

4.4 Power Spectral Density

Limit

(1) For the band 5.15 - 5.25 GHz.

(i) For an outdoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 MHz band. ^{note1}

(ii) For an indoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 MHz band. ^{note1}

(iii) For fixed point-to-point access points operating in the band 5.15 - 5.25 GHz, transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.

(iv) For mobile and portable client devices in the 5.15 - 5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 MHz band. ^{note1}

(2) For the 5.25 - 5.35 GHz and 5.47 - 5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. ^{note1}

(3) For the band 5.725 - 5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500 kHz band. ^{note1, note2}

Note1: If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note2: Fixed point - to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

transmission.

Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 1MHz for U-NII 1, U-NII 2A, U-NII C band and 510KHz for U-NII 3 band.
3. Set the VBW $\geq 3 \times$ RBW.
4. Set the span to encompass the entire EBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level.

Test Configuration

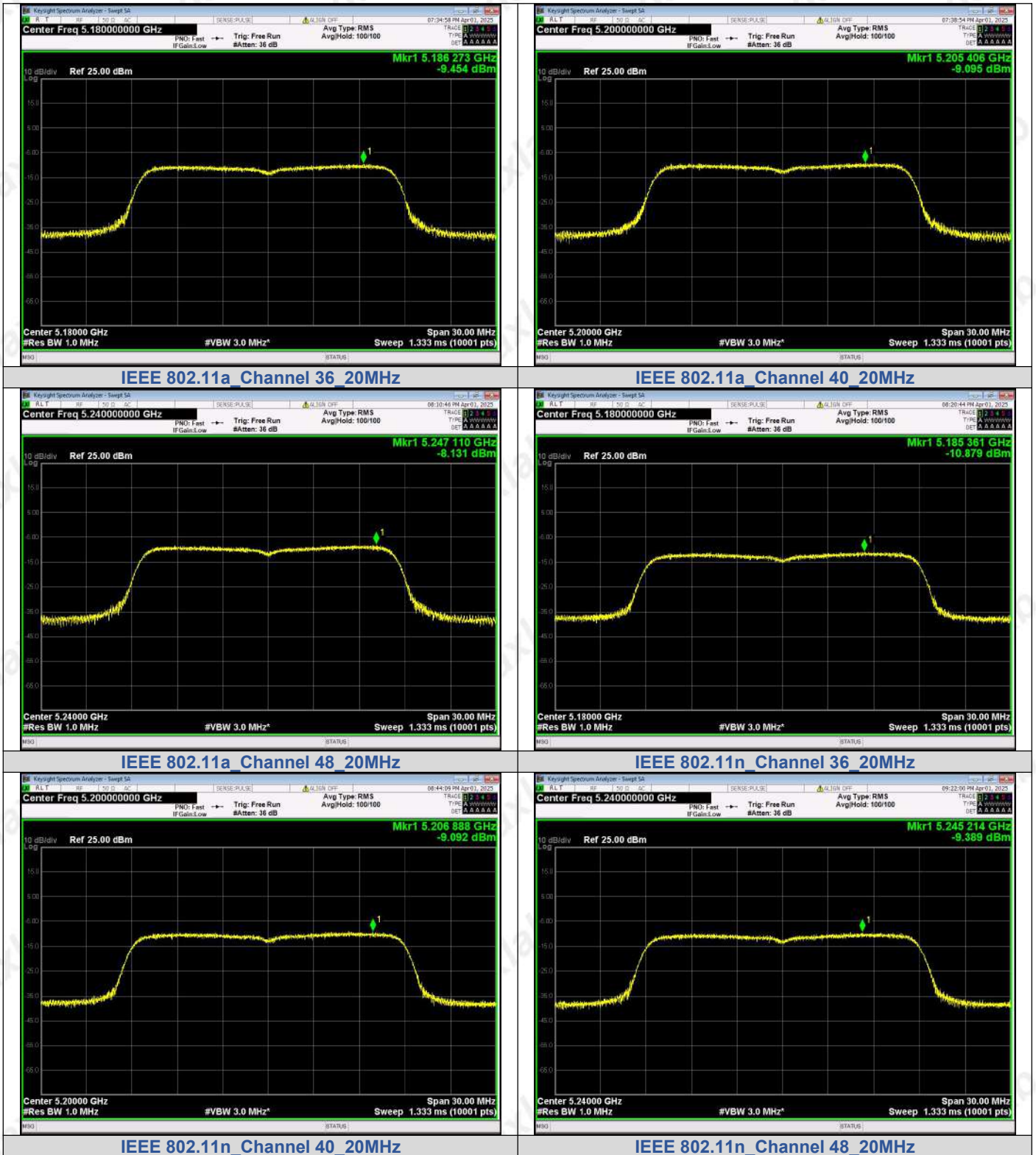


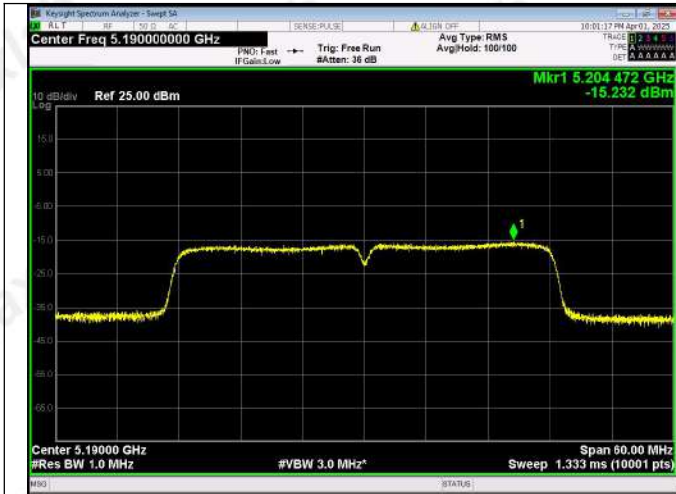
Test Results

Type	Bands	Channel	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	U-NII 1	36	-9.454	11	Pass
		40	-9.095		
		48	-8.131		
802.11n (HT20)	U-NII 1	36	-10.879		
		40	-9.092		
		48	-9.389		
802.11n (HT40)	U-NII 1	38	-15.232		
		46	-11.596		
802.11ac (HT20)	U-NII 1	36	-10.616		
		40	-9.220		
		48	-9.733		
802.11ac (HT40)	U-NII 1	38	-15.391		
		46	-12.021		
802.11ac (HT80)	U-NII 1	42	-17.360		

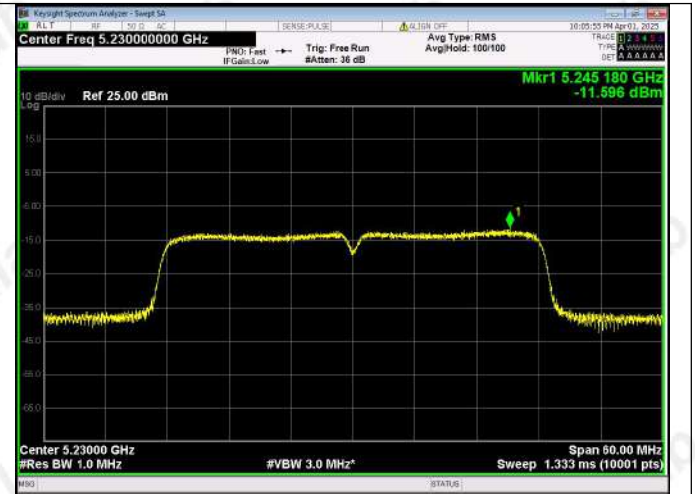
Type	Bands	Channel	Power Spectral Density (dBm/500KHz)	Limit (dBm/500KHz)	Result
802.11a	U-NII 3	149	-9.718	30	Pass
		157	-10.057		
		165	-9.738		
802.11n (HT20)	U-NII 3	149	-8.559		
		157	-8.605		
		165	-8.865		
802.11n (HT40)	U-NII 3	151	-14.207		
		159	-14.920		
802.11ac (HT20)	U-NII 3	149	-8.582		
		157	-8.950		
		165	-8.783		
802.11ac (HT40)	U-NII 3	151	-13.976		
		159	-15.149		
802.11ac (HT80)	U-NII 3	155	-15.773		

Test plot as follows:

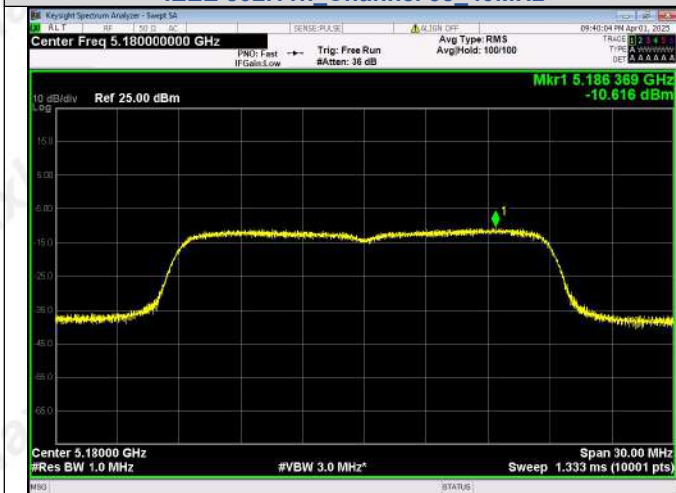




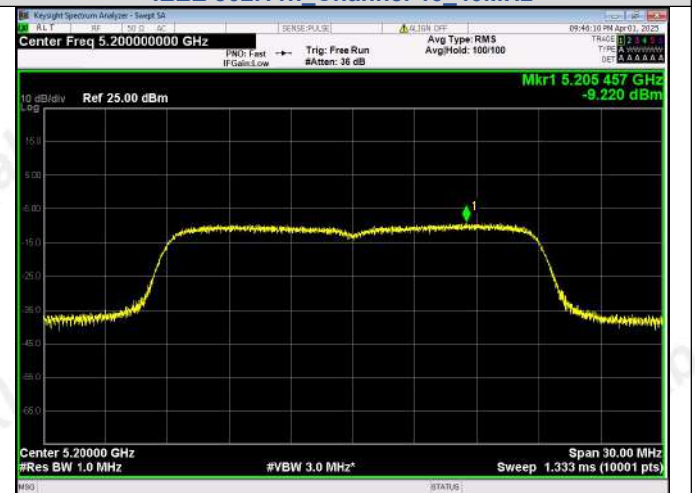
IEEE 802.11n Channel 38 40MHz



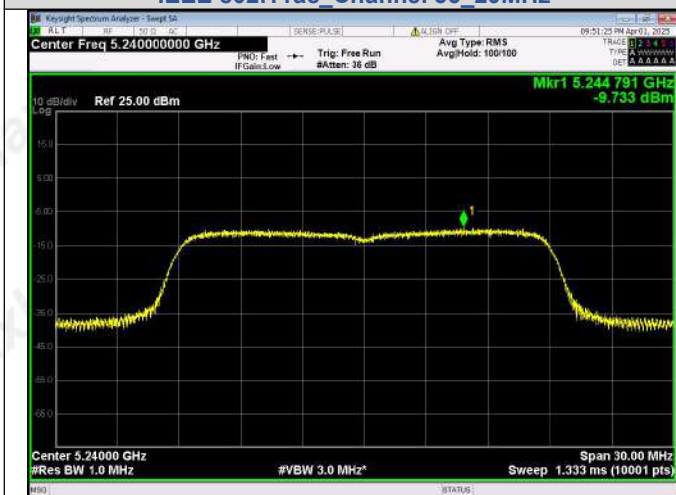
IEEE 802.11n Channel 46 40MHz



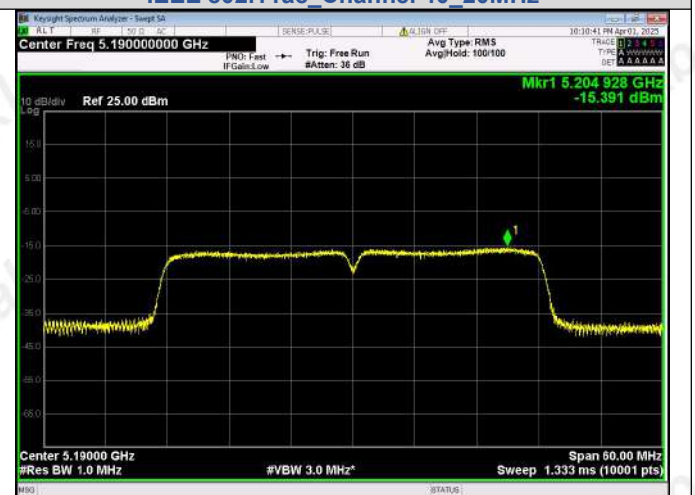
IEEE 802.11ac Channel 36 20MHz



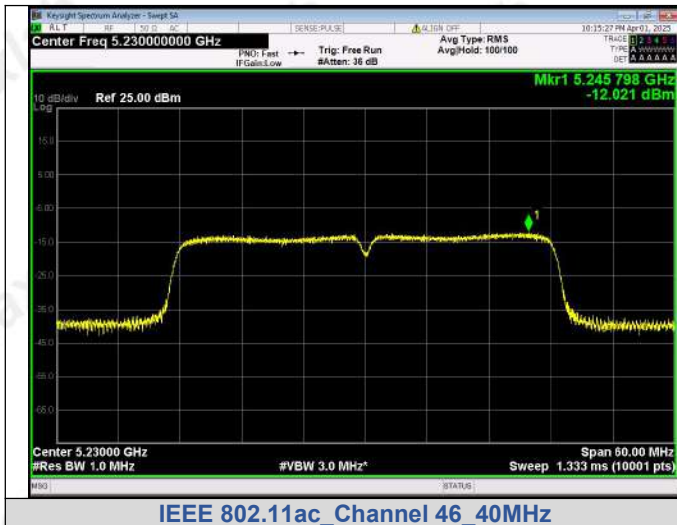
IEEE 802.11ac Channel 40 20MHz



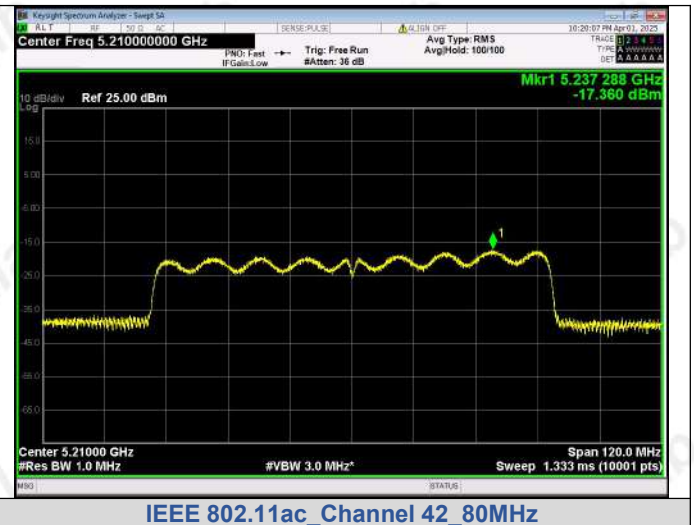
IEEE 802.11ac Channel 48 20MHz



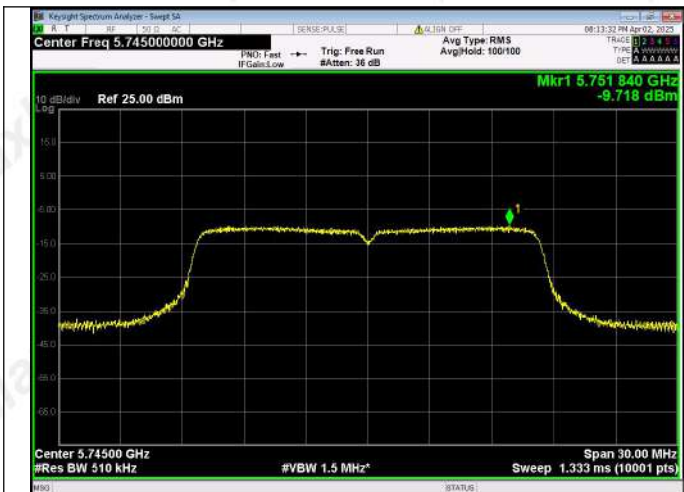
IEEE 802.11ac Channel 38 40MHz



IEEE 802.11ac_Channel 46_40MHz



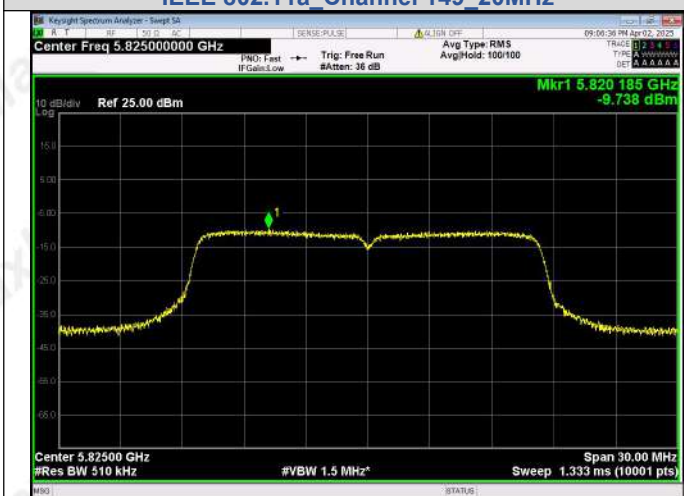
IEEE 802.11ac_Channel 42_80MHz



IEEE 802.11a_Channel 149_20MHz



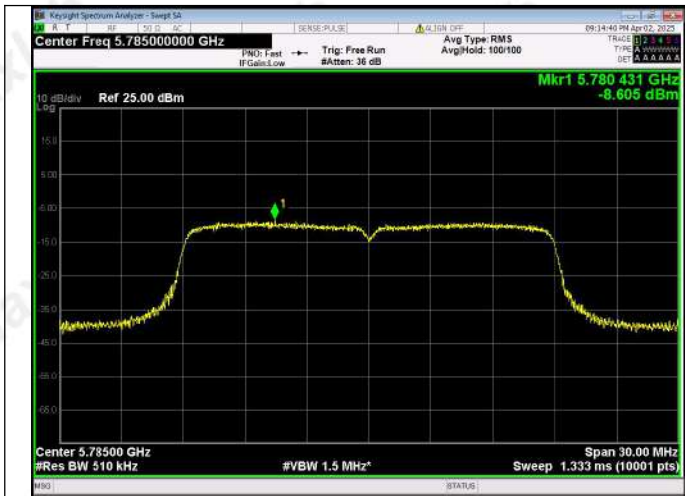
IEEE 802.11a_Channel 157_20MHz



IEEE 802.11a_Channel 165_20MHz



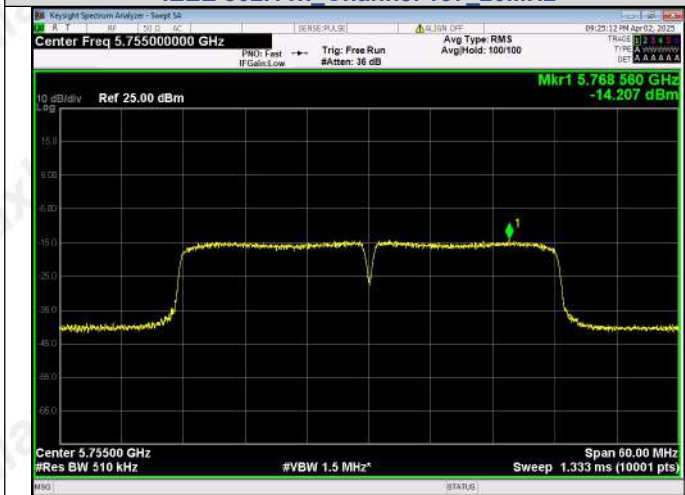
IEEE 802.11n_Channel 149_20MHz



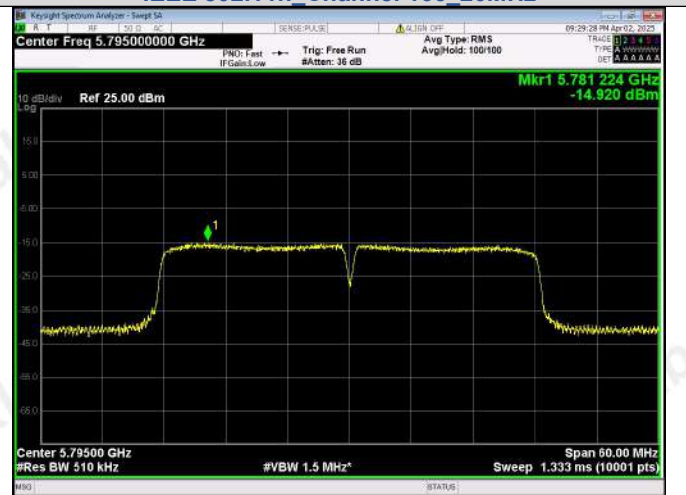
IEEE 802.11n Channel 157 20MHz



IEEE 802.11n Channel 165 20MHz



IEEE 802.11n Channel 151 40MHz



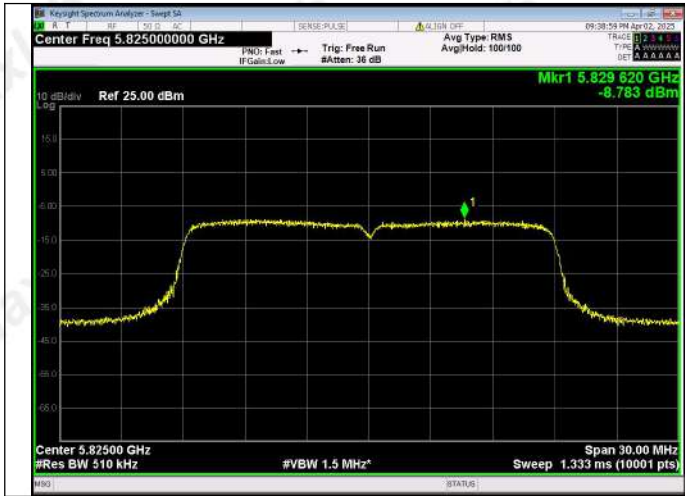
IEEE 802.11n Channel 159 40MHz



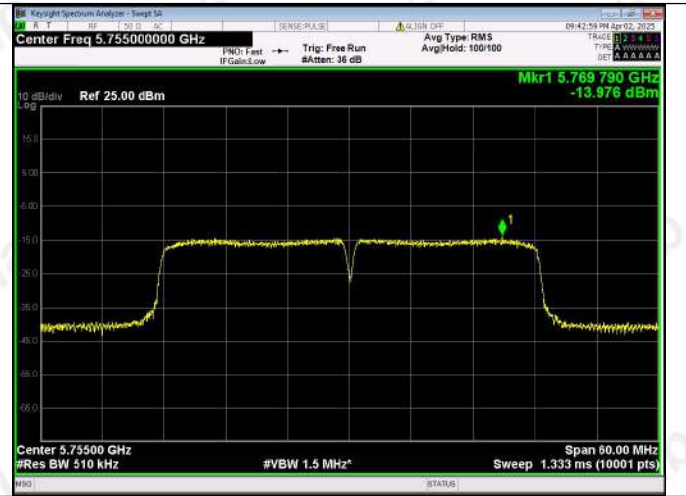
IEEE 802.11ac Channel 149 20MHz



IEEE 802.11ac Channel 157 20MHz



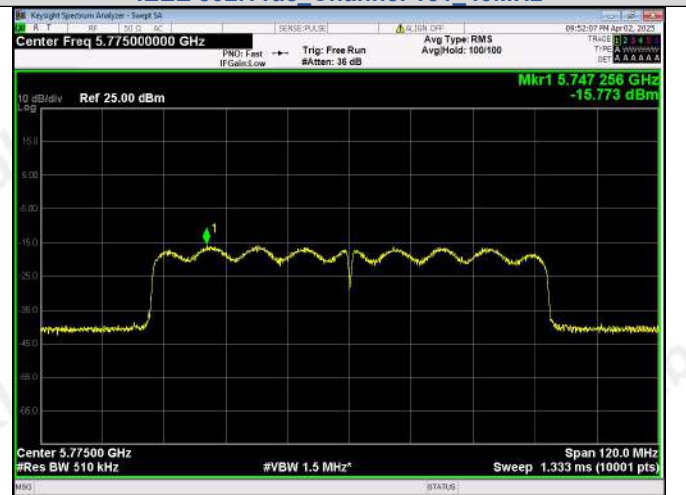
IEEE 802.11ac_Channel 165_20MHz



IEEE 802.11ac_Channel 151_40MHz



IEEE 802.11ac_Channel 159_40MHz



IEEE 802.11ac_Channel 155_80MHz

4.5 Emission Bandwidth (26dBm Bandwidth)

Limit

N/A

Test Procedure

1. Set resolution bandwidth (RBW) = approximately 1 % of the EBW.
2. Set the video bandwidth (VBW) > RBW.
3. Detector = Peak.
4. Trace mode = Max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW / EBW ratio is approximately 1 %.

Test Configuration

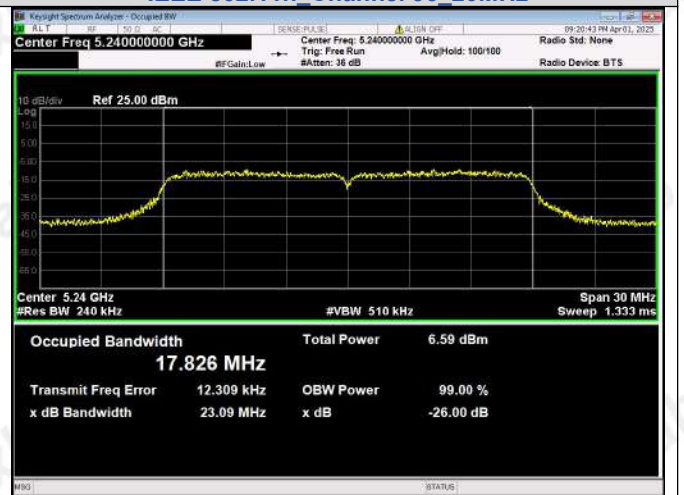
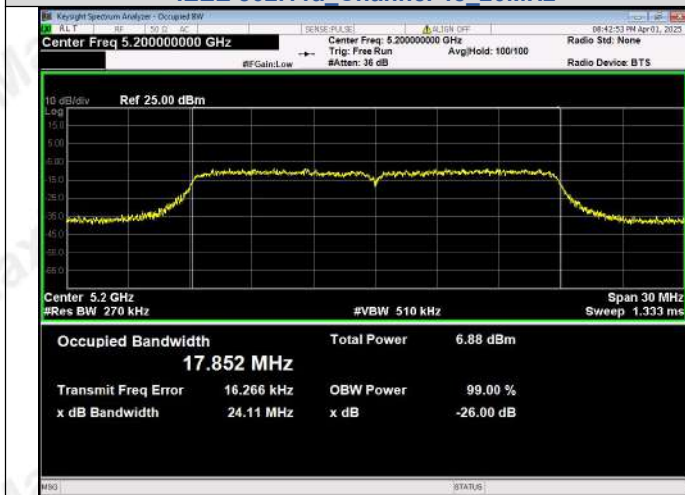
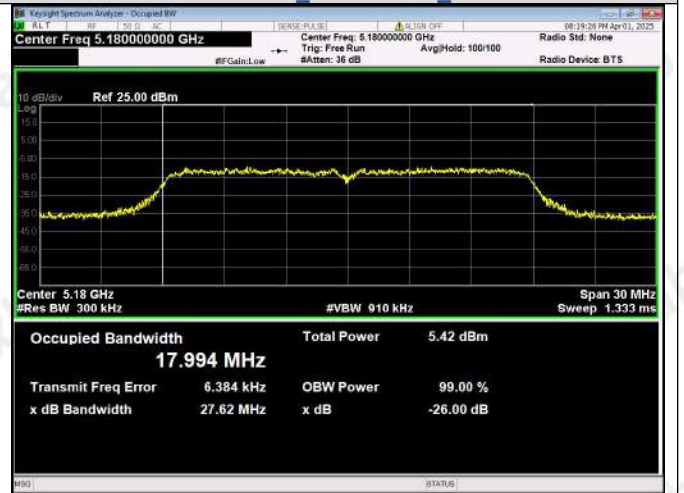
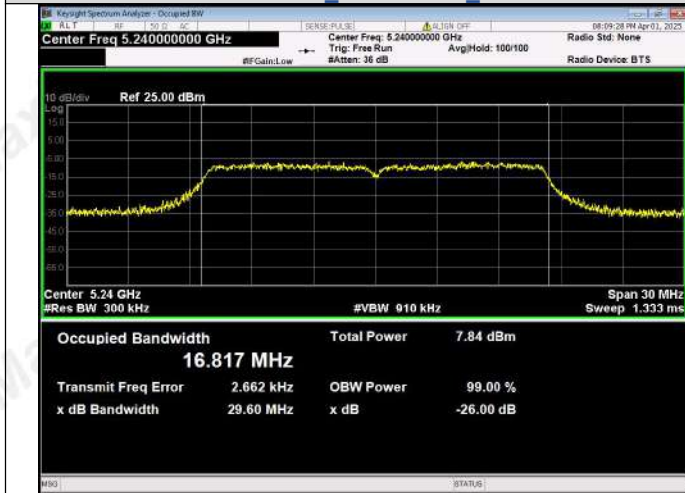
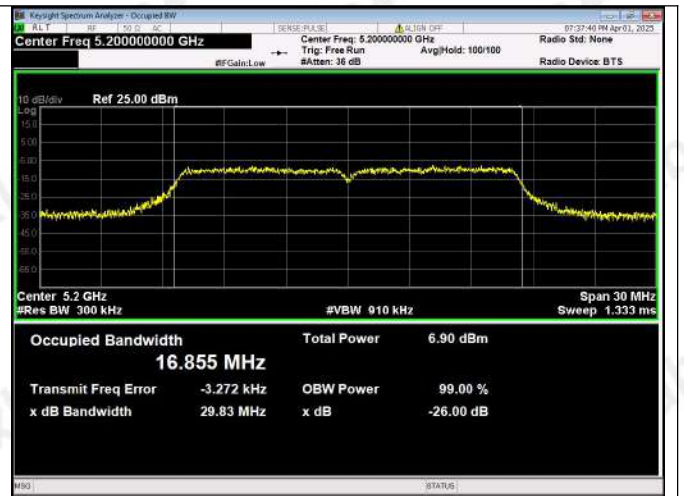
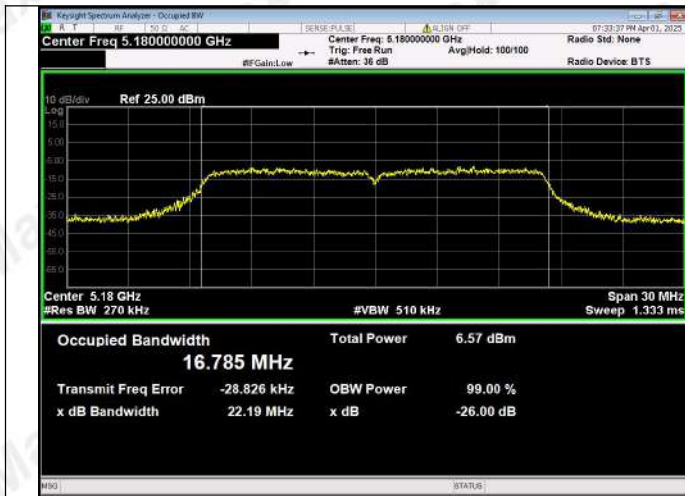


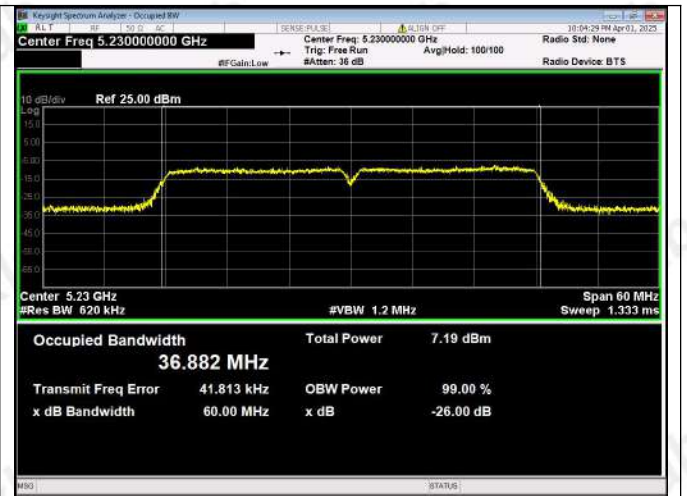
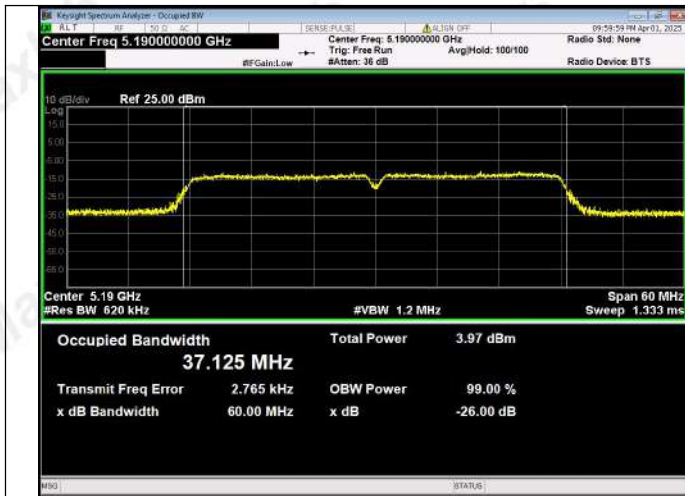
Test Results

Type	Bands	Channel	26dB Bandwidth (MHz)	Result
802.11a	U-NII 1	36	22.19	Pass
		40	29.83	
		48	29.60	
802.11n(HT20)	U-NII 1	36	27.62	
		40	24.11	
		48	23.09	
802.11n(HT40)	U-NII 1	38	60.00	
		46	60.00	
802.11ac(HT20)	U-NII 1	36	25.05	
		40	22.73	
		48	23.02	
802.11ac(HT40)	U-NII 1	38	60.00	
		46	60.00	
802.11ac(HT80)	U-NII 1	42	120.00	

Type	Bands	Channel	26dB Bandwidth (MHz)	Result
802.11a	U-NII 3	149	29.50	Pass
		157	29.42	
		165	28.66	
802.11n(HT20)	U-NII 3	149	22.45	
		157	21.99	
		165	23.12	
802.11n(HT40)	U-NII 3	151	59.95	
		159	59.97	
802.11ac(HT20)	U-NII 3	149	21.81	
		157	21.77	
		165	21.62	
802.11ac(HT40)	U-NII 3	151	60.00	
		159	60.00	
802.11ac(HT80)	U-NII 3	155	120.00	

Test plot as follows:





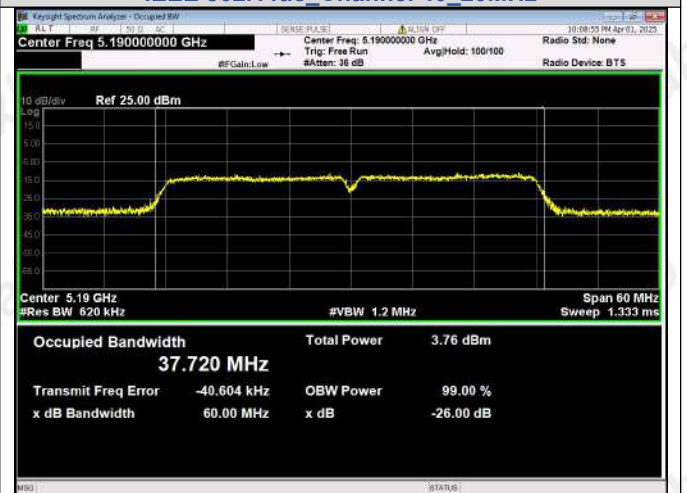
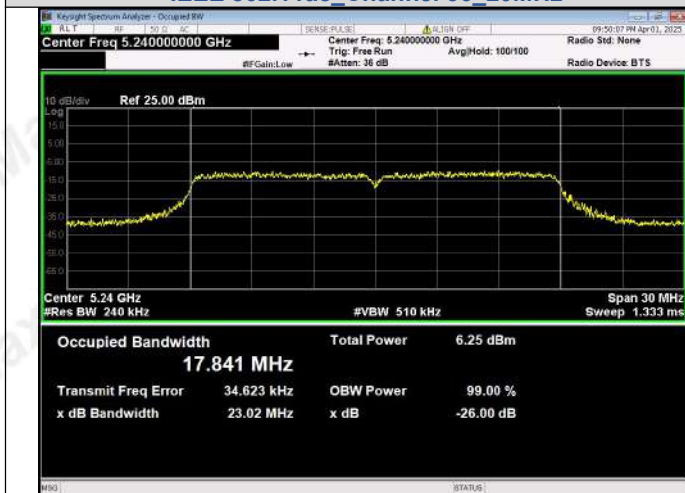
IEEE 802.11n Channel 38 40MHz

IEEE 802.11n Channel 46 40MHz



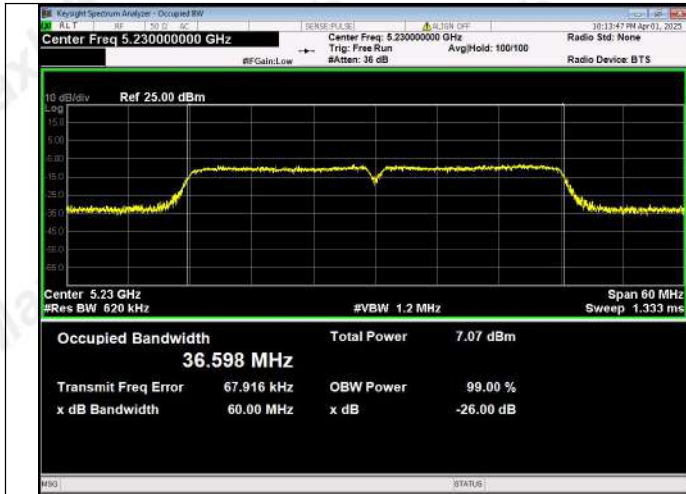
IEEE 802.11ac Channel 36 20MHz

IEEE 802.11ac Channel 40 20MHz

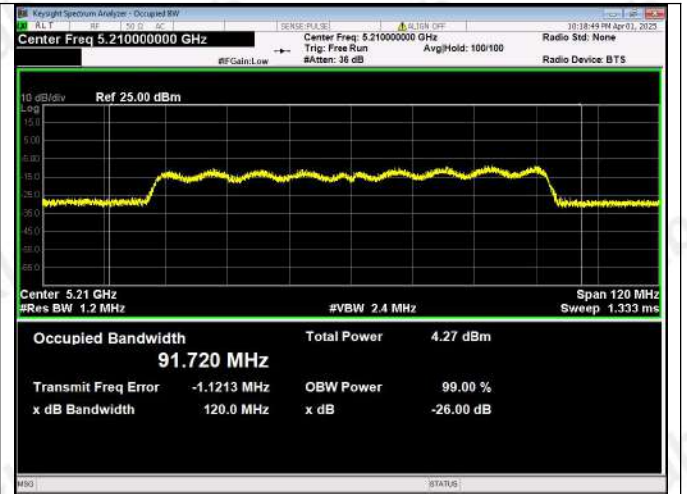


IEEE 802.11ac Channel 48 20MHz

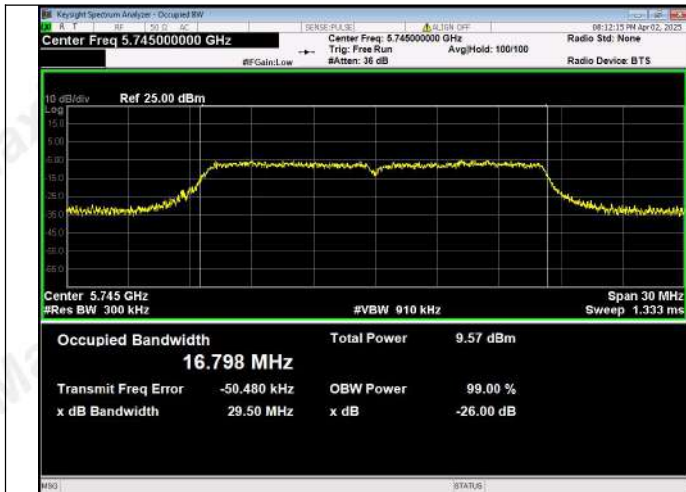
IEEE 802.11ac Channel 38 40MHz



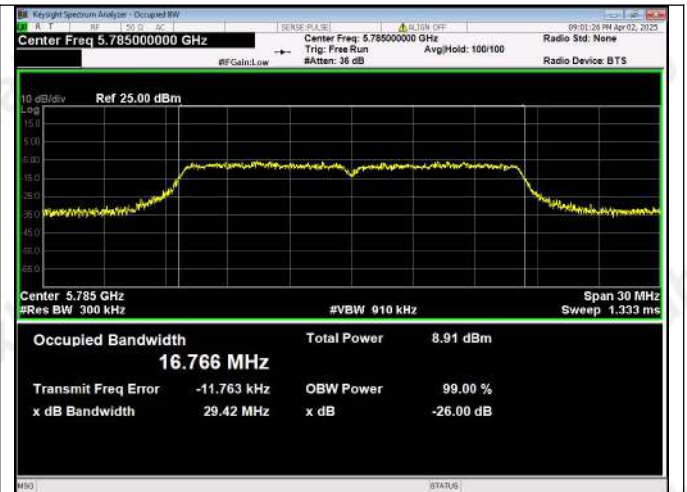
IEEE 802.11ac_Channel 46_40MHz



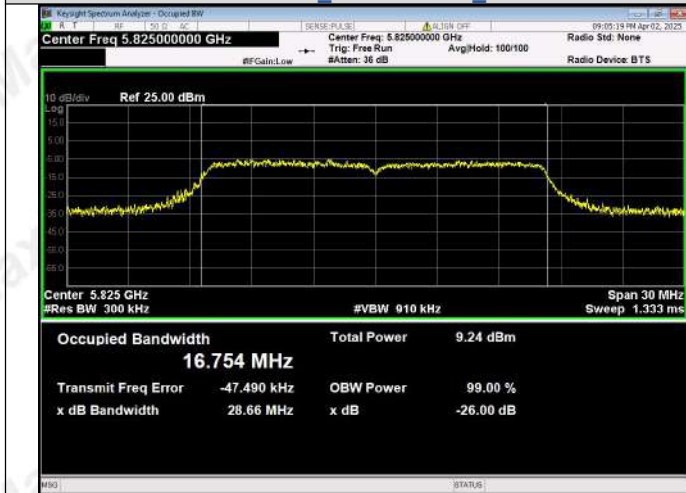
IEEE 802.11ac_Channel 42_80MHz



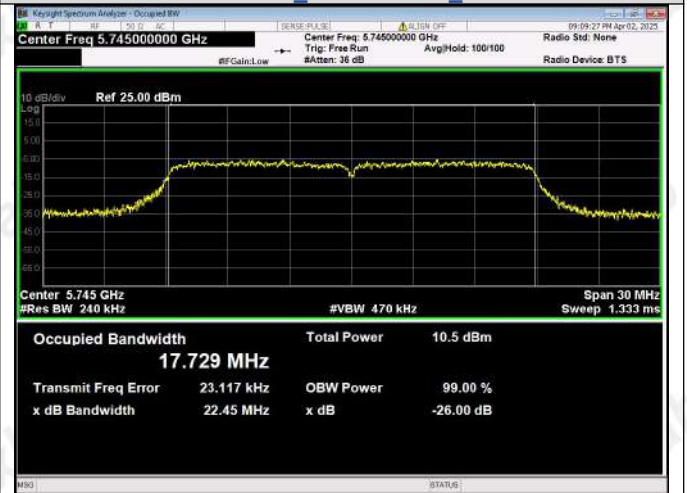
IEEE 802.11a_Channel 149_20MHz



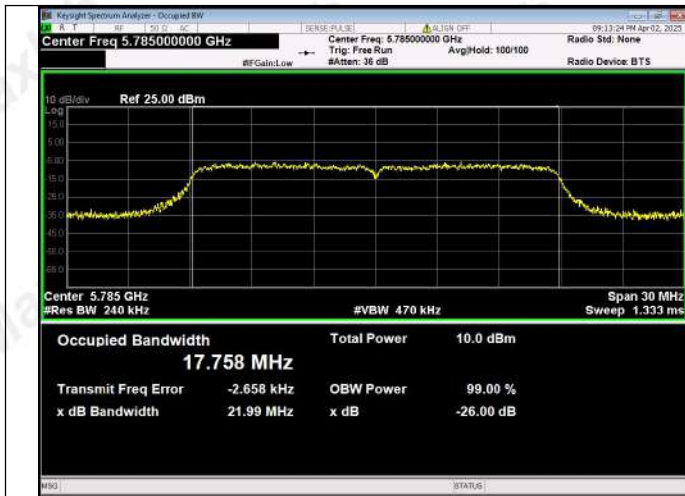
IEEE 802.11a_Channel 157_20MHz



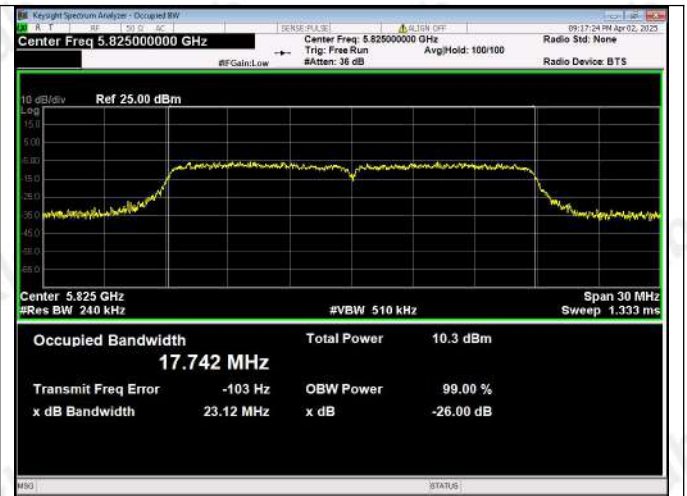
IEEE 802.11a_Channel 165_20MHz



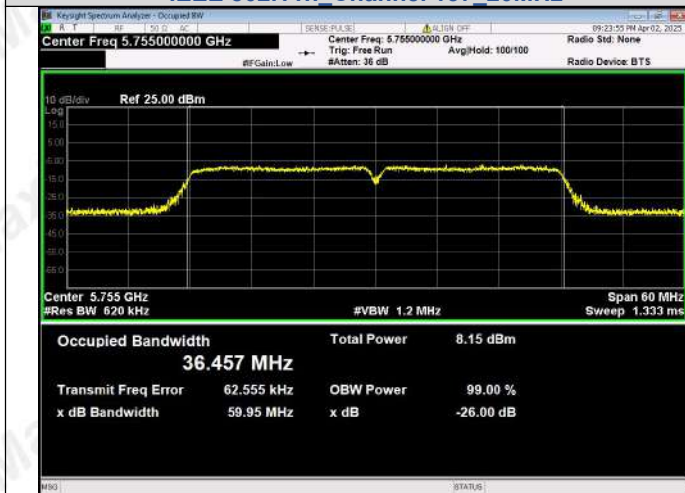
IEEE 802.11n_Channel 149_20MHz



IEEE 802.11n Channel 157 20MHz



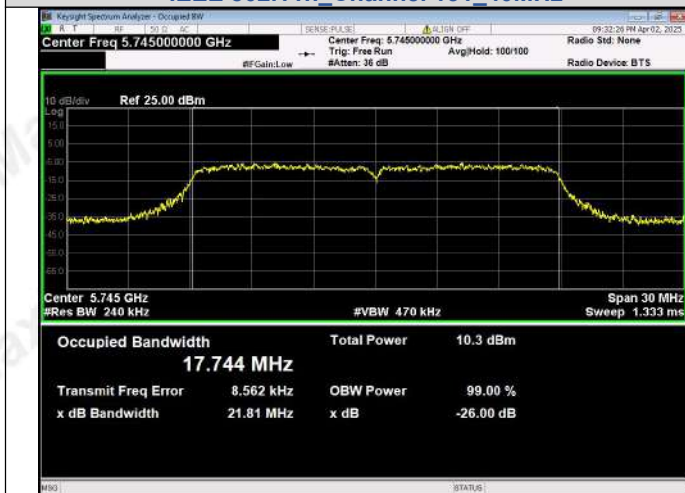
IEEE 802.11n Channel 165 20MHz



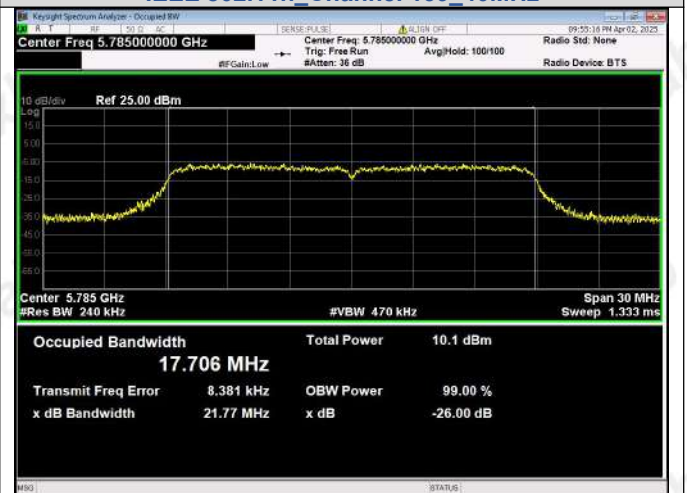
IEEE 802.11n Channel 151 40MHz



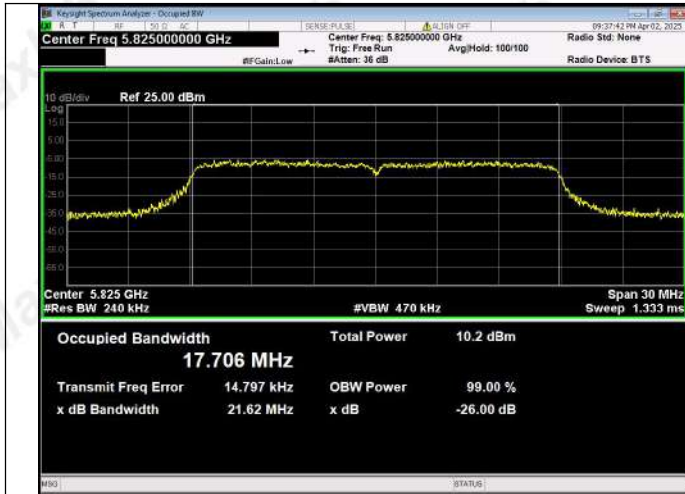
IEEE 802.11n Channel 159 40MHz



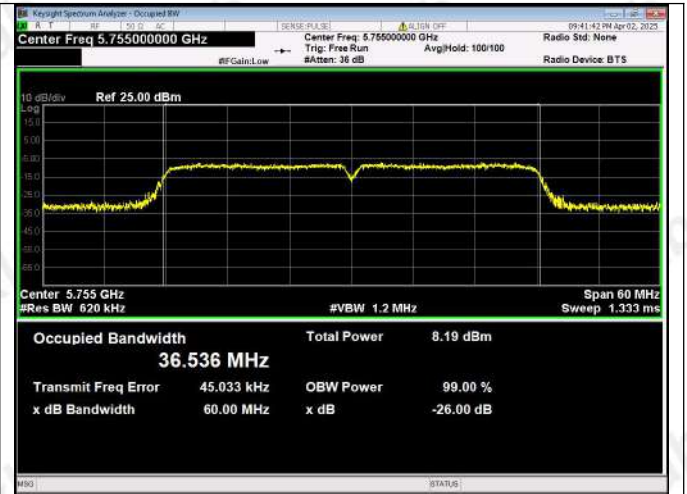
IEEE 802.11ac Channel 149 20MHz



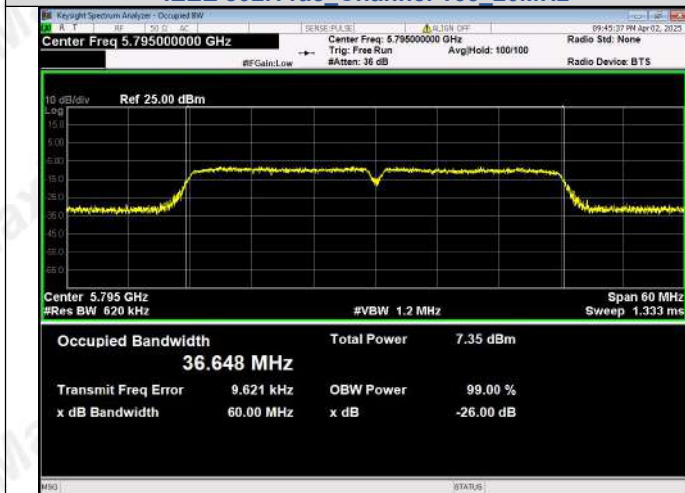
IEEE 802.11ac Channel 157 20MHz



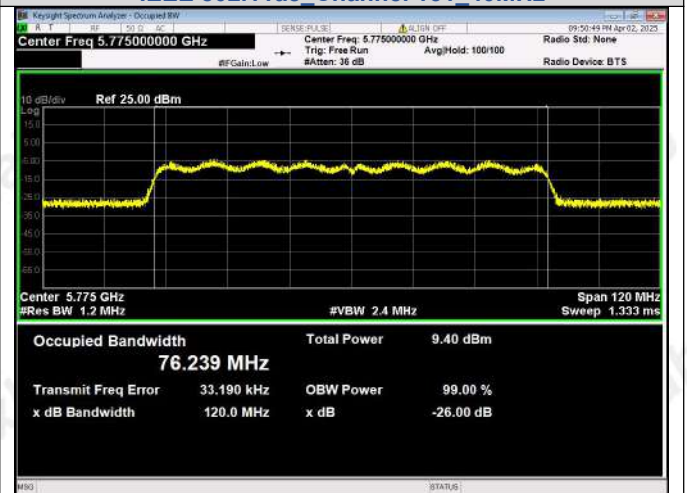
IEEE 802.11ac_Channel 165_20MHz



IEEE 802.11ac_Channel 151_40MHz



IEEE 802.11ac_Channel 159_40MHz



IEEE 802.11ac_Channel 155_80MHz

4.6 Minimum Emission Bandwidth (6dBm Bandwidth)

Limit

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Procedure

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth 3 x RBW.
3. Detector = Peak.
4. Trace mode = Max hold.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

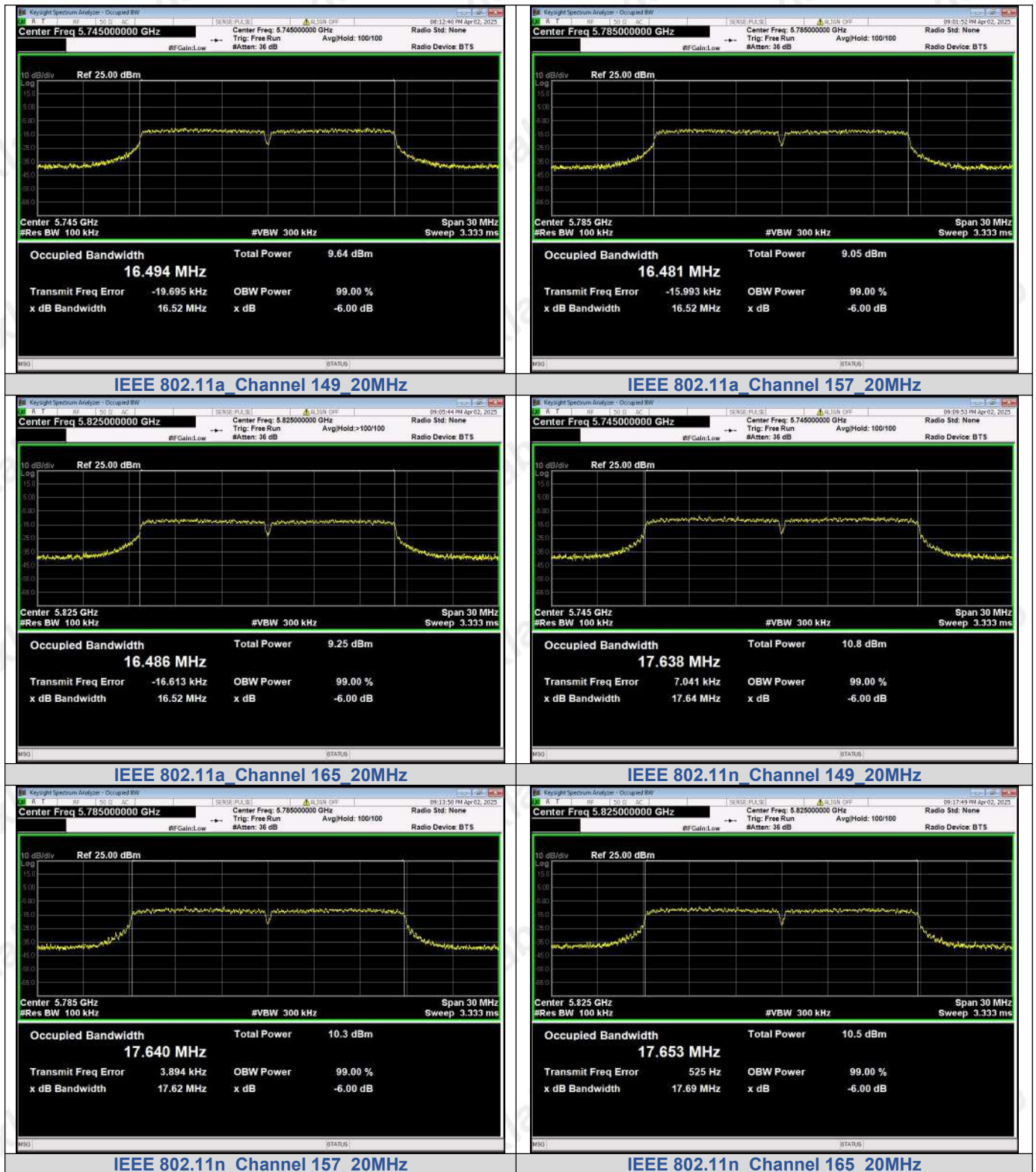
Test Configuration

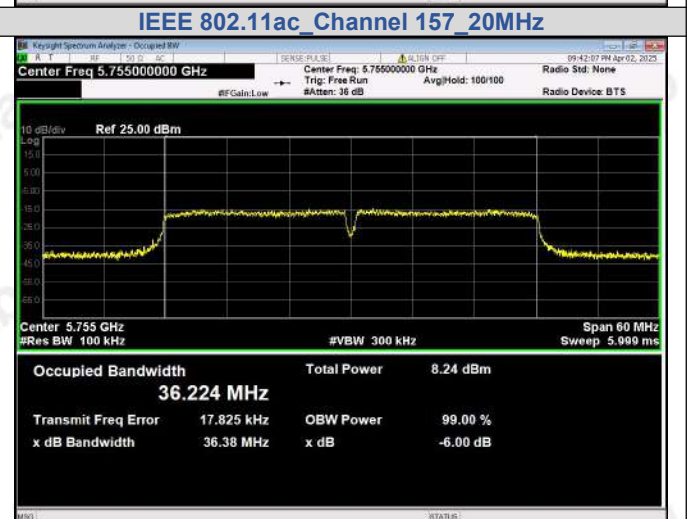
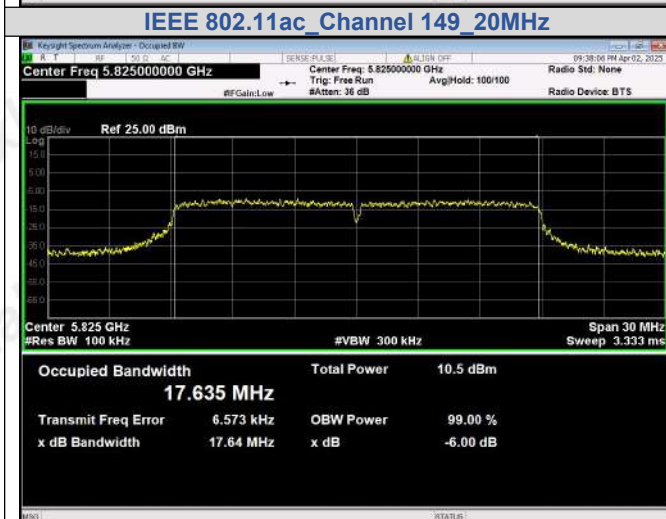
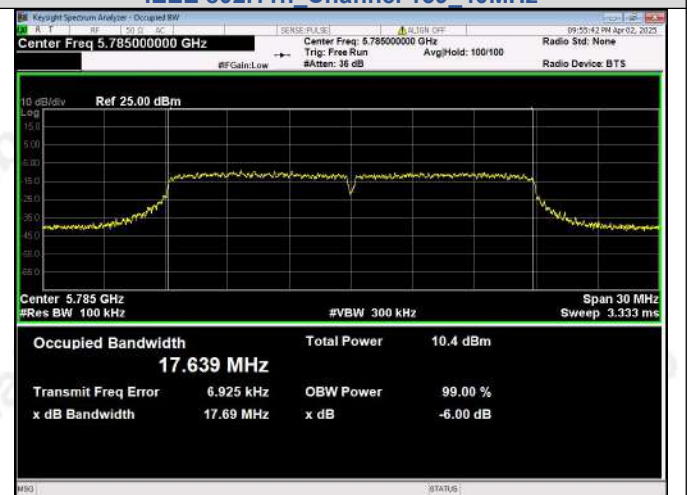
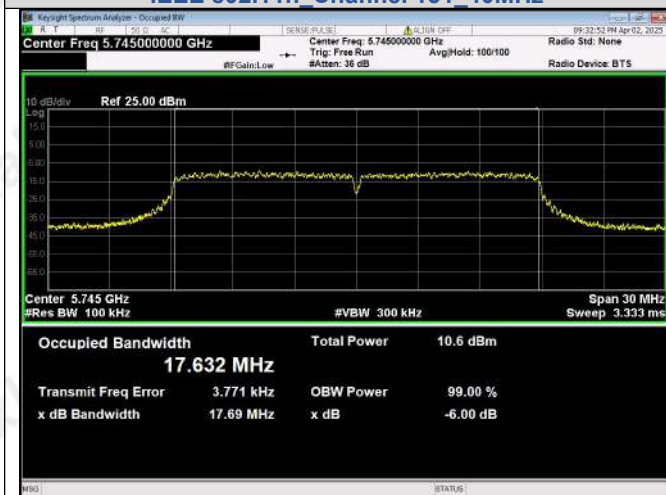
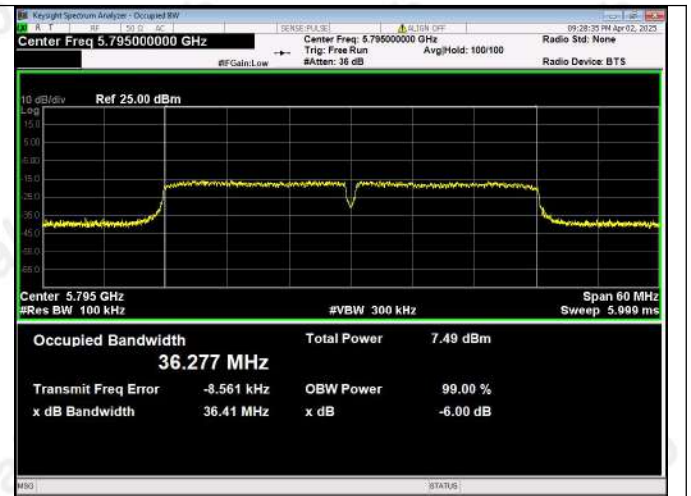
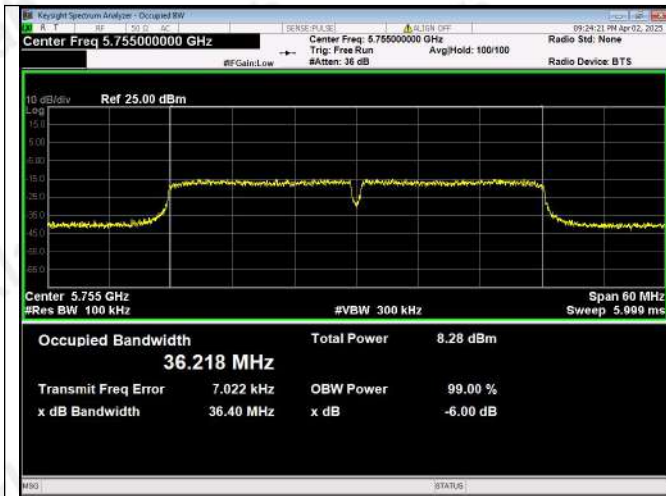


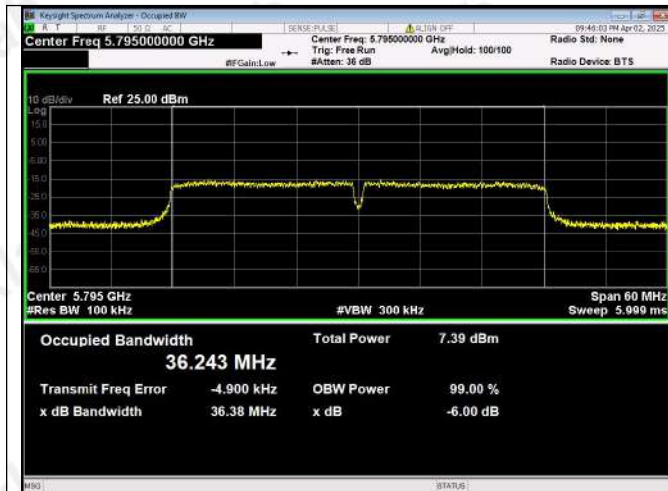
Test Results

Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.52	≥500KHz	Pass
		157	16.52		
		165	16.52		
802.11n(HT20)	U-NII 3	149	17.64		
		157	17.62		
		165	17.69		
802.11n(HT40)	U-NII 3	151	36.40		
		159	36.41		
802.11ac(HT20)	U-NII 3	149	17.69		
		157	17.69		
		165	17.64		
802.11ac(HT40)	U-NII 3	151	36.38		
		159	36.38		
802.11ac(HT80)	U-NII 3	155	75.96		

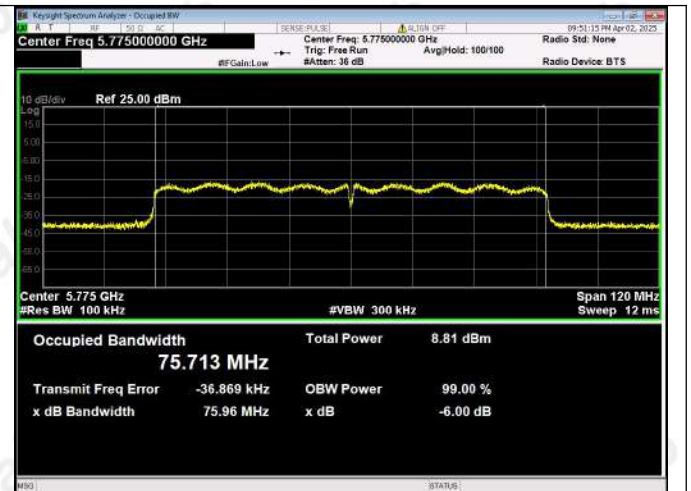
Test plot as follows:







IEEE 802.11ac Channel 159 40MHz



IEEE 802.11ac Channel 155 80MHz

4.7 Conducted Out Of Band Emission

4.7.1 Applicable Standard

According to FCC §15.407(b)

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(2) For transmitters operating in the 5.725-5.850 GHz band: 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.

4.7.2 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.

4.7.3 DEVIATION FROM STANDARD

No deviation.

4.7.4 TEST SETUP



4.7.5 EUT OPERATION CONDITIONS

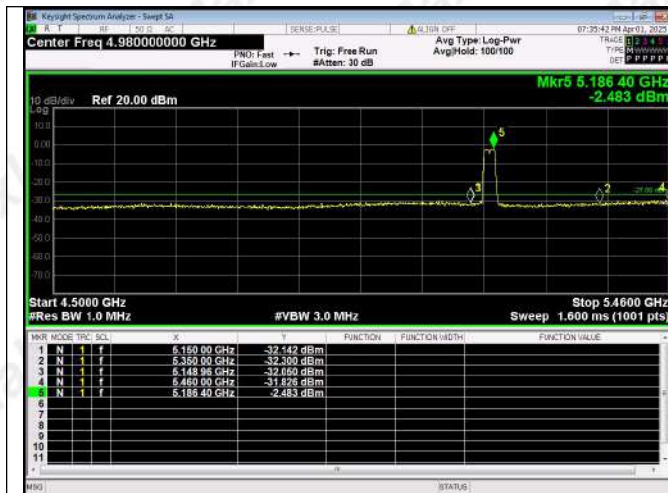
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

4.7.6 TEST RESULTS

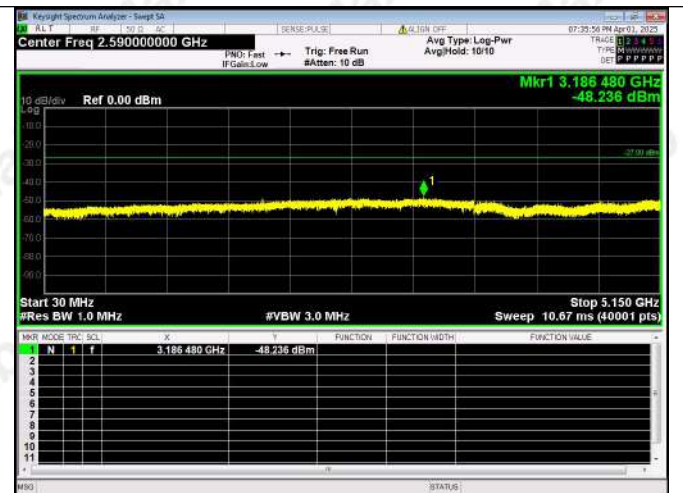
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1012 hPa	Test Voltage :	AC 120V/60Hz

Mode	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
IEEE 802.11a	36	3186.48	-48.236	-27	-21.240	PASS
		5148.96	-32.050	-27	-5.000	PASS
		5150.00	-32.142	-27	-5.000	PASS
		5350.00	-32.300	-27	-5.000	PASS
		5460.00	-31.826	-27	-5.000	PASS
		24607.5	-40.837	-27	-13.840	PASS
	40	5057.33	-48.736	-27	-21.740	PASS
		5148.96	-31.502	-27	-5.000	PASS
		5150.00	-31.770	-27	-5.000	PASS
		5350.00	-31.709	-27	-5.000	PASS
		5460.00	-31.136	-27	-4.000	PASS
		21274.4	-41.199	-27	-14.200	PASS
	48	1849.39	-47.749	-27	-20.750	PASS
		5149.92	-30.973	-27	-4.000	PASS
		5150.00	-30.973	-27	-4.000	PASS
		5350.00	-31.298	-27	-4.000	PASS
		5460.00	-30.847	-27	-4.000	PASS
		21245.4	-40.831	-27	-13.830	PASS
IEEE 802.11n_20	36	3205.68	-48.669	-27	-21.670	PASS
		5147.04	-31.735	-27	-5.000	PASS
		5150.00	-31.900	-27	-5.000	PASS
		5350.00	-32.414	-27	-5.000	PASS
		5460.00	-31.769	-27	-5.000	PASS
		24708.7	-41.907	-27	-14.910	PASS
	40	5140.91	-49.045	-27	-22.050	PASS
		5148.96	-31.186	-27	-4.000	PASS
		5150.00	-32.592	-27	-6.000	PASS
		5350.00	-32.039	-27	-5.000	PASS
		5460.00	-31.702	-27	-5.000	PASS
		21317.1	-41.787	-27	-14.790	PASS
	48	5029.04	-49.134	-27	-22.130	PASS
		5149.92	-32.342	-27	-5.000	PASS
		5150.00	-32.342	-27	-5.000	PASS
		5350.00	-31.592	-27	-5.000	PASS
		5460.00	-31.186	-27	-4.000	PASS
		21271.4	-41.465	-27	-14.470	PASS
IEEE 802.11n_40	38	5149.49	-48.312	-27	-21.310	PASS
		5149.92	-31.795	-27	-5.000	PASS
		5150.00	-31.795	-27	-5.000	PASS
		5350.00	-32.288	-27	-5.000	PASS
		5460.00	-30.758	-27	-4.000	PASS
		21280.7	-41.557	-27	-14.560	PASS
	46	3170.10	-48.035	-27	-21.030	PASS
		5146.08	-31.410	-27	-4.000	PASS
		5150.00	-31.534	-27	-5.000	PASS
		5350.00	-31.849	-27	-5.000	PASS
		5460.00	-30.662	-27	-4.000	PASS
		24626.7	-41.032	-27	-14.030	PASS
IEEE 802.11ac_20	36	5145.01	-48.964	-27	-21.960	PASS
		5148.96	-31.975	-27	-5.000	PASS
		5150.00	-32.482	-27	-5.000	PASS
		5350.00	-33.121	-27	-6.000	PASS

		5460.00	-30.840	-27	-4.000	PASS
		24212.0	-41.934	-27	-14.930	PASS
	40	5091.25	-48.487	-27	-21.490	PASS
		5148.96	-31.327	-27	-4.000	PASS
		5150.00	-31.455	-27	-4.000	PASS
		5350.00	-30.830	-27	-4.000	PASS
		5460.00	-30.602	-27	-4.000	PASS
		24176.2	-41.106	-27	-14.110	PASS
		5110.45	-48.344	-27	-21.340	PASS
	48	5147.04	-31.167	-27	-4.000	PASS
		5150.00	-31.585	-27	-5.000	PASS
		5350.00	-31.586	-27	-5.000	PASS
		5460.00	-31.104	-27	-4.000	PASS
		21277.3	-41.111	-27	-14.110	PASS
IEEE 802.11ac_40	38	5148.46	-47.051	-27	-20.050	PASS
		5149.92	-33.663	-27	-7.000	PASS
		5150.00	-33.664	-27	-7.000	PASS
		5350.00	-33.166	-27	-6.000	PASS
		5460.00	-32.229	-27	-5.000	PASS
	46	24609.9	-41.959	-27	-14.960	PASS
		2706.35	-49.482	-27	-22.480	PASS
		5149.92	-33.117	-27	-6.000	PASS
		5150.00	-33.117	-27	-6.000	PASS
		5350.00	-32.853	-27	-6.000	PASS
		5460.00	-32.295	-27	-5.000	PASS
		24211.1	-42.545	-27	-15.550	PASS
	42	5115.44	-47.114	-27	-20.110	PASS
		5149.92	-33.491	-27	-6.000	PASS
5150.00		-33.491	-27	-6.000	PASS	
5350.00		-33.726	-27	-7.000	PASS	
5460.00		-32.733	-27	-6.000	PASS	
24807.4		-42.447	-27	-15.450	PASS	



Out Of Band Emission
IEEE 802.11a_Channel 36_20MHz



Spurious Emission:30.0~5150 MHz
IEEE 802.11a_Channel 36_20MHz

Center Freq 4.980000000 GHz

Start 4.50000 GHz Stop 5.46000 GHz

#Res BW 1.0 MHz #VBW 3.0 MHz Sweep 1.000 ms (1001 pts)

Mkr5 5.20560 GHz -1.551 dBm

NR	MODE	TRF	SOL	F	FUNCTION	FUNCTION VALUE	FUNCTION VALUE
1	N	1	f	6.160 00 GHz	-31.770 dBm		
2	N	1	f	6.350 00 GHz	-31.709 dBm		
3	N	1	f	6.148 96 GHz	-31.602 dBm		
4	N	1	f	6.480 00 GHz	-31.135 dBm		
5	N	1	f	6.205 60 GHz	-1.551 dBm		

Keysight Spectrum Analyzer - Sweep SA
 ALT: [F1] [F2] [F3] [F4] [F5] [F6] [F7] [F8] [F9] [F10] [F11] [F12] [F13] [F14] [F15] [F16] [F17] [F18] [F19] [F20] [F21] [F22] [F23] [F24] [F25] [F26] [F27] [F28] [F29] [F30] [F31] [F32] [F33] [F34] [F35] [F36] [F37] [F38] [F39] [F40] [F41] [F42] [F43] [F44] [F45] [F46] [F47] [F48] [F49] [F50] [F51] [F52] [F53] [F54] [F55] [F56] [F57] [F58] [F59] [F60] [F61] [F62] [F63] [F64] [F65] [F66] [F67] [F68] [F69] [F70] [F71] [F72] [F73] [F74] [F75] [F76] [F77] [F78] [F79] [F80] [F81] [F82] [F83] [F84] [F85] [F86] [F87] [F88] [F89] [F90] [F91] [F92] [F93] [F94] [F95] [F96] [F97] [F98] [F99] [F100] [F101] [F102] [F103] [F104] [F105] [F106] [F107] [F108] [F109] [F110] [F111] [F112] [F113] [F114] [F115] [F116] [F117] [F118] [F119] [F120] [F121] [F122] [F123] [F124] [F125] [F126] [F127] [F128] [F129] [F130] [F131] [F132] [F133] [F134] [F135] [F136] [F137] [F138] [F139] [F140] [F141] [F142] [F143] [F144] [F145] [F146] [F147] [F148] [F149] [F150] [F151] [F152] [F153] [F154] [F155] [F156] [F157] [F158] [F159] [F160] [F161] [F162] [F163] [F164] [F165] [F166] [F167] [F168] [F169] [F170] [F171] [F172] [F173] [F174] [F175] [F176] [F177] [F178] [F179] [F180] [F181] [F182] [F183] [F184] [F185] [F186] [F187] [F188] [F189] [F190] [F191] [F192] [F193] [F194] [F195] [F196] [F197] [F198] [F199] [F200] [F201] [F202] [F203] [F204] [F205] [F206] [F207] [F208] [F209] [F210] [F211] [F212] [F213] [F214] [F215] [F216] [F217] [F218] [F219] [F220] [F221] [F222] [F223] [F224] [F225] [F226] [F227] [F228] [F229] [F230] [F231] [F232] [F233] [F234] [F235] [F236] [F237] [F238] [F239] [F240] [F241] [F242] [F243] [F244] [F245] [F246] [F247] [F248] [F249] [F250] [F251] [F252] [F253] [F254] [F255] [F256] [F257] [F258] [F259] [F260] [F261] [F262] [F263] [F264] [F265] [F266] [F267] [F268] [F269] [F270] [F271] [F272] [F273] [F274] [F275] [F276] [F277] [F278] [F279] [F280] [F281] [F282] [F283] [F284] [F285] [F286] [F287] [F288] [F289] [F290] [F291] [F292] [F293] [F294] [F295] [F296] [F297] [F298] [F299] [F300] [F301] [F302] [F303] [F304] [F305] [F306] [F307] [F308] [F309] [F310] [F311] [F312] [F313] [F314] [F315] [F316] [F317] [F318] [F319] [F320] [F321] [F322] [F323] [F324] [F325] [F326] [F327] [F328] [F329] [F330] [F331] [F332] [F333] [F334] [F335] [F336] [F337] [F338] [F339] [F340] [F341] [F342] [F343] [F344] [F345] [F346] [F347] [F348] [F349] [F350] [F351] [F352] [F353] [F354] [F355] [F356] [F357] [F358] [F359] [F360] [F361] [F362] [F363] [F364] [F365] [F366] [F367] [F368] [F369] [F370] [F371] [F372] [F373] [F374] [F375] [F376] [F377] [F378] [F379] [F380] [F381] [F382] [F383] [F384] [F385] [F386] [F387] [F388] [F389] [F390] [F391] [F392] [F393] [F394] [F395] [F396] [F397] [F398] [F399] [F400] [F401] [F402] [F403] [F404] [F405] [F406] [F407] [F408] [F409] [F410] [F411] [F412] [F413] [F414] [F415] [F416] [F417] [F418] [F419] [F420] [F421] [F422] [F423] [F424] [F425] [F426] [F427] [F428] [F429] [F430] [F431] [F432] [F433] [F434] [F435] [F436] [F437] [F438] [F439] [F440] [F441] [F442] [F443] [F444] [F445] [F446] [F447] [F448] [F449] [F450] [F451] [F452] [F453] [F454] [F455] [F456] [F457] [F458] [F459] [F460] [F461] [F462] [F463] [F464] [F465] [F466] [F467] [F468] [F469] [F470] [F471] [F472] [F473] [F474] [F475] [F476] [F477] [F478] [F479] [F480] [F481] [F482] [F483] [F484] [F485] [F486] [F487] [F488] [F489] [F490] [F491] [F492] [F493] [F494] [F495] [F496] [F497] [F498] [F499] [F500] [F501] [F502] [F503] [F504] [F505] [F506] [F507] [F508] [F509] [F510] [F511] [F512] [F513] [F514] [F515] [F516] [F517] [F518] [F519] [F520] [F521] [F522] [F523] [F524] [F525] [F526] [F527] [F528] [F529] [F530] [F531] [F532] [F533] [F534] [F535] [F536] [F537] [F538] [F539] [F540] [F541] [F542] [F543] [F544] [F545] [F546] [F547] [F548] [F549] [F550] [F551] [F552] [F553] [F554] [F555] [F556] [F557] [F558] [F559] [F560] [F561] [F562] [F563] [F564] [F565] [F566] [F567] [F568] [F569] [F570] [F571] [F572] [F573] [F574] [F575] [F576] [F577] [F578] [F579] [F580] [F581] [F582] [F583] [F584] [F585] [F586] [F587] [F588] [F589] [F590] [F591] [F592] [F593] [F594] [F595] [F596] [F597] [F598] [F599] [F600] [F601] [F602] [F603] [F604] [F605] [F606] [F607] [F608] [F609] [F610] [F611] [F612] [F613] [F614] [F615] [F616] [F617] [F618] [F619] [F620] [F621] [F622] [F623] [F624] [F625] [F626] [F627] [F628] [F629] [F630] [F631] [F632] [F633] [F634] [F635] [F636] [F637] [F638] [F639] [F640] [F641] [F642] [F643] [F644] [F645] [F646] [F647] [F648] [F649] [F650] [F651] [F652] [F653] [F654] [F655] [F656] [F657] [F658] [F659] [F660] [F661] [F662] [F663] [F664] [F665] [F666] [F667] [F668] [F669] [F670] [F671] [F672] [F673] [F674] [F675] [F676] [F677] [F678] [F679] [F680] [F681] [F682] [F683] [F684] [F685] [F686] [F687] [F

BK: Keysight Spectrum Analyzer - Sweep SA
 ALT: F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F26 F27 F28 F29 F30 F31 F32 F33 F34 F35 F36 F37 F38 F39 F40 F41 F42 F43 F44 F45 F46 F47 F48 F49 F50 F51 F52 F53 F54 F55 F56 F57 F58 F59 F60 F61 F62 F63 F64 F65 F66 F67 F68 F69 F70 F71 F72 F73 F74 F75 F76 F77 F78 F79 F80 F81 F82 F83 F84 F85 F86 F87 F88 F89 F90 F91 F92 F93 F94 F95 F96 F97 F98 F99 F100 F101 F102 F103 F104 F105 F106 F107 F108 F109 F110 F111 F112 F113 F114 F115 F116 F117 F118 F119 F120 F121 F122 F123 F124 F125 F126 F127 F128 F129 F130 F131 F132 F133 F134 F135 F136 F137 F138 F139 F140 F141 F142 F143 F144 F145 F146 F147 F148 F149 F150 F151 F152 F153 F154 F155 F156 F157 F158 F159 F160 F161 F162 F163 F164 F165 F166 F167 F168 F169 F170 F171 F172 F173 F174 F175 F176 F177 F178 F179 F180 F181 F182 F183 F184 F185 F186 F187 F188 F189 F190 F191 F192 F193 F194 F195 F196 F197 F198 F199 F200 F201 F202 F203 F204 F205 F206 F207 F208 F209 F210 F211 F212 F213 F214 F215 F216 F217 F218 F219 F220 F221 F222 F223 F224 F225 F226 F227 F228 F229 F230 F231 F232 F233 F234 F235 F236 F237 F238 F239 F240 F241 F242 F243 F244 F245 F246 F247 F248 F249 F250 F251 F252 F253 F254 F255 F256 F257 F258 F259 F260 F261 F262 F263 F264 F265 F266 F267 F268 F269 F270 F271 F272 F273 F274 F275 F276 F277 F278 F279 F280 F281 F282 F283 F284 F285 F286 F287 F288 F289 F290 F291 F292 F293 F294 F295 F296 F297 F298 F299 F300 F301 F302 F303 F304 F305 F306 F307 F308 F309 F310 F311 F312 F313 F314 F315 F316 F317 F318 F319 F320 F321 F322 F323 F324 F325 F326 F327 F328 F329 F330 F331 F332 F333 F334 F335 F336 F337 F338 F339 F340 F341 F342 F343 F344 F345 F346 F347 F348 F349 F350 F351 F352 F353 F354 F355 F356 F357 F358 F359 F360 F361 F362 F363 F364 F365 F366 F367 F368 F369 F370 F371 F372 F373 F374 F375 F376 F377 F378 F379 F380 F381 F382 F383 F384 F385 F386 F387 F388 F389 F390 F391 F392 F393 F394 F395 F396 F397 F398 F399 F400 F401 F402 F403 F404 F405 F406 F407 F408 F409 F410 F411 F412 F413 F414 F415 F416 F417 F418 F419 F420 F421 F422 F423 F424 F425 F426 F427 F428 F429 F430 F431 F432 F433 F434 F435 F436 F437 F438 F439 F440 F441 F442 F443 F444 F445 F446 F447 F448 F449 F450 F451 F452 F453 F454 F455 F456 F457 F458 F459 F460 F461 F462 F463 F464 F465 F466 F467 F468 F469 F470 F471 F472 F473 F474 F475 F476 F477 F478 F479 F480 F481 F482 F483 F484 F485 F486 F487 F488 F489 F490 F491 F492 F493 F494 F495 F496 F497 F498 F499 F500 F501 F502 F503 F504 F505 F506 F507 F508 F509 F510 F511 F512 F513 F514 F515 F516 F517 F518 F519 F520 F521 F522 F523 F524 F525 F526 F527 F528 F529 F530 F531 F532 F533 F534 F535 F536 F537 F538 F539 F540 F541 F542 F543 F544 F545 F546 F547 F548 F549 F550 F551 F552 F553 F554 F555 F556 F557 F558 F559 F560 F561 F562 F563 F564 F565 F566 F567 F568 F569 F570 F571 F572 F573 F574 F575 F576 F577 F578 F579 F580 F581 F582 F583 F584 F585 F586 F587 F588 F589 F590 F591 F592 F593 F594 F595 F596 F597 F598 F599 F600 F601 F602 F603 F604 F605 F606 F607 F608 F609 F610 F611 F612 F613 F614 F615 F616 F617 F618 F619 F620 F621 F622 F623 F624 F625 F626 F627 F628 F629 F630 F631 F632 F633 F634 F635 F636 F637 F638 F639 F640 F641 F642 F643 F644 F645 F646 F647 F648 F649 F650 F651 F652 F653 F654 F655 F656 F657 F658 F659 F660 F661 F662 F663 F664 F665 F666 F667 F668 F669 F670 F671 F672 F673 F674 F675 F676 F677 F678 F679 F680 F681 F682 F683 F684 F685 F686 F687 F688 F689 F690 F691 F692 F693 F694 F695 F696 F697 F698 F699 F700 F701 F702 F703 F704 F705 F706 F707 F708 F709 F710 F711 F712 F713 F714 F715 F716 F717 F718 F719 F720 F721 F722 F723 F724 F725 F726 F727 F728 F729 F730 F731 F732 F733 F734 F735 F736 F737 F738 F739 F740 F741 F742 F743 F744 F745 F746 F747 F748 F749 F750 F751 F752 F753 F754 F755 F756 F757 F758 F759 F760 F761 F762 F763 F764 F765 F766 F767 F768 F769 F770 F771 F772 F773 F774 F775 F776 F777 F778 F779 F780 F781 F782 F783 F784 F785 F786 F787 F788 F789 F790 F791 F792 F793 F794 F795 F796 F797 F798 F799 F800 F801 F802 F803 F804 F805 F806 F807 F808 F809 F810 F811 F812 F813 F814 F815 F816 F817 F818 F819 F820 F821 F822 F823 F824 F825 F826 F827 F828 F829 F830 F831 F832 F833 F834 F835 F836 F837 F838 F839 F840 F841 F842 F843 F844 F845 F846 F847 F848 F849 F850 F851 F852 F853 F854 F855 F856 F857 F858 F859 F860 F861 F862 F863 F864 F865 F866 F867 F868 F869 F870 F871 F872 F873 F874 F875 F876 F877 F878 F879 F880 F881 F882 F883 F884 F885 F886 F887 F888 F889 F890 F891 F892 F893 F894 F895 F896 F897 F898 F899 F900 F901 F902 F903 F904 F905 F906 F907 F908 F909 F910 F911 F912 F913 F914 F915 F916 F917 F918 F919 F920 F921 F922 F923 F924 F925 F926 F927 F928 F929 F930 F931 F932 F933 F934 F935 F936 F937 F938 F939 F940 F941 F942 F943 F944 F945 F946 F947 F948 F949 F950 F951 F952 F953 F954 F955 F956 F957 F958 F959 F960 F961 F962 F963 F964 F965 F966 F967 F968 F969 F970 F971 F972 F973 F974 F975 F976 F977 F978 F979 F980 F981 F982 F983 F984 F985 F986 F987 F988 F989 F990 F991 F992 F993 F994 F995 F996 F997 F998 F999 F1000 F1001 F1002 F1003 F1004 F1005 F1006 F1007 F1008 F1009 F1010 F1011 F1012 F1013 F1014 F1015 F1016 F1017 F1018 F1019 F1020 F1021 F1022 F1023 F1024 F1025 F1026 F1027 F1028 F1029 F1030 F1031 F1032 F1033 F1034 F1035 F1036 F1037 F1038 F1039 F1040 F1

Keylight Spectrum Analyzer - Sweep SA
 00:11:18 PM 02/01/2015
 Center Freq 4.980000000 GHz
 PNO: Fast → IF Gain: Low
 Trig: Free Run
 #Atten: 30 dB
 Avg Type: Log-Pwr
 Avg/Hold: 100/100
 TRACE ID: 1
 TYPE: RAW/ANAL
 DET: PPKPP

10 dBmV Ref 20.00 dBm

Mkr5 5.246 88 GHz -1.028 dBm

Start 4.5000 GHz Stop 5.4600 GHz
 #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 1.600 ms (1001 pts)

ROW	MODE	TRF	SOL	F	FUNCTION	FUNCTION VALUE	FUNCTION VALUE
1	N	Y	1	f	6.160 00 GHz	-30.973 dBm	
2	N	Y	1	f	6.350 00 GHz	-31.286 dBm	
3	N	Y	1	f	6.149 92 GHz	-30.573 dBm	
4	N	Y	1	f	6.460 00 GHz	-30.647 dBm	
5	N	Y	1	f	5.246 88 GHz	-1.028 dBm	
6							
7							
8							
9							
10							
11							

STATISTICS
 00:11:18 PM 02/01/2015

BM: Keysight Spectrum Analyzer - Sweep SA
 AL: 100.000000 MHz
 Channel: 40.000000 MHz
 REF: 0.00 dBm
 SENSE: PLAIN
 AL: 100.000000 MHz
 08:11:24 PM on 01/20/25
 T865 113.1.1.1
 TYPE: B110000000000
 DET: AVERAGE

Center Freq 2.590000000 GHz
 PNO: Fast
 IF Gain: Low
 Trig: Free Run
 #Atten: 10 dB
 Avg Type: Log-Pwr
 Avg Hold: 10/10

Mkr1 1.849 392 GHz
 -47.749 dBm

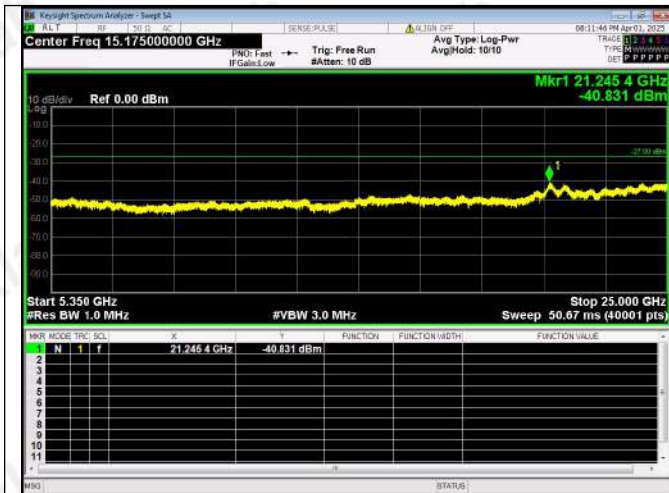
10 dBm
 Ref 0.00 dBm
 Log
 10 dB
 -20 dB
 -30 dB
 -40 dB
 -50 dB
 -60 dB
 -70 dB
 -80 dB
 -90 dB

Start 30 MHz
 #Res BW 1.0 MHz
 #VBW 3.0 MHz
 Sweep 10.67 ms (40001 pts)
 Stop 1.510 GHz

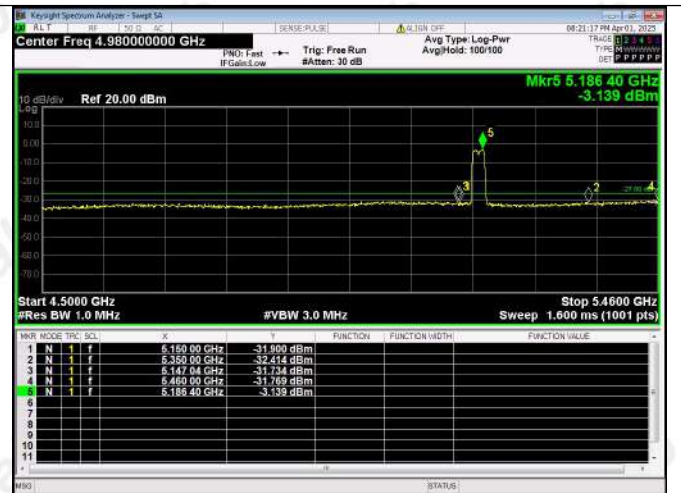
MARK	NAME	FREQ (GHz)	LEVEL (dBm)	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	M1	1.849 392 GHz	-47.749 dBm			
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						

08:11:24 PM on 01/20/25
 T865 113.1.1.1
 TYPE: B110000000000
 DET: AVERAGE

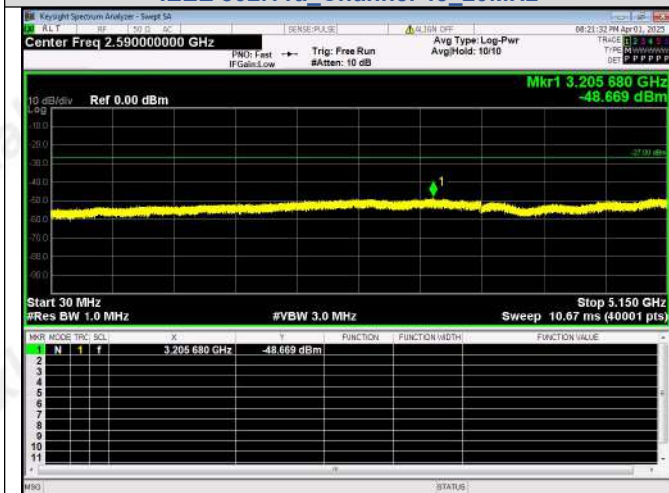
Page 62 of 83



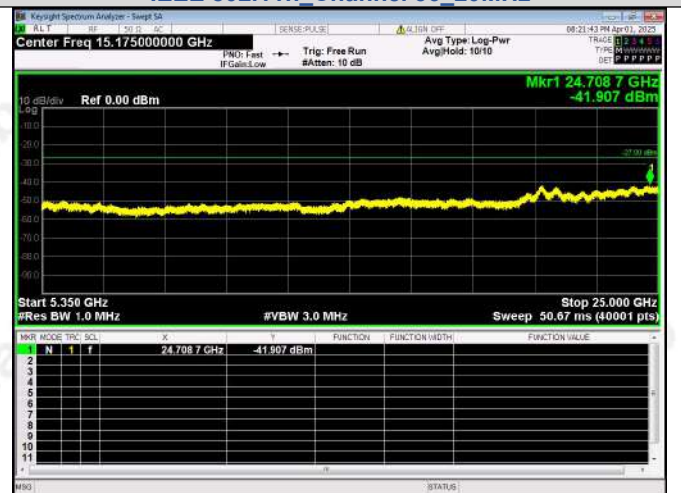
Spurious Emission:5350~25000.0 MHz
IEEE 802.11a Channel 48 20MHz



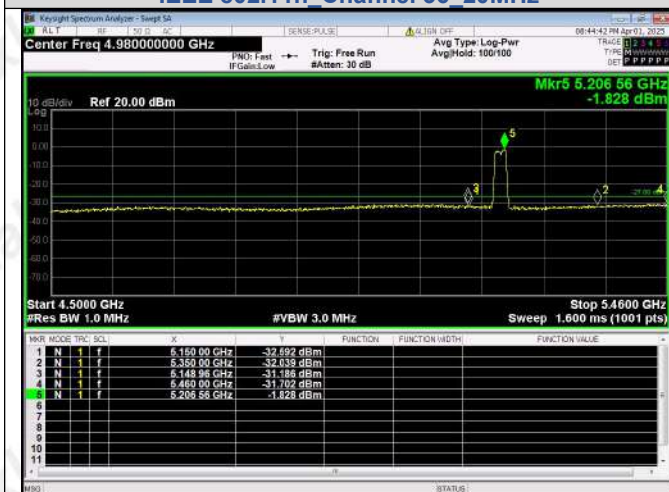
Out Of Band Emission
IEEE 802.11n Channel 36 20MHz



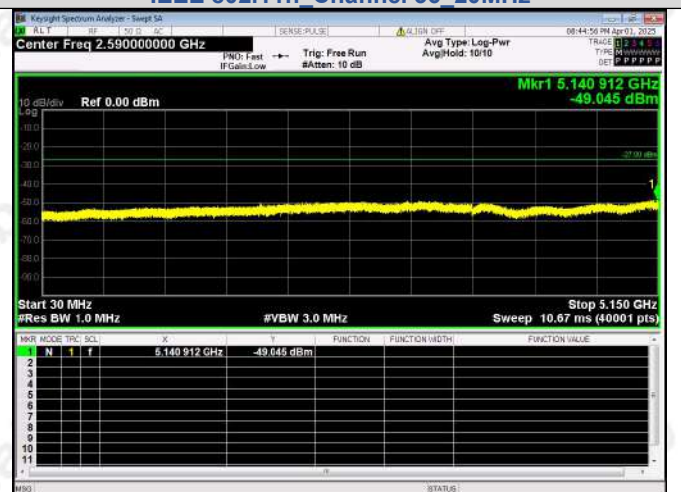
Spurious Emission:30.0~5150 MHz
IEEE 802.11n Channel 36 20MHz



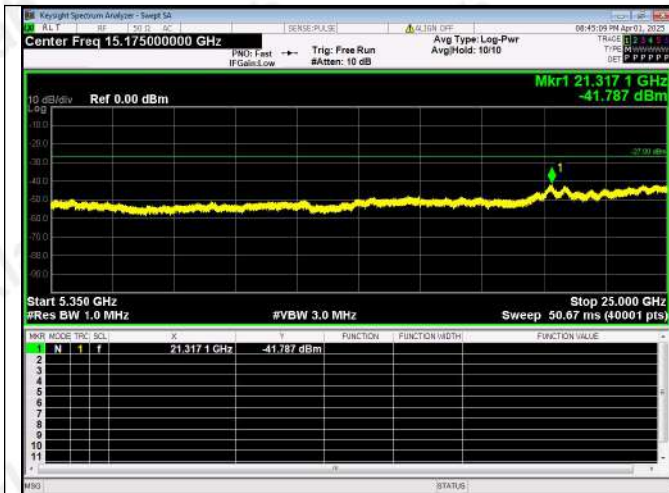
Spurious Emission:5350~25000.0 MHz
IEEE 802.11n Channel 36 20MHz



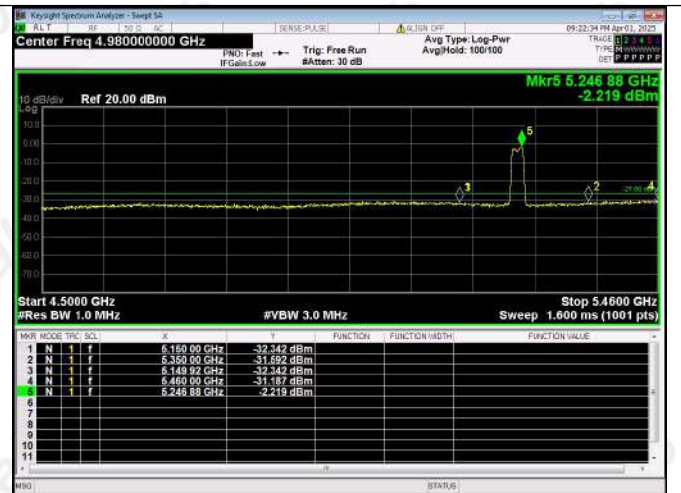
Out Of Band Emission
IEEE 802.11n Channel 40 20MHz



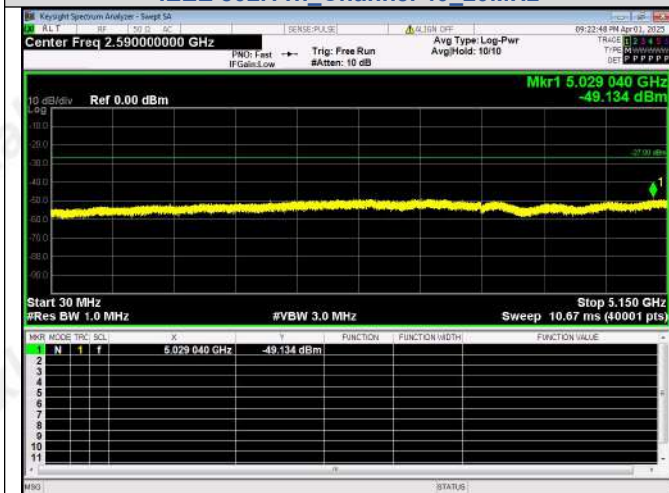
Spurious Emission:30.0~5150 MHz
IEEE 802.11n Channel 40 20MHz



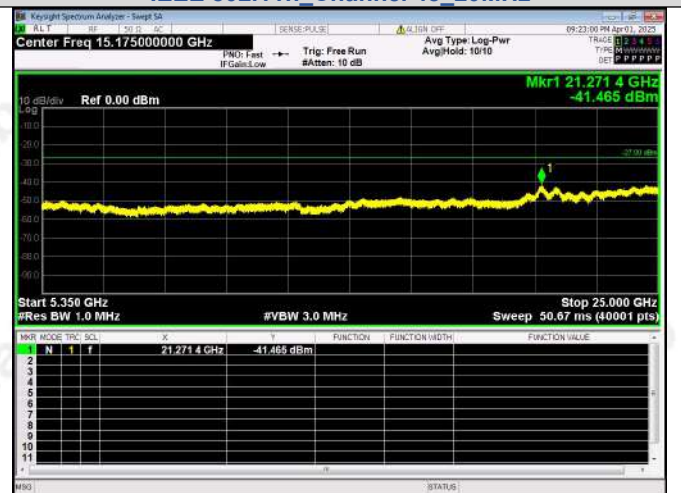
Spurious Emission:5350~25000.0 MHz
IEEE 802.11n Channel 40 20MHz



Out Of Band Emission
IEEE 802.11n Channel 48 20MHz



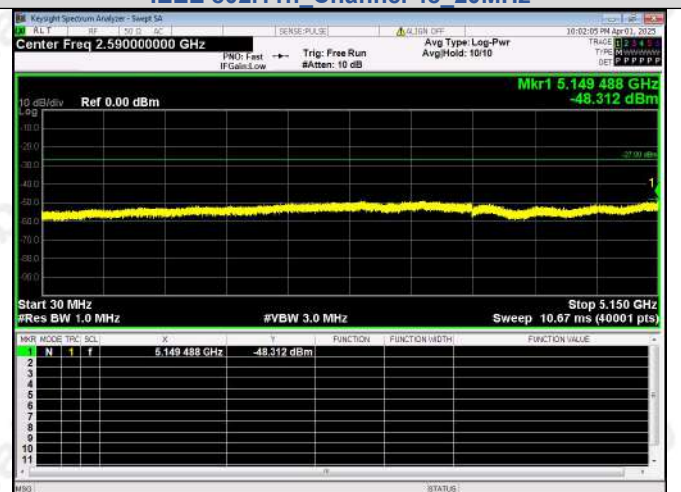
Spurious Emission:30.0~5150 MHz
IEEE 802.11n Channel 48 20MHz



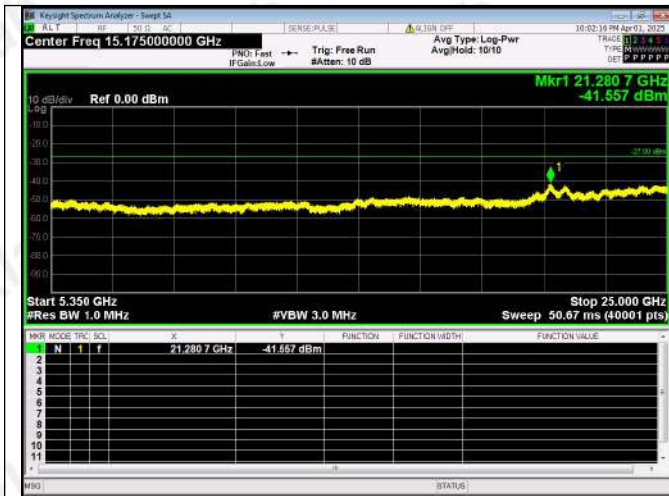
Spurious Emission:5350~25000.0 MHz
IEEE 802.11n Channel 48 20MHz



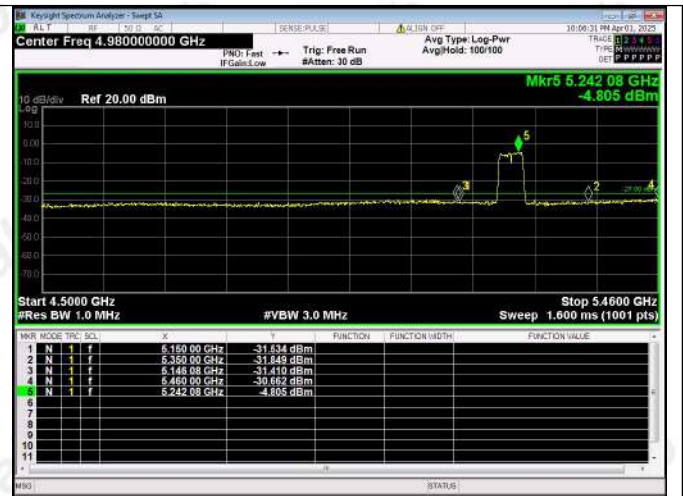
Out Of Band Emission
IEEE 802.11n Channel 38 40MHz



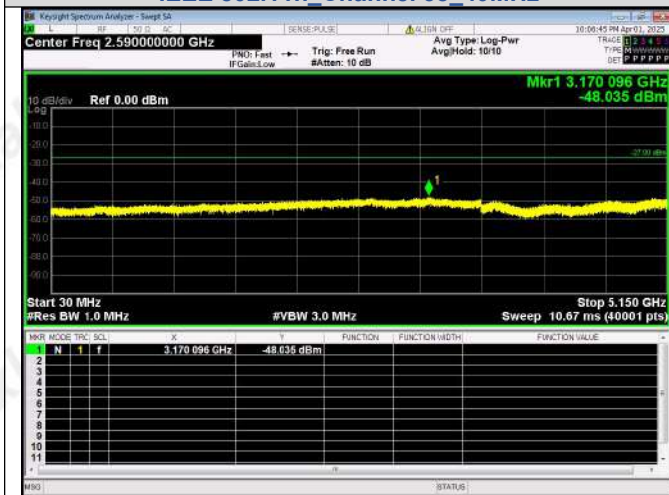
Spurious Emission:30.0~5150 MHz
IEEE 802.11n Channel 38 40MHz



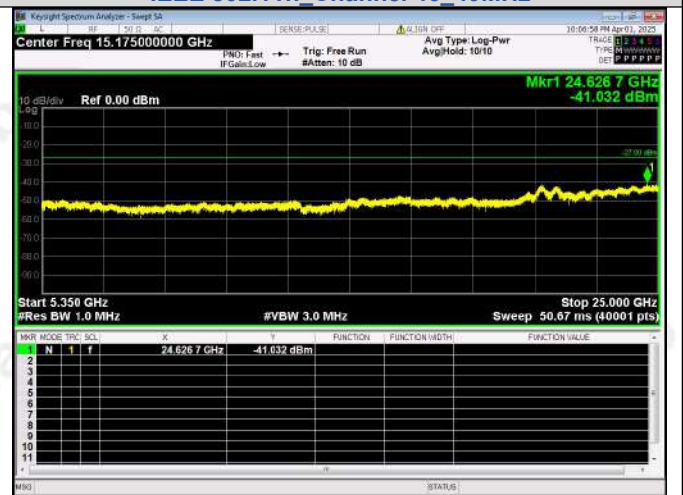
Spurious Emission:5350~25000.0 MHz
IEEE 802.11n Channel 38 40MHz



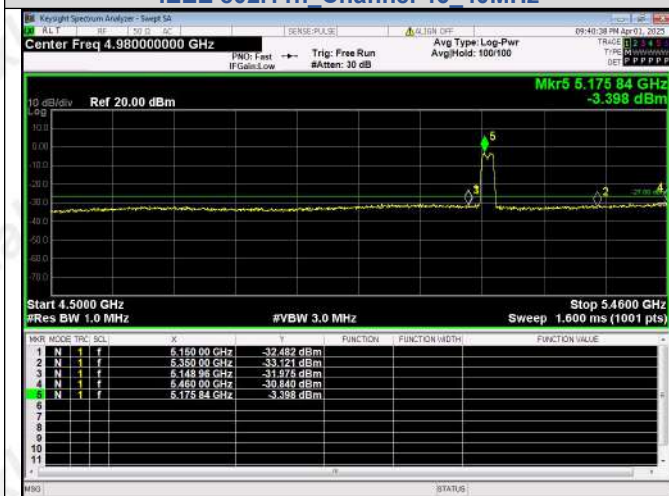
Out Of Band Emission
IEEE 802.11n Channel 46 40MHz



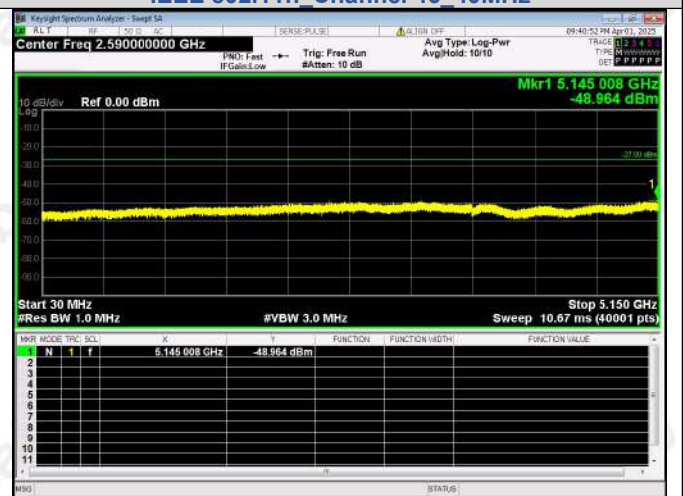
Spurious Emission:30.0~5150 MHz
IEEE 802.11n Channel 46 40MHz



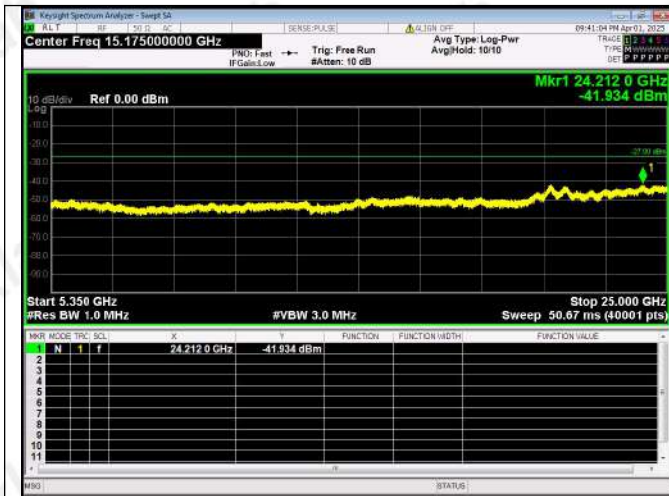
Spurious Emission:5350~25000.0 MHz
IEEE 802.11n Channel 46 40MHz



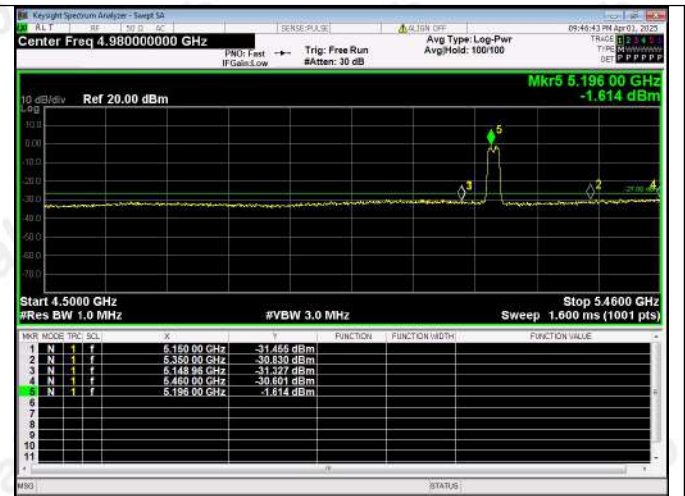
Out Of Band Emission
IEEE 802.11ac Channel 36 20MHz



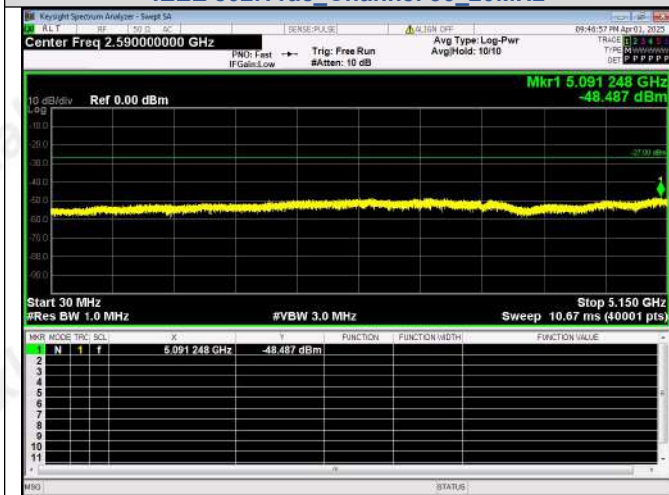
Spurious Emission:30.0~5150 MHz
IEEE 802.11ac Channel 36 20MHz



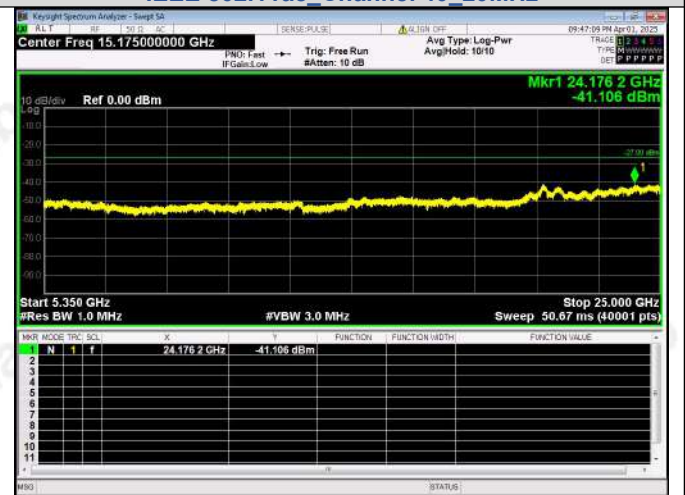
Spurious Emission:5350~25000.0 MHz
IEEE 802.11ac_Channel 36_20MHz



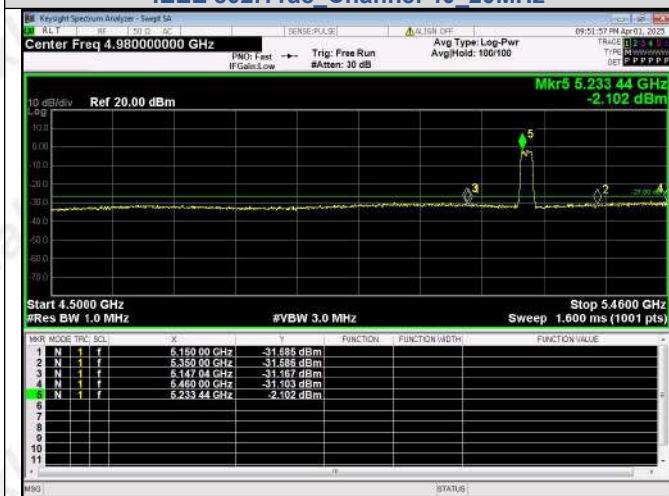
Out Of Band Emission
IEEE 802.11ac_Channel 40_20MHz



Spurious Emission:30.0~5150 MHz
IEEE 802.11ac_Channel 40_20MHz



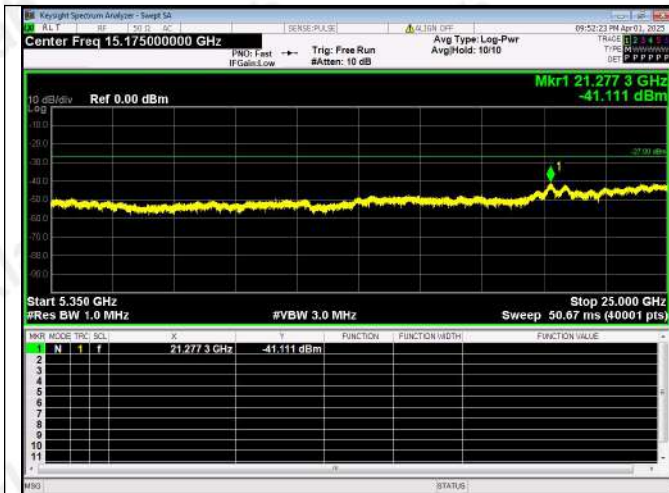
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IEEE 802.11ac_Channel 40_20MHz



Out Of Band Emission
IEEE 802.11ac_Channel 48_20MHz



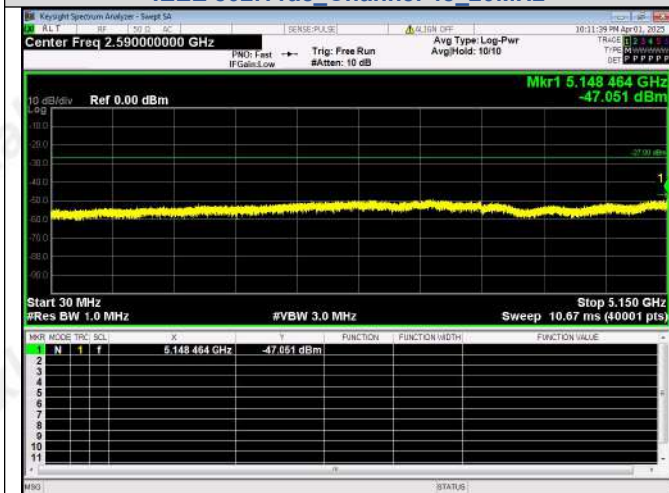
Spurious Emission:30.0~5150 MHz
IEEE 802.11ac_Channel 48_20MHz



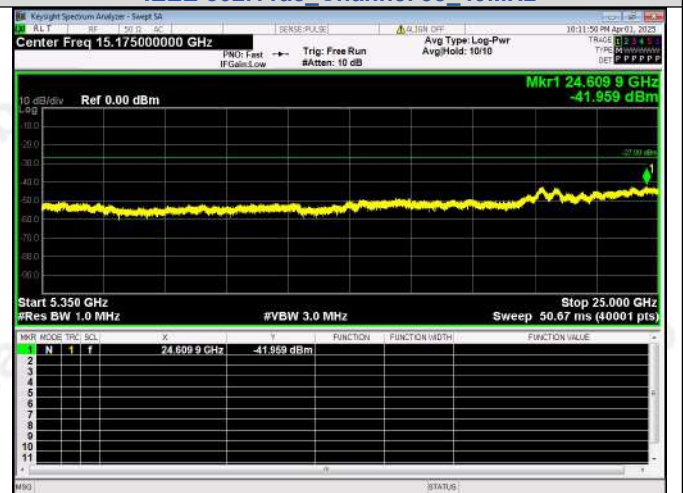
Spurious Emission:5350~25000.0 MHz
IEEE 802.11ac Channel 48 20MHz



Out Of Band Emission
IEEE 802.11ac Channel 38 40MHz



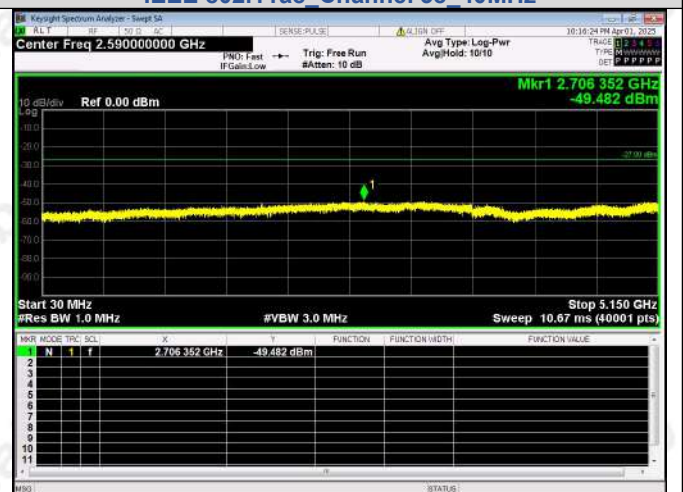
Spurious Emission:30.0~5150 MHz
IEEE 802.11ac Channel 38 40MHz



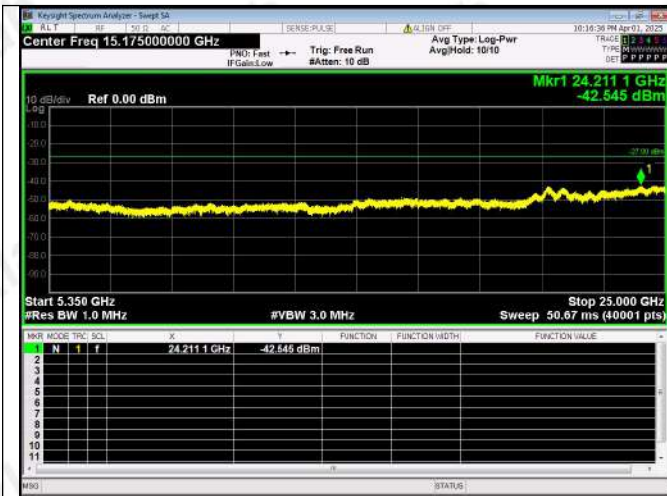
Spurious Emission:5350~25000.0 MHz
IEEE 802.11ac Channel 38 40MHz



Out Of Band Emission
IEEE 802.11ac Channel 46 40MHz



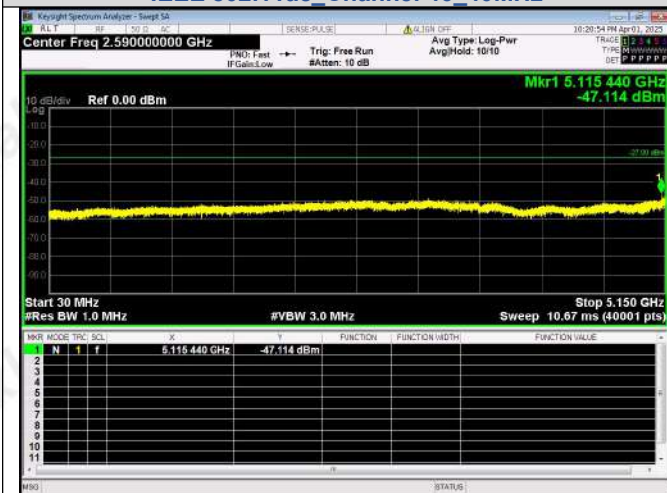
Spurious Emission:30.0~5150 MHz
IEEE 802.11ac Channel 46 40MHz



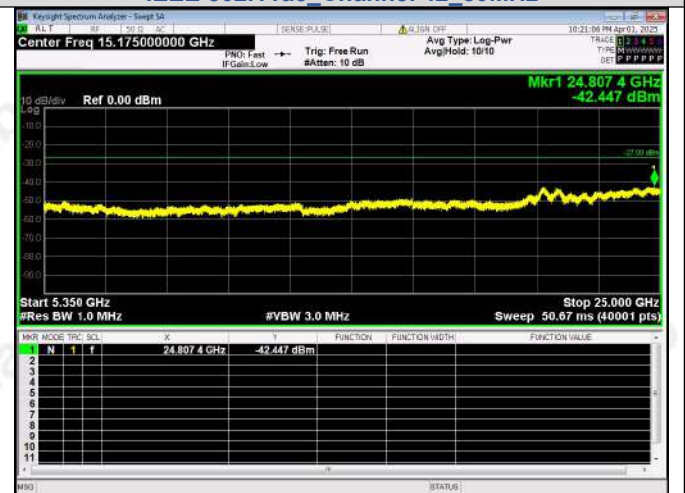
**Spurious Emission:5350~25000.0 MHz
IEEE 802.11ac Channel 46 40MHz**



**Out Of Band Emission
IEEE 802.11ac Channel 42 80MHz**



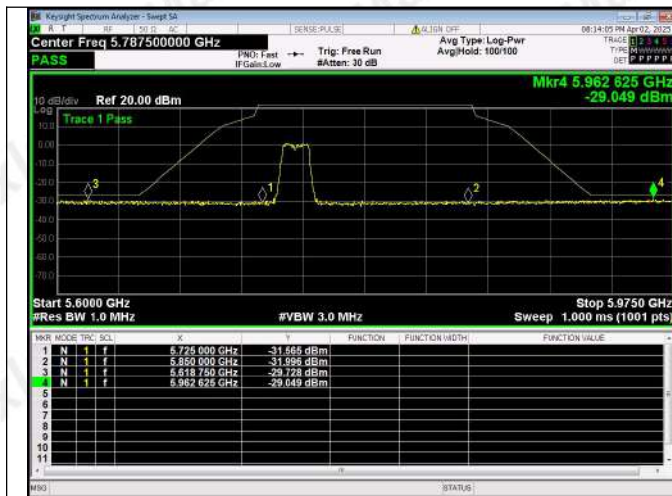
**Spurious Emission:30.0~5150 MHz
IEEE 802.11ac Channel 42 80MHz**



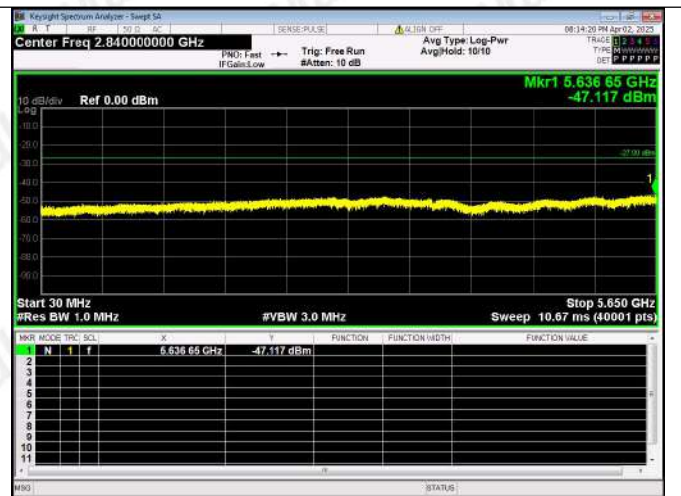
**Spurious Emission:5350~25000.0 MHz
IEEE 802.11ac Channel 42 80MHz**

Mode	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
IEEE 802.11a	149	5618.75	-29.728	-27	-2.728	PASS
		5636.65	-47.117	-27	-20.120	PASS
		5725.00	-31.565	27	-58.560	PASS
		5850.00	-31.996	27	-59.000	PASS
		5962.62	-29.049	-27	-2.049	PASS
		21291.8	-40.106	-27	-13.110	PASS
	157	5506.27	-47.509	-27	-20.510	PASS
		5601.50	-30.449	-27	-3.449	PASS
		5725.00	-31.986	27	-58.990	PASS
		5850.00	-31.851	27	-58.850	PASS
		5946.88	-30.056	-27	-3.056	PASS
		24603.7	-40.993	-27	-13.990	PASS
	165	2581.48	-45.377	-27	-18.380	PASS
		5601.88	-29.762	-27	-2.762	PASS
		5725.00	-33.297	27	-60.300	PASS
		5850.00	-32.773	27	-59.770	PASS
		5933.00	-30.007	-27	-3.007	PASS
		21294.2	-40.702	-27	-13.700	PASS
IEEE 802.11n_20	149	5584.53	-47.308	-27	-20.310	PASS
		5638.62	-31.127	-27	-4.127	PASS
		5725.00	-32.099	27	-59.100	PASS
		5850.00	-32.129	27	-59.130	PASS
		5965.62	-30.279	-27	-3.279	PASS
		24992.8	-40.809	-27	-13.810	PASS
	157	5534.37	-47.678	-27	-20.680	PASS
		5604.88	-30.670	-27	-3.670	PASS
		5725.00	-33.103	27	-60.100	PASS
		5850.00	-32.953	27	-59.950	PASS
		5961.50	-30.151	-27	-3.151	PASS
		24649.0	-41.138	-27	-14.140	PASS
	165	5577.64	-48.228	-27	-21.230	PASS
		5619.88	-31.712	-27	-4.712	PASS
		5725.00	-33.323	27	-60.320	PASS
		5850.00	-31.922	27	-58.920	PASS
		5930.00	-31.500	-27	-4.500	PASS
		24673.8	-42.408	-27	-15.410	PASS
IEEE 802.11n_40	151	5496.57	-48.668	-27	-21.670	PASS
		5611.25	-29.997	-27	-2.997	PASS
		5725.00	-32.882	27	-59.880	PASS
		5850.00	-33.343	27	-60.340	PASS
		5971.62	-30.466	-27	-3.466	PASS
		21290.4	-42.031	-27	-15.030	PASS
	159	5576.94	-48.094	-27	-21.090	PASS
		5641.62	-31.333	-27	-4.333	PASS
		5725.00	-32.757	27	-59.760	PASS
		5850.00	-33.019	27	-60.020	PASS
		5965.62	-30.638	-27	-3.638	PASS
		24735.3	-41.488	-27	-14.490	PASS
IEEE 802.11ac_20	149	5501.77	-48.583	-27	-21.580	PASS
		5622.88	-32.127	-27	-5.127	PASS
		5725.00	-33.275	27	-60.270	PASS
		5850.00	-32.732	27	-59.730	PASS
		5952.50	-31.298	-27	-4.298	PASS
		21282.3	-42.187	-27	-15.190	PASS
	157	5467.07	-49.285	-27	-22.280	PASS
		5620.62	-32.035	-27	-5.035	PASS
		5725.00	-33.237	27	-60.240	PASS
		5850.00	-34.661	27	-61.660	PASS
		5973.12	-31.369	-27	-4.369	PASS

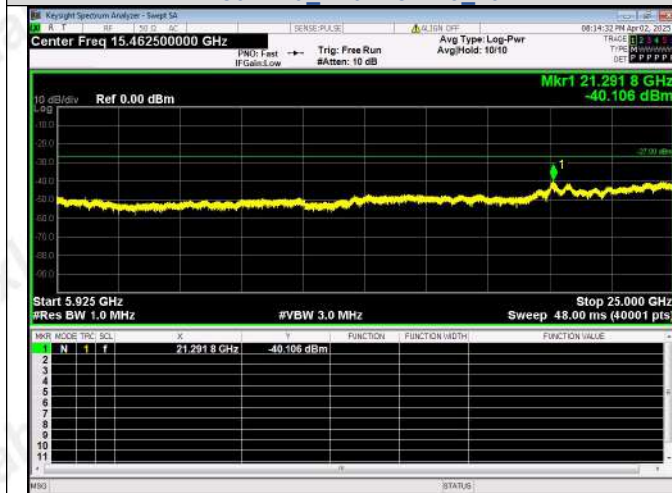
	165	24616.6	-42.372	-27	-15.370	PASS
		2526.68	-48.118	-27	-21.120	PASS
		5606.75	-32.152	-27	-5.152	PASS
		5725.00	-34.273	27	-61.270	PASS
		5850.00	-33.004	27	-60.000	PASS
		5950.62	-31.233	-27	-4.233	PASS
IEEE 802.11ac_40	151	24609.0	-42.263	-27	-15.260	PASS
		5530.15	-47.768	-27	-20.770	PASS
		5606.00	-30.591	-27	-3.591	PASS
		5725.00	-32.790	27	-59.790	PASS
		5850.00	-33.452	27	-60.450	PASS
		5961.88	-31.040	-27	-4.040	PASS
	159	24886.5	-41.705	-27	-14.700	PASS
		5564.58	-48.674	-27	-21.670	PASS
		5604.50	-31.664	-27	-4.664	PASS
		5725.00	-32.849	27	-59.850	PASS
IEEE 802.11ac_80	155	5850.00	-34.017	27	-61.020	PASS
		5973.12	-30.853	-27	-3.853	PASS
		21298.5	-41.805	-27	-14.800	PASS
		5612.63	-48.992	-27	-21.990	PASS
		5630.38	-31.909	-27	-4.909	PASS
		5725.00	-32.916	27	-59.920	PASS
		5850.00	-33.911	27	-60.910	PASS
		5956.25	-31.517	-27	-4.517	PASS
		24654.7	-42.201	-27	-15.200	PASS



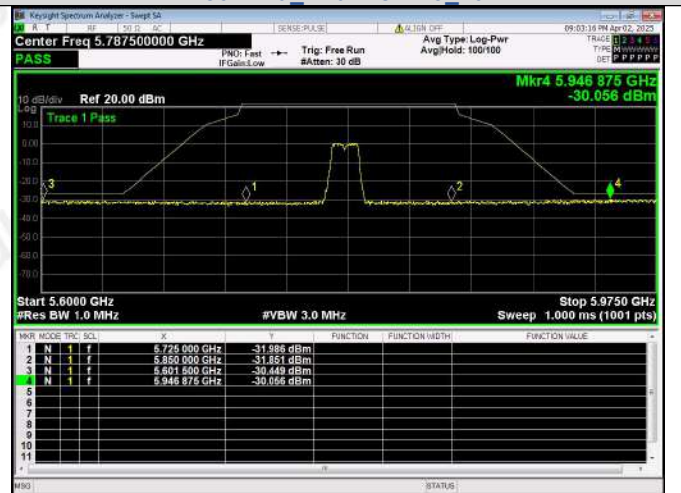
**Out Of Band Emission
IEEE 802.11a Channel 149 20MHz**



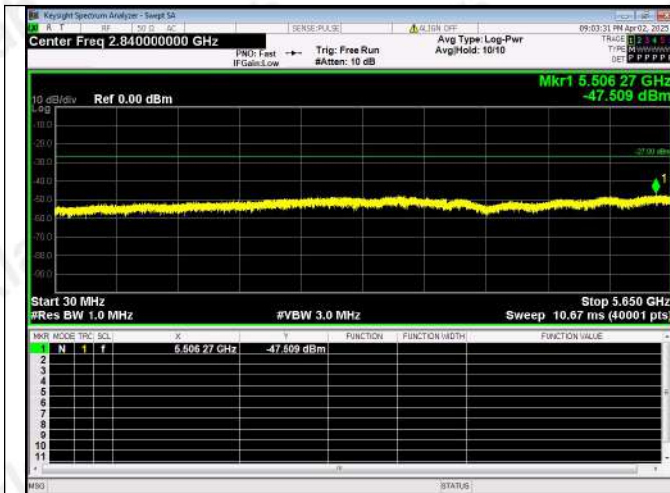
**Spurious Emission:30.0~5650 MHz
IEEE 802.11a Channel 149 20MHz**



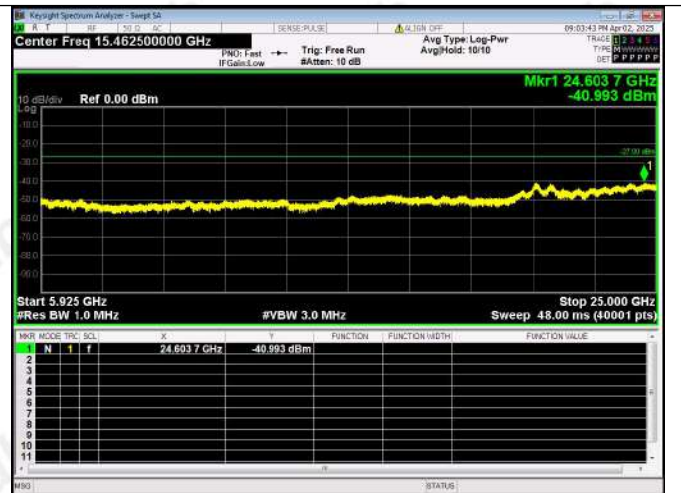
**Spurious Emission:5925~25000.0 MHz
IEEE 802.11a Channel 149 20MHz**



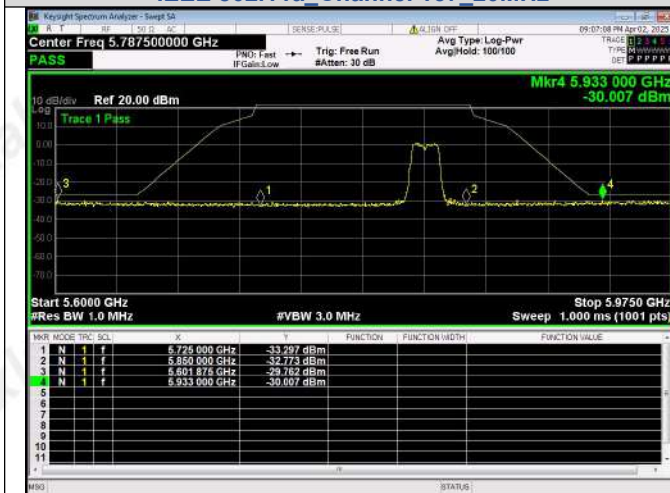
**Out Of Band Emission
IEEE 802.11a Channel 157 20MHz**



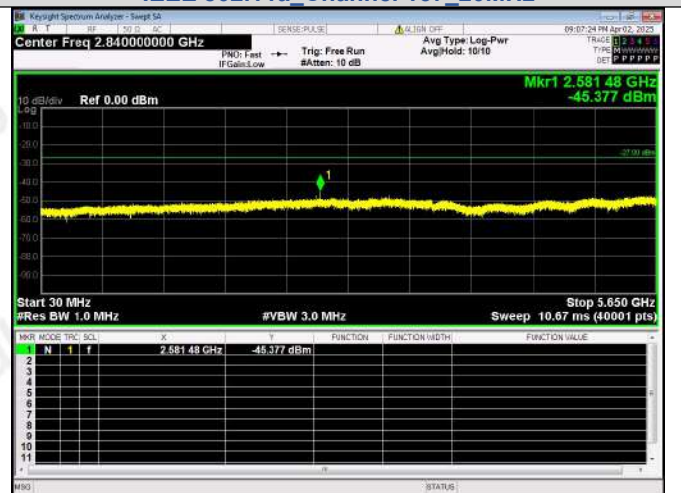
Spurious Emission:30.0~5650 MHz
IEEE 802.11a Channel 157_20MHz



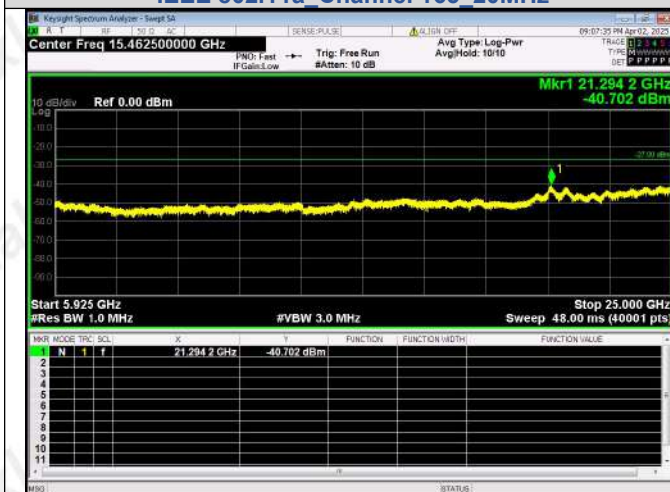
Spurious Emission:5925~25000.0 MHz
IEEE 802.11a Channel 157_20MHz



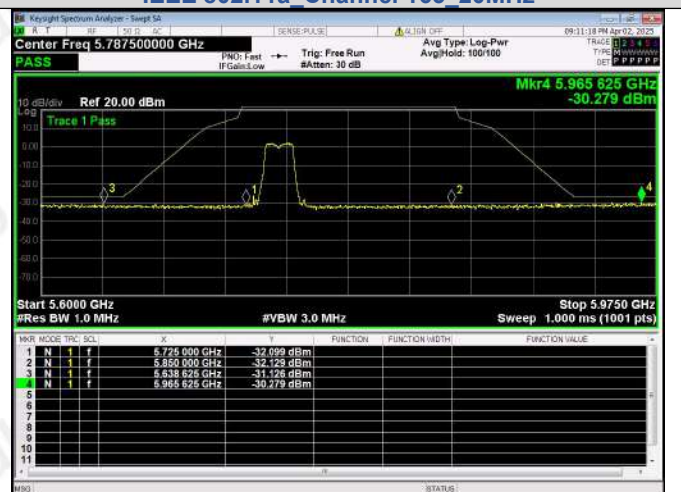
Out Of Band Emission
IEEE 802.11a Channel 165_20MHz



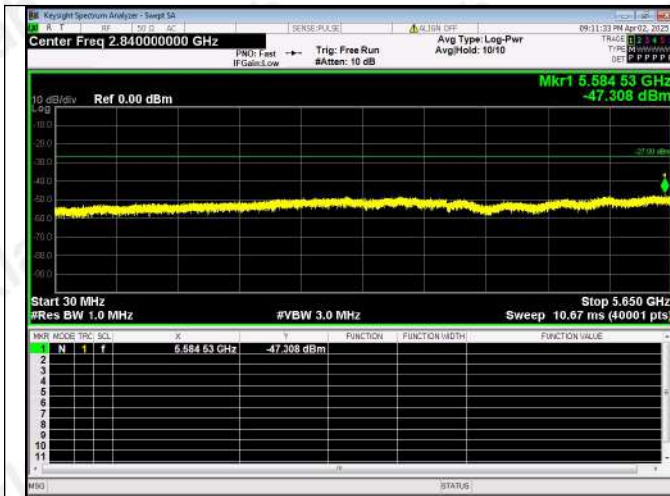
Spurious Emission:30.0~5650 MHz
IEEE 802.11a Channel 165_20MHz



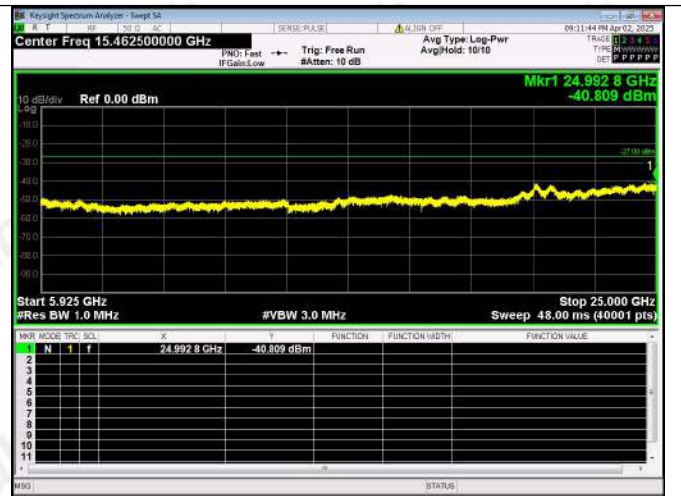
Spurious Emission:5925~25000.0 MHz
IEEE 802.11a Channel 165_20MHz



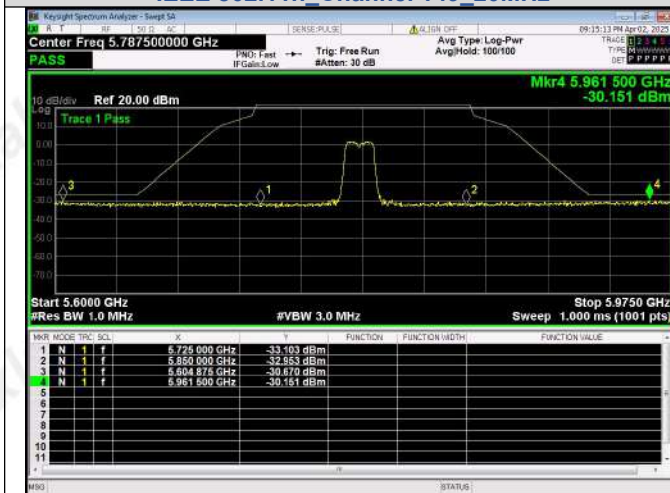
Out Of Band Emission
IEEE 802.11n Channel 149_20MHz



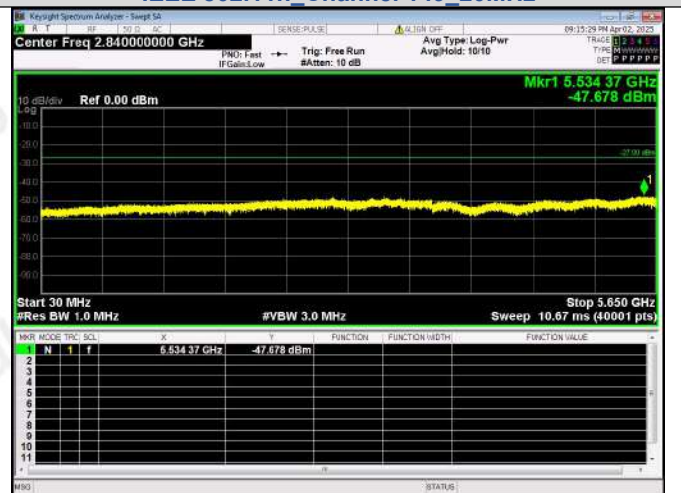
Spurious Emission:30.0~5650 MHz
IEEE 802.11n Channel 149_20MHz



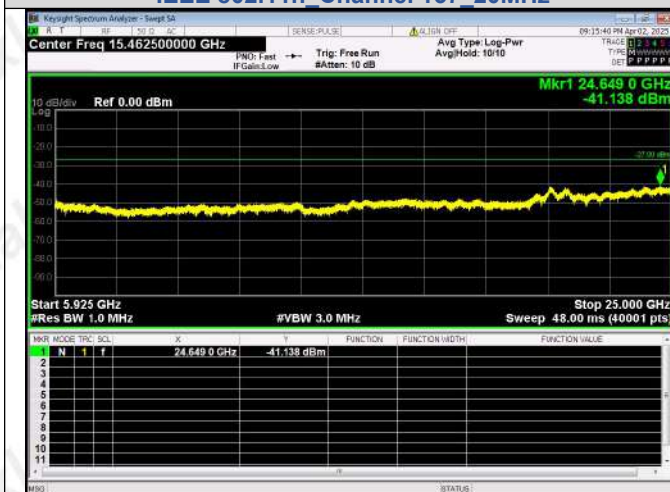
Spurious Emission:5925~25000.0 MHz
IEEE 802.11n Channel 149_20MHz



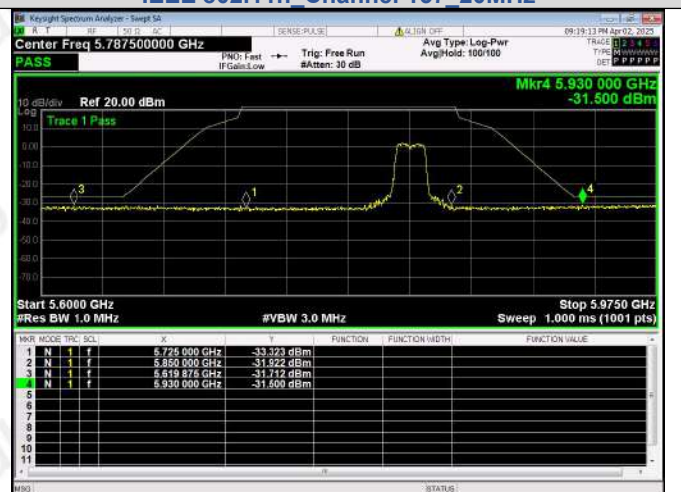
Out Of Band Emission
IEEE 802.11n Channel 157_20MHz



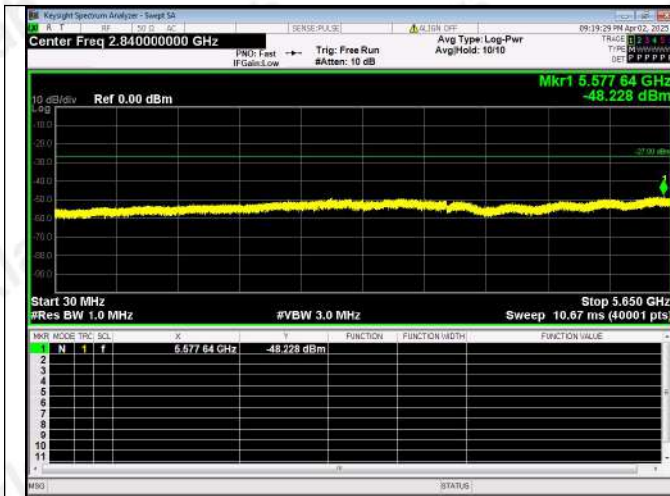
Spurious Emission:30.0~5650 MHz
IEEE 802.11n Channel 157_20MHz



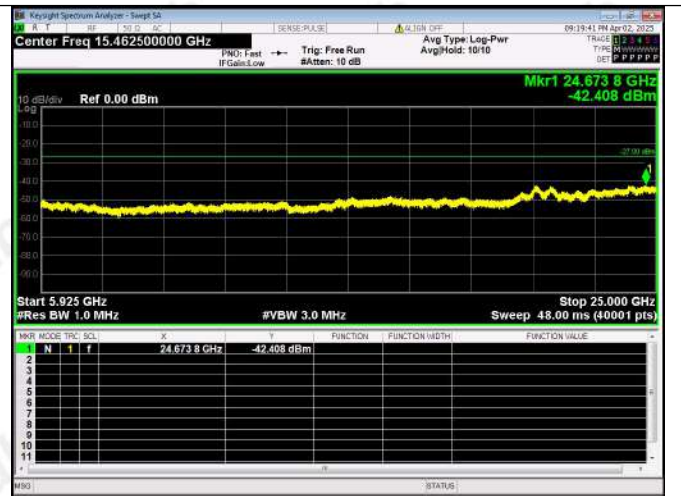
Spurious Emission:5925~25000.0 MHz
IEEE 802.11n Channel 157_20MHz



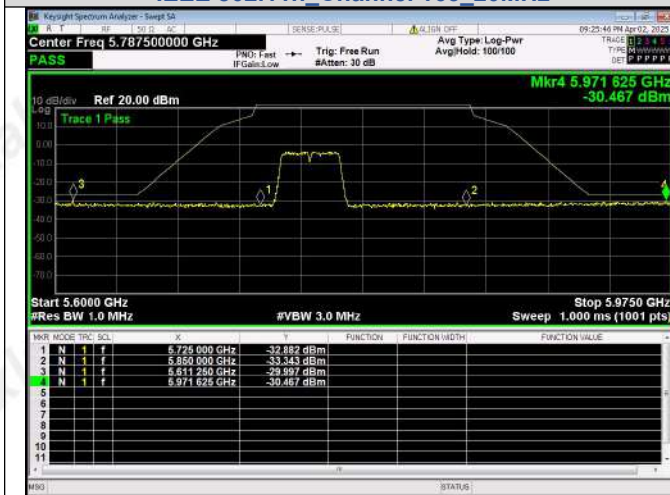
Out Of Band Emission
IEEE 802.11n Channel 165_20MHz



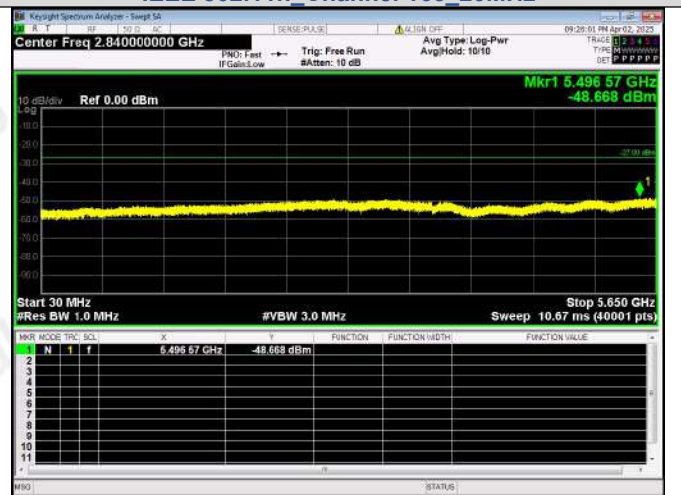
Spurious Emission:30.0~5650 MHz
IEEE 802.11n Channel 165 20MHz



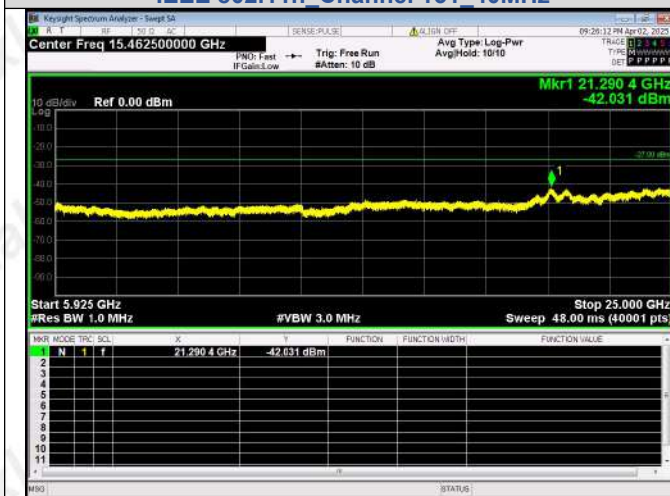
Spurious Emission:5925~25000.0 MHz
IEEE 802.11n Channel 165 20MHz



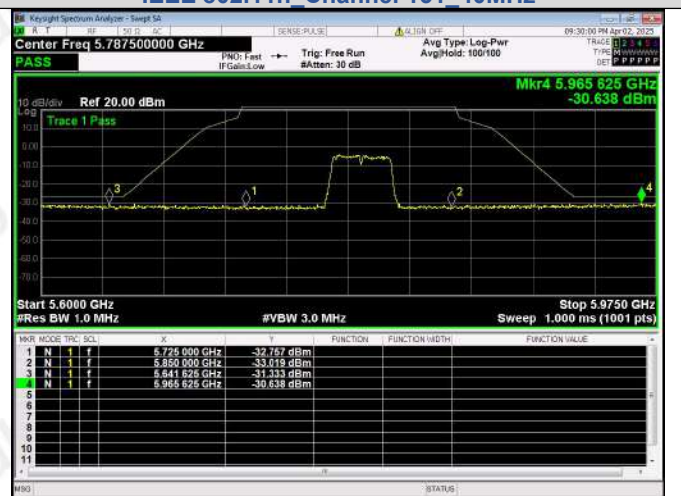
Out Of Band Emission
IEEE 802.11n Channel 151 40MHz



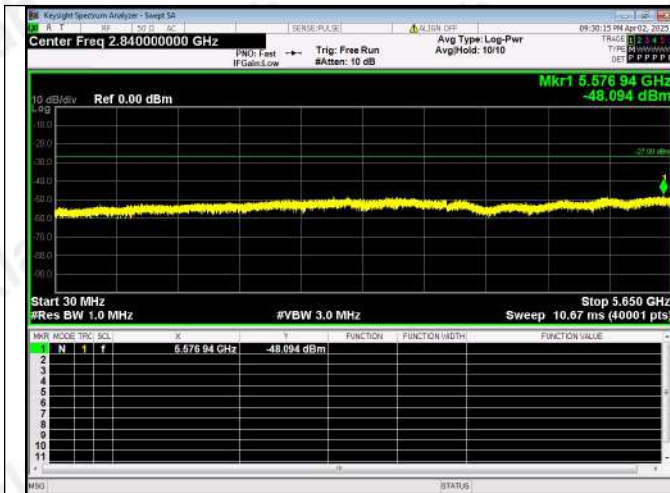
Spurious Emission:30.0~5650 MHz
IEEE 802.11n Channel 151 40MHz



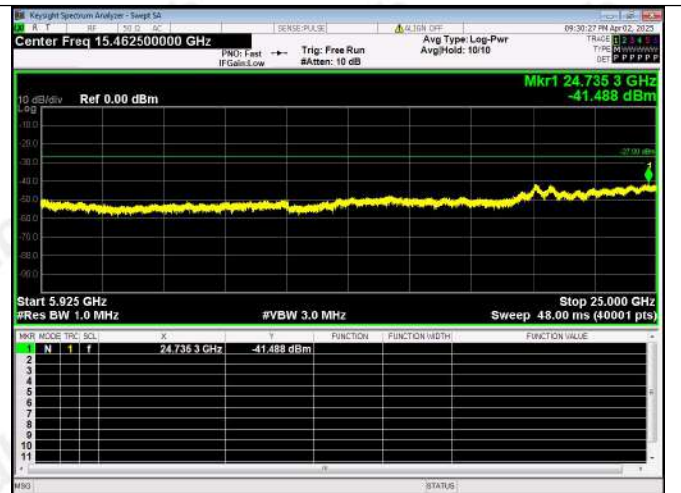
Spurious Emission:5925~25000.0 MHz
IEEE 802.11n Channel 151 40MHz



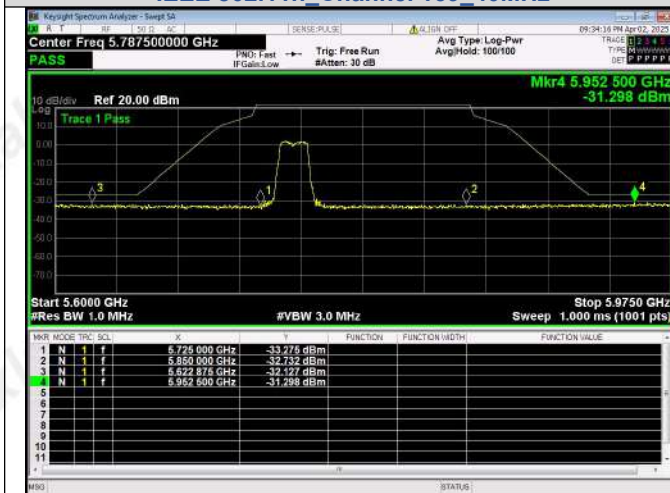
Out Of Band Emission
IEEE 802.11n Channel 159 40MHz



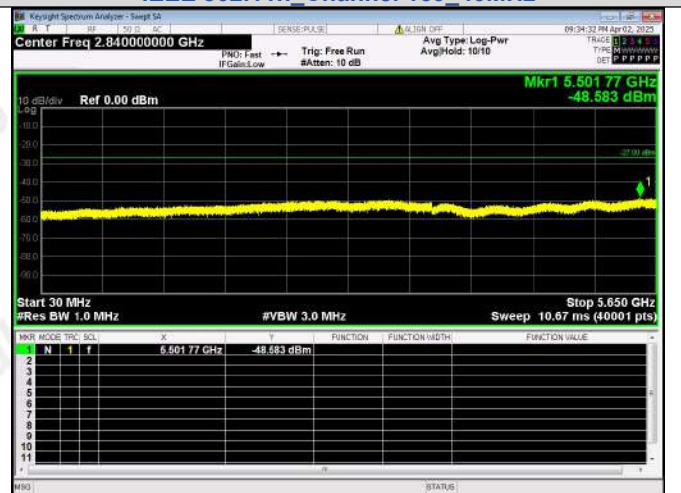
Spurious Emission:30.0~5650 MHz
IEEE 802.11n Channel 159 40MHz



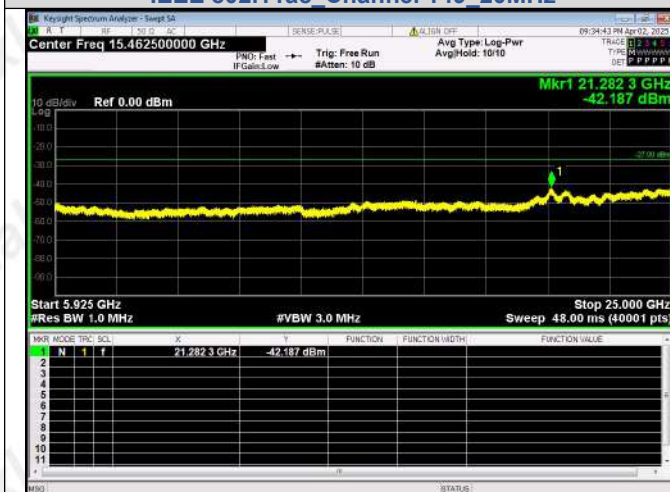
Spurious Emission:5925~25000.0 MHz
IEEE 802.11n Channel 159 40MHz



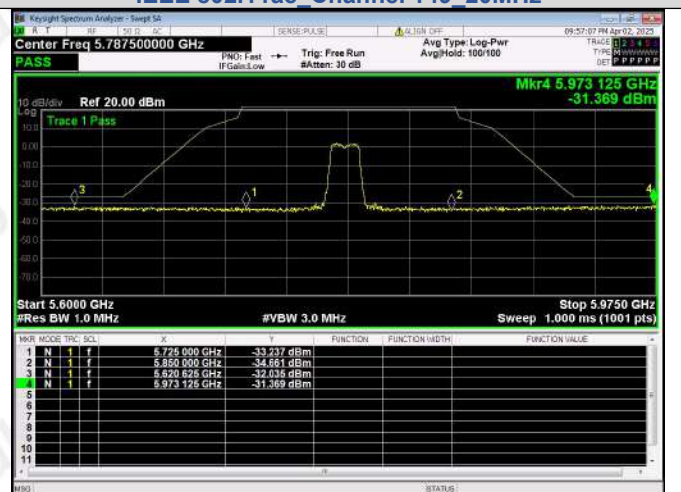
Out Of Band Emission
IEEE 802.11ac Channel 149 20MHz



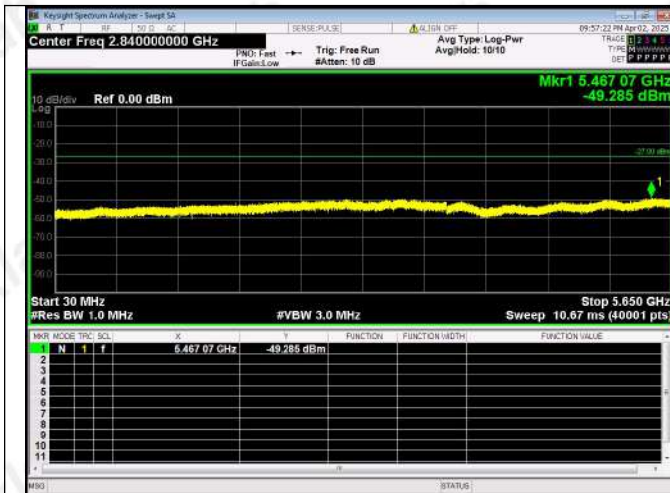
Spurious Emission:30.0~5650 MHz
IEEE 802.11ac Channel 149 20MHz



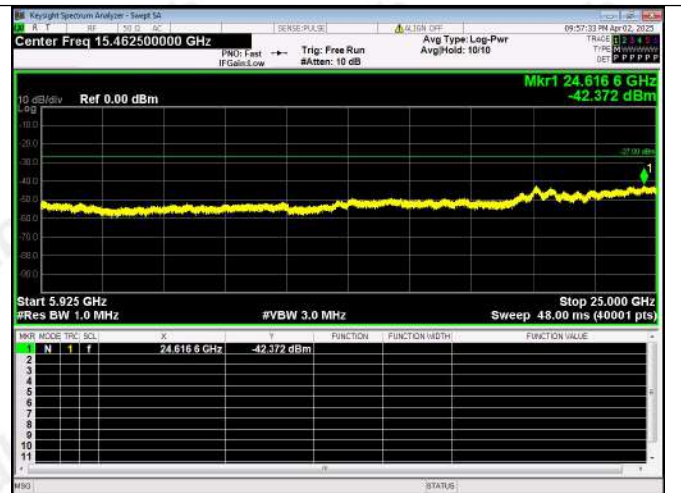
Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac Channel 149 20MHz



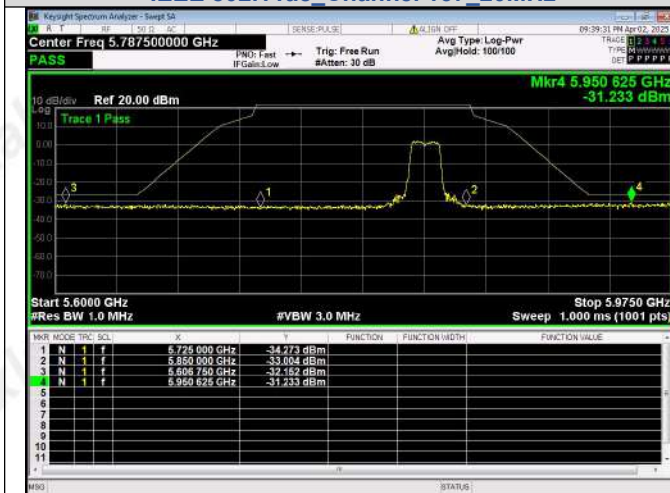
Out Of Band Emission
IEEE 802.11ac Channel 157 20MHz



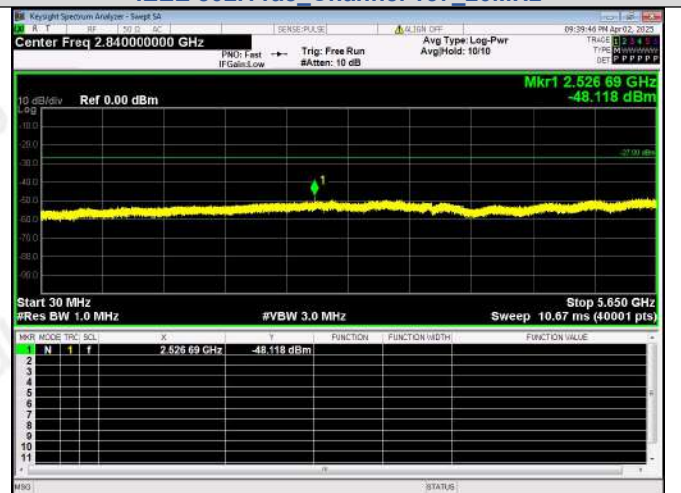
Spurious Emission:30.0~5650 MHz
IEEE 802.11ac Channel 157_20MHz



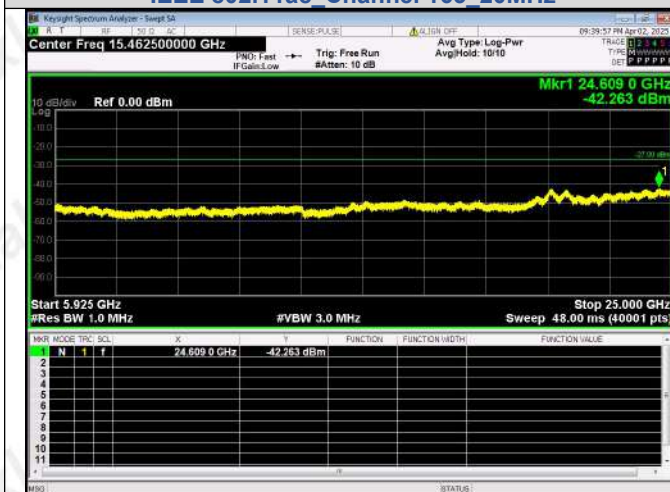
Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac Channel 157_20MHz



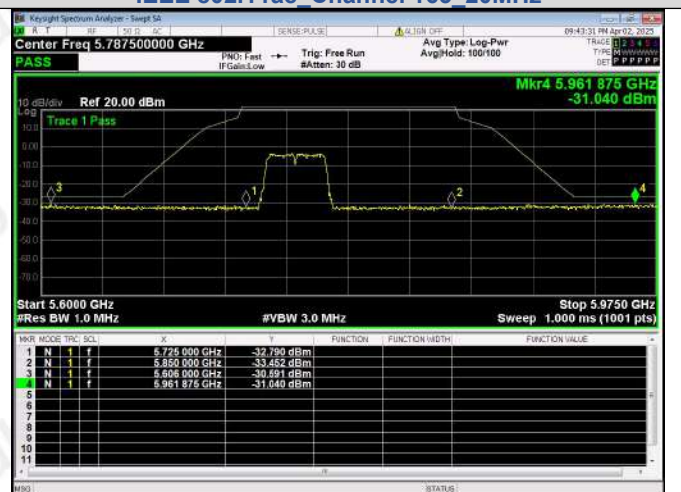
Out Of Band Emission
IEEE 802.11ac Channel 165_20MHz



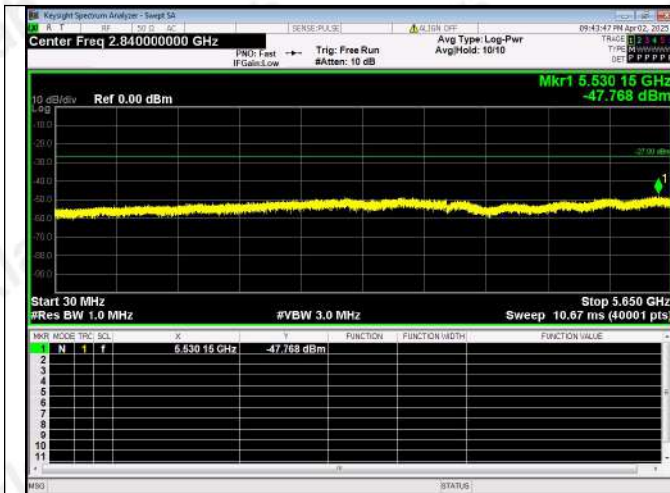
Spurious Emission:30.0~5650 MHz
IEEE 802.11ac Channel 165_20MHz



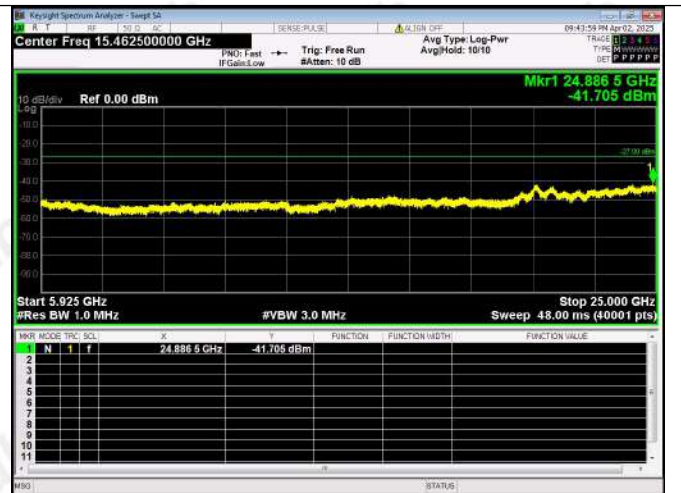
Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac Channel 165_20MHz



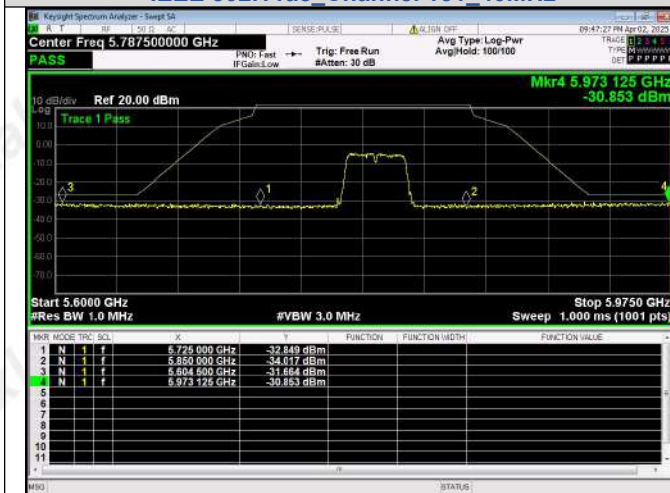
Out Of Band Emission
IEEE 802.11ac Channel 151_40MHz



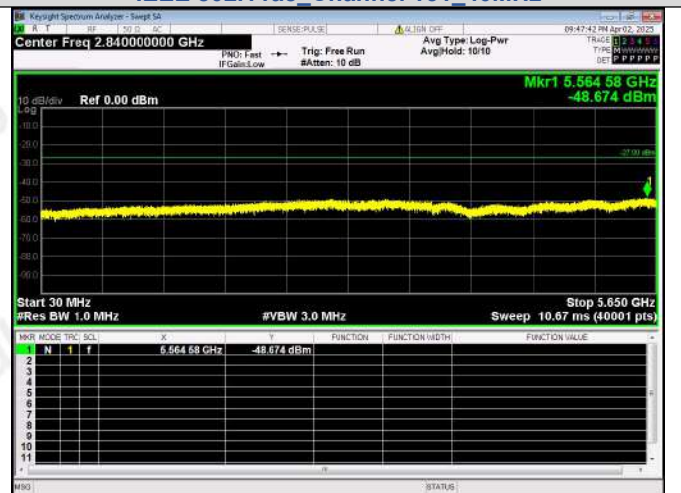
Spurious Emission:30.0~5650 MHz
IEEE 802.11ac Channel 151 40MHz



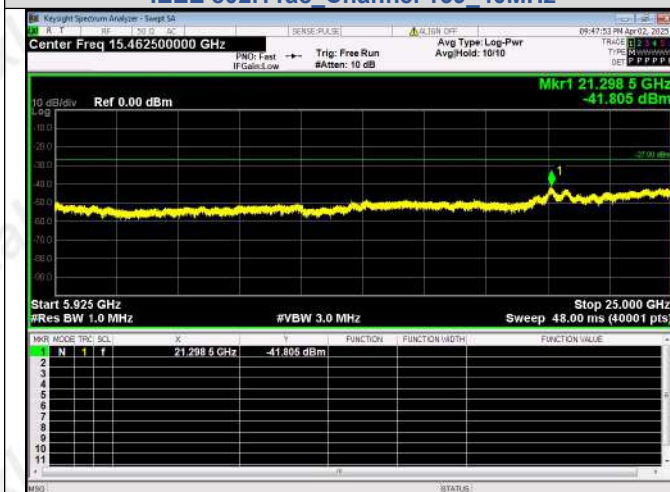
Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac Channel 151 40MHz



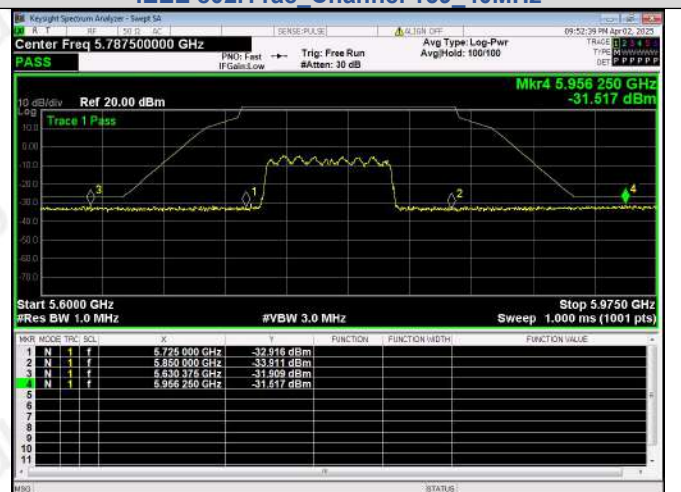
Out Of Band Emission
IEEE 802.11ac Channel 159 40MHz



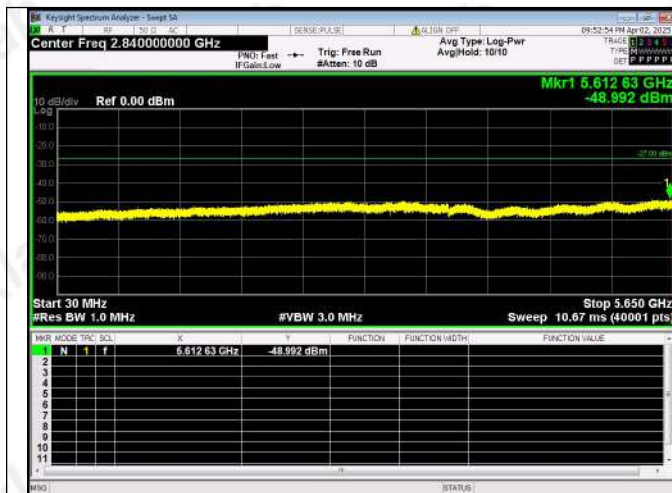
Spurious Emission:30.0~5650 MHz
IEEE 802.11ac Channel 159 40MHz



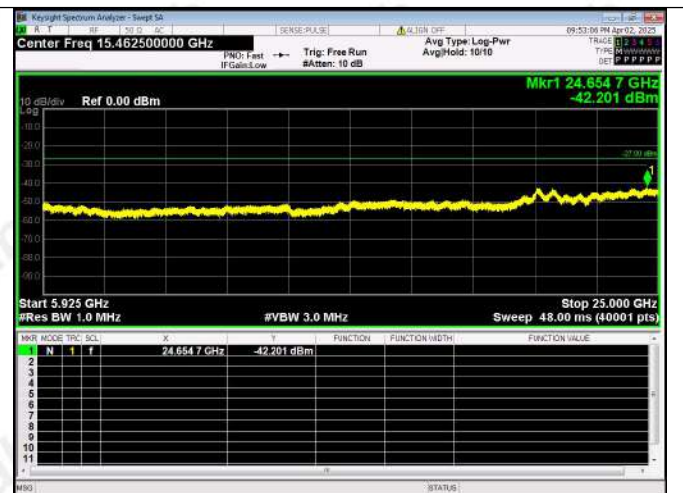
Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac Channel 159 40MHz



Out Of Band Emission
IEEE 802.11ac Channel 155 80MHz



Spurious Emission:30.0~5650 MHz
IEEE 802.11ac_Channel 155_80MHz



Spurious Emission:5925~25000.0 MHz
IEEE 802.11ac_Channel 155_80MHz

4.8 SPURIOUS RF CONDUCTED EMISSIONS

4.8.1 Conformance Limit

Frequency Band (MHz)	Limit
5150 - 5250	Outside of the 5.15-5.35 GHz band: e.i.r.p. -27 dBm
5250 - 5350	Outside of the 5.15-5.35 GHz band: e.i.r.p. -27 dBm
5470 - 5725	Outside of the 5.47-5.725 GHz band: e.i.r.p. -27 dBm
5725 - 5850	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.

4.8.2 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

4.8.3 Test Setup



4.8.4 Test Procedure

The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=1MHz and VBW= 3MHz to measure the peak field strength, and measure frequency range from 30MHz to 40GHz.

4.8.5 Test Results

Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and band edge measurement data.

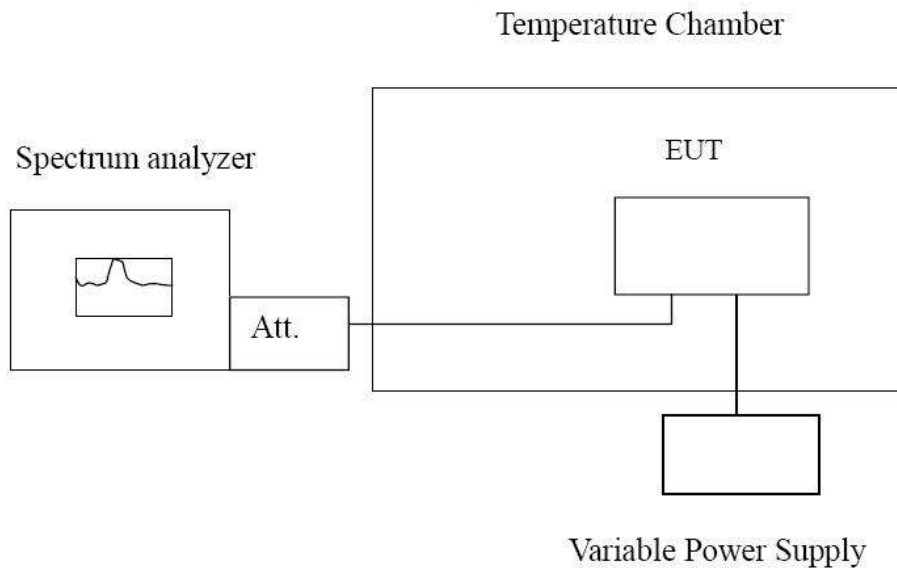
At 26.5GHz to 40GHz, the amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

4.9 Frequency Stability

Limit

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

TEST CONFIGURATION



TEST PROCEDURE

Frequency Stability under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Frequency Stability under Voltage Variations:

Set chamber temperature to 25°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
120.0	-30	67.71	0.013	Within the band of operation	Pass
	-20	81.35	0.016		
	-10	104.13	0.020		
	0	82.95	0.016		
	10	93.44	0.018		
	20	48.27	0.009		
	30	71.92	0.014		
	40	77.52	0.015		
	50	82.22	0.016		
138.0	25	97.84	0.019		
102.0	25	54.38	0.010		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
120.0	-30	108.22	0.019	Within the band of operation	Pass
	-20	89.51	0.016		
	-10	49.27	0.009		
	0	62.58	0.011		
	10	56.98	0.010		
	20	51.16	0.009		
	30	52.57	0.009		
	40	84.92	0.015		
	50	109.91	0.019		
138.0	25	54.60	0.010		
102.0	25	53.89	0.009		

4.10 Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited

Test Result:

The maximum gain of antenna is 4.9 dBi.

Remark: The antenna gain is provided by the customer, if the data provided by the customer is not accurate, MAX Testing Co.,Ltd. does not assume any responsibility.

5 Test Setup Photos of the EUT

Reference to the appendix I for details.

6 Photos of the EUT

Reference to the appendix II for details.

******* End of Report *******