179.977	5179.976
	5190	5199.935	5189.976	5189.968	5189.977
	5200	5199.933	5199.967	5199.976	5199.968
	5210	5209.988	5209.968	5209.968	5299.976
	5220	5219.977	5219.975	5219.989	5219.968
	5230	5229.964	5229.993	5229.967	5229.989
	5240	5239.981	5239.965	5239.985	5239.967
-10	5180	5179.986	5179.976	5179.977	5179.938
	5190	5189.982	5189.977	5189.968	5189.968
	5200	5199.977	5199.968	5199.976	5199.993
	5210	5209.983	5299.976	5209.968	5209.977
	5220	5219.978	5219.968	5219.989	5219.968
	5230	5229.976	5229.989	5229.967	5229.996
	5240	5239.949	5239.967	5239.985	5239.984
0	5180	5179.977	5179.938	5179.976	5179.986
	5190	5189.968	5189.968	5189.977	5189.985
	5200	5199.976	5199.993	5199.968	5199.979
	5210	5209.968	5209.977	5299.976	5209.969
	5220	5219.989	5219.968	5219.968	5219.979
	5230	5229.967	5229.996	5229.989	5299.977
	5240	5239.985	5239.984	5239.967	5239.981
10	5180	5179.965	5179.977	5179.977	5179.986
	5190	5189.976	5189.968	5189.968	5179.986
	5200	5199.967	5199.976	5199.976	5189.982
	5210	5209.968	5209.968	5209.968	5199.977

	5220	5219.975	5219.989	5219.989	5209.983
	5230	5229.993	5229.967	5229.967	5219.978
	5240	5239.965	5239.985	5239.985	5229.976
20	5180	5179.986	5179.976	5179.977	5179.938
	5190	5189.982	5189.977	5189.968	5189.968
	5200	5199.977	5199.968	5199.976	5199.993
	5210	5209.983	5299.976	5209.968	5209.977
	5220	5219.978	5219.968	5219.989	5219.968
	5230	5229.976	5229.989	5229.967	5229.996
	5240	5239.949	5239.967	5239.985	5239.984
30	5180	5179.986	5179.976	5179.977	5179.938
	5190	5189.982	5189.977	5189.968	5189.968
	5200	5199.977	5199.968	5199.976	5199.993
	5210	5209.983	5299.976	5209.968	5209.977
	5220	5219.978	5219.968	5219.989	5219.968
	5230	5229.976	5229.989	5229.967	5229.996
	5240	5239.949	5239.967	5239.985	5239.984
40	5180	5179.976	5179.965	5179.977	5179.976
	5190	5189.977	5189.976	5189.968	5189.977
	5200	5199.968	5199.967	5199.976	5199.968
	5210	5299.976	5209.968	5209.968	5299.976
	5220	5219.968	5219.975	5219.989	5219.968
	5230	5229.989	5229.993	5229.967	5229.989
	5240	5239.967	5239.965	5239.985	5239.967
50	5180	5179.938	5179.976	5179.965	5180.101
	5190	5189.968	5189.977	5189.976	5199.976
	5200	5199.993	5199.968	5199.967	5200.001
	5210	5209.977	5299.976	5209.968	5209.979
	5220	5219.968	5219.968	5219.975	5219.994
	5230	5229.996	5229.989	5229.993	5229.987
	5240	5239.984	5239.967	5239.965	5239.995

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
16.2	5180	5179.971	5179.965	5179.986	5179.982
	5190	5189.965	5189.976	5189.982	5189.968
	5200	5199.978	5199.967	5199.977	5199.969
	5210	5209.982	5209.968	5209.983	5209.991
	5220	5219.968	5219.975	5219.978	5219.977
	5230	5229.961	5229.993	5229.976	5229.987
	5240	5180.101	5179.981	5179.977	5179.965
19	5180	5199.976	5189.975	5189.968	5189.976
	5190	5200.001	5199.975	5199.976	5199.967
	5200	5209.979	5209.987	5209.968	5209.968
	5210	5219.994	5219.978	5219.989	5219.975
	5220	5229.987	5299.981	5229.967	5229.993
	5230	5239.995	5239.978	5239.985	5239.978
	5240	5180.101	5179.981	5179.977	5179.965
21.9	5180	5189.976	5179.977	5179.976	5179.976
	5190	5199.967	5189.968	5189.977	5189.977
	5200	5209.968	5199.976	5199.968	5199.968
	5210	5219.975	5209.968	5299.976	5299.976
	5220	5229.993	5219.989	5219.968	5219.968
	5230	5239.978	5229.967	5229.989	5229.989
	5240	5179.965	5239.985	5239.967	5239.967

Frequency stability versus Temp.					
Power Supply: DC19V					
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
-30	5745	5744.998	5744.958	5744.598	5744.946
	5755	5744.946	5754.974	5754.982	5754.968
	5775	5754.968	5774.973	5774.983	5774.977
	5785	5774.977	5784.976	5784.986	5784.968
	5795	5784.968	5794.987	5794.969	5794.979
	5825	5794.979	5824.968	5824.965	5824.982
-20	5745	5744.963	5744.958	5744.979	5744.969
	5755	5754.988	5754.974	5754.981	5754.995
	5775	5774.969	5774.973	5774.984	5774.991
	5785	5784.978	5784.976	5784.976	5784.975
	5795	5794.976	5794.987	5794.967	5794.964
	5825	5824.986	5824.968	5824.976	5824.899
-10	5745	5744.968	5744.969	5744.963	5745.033
	5755	5754.975	5754.976	5754.988	5744.598
	5775	5774.967	5774.993	5774.969	5754.982
	5785	5784.959	5784.969	5784.978	5774.983
	5795	5794.966	5794.965	5794.976	5784.986
	5825	5824.895	5824.968	5824.986	5794.969
0	5745	5744.963	5744.968	5744.968	5744.969
	5755	5754.988	5754.985	5754.975	5754.976
	5775	5774.969	5774.986	5774.967	5774.993
	5785	5784.978	5784.968	5784.959	5784.969
	5795	5794.976	5794.985	5794.966	5794.965
	5825	5824.986	5824.983	5824.895	5824.968
10	5745	5744.969	5744.968	5744.969	5744.968
	5755	5754.976	5754.975	5754.976	5754.957
	5775	5774.993	5774.967	5774.993	5774.968
	5785	5784.969	5784.959	5784.969	5784.975
	5795	5794.965	5794.966	5794.965	5794.993
	5825	5824.968	5824.895	5824.968	5824.985
20	5745	5744.979	5744.993	5744.979	5744.968
	5755	5754.993	5754.965	5754.993	5754.987
	5775	5774.978	5774.988	5774.978	5774.967
	5785	5784.965	5784.988	5784.965	5784.994
	5795	5794.959	5794.979	5794.959	5794.986
	5825	5824.993	5824.994	5824.993	5824.995
30	5745	5744.958	5744.979	5744.963	5744.979
	5755	5754.974	5754.981	5754.988	5754.993
	5775	5774.973	5774.984	5774.969	5774.978
	5785	5784.976	5784.976	5784.978	5784.965
	5795	5794.987	5794.967	5794.976	5794.959
	5825	5824.968	5824.976	5824.986	5824.993
40	5745	5744.979	5744.968	5744.963	5744.963
	5755	5754.981	5754.985	5754.988	5754.988
	5775	5774.984	5774.986	5774.969	5774.969
	5785	5784.976	5784.968	5784.978	5784.978

50	5795	5794.967	5794.985	5794.976	5794.976
	5825	5824.976	5824.983	5824.986	5824.986
	5745	5744.963	5744.968	5744.968	5744.969
	5755	5754.988	5754.985	5754.975	5754.976
	5775	5774.969	5774.986	5774.967	5774.993
	5785	5784.978	5784.968	5784.959	5784.969
	5795	5794.976	5794.985	5794.966	5794.965
	5825	5824.986	5824.983	5824.895	5824.968

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
16.2V	5745	5744.963	5744.968	5744.968	5744.969
	5755	5754.988	5754.985	5754.975	5754.976
	5775	5774.969	5774.986	5774.967	5774.993
	5785	5784.978	5784.968	5784.959	5784.969
	5795	5794.976	5794.985	5794.966	5794.965
	5825	5824.986	5824.983	5824.895	5824.968
19V	5745	5744.969	5744.979	5744.968	5744.993
	5755	5754.976	5754.981	5754.985	5754.965
	5775	5774.993	5774.984	5774.986	5774.988
	5785	5784.969	5784.976	5784.968	5784.988
	5795	5794.965	5794.967	5794.985	5794.979
	5825	5824.968	5824.976	5824.983	5824.994
21.9	5745	5744.979	5744.947	5744.946	5744.968
	5755	5754.981	5754.918	5754.968	5754.975
	5775	5774.984	5774.942	5774.977	5774.967
	5785	5784.976	5784.943	5784.968	5784.959
	5795	5794.967	5794.933	5794.979	5794.966
	5825	5824.976	5824.954	5824.982	5824.895

5 Test Setup Photo

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

6 EUT Constructional Details

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

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