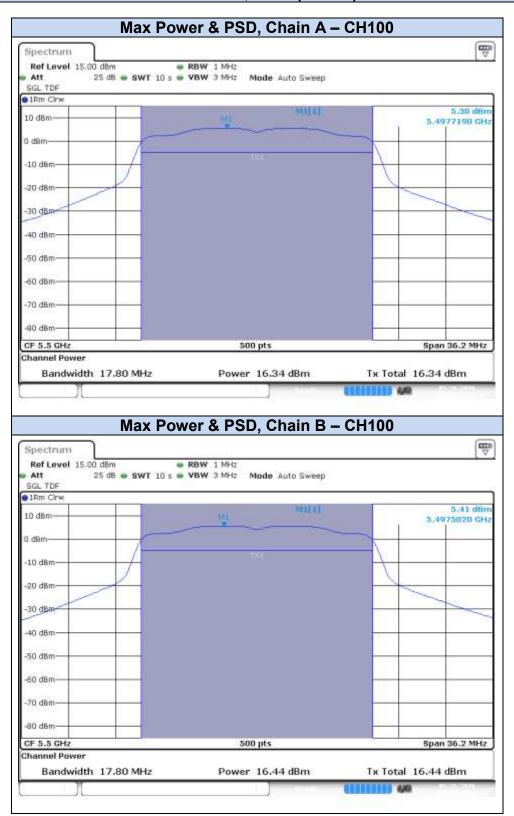
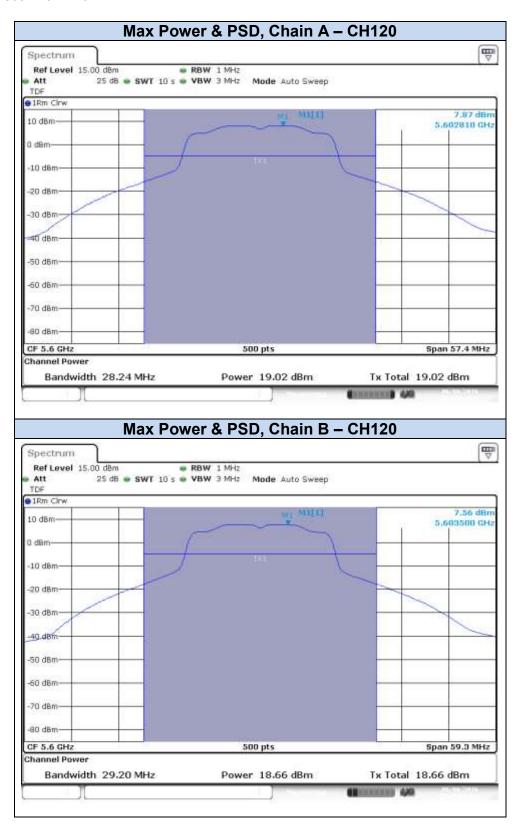
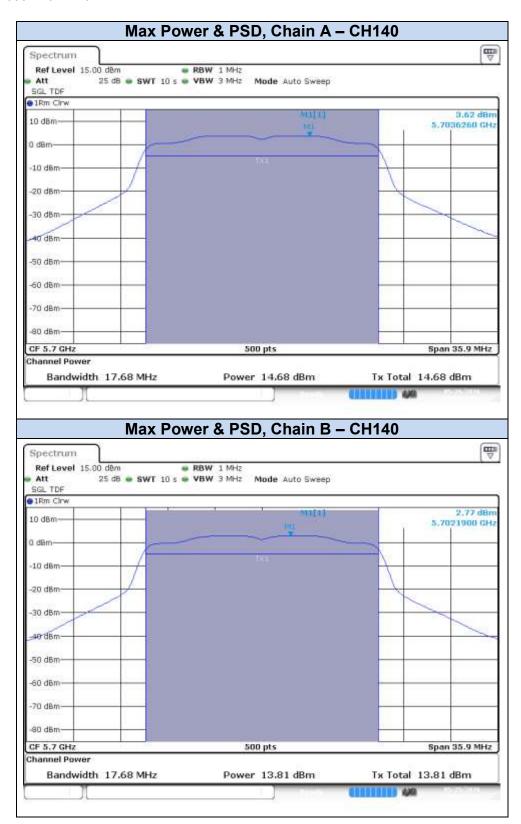


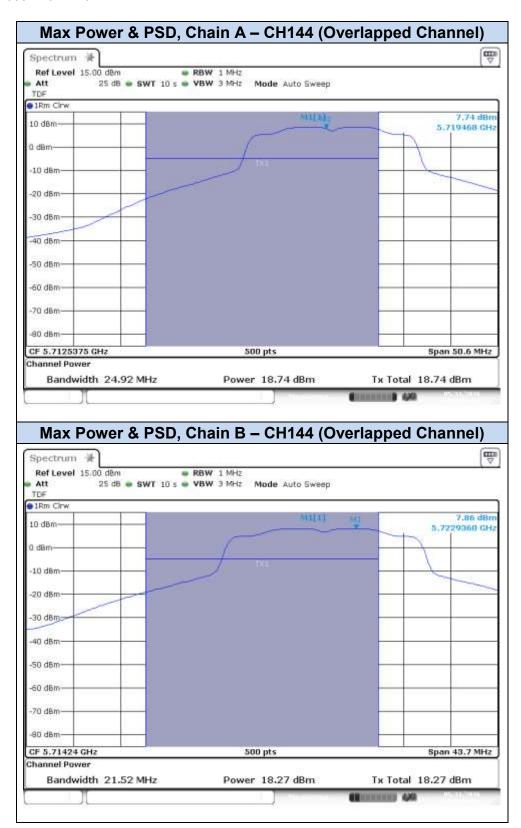


802.11n20, HT8 (MIMO)



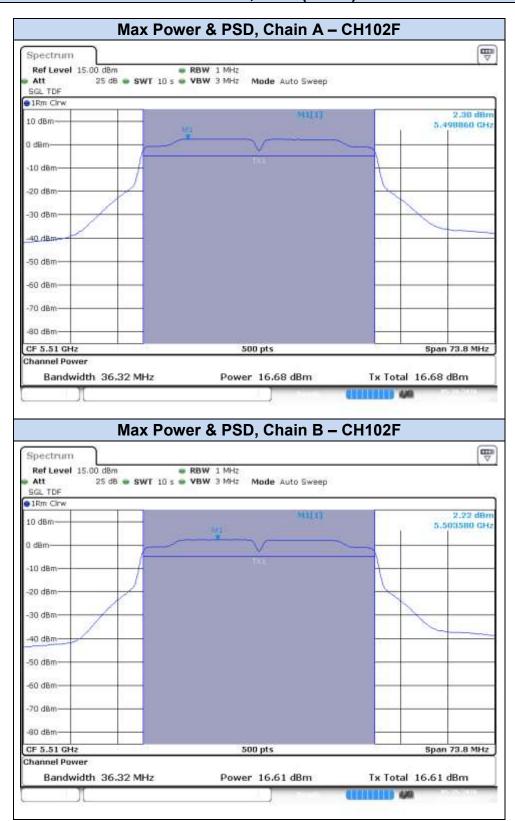


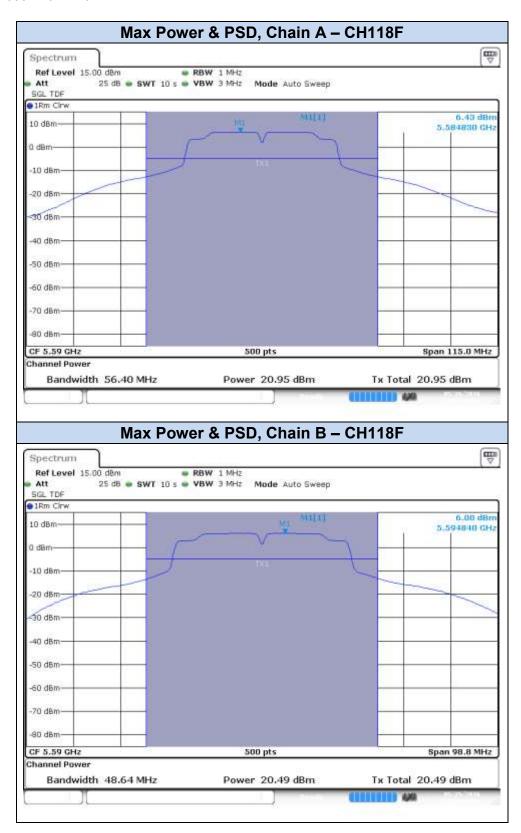


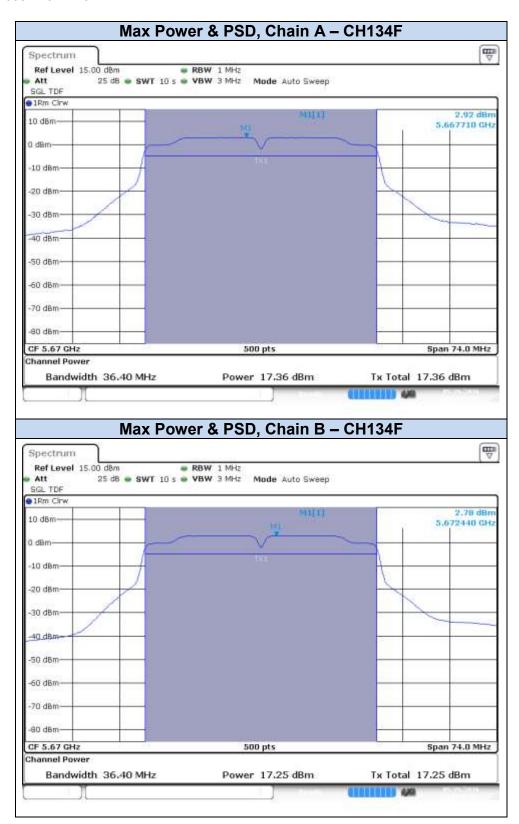


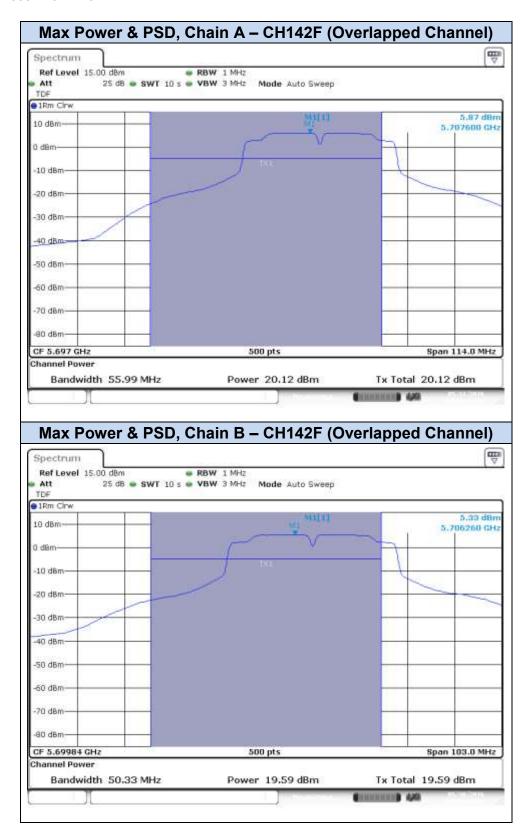


802.11n40, HT0 (SISO)

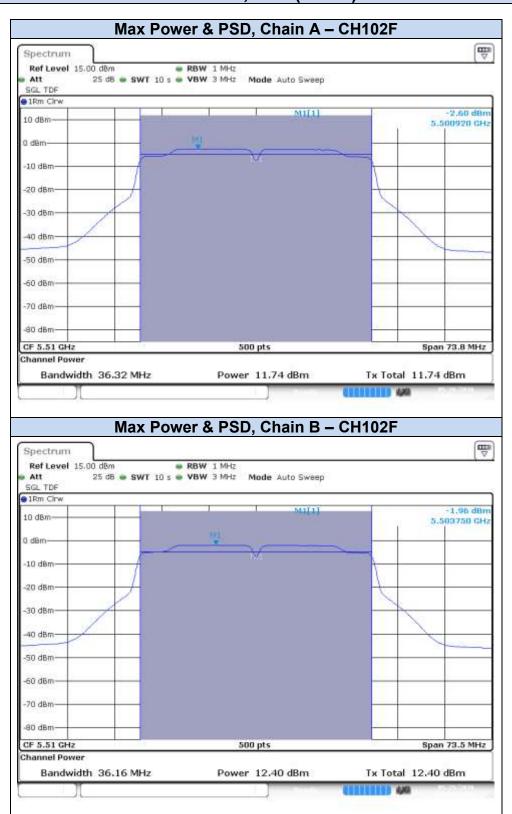


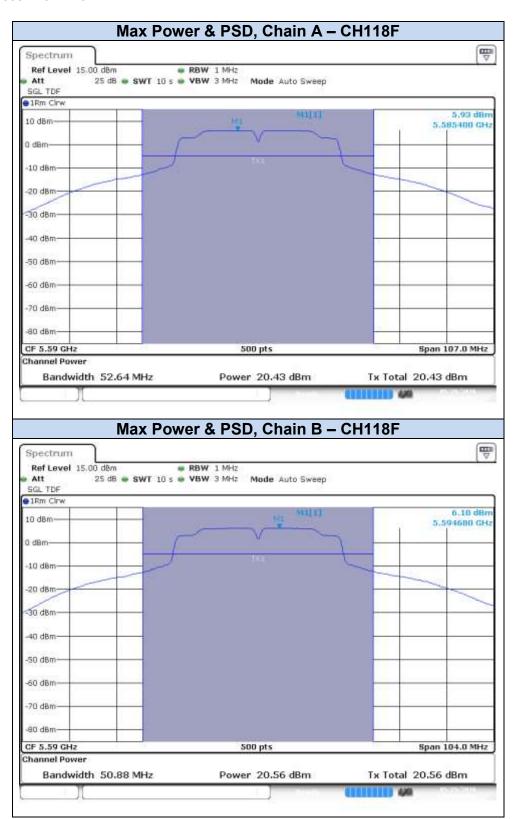


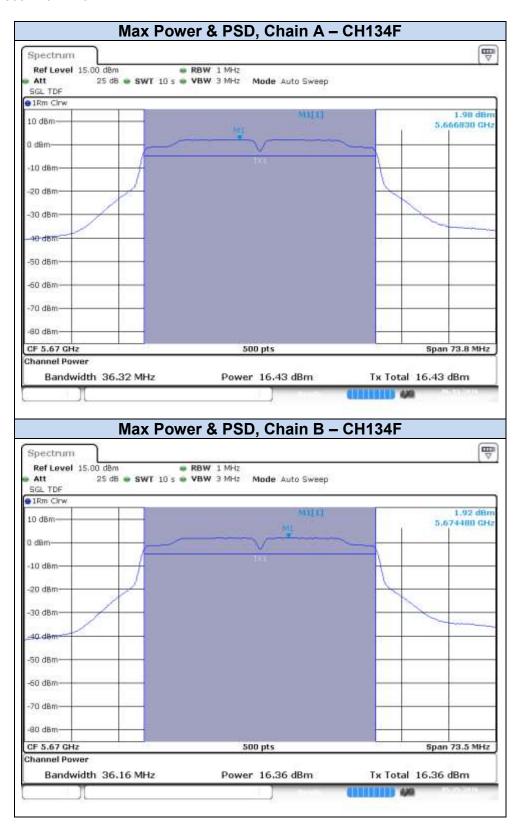


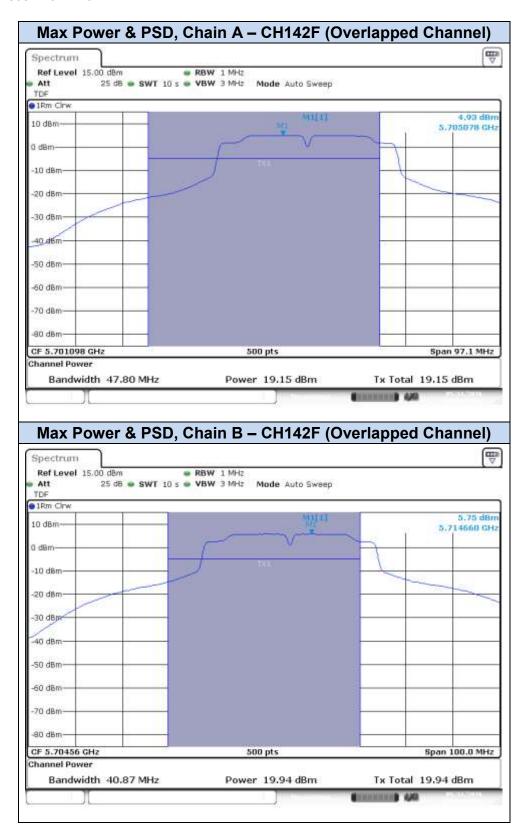


802.11n40, HT8 (MIMO)

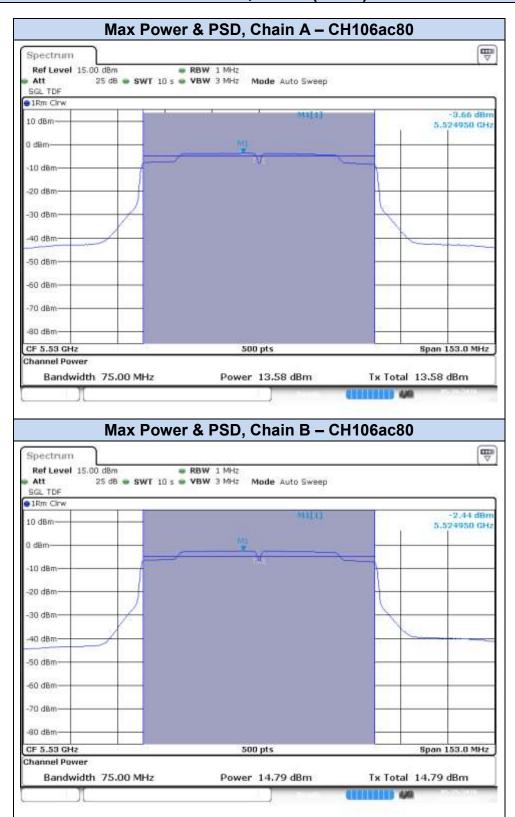




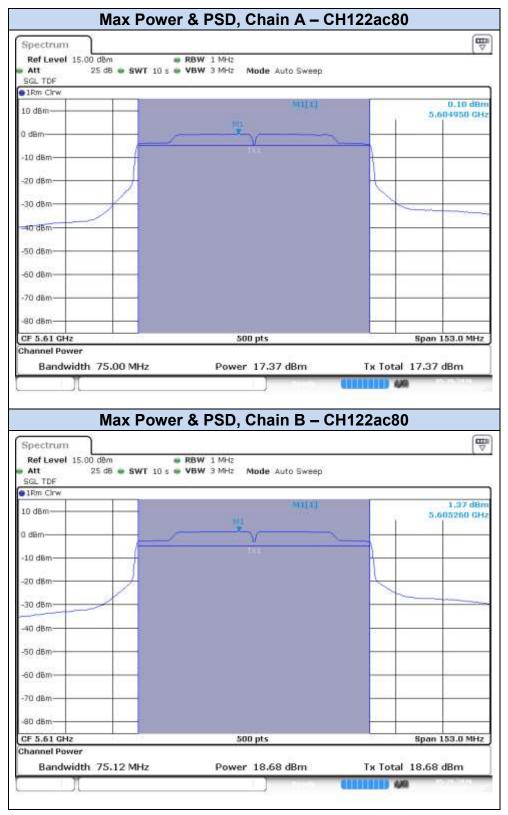




802.11ac80, VHT0 (SISO)





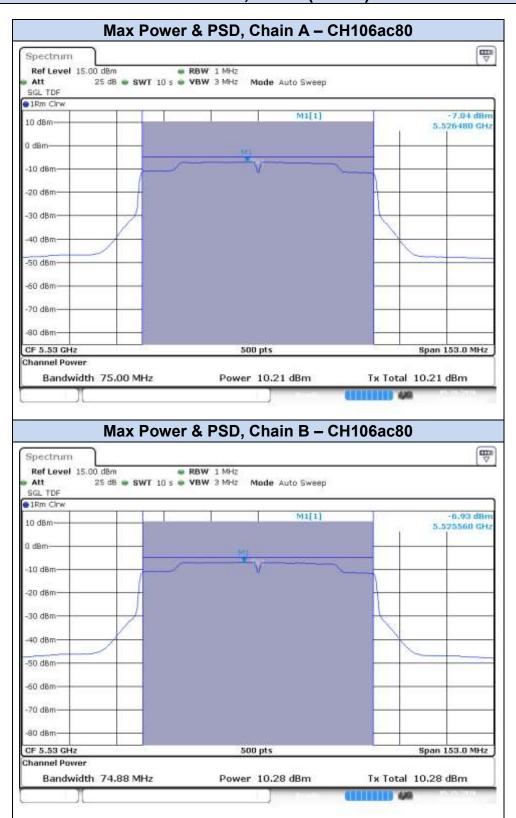


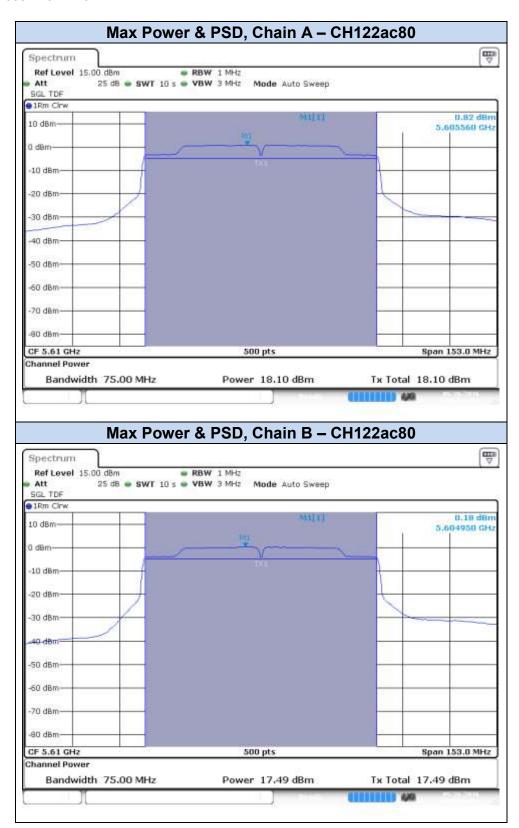


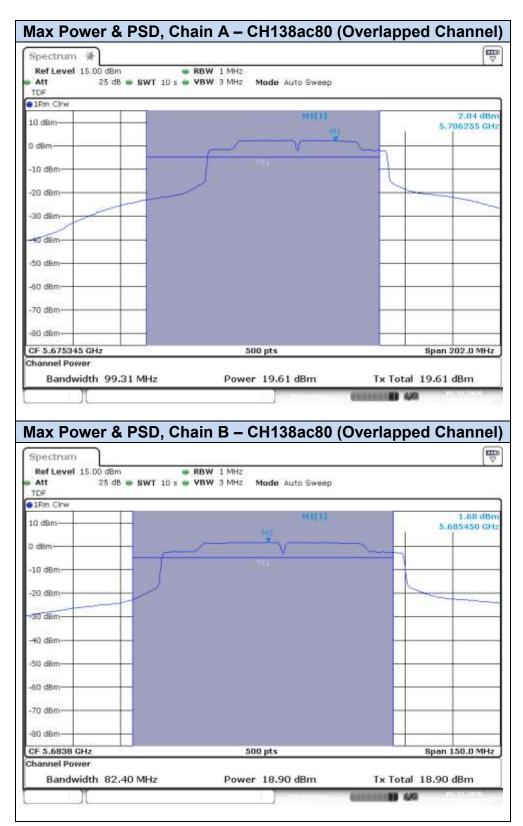




802.11ac80, VHT0 (MIMO)







B.3 Undesirable emissions limits: Band Edge (conducted)

Test limits:

FCC part	RSS part	Limits					
15.407 (b) (3)	RSS-247 Clause 6.2.2 (2)	For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.					
				the restricted bands, as defined in the radiated emission limits specified			
15.209	RSS-GEN, Clause 8.9	Freq Range	Field Strength	Field Strength	Meas. Distance		
		(MHz)	(μV/m)	(dBμV/m)	(m)		
		0.009-0.490	2400/f(kHz)	-	300		
		0.490-1.705	24000/f(kHz)	-	300		
		1.705-30.0	30	-	30		
		30-88	100	40	3		
		88-216	150	43.5	3		
		216-960	200	46	3		
		960-25000	500	54	3		
		The emission limits shown in the table above are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. For average radiated emission measurements above 1000 MHz, there is also a limit specified when measuring with peak detector function, corresponding to 20 dB above the indicated values in the table.					

Test procedure:

The setup below was used to measure undesirable emissions on the Band Edge domain. The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss and the declared Antenna Gain.

For Band Edge measurements in average mode on the low frequency section, the Video Bandwidth Method was used according to section G) 6) (KDB 789033 D02), with the following parameters:

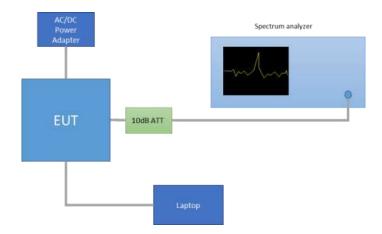
- When the duty cycle is > 98 %, VBW = 10Hz
- When the duty cycle is < 98 %, VBW > 1/T, where T is defined in section II.B.1.a

For the BE High, we use the integration method as defined in the band edge measurements section (paragraph II.G.3.d) of KDB 789033 D02.

In case of Band Edge measurements falling in restricted bands, the declared Antenna Gain is also compensated in the graph.

The declared maximum antenna gain is 5dBi.



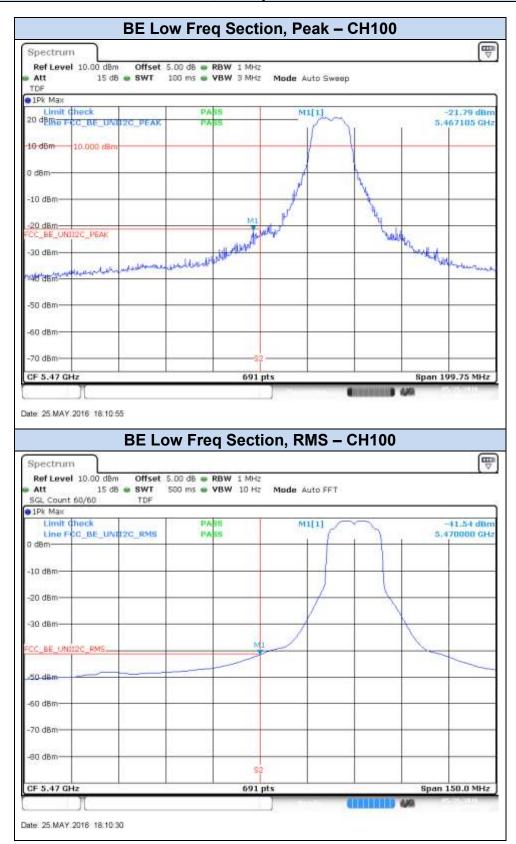


The following limits in dBm were applied for the average detector after the conversion from the limits detailed above in dB μ V/m, according to FCC 47 CFR part 15 - Subpart C – §15.209(a). The limits in dBm for peak detector are 20dB above the indicated values in the table.

	§15.209(a)		Converted values		
Freq Range (MHz)	Distance (m)	Field strength (microvolts/meter)	Field strength (dB microvolts/meter)	Power (dBm)	
960-25000	3	500	53.98	-41.2	

Results Screenshot:

802.11a, 6Mbps - Chain A





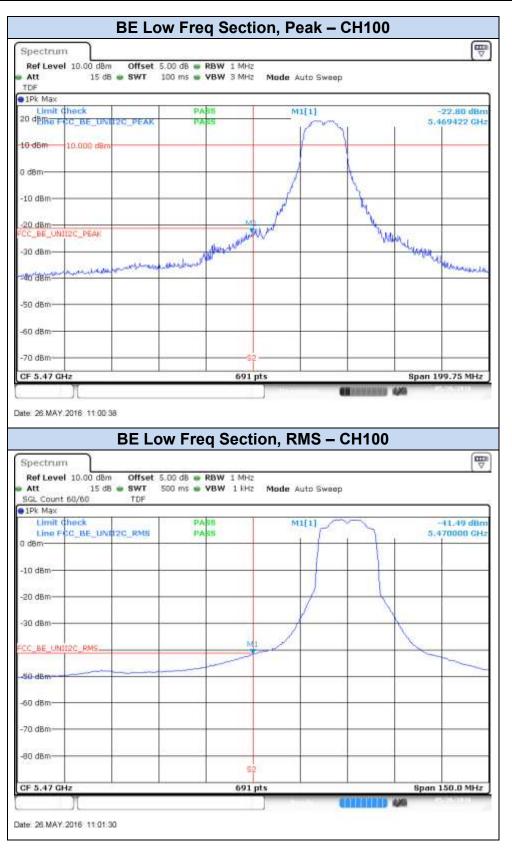
802.11a, 6Mbps - Chain B







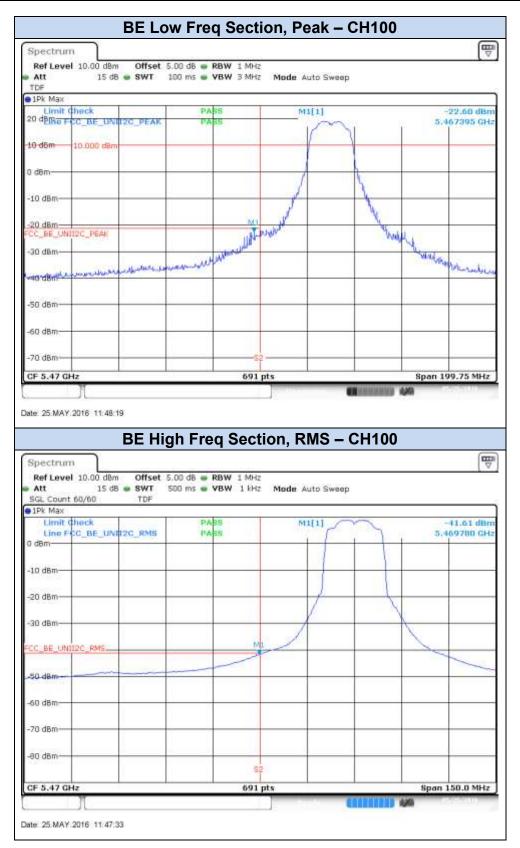
802.11n20, HT0 (SISO) - Chain A





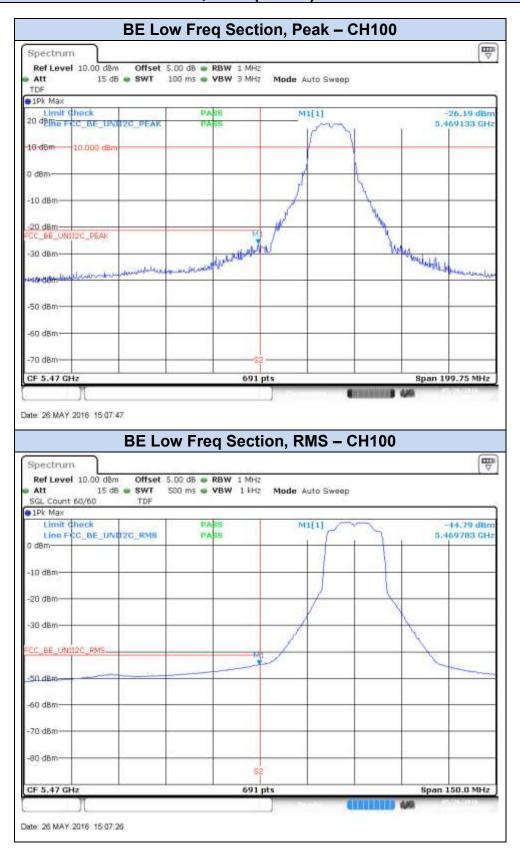


802.11n20, HT0 (SISO) - Chain B





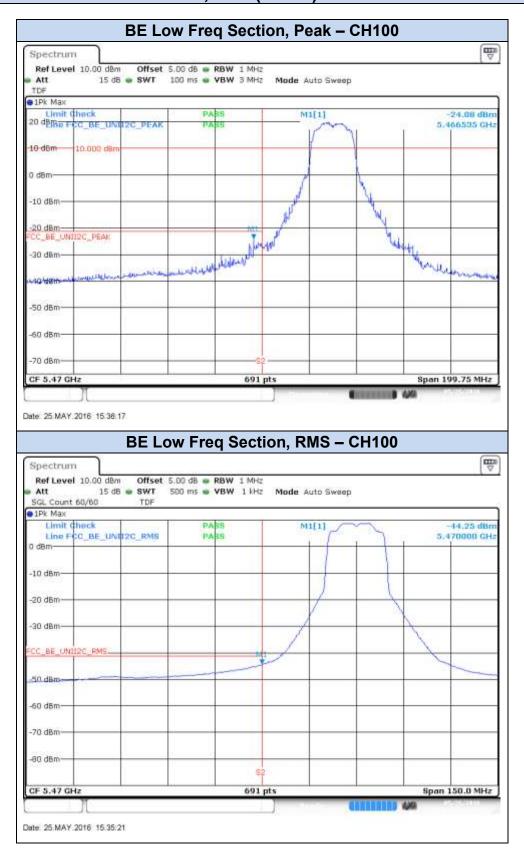
802.11n20, HT8 (MIMO) - Chain A







802.11n20, HT8 (MIMO) - Chain B



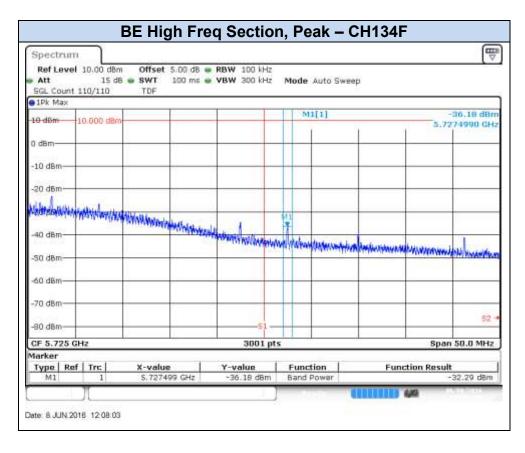






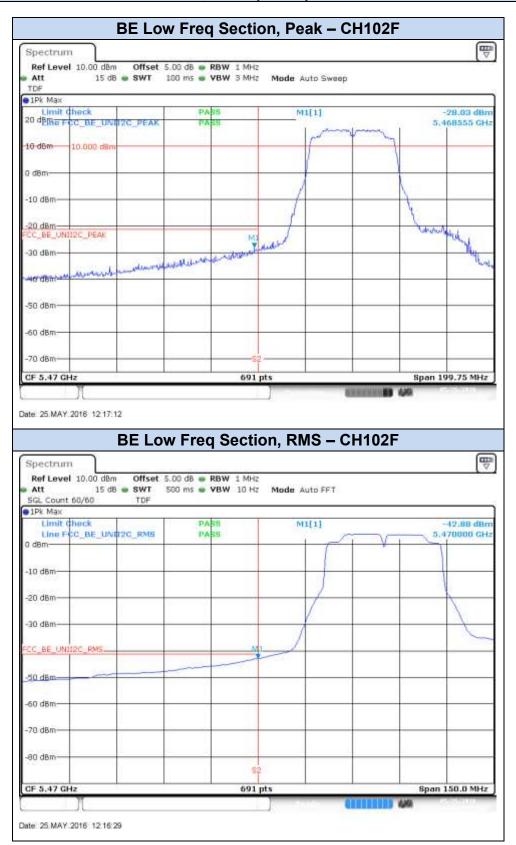
802.11n40, HT0 (SISO) - Chain A

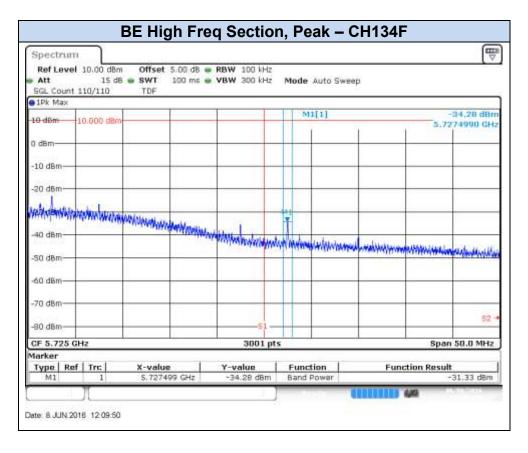






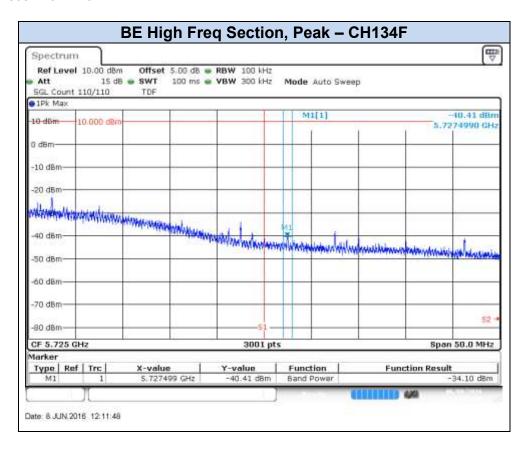
802.11n40, HT0 (SISO) - Chain B





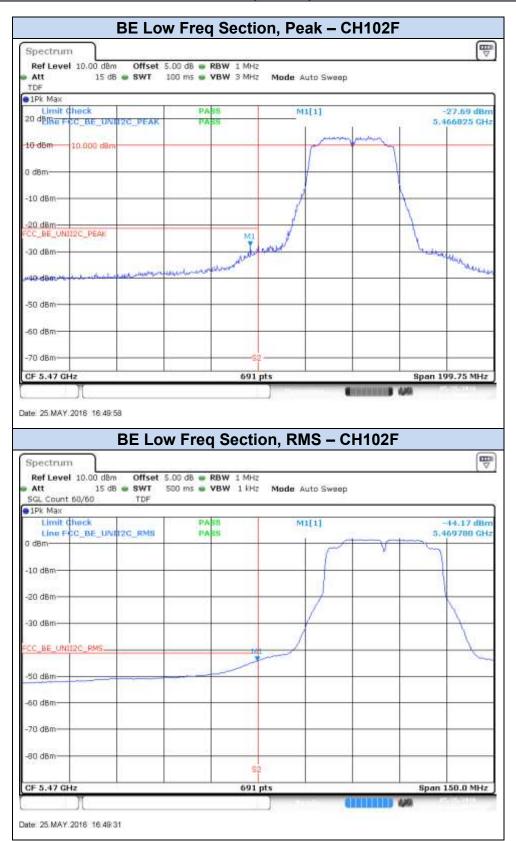
802.11n40, HT8 (MIMO) - Chain A

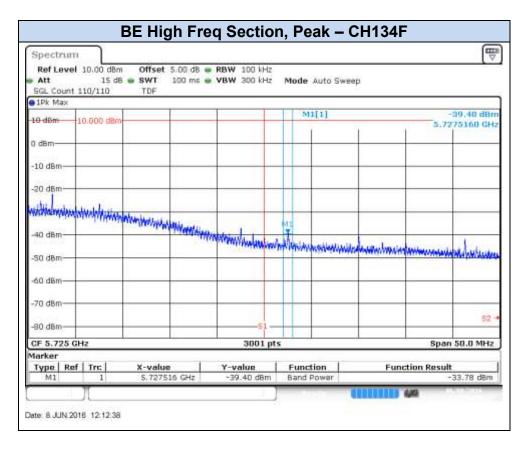






802.11n40, HT8 (MIMO) - Chain B







802.11ac80, VHT0 (SISO) - Chain A





802.11ac80, VHT0 (SISO) - Chain B





802.11ac80, VHT0 (MIMO)- Chain A





802.11ac80, VHT0 (MIMO)- Chain B



B.4 Radiated spurious emission

Standard references:

FCC part	RSS part		Li	imits		
15.407 (b) (3)	RSS-247 Clause 6.2.2 (2)	For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.				
			st also comply		ands, as defined ed emission lim	
		Freq Range	Field Strength	Field Strength	Meas. Distance	
		(MHz) 0.009-0.490	(μV/m) 2400/f(kHz)	(dBμV/m)	(m) 300	l
		0.490-1.705	2400/f(kHz)	<u>-</u>	300	
		1.705-30.0	30	_	30	
		30-88	100	40	3	
		88-216	150	43.5	3	
45 000	RSS-GEN,	216-960	200	46	3	
15.209	Clause 8.9	Above 960	500	54	3	
		The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. For average radiated emission measurements above 1000 MHz, there is also a limit specified when measuring with peak detector function, corresponding to 20 dB above the indicated values in the table.			the Hz. on Hz,	

Test procedure:

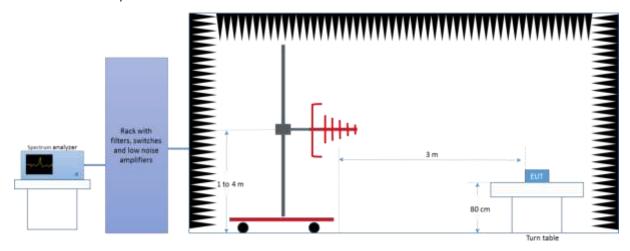
The below setups were used to measure the radiated spurious emissions.

Depending of the frequency range and bands being tested, different antennas and filters were used.

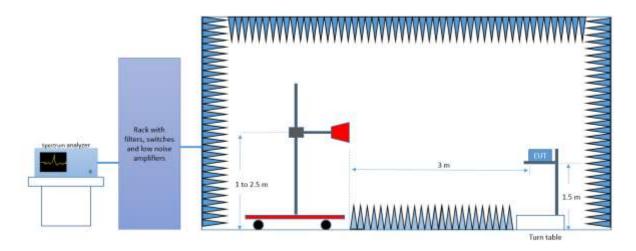
The final measurement is done by varying the antenna height from, the EUT azimuth over 360° and for both Vertical and Horizontal polarizations.

The radiated spurious emissions were measured on the worst case configuration selected from the chapter B.2 and using the lowest, middle and highest channels.

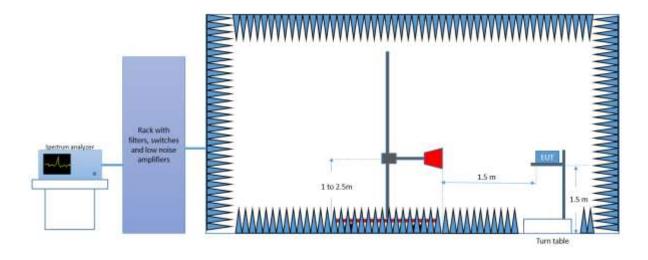
Radiated Setup < 1GHz



Radiated Setup 1 GHz - 18 GHz

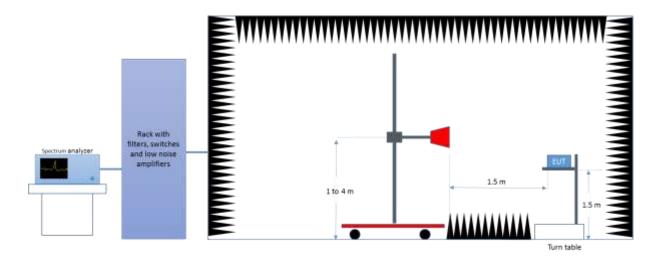


Radiated Setup 18 GHz - 26.5 GHz



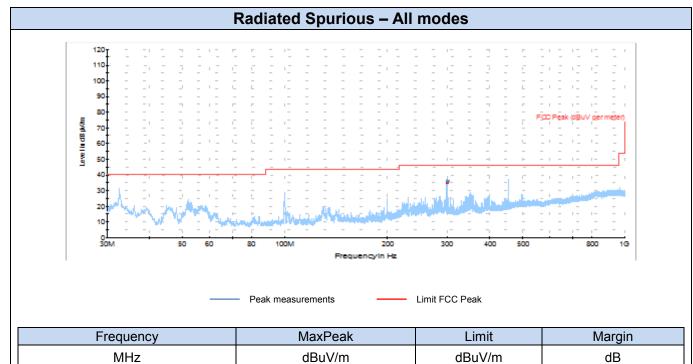


$Radiated\ Setup > 26.5\ GHz$



Test Results:

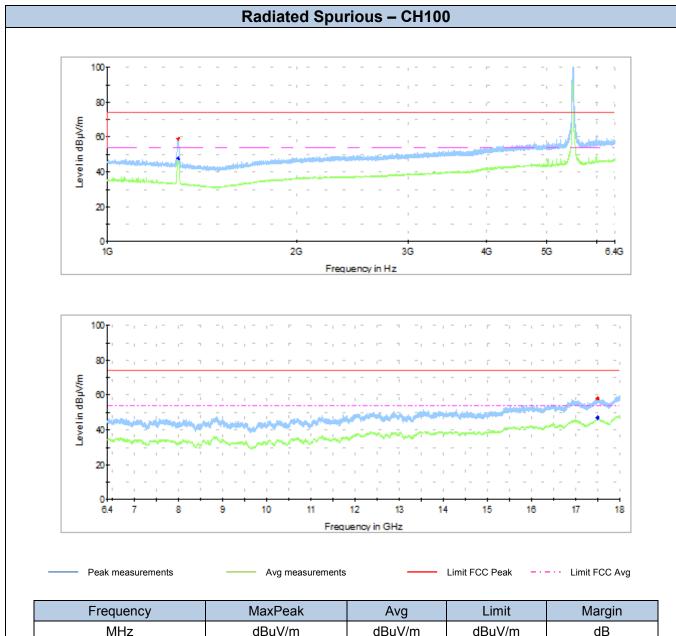
Radiated Spurious - 30MHz to 1GHz



300 36.0 46 10.0

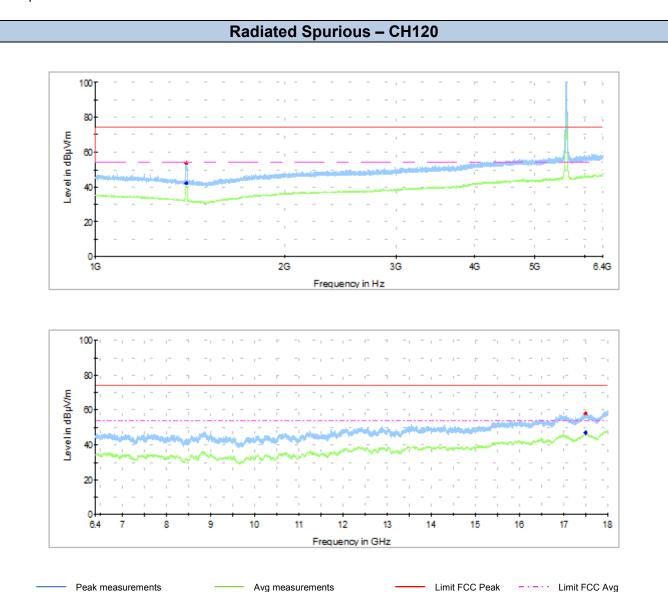
Note 1: The spurious signals detected do not depend on either the operating channel or the modulation mode.

1 GHz – 18 GHz, 802.11a, 6Mbps, Chain A



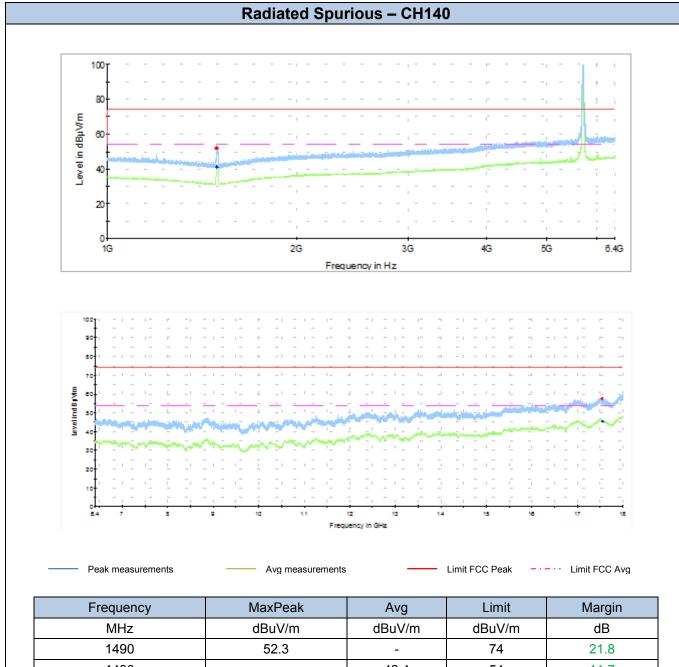
Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1295	60.2	-	74	13.8
1295	-	48.8	54	5.2
17491	57.9	-	74	16.1
17507	-	47.0	54	7.0





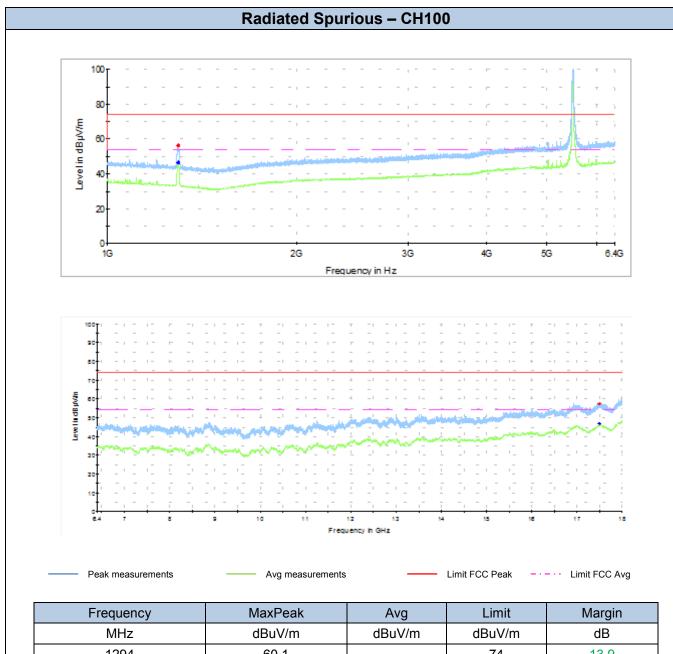
Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1394	55.8	-	74	18.2
1394	-	43.7	54	10.3
17546	57.8	-	74	16.2
17546	-	45.9	54	8.1





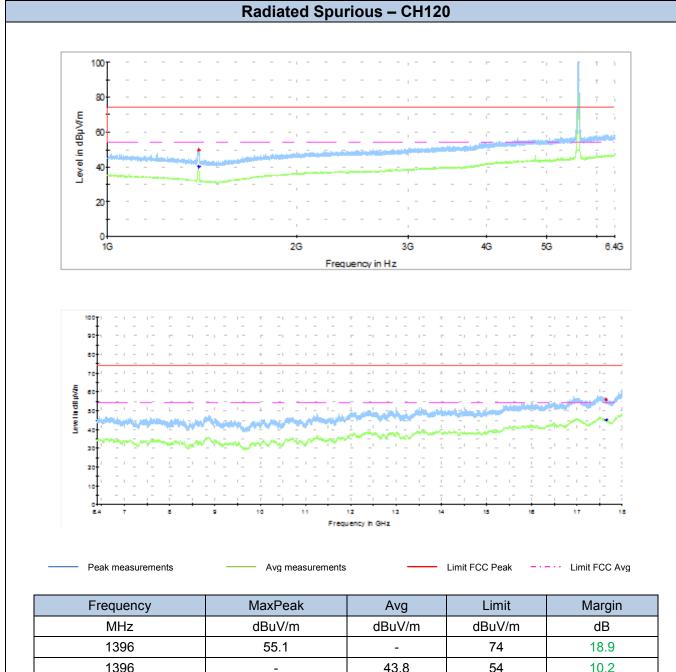
Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1490	52.3	-	74	21.8
1490	-	42.4	54	11.7
17550	57.4	-	74	16.6
17550	-	45.5	54	8.5

1 GHz – 18 GHz, 802.11a, 6Mbps, Chain B



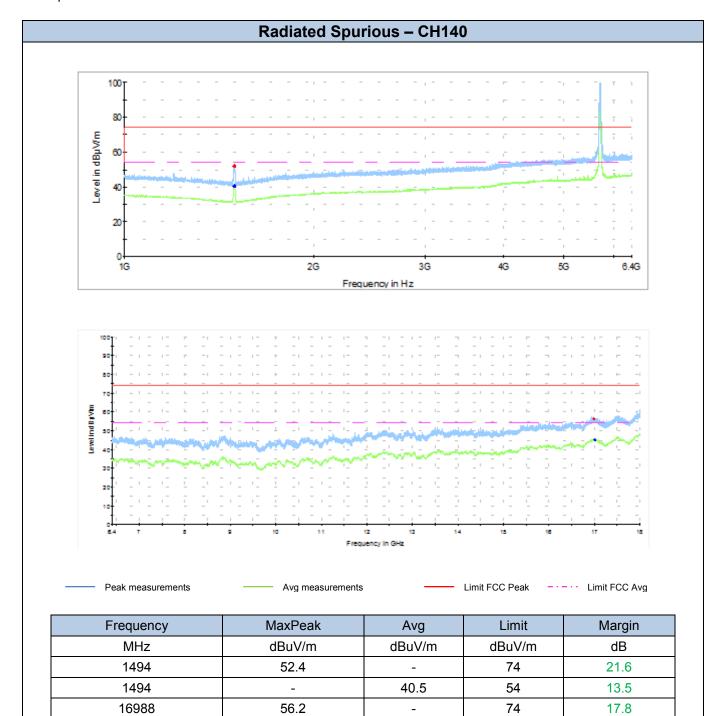
Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1294	60.1	-	74	13.9
1294	-	49.4	54	4.6
17491	57.4	-	74	16.6
17492	-	47.0	54	7.0





Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1396	55.1	-	74	18.9
1396	-	43.8	54	10.2
17648	56.1	-	74	17.9
17648	-	45.1	54	8.9

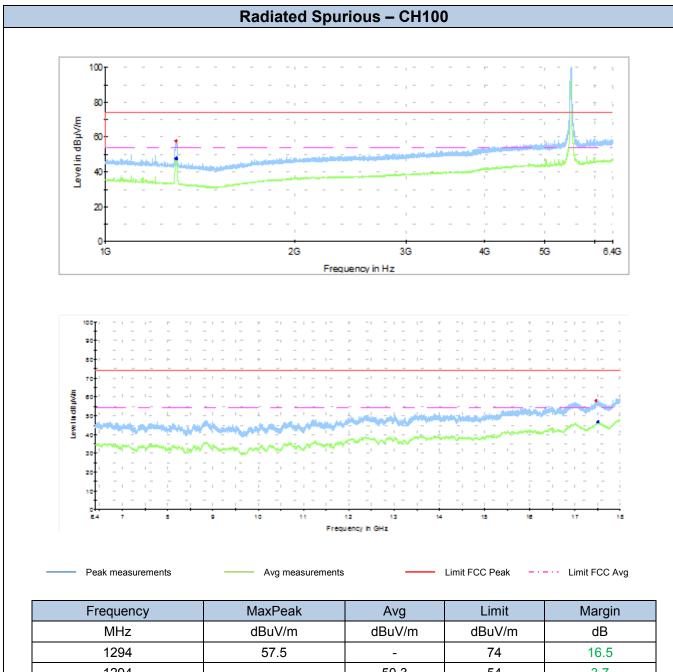




45.0

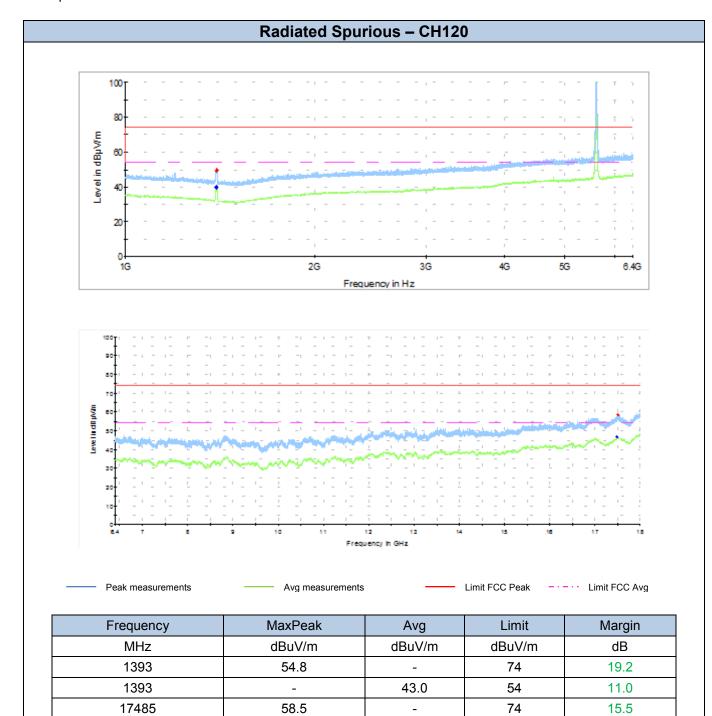
54

1 GHz - 18 GHz, 802.11n20, HT0, Chain A



Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1294	57.5	-	74	16.5
1294	-	50.3	54	3.7
17478	58.1	-	74	15.9
17498	-	46.7	54	7.3

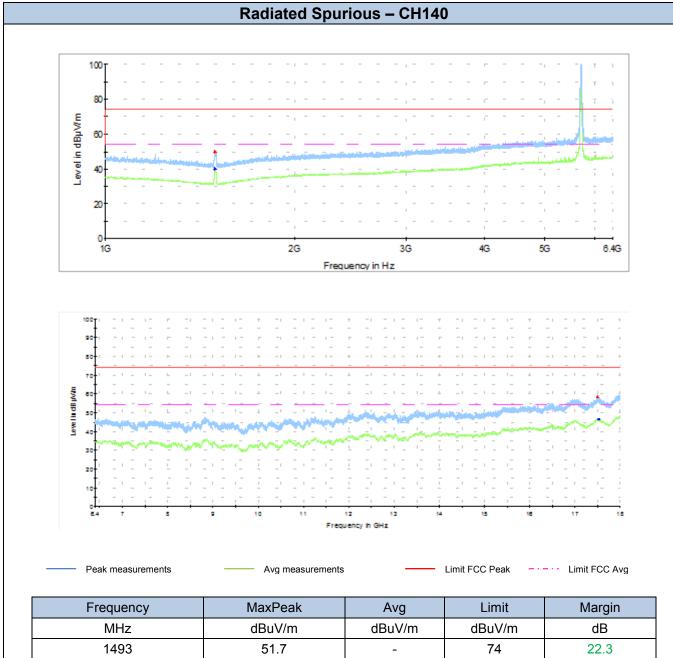




46.6

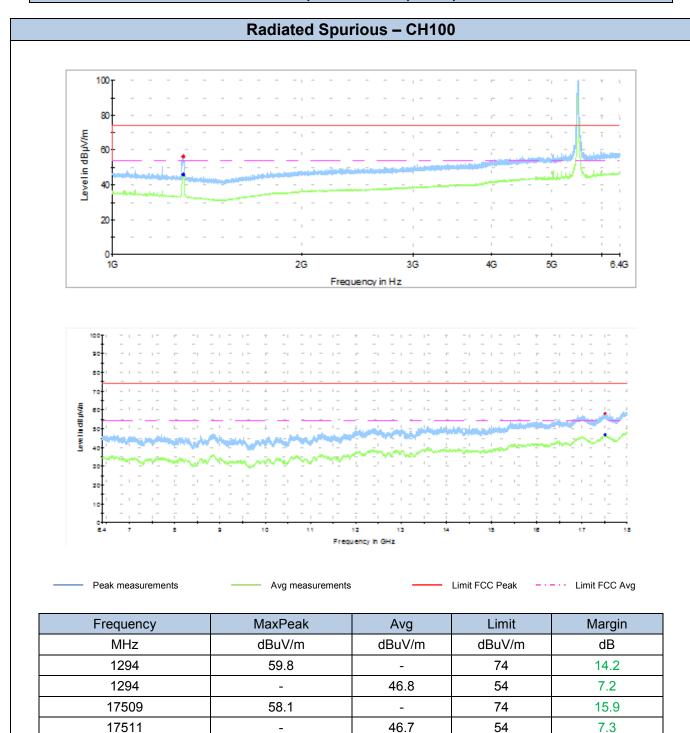
54



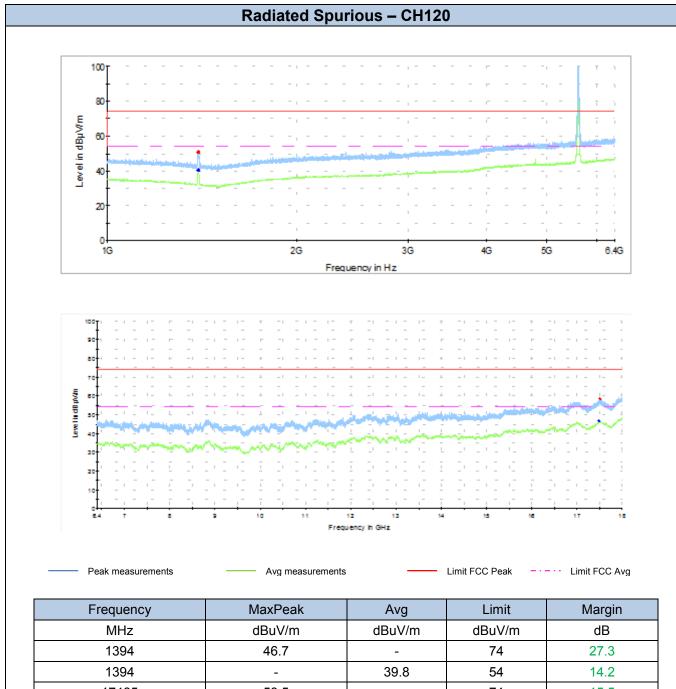


Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1493	51.7	-	74	22.3
1493	-	40.9	54	13.1
17505	58.1	-	74	15.9
17526	-	46.5	54	7.5

1 GHz - 18 GHz, 802.11n20, HT0, Chain B

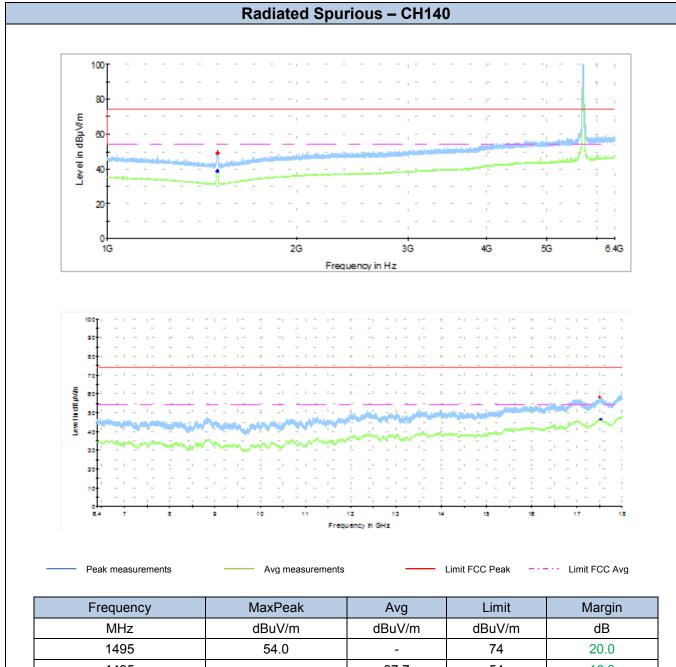






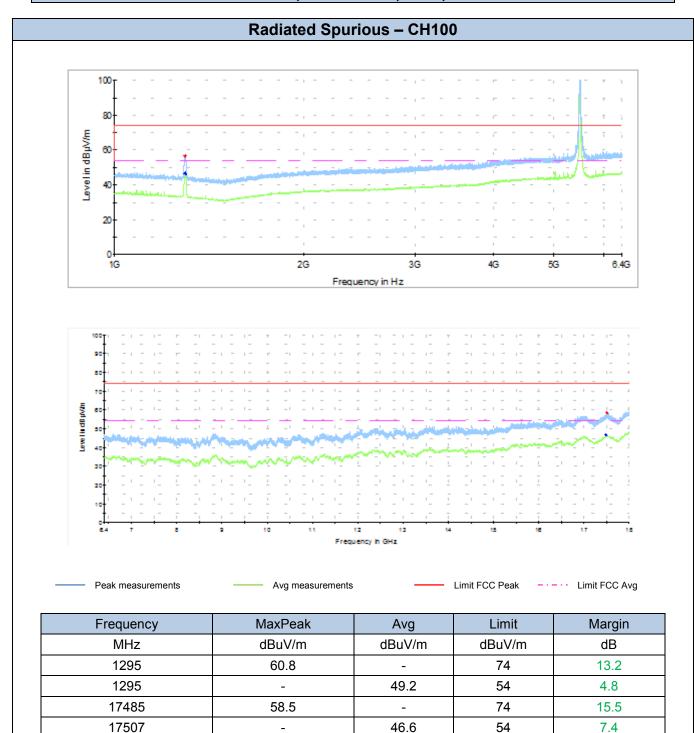
Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1394	46.7	-	74	27.3
1394	-	39.8	54	14.2
17485	58.5	-	74	15.5
17507	-	46.6	54	7.4



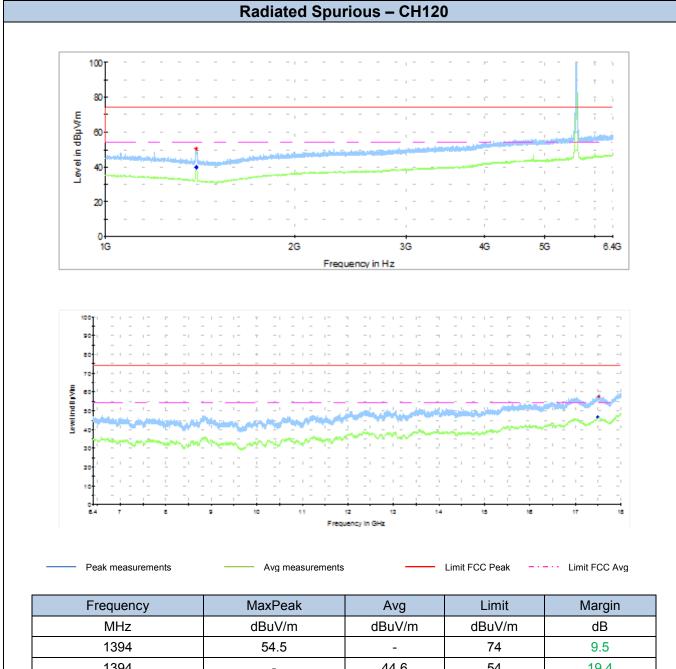


Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1495	54.0	-	74	20.0
1495	-	37.7	54	16.3
17505	58.1	-	74	15.9
17526	-	46.4	54	7.6

1 GHz - 18 GHz, 802.11n20, HT8, Chain A+B

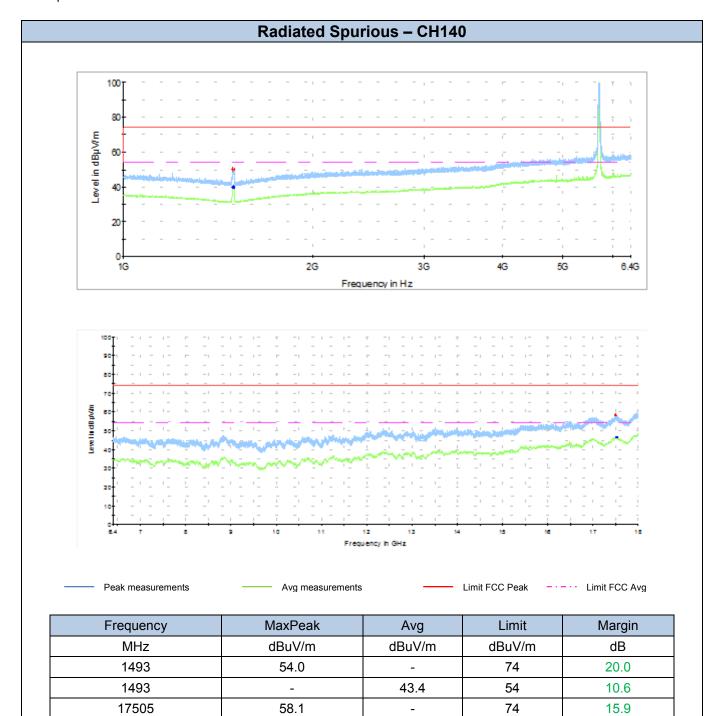






Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1394	54.5	-	74	9.5
1394	-	44.6	54	19.4
17485	57.6	-	74	16.4
17521	-	46.6	54	7.4

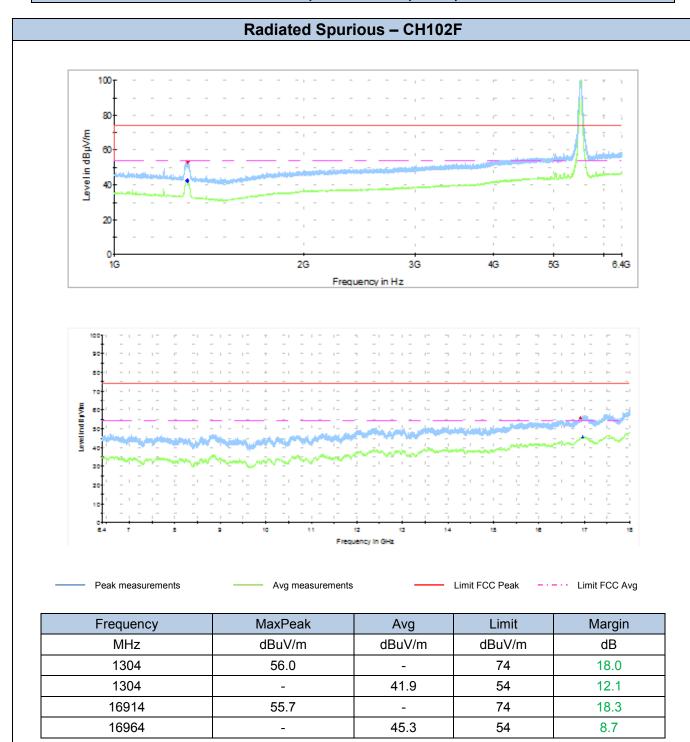




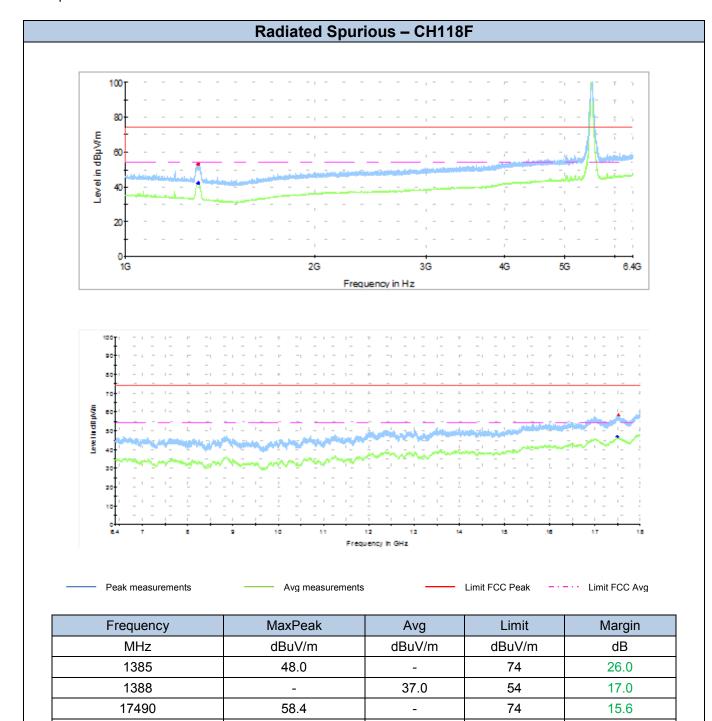
46.5

54

1 GHz - 18 GHz, 802.11n40, HT0, Chain A





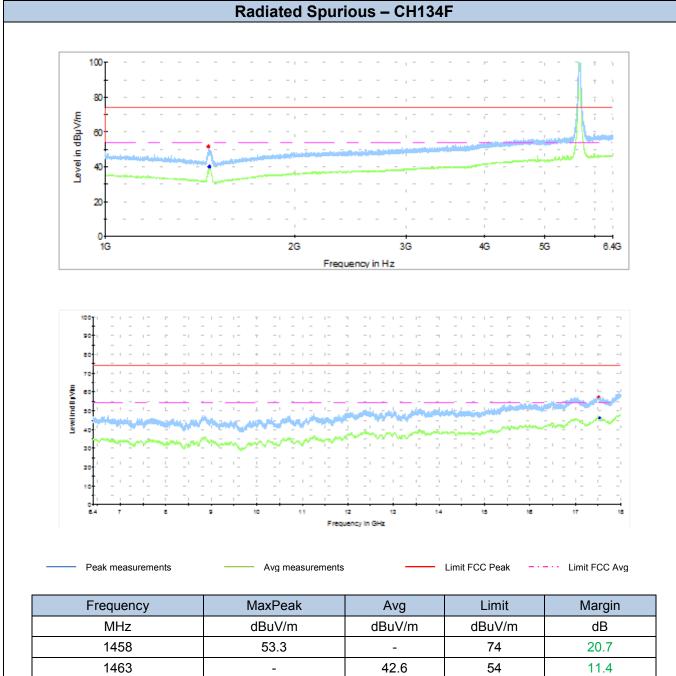


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46.9

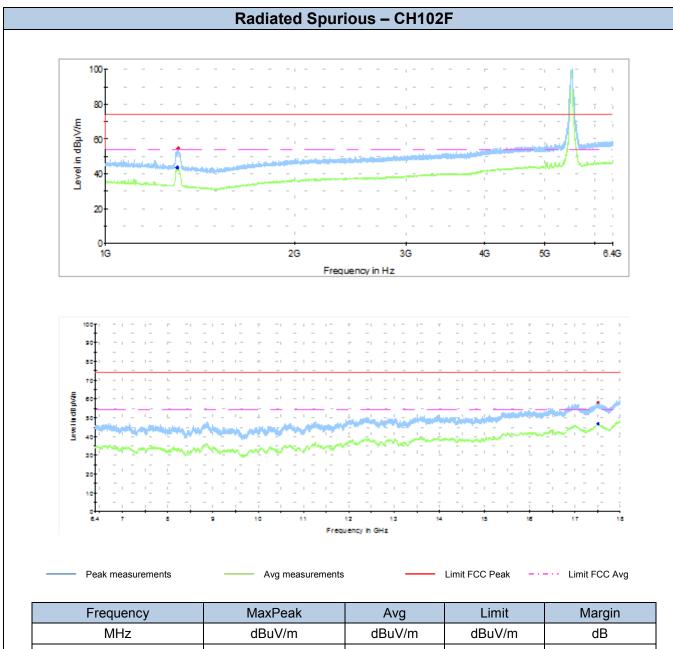
54





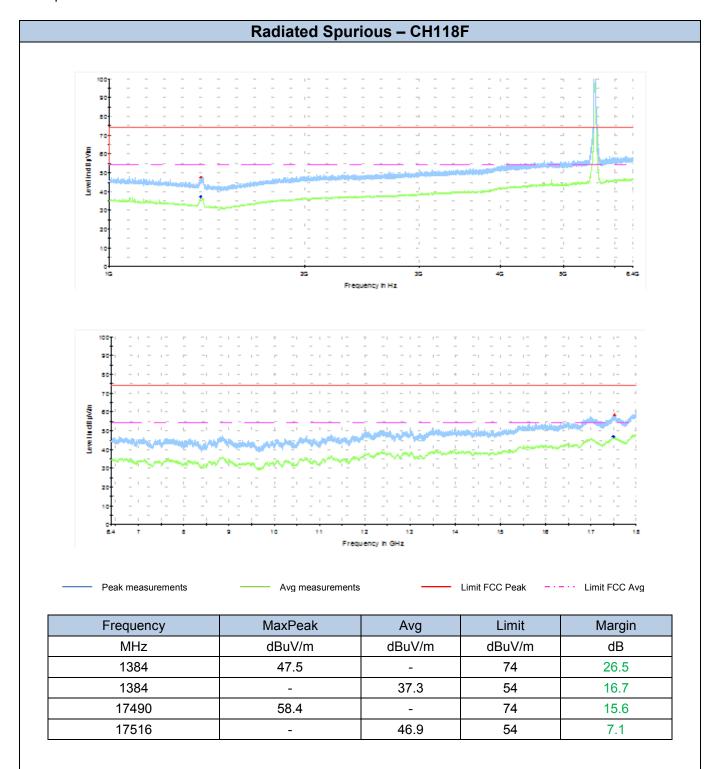
Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1458	53.3	-	74	20.7
1463	-	42.6	54	11.4
17506	57.3	-	74	16.7
17533	-	46.3	54	7.7

1 GHz - 18 GHz, 802.11n40, HT0, Chain B

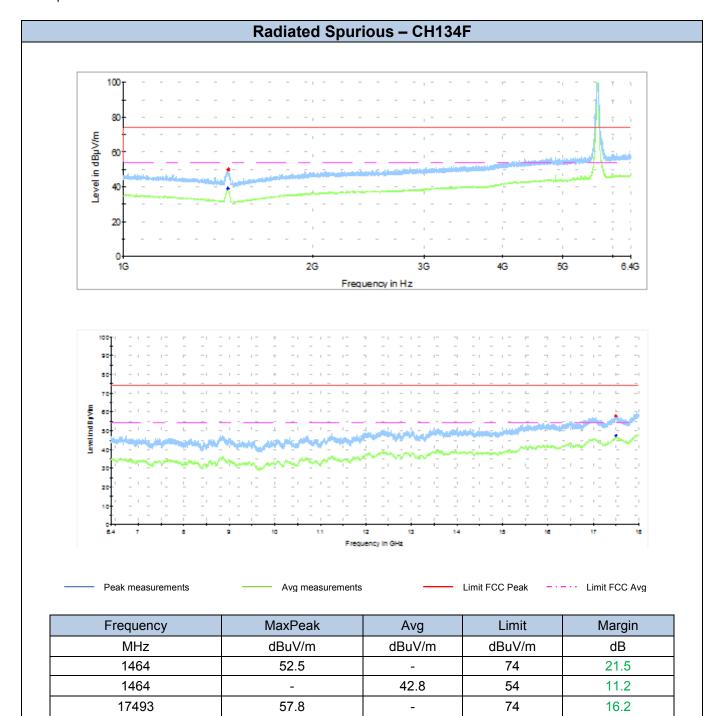


Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1303	57.4	-	74	16.6
1303	-	46.8	54	7.2
17507	58.2	-	74	15.8
17508	-	46.8	54	7.2









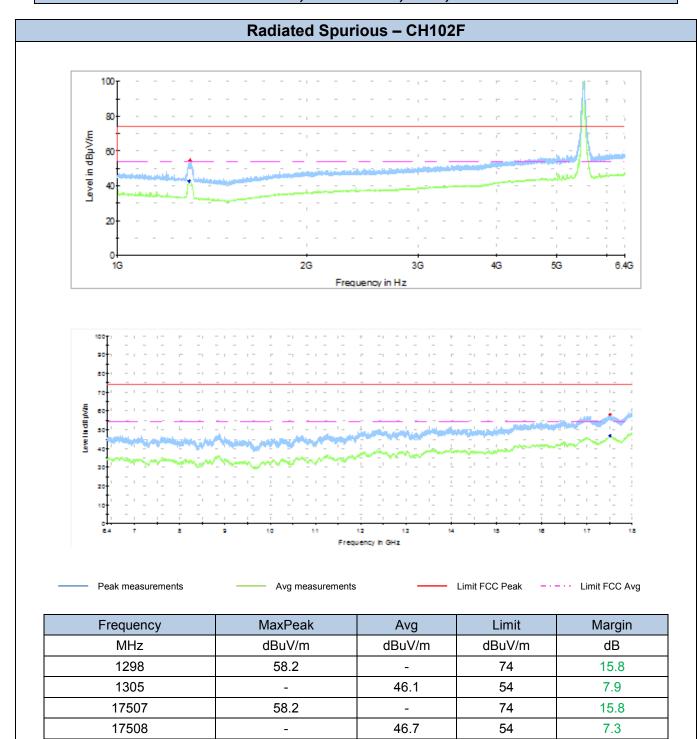
47.3

-

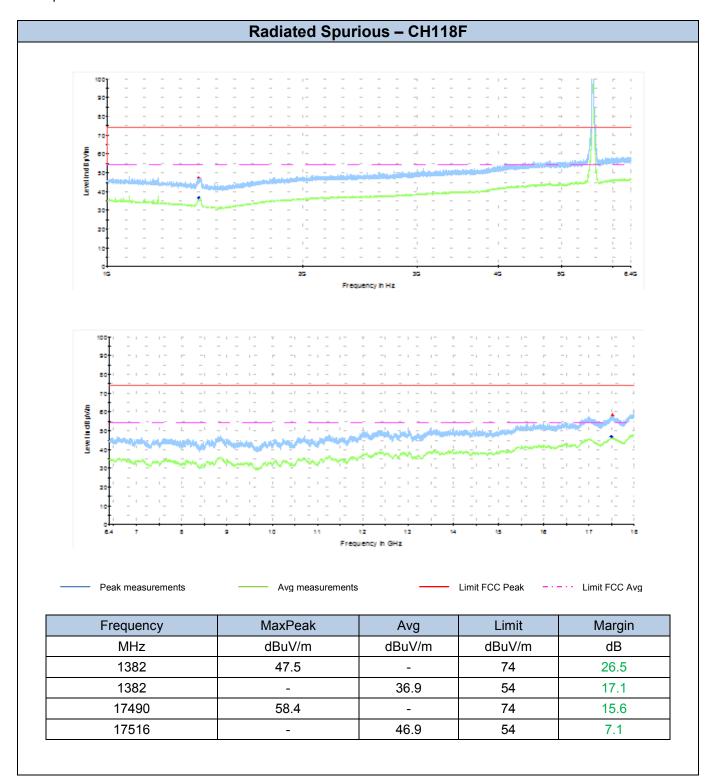
54



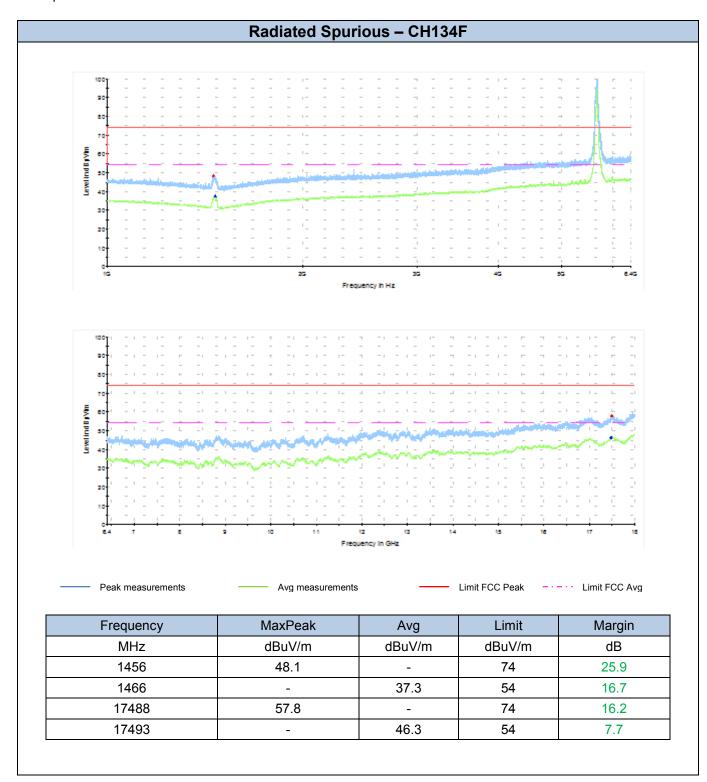
1 GHz - 18 GHz, 802.11n40, HT8, Chain A+B





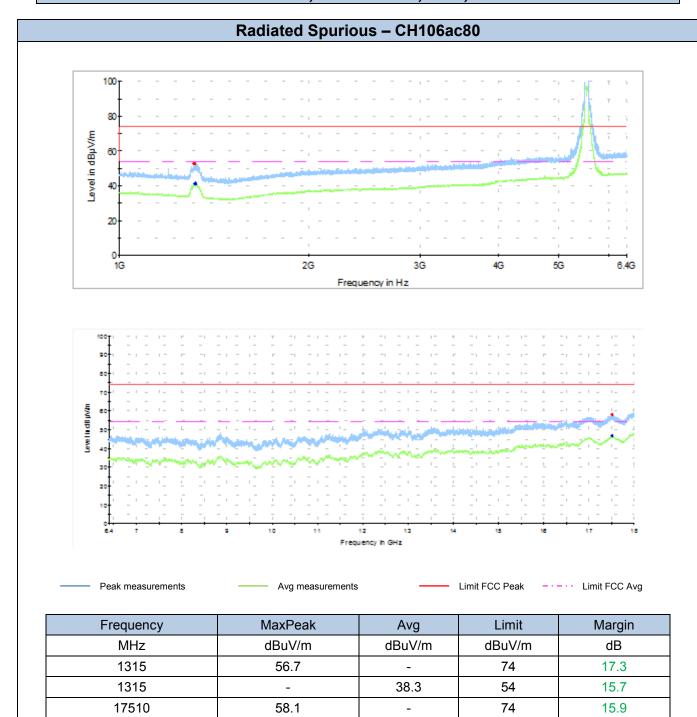






17516

1 GHz - 18 GHz, 802.11ac80, HT0, Chain A



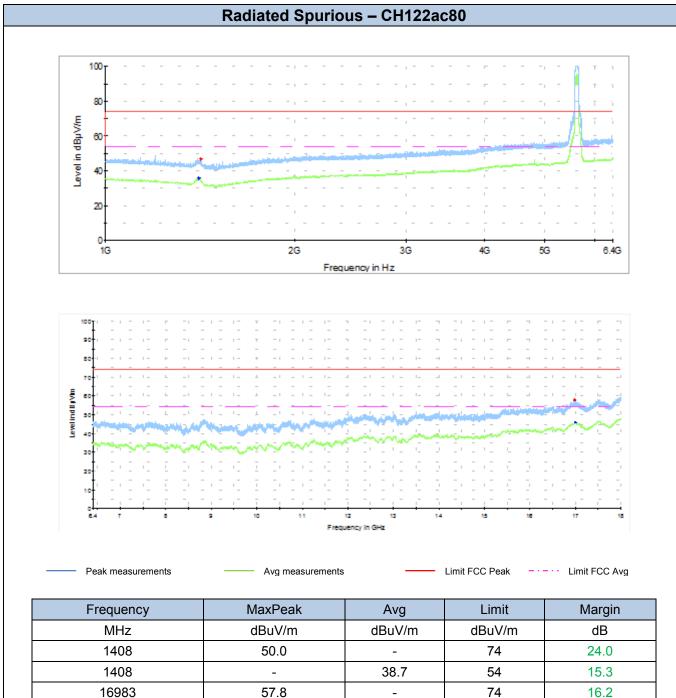
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46.9

54

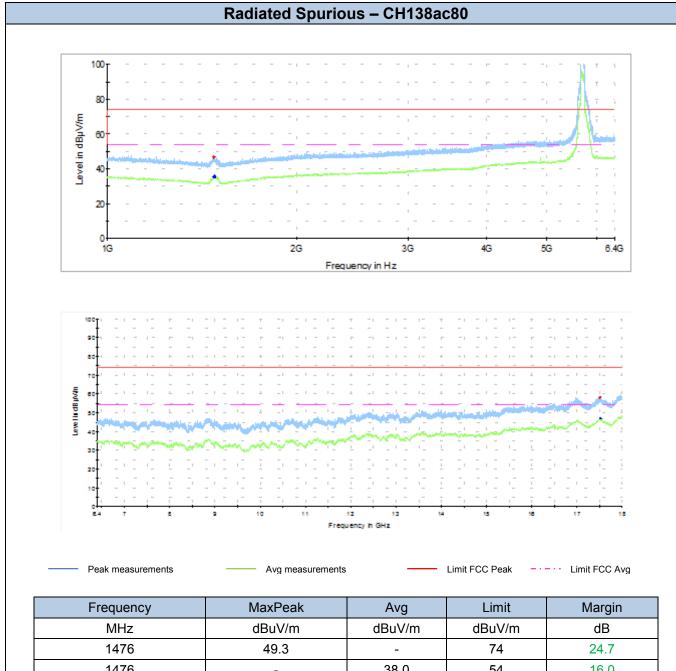
7.1





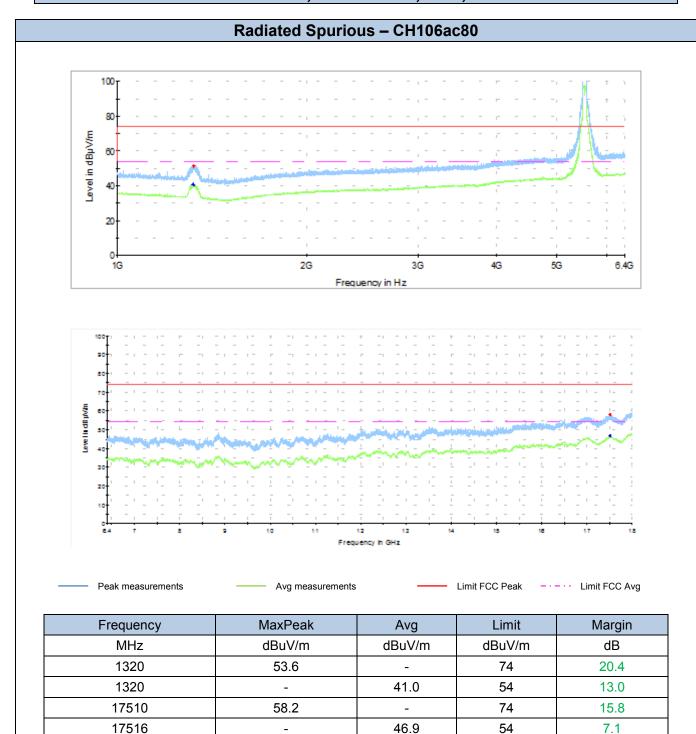
Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1408	50.0	-	74	24.0
1408	-	38.7	54	15.3
16983	57.8	-	74	16.2
17001	-	45.9	54	8.1



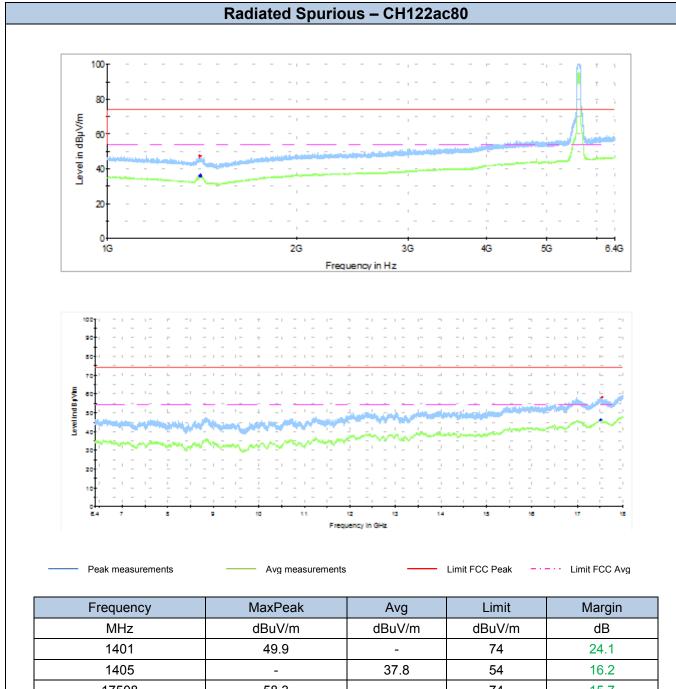


Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1476	49.3	-	74	24.7
1476	-	38.0	54	16.0
17511	58.2	-	74	15.8
17519	-	47.1	54	6.9

1 GHz - 18 GHz, 802.11ac80, HT0, Chain B

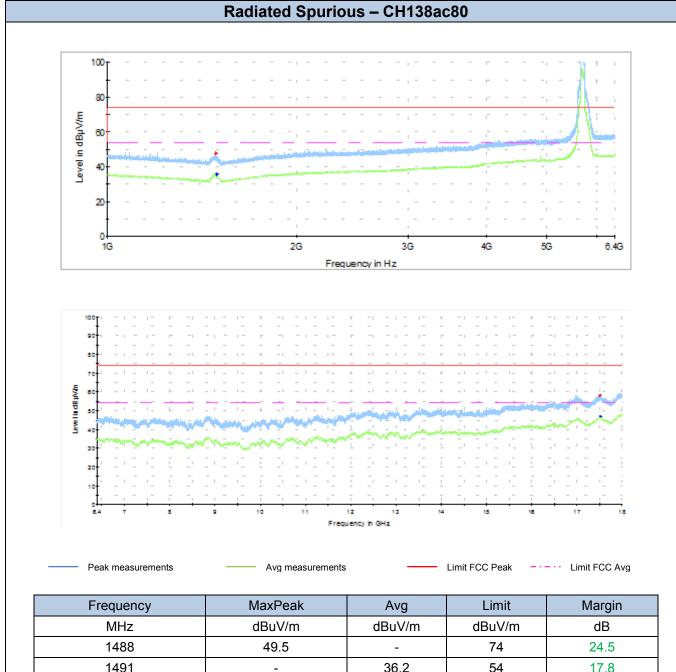






3
1
2
7
7

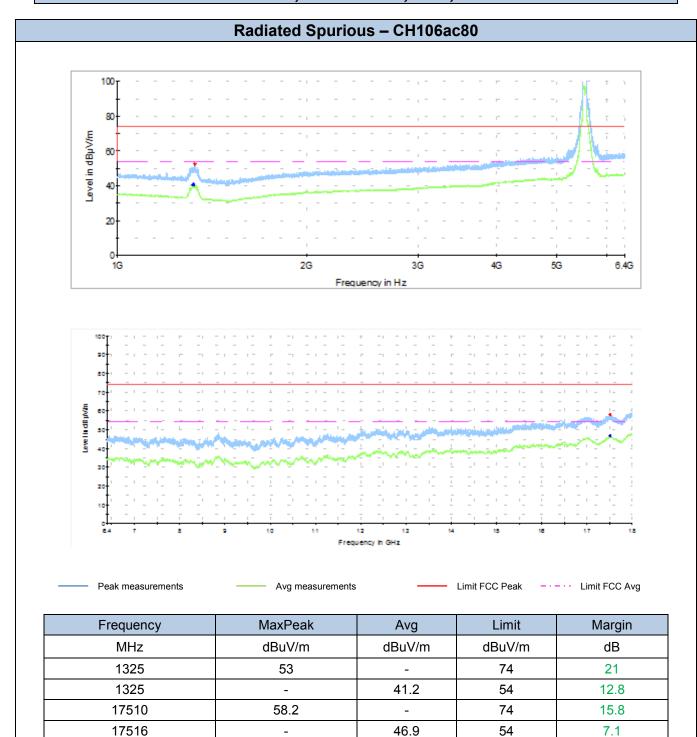




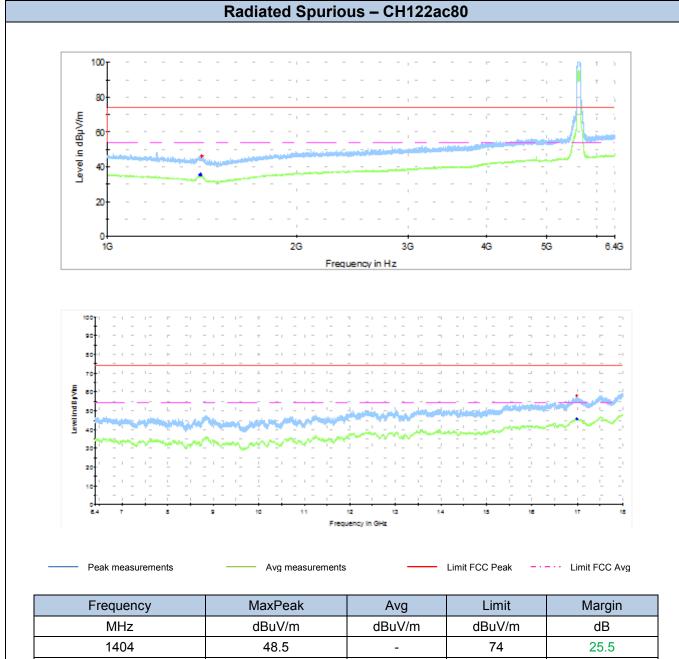
Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1488	49.5	-	74	24.5
1491	-	36.2	54	17.8
17511	58.2	-	74	15.8
17519	-	47.0	54	7.0



1 GHz - 18 GHz, 802.11ac80, HT8, Chain A+B

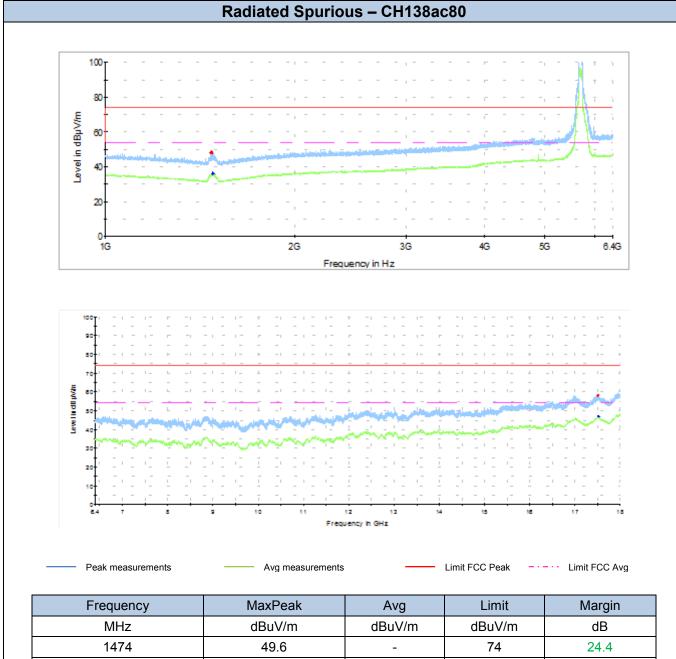






Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1404	48.5	-	74	25.5
1404	-	37.2	54	16.8
16987	58.1	-	74	15.9
16991	-	45.6	54	8.4

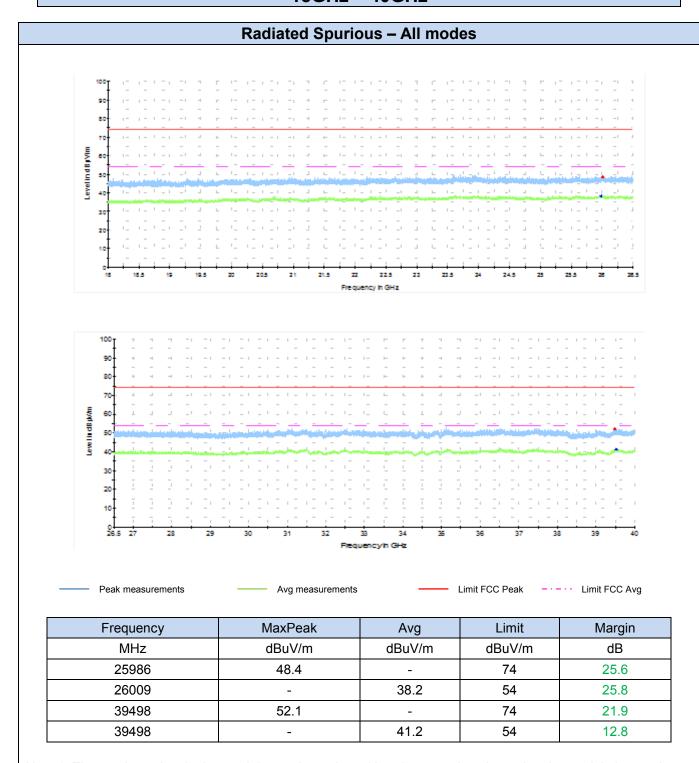




Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1474	49.6	-	74	24.4
1480	-	36.8	54	17.2
17511	58.2	-	74	15.8
17519	-	47.1	54	6.9



18GHz - 40GHz



Note 1: The spurious signals detected do not depend on either the operating channel or the modulation mode.