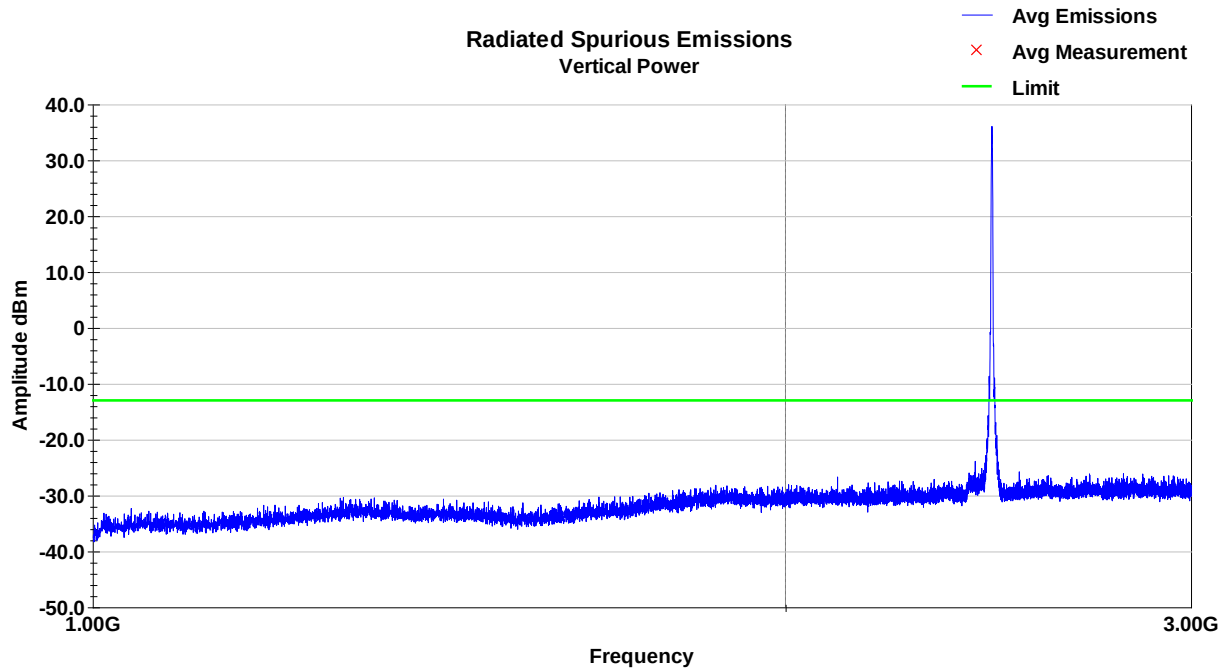
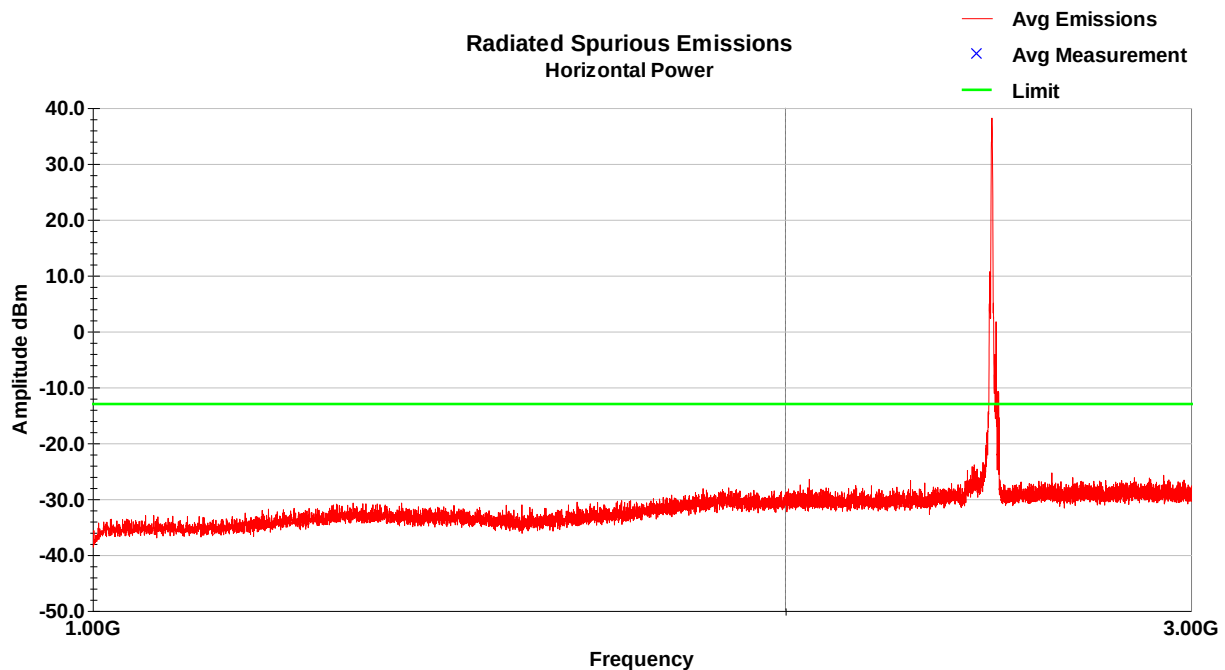


7.5.2 Chains: 2x2 MIMO

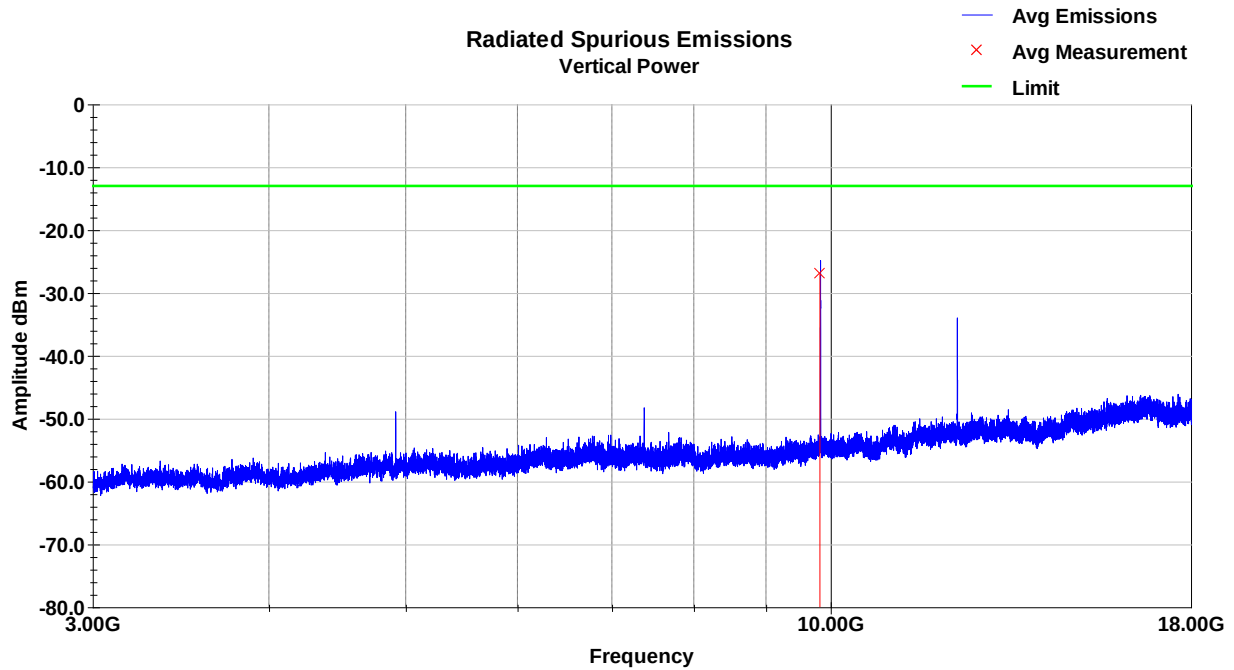
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11b LCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11b LCH)



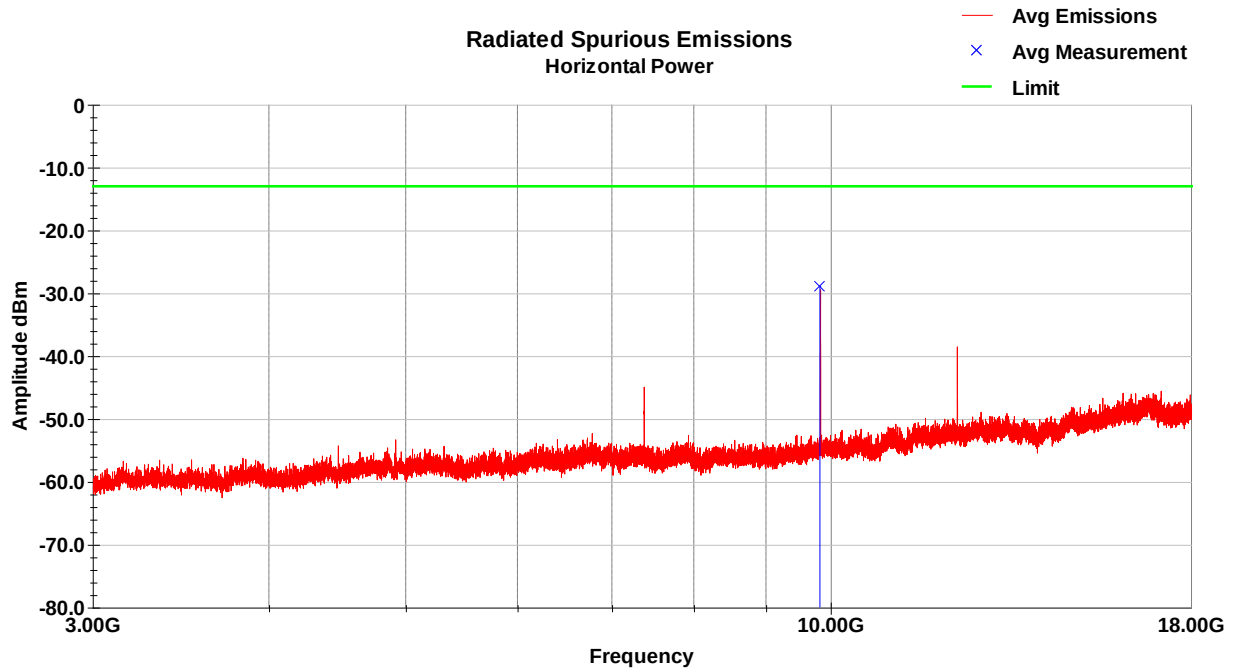
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11b LCH)



Vertical Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11b LCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9828.04	-24.8	V	155.0	176.0	36.9	2.9	42.0	-27.0	-13.0	-14.0
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

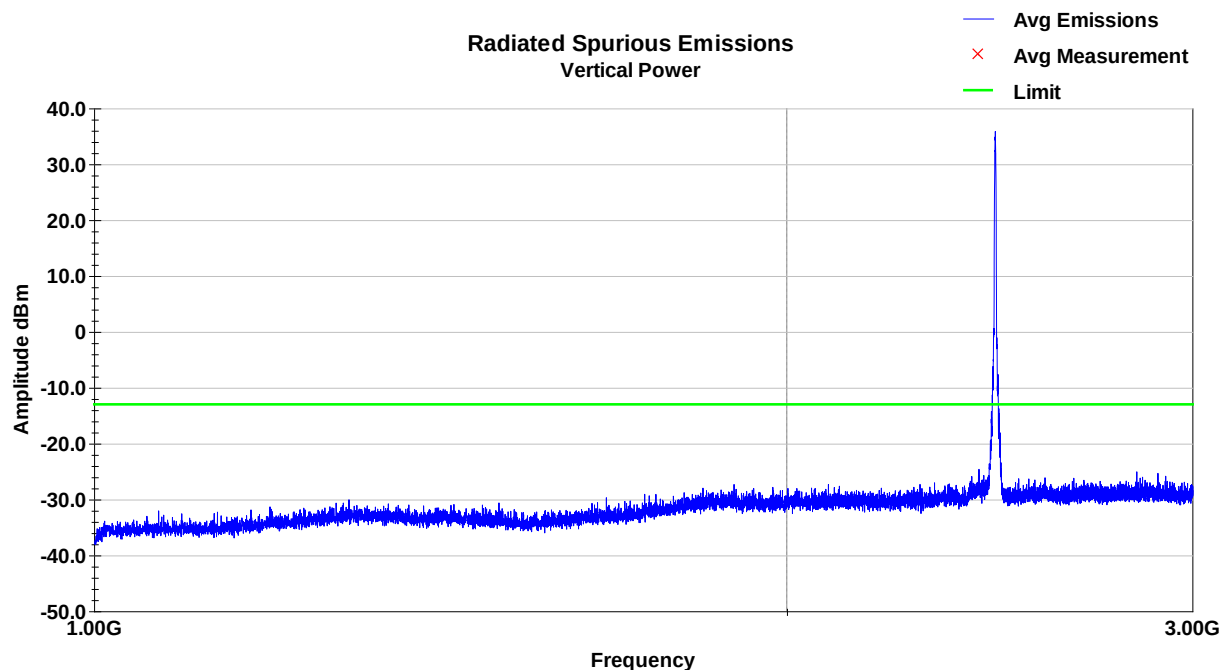
Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11b LCH)



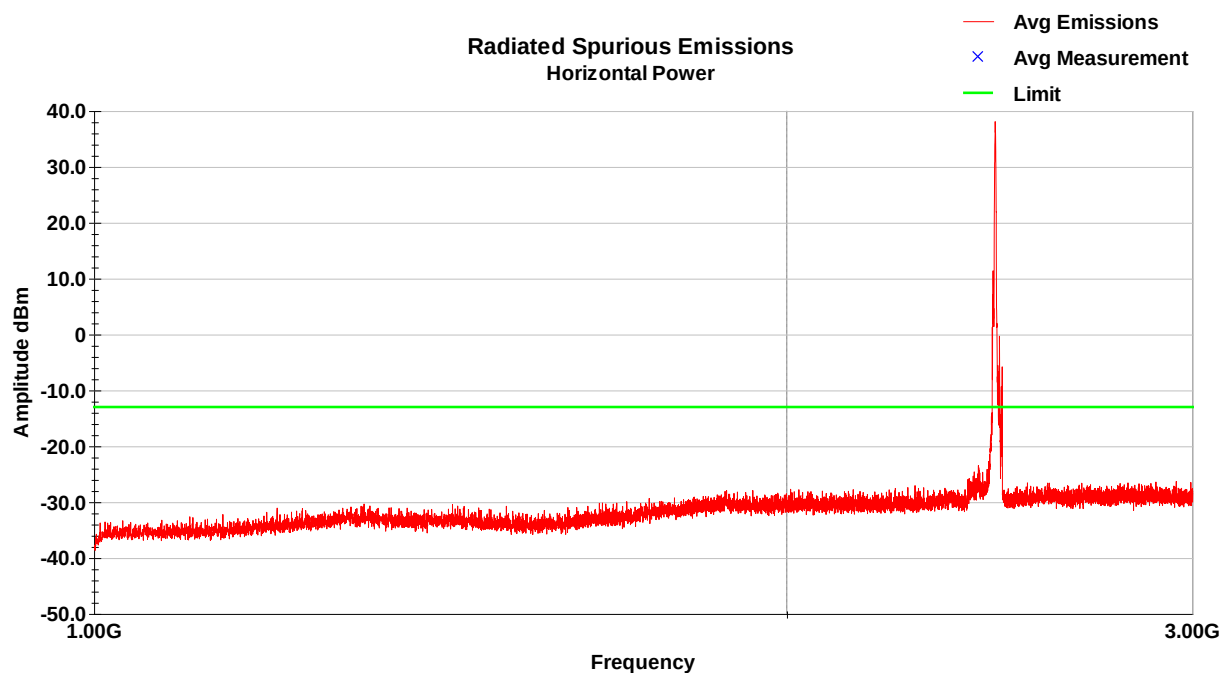
Horizontal Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11b LCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9828.04	-26.7	H	138.0	239.0	36.9	2.9	42.0	-28.9	-13.0	-15.9
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

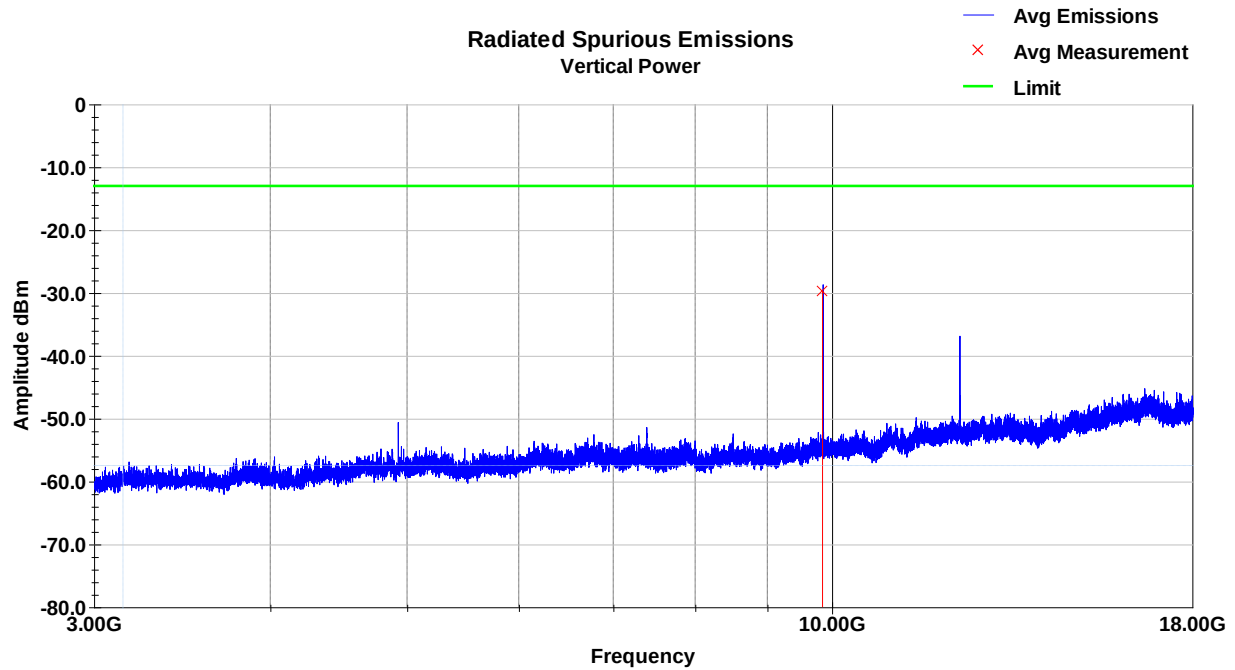
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11b MCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11b MCH)



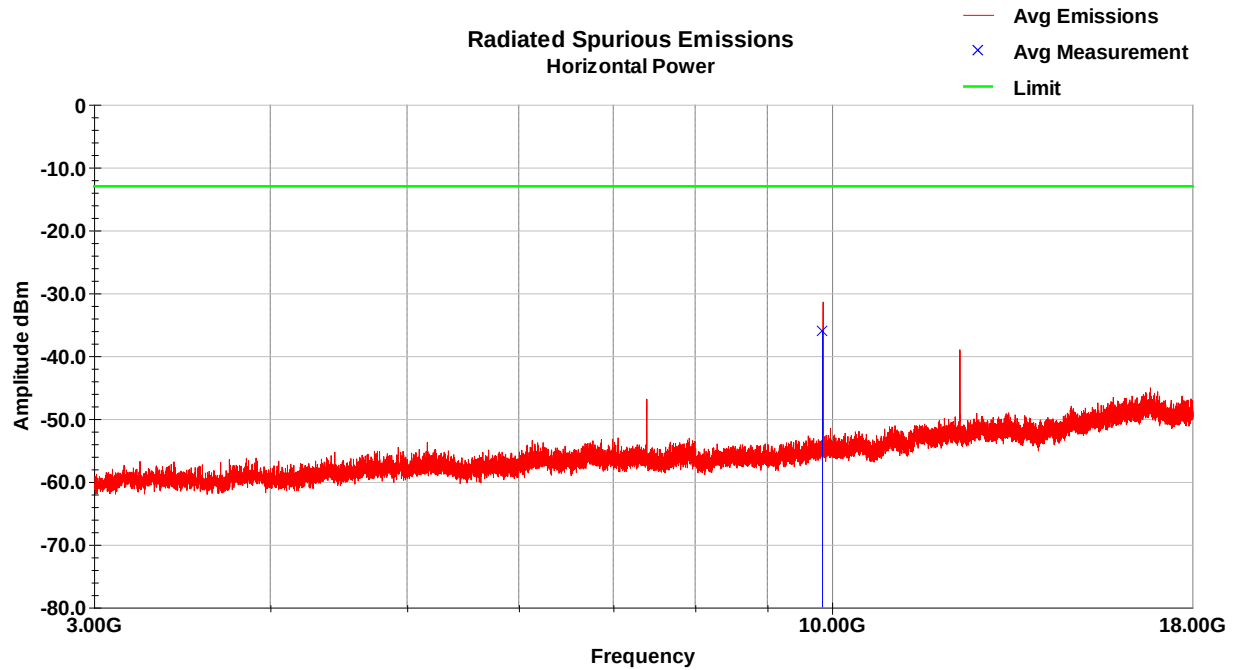
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11b MCH)



Vertical Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11b MCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9848.04	-27.4	V	192.0	194.0	36.9	2.9	42.2	-29.8	-13.0	-16.8
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

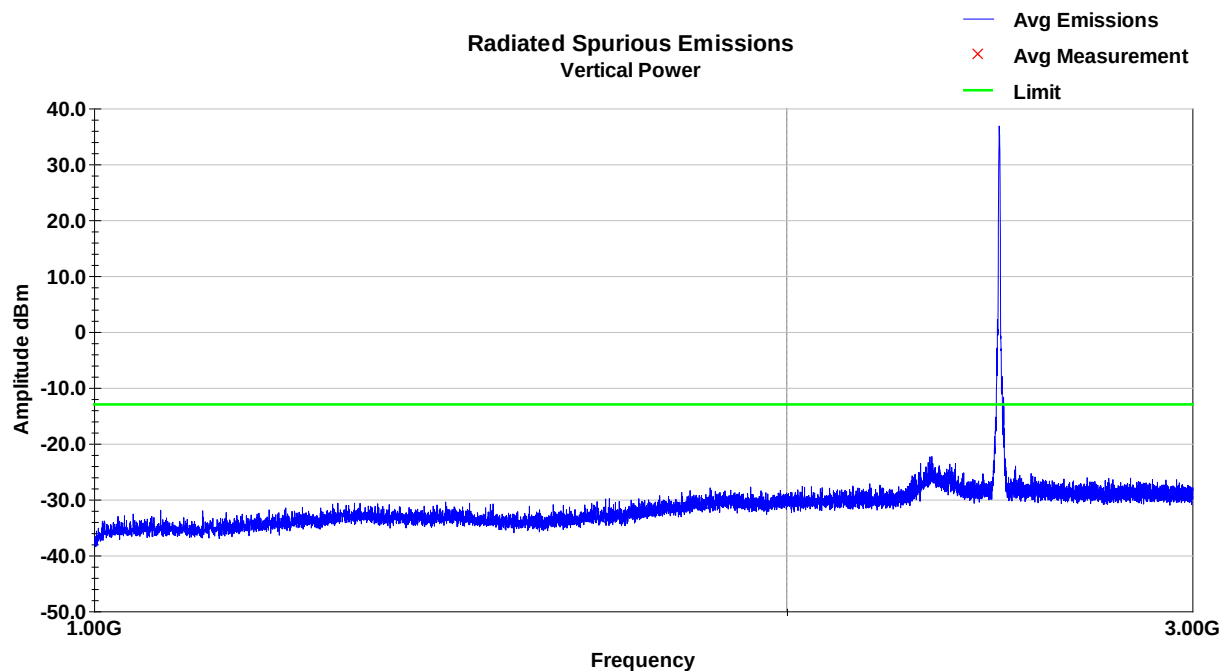
Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11b MCH)



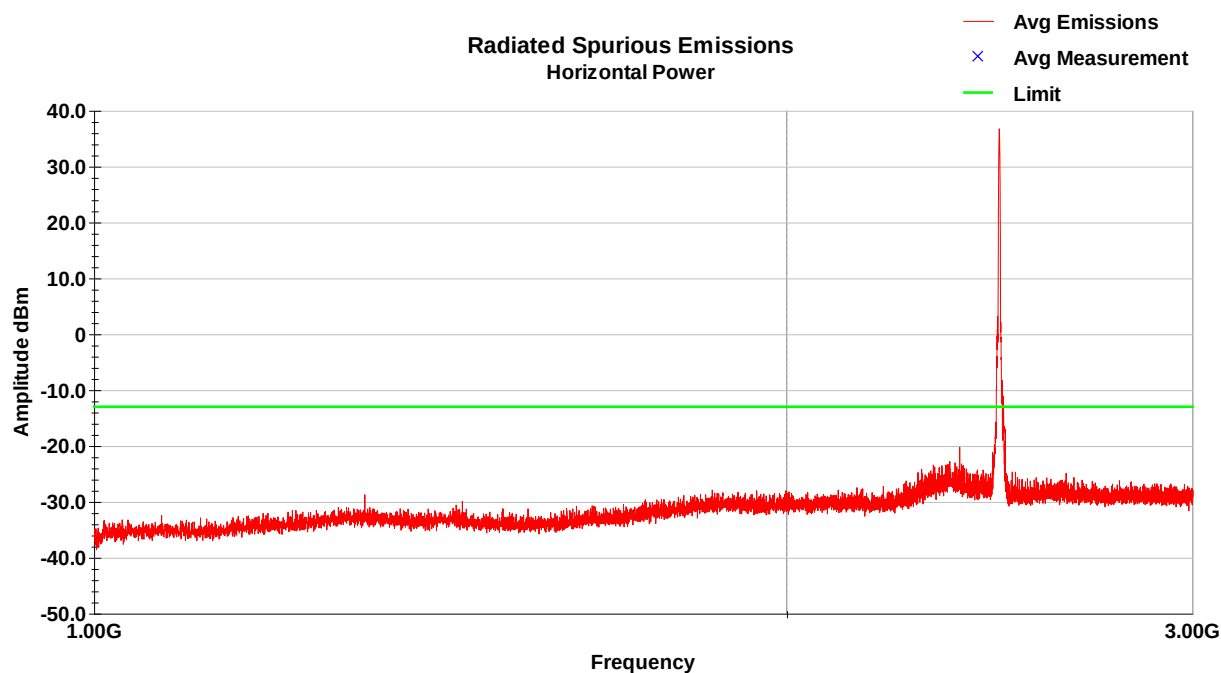
Horizontal Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11b MCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9848.04	-33.6	H	130.0	148.0	36.9	2.9	42.2	-36.0	-13.0	-23.0
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

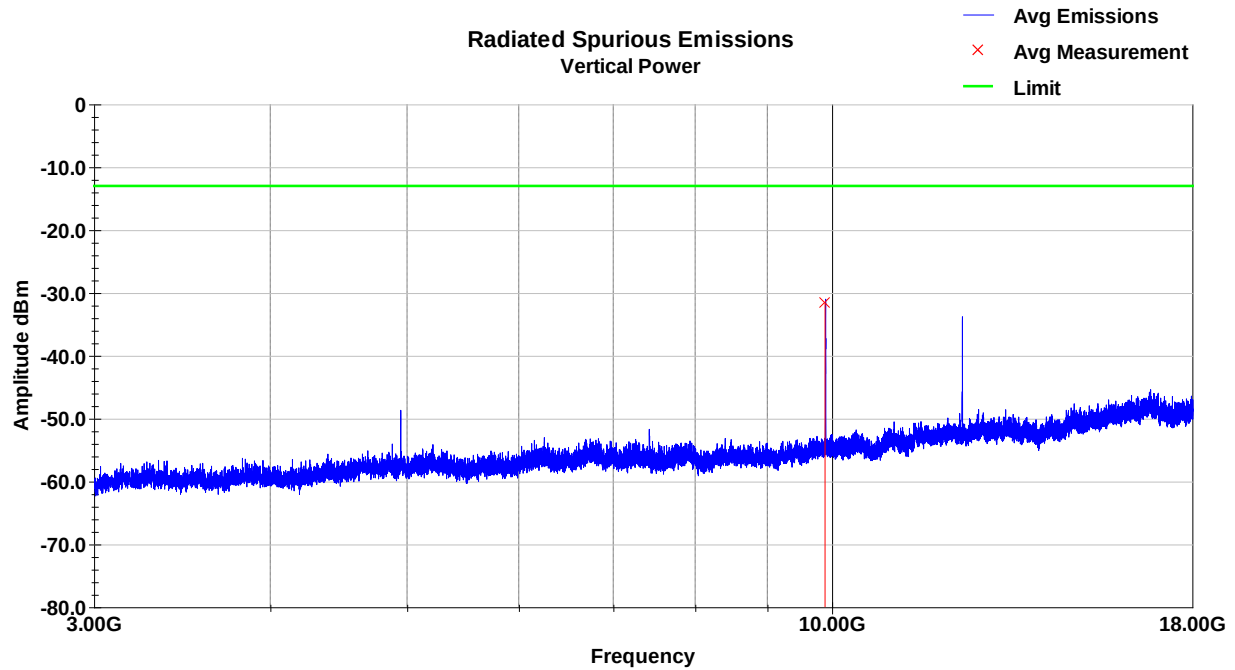
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11b HCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11b HCH)



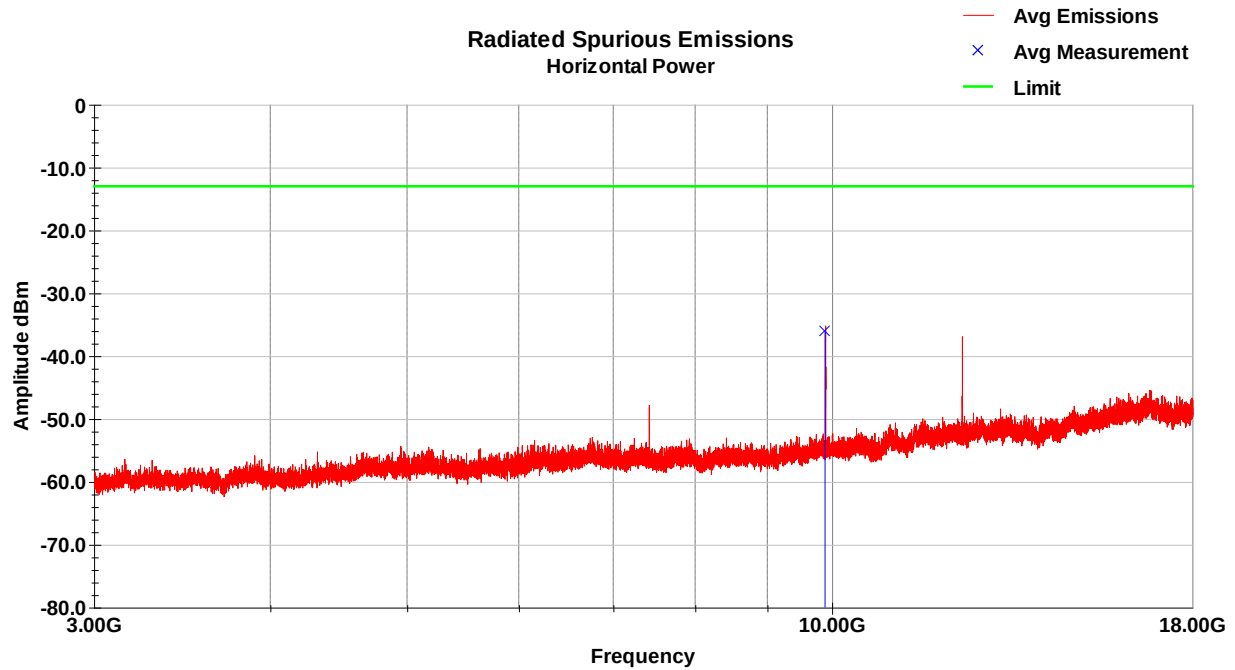
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11b HCH)



Vertical Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11b HCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9888.04	-29.5	V	160.0	174.0	37.0	2.6	41.8	-31.6	-13.0	-18.6
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

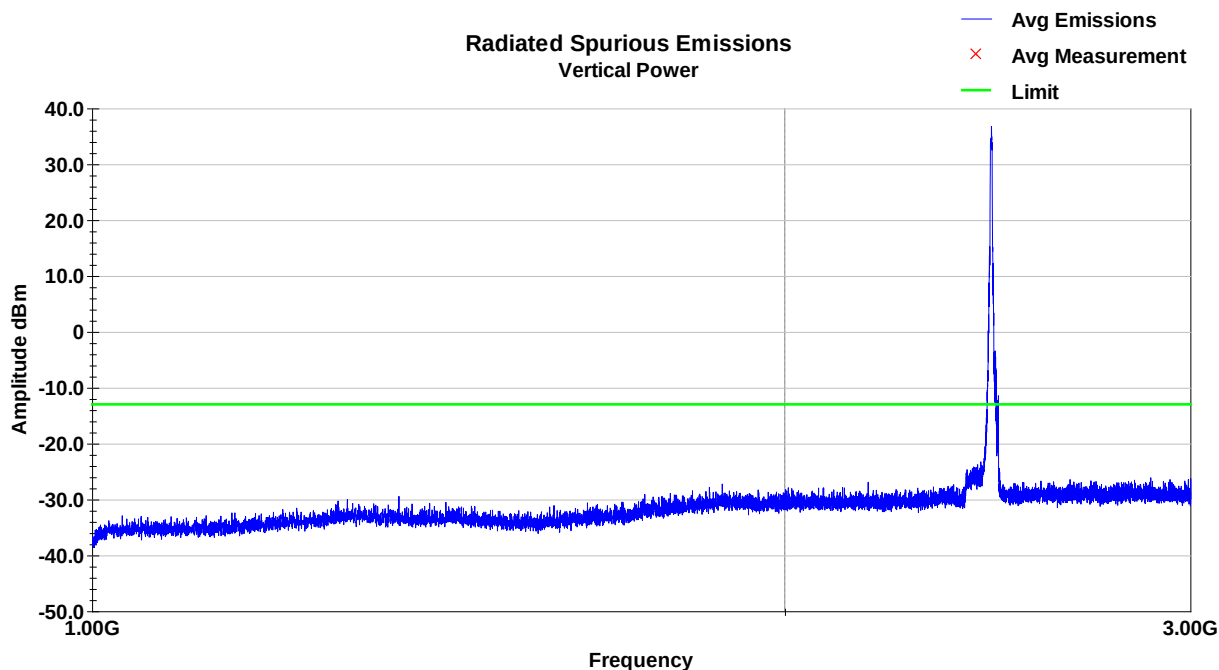
Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11b HCH)



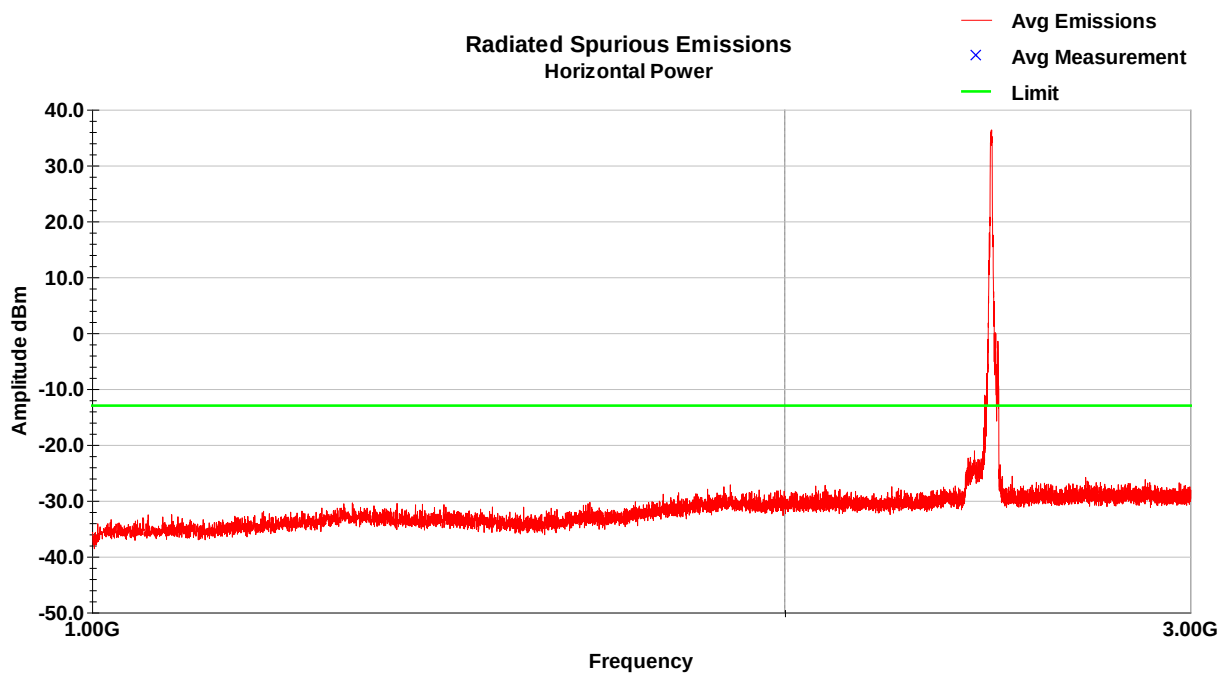
Horizontal Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11b HCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9887.92	-34.0	H	226.0	156.0	37.0	2.6	41.8	-36.1	-13.0	-23.1
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

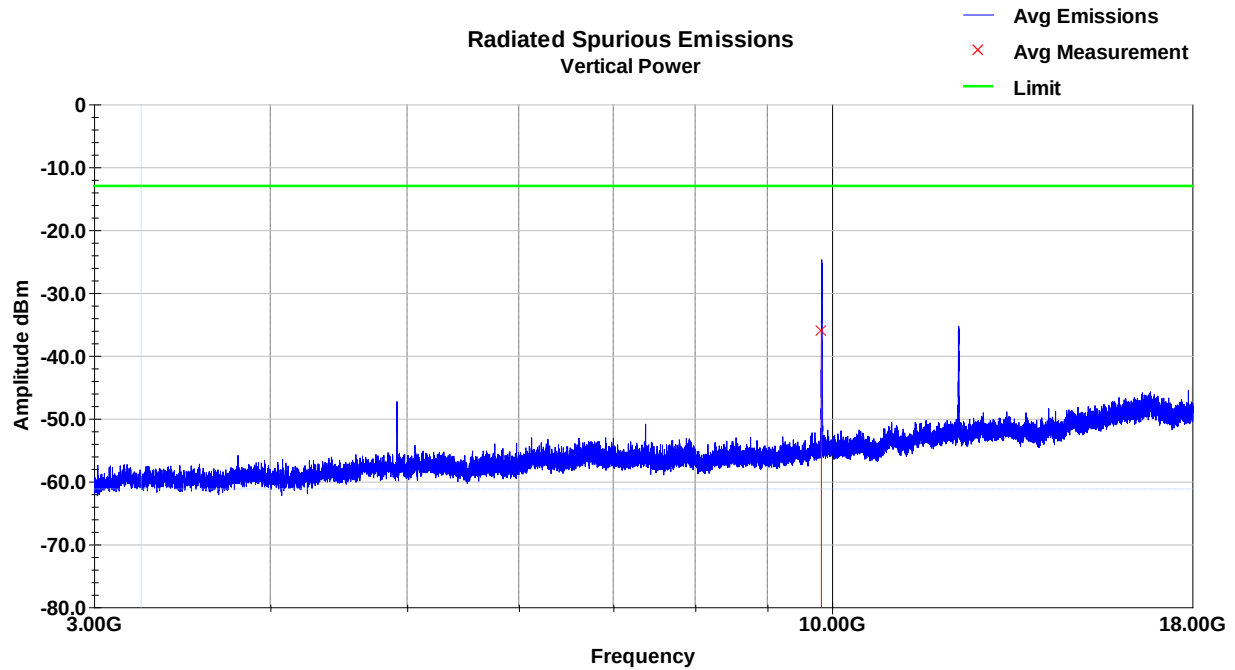
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11g LCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11g LCH)



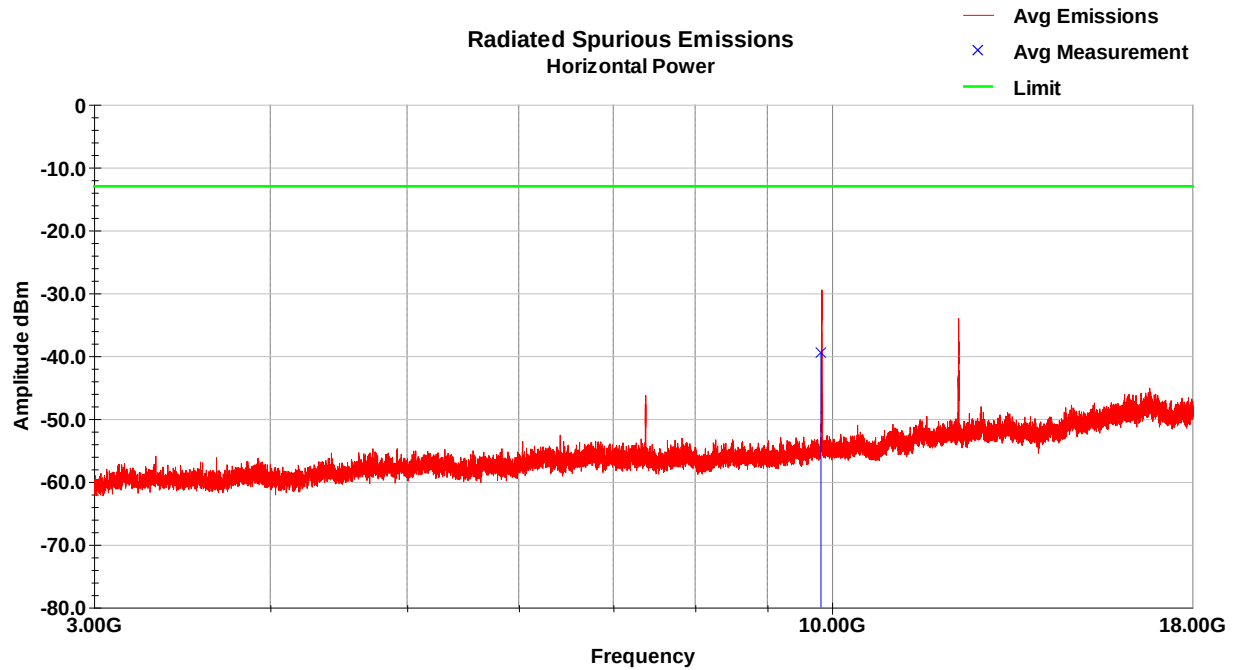
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11g LCH)



Vertical Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11g LCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9829.84	-33.7	V	242.0	132.0	36.9	3.0	42.0	-35.9	-13.0	-22.9
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

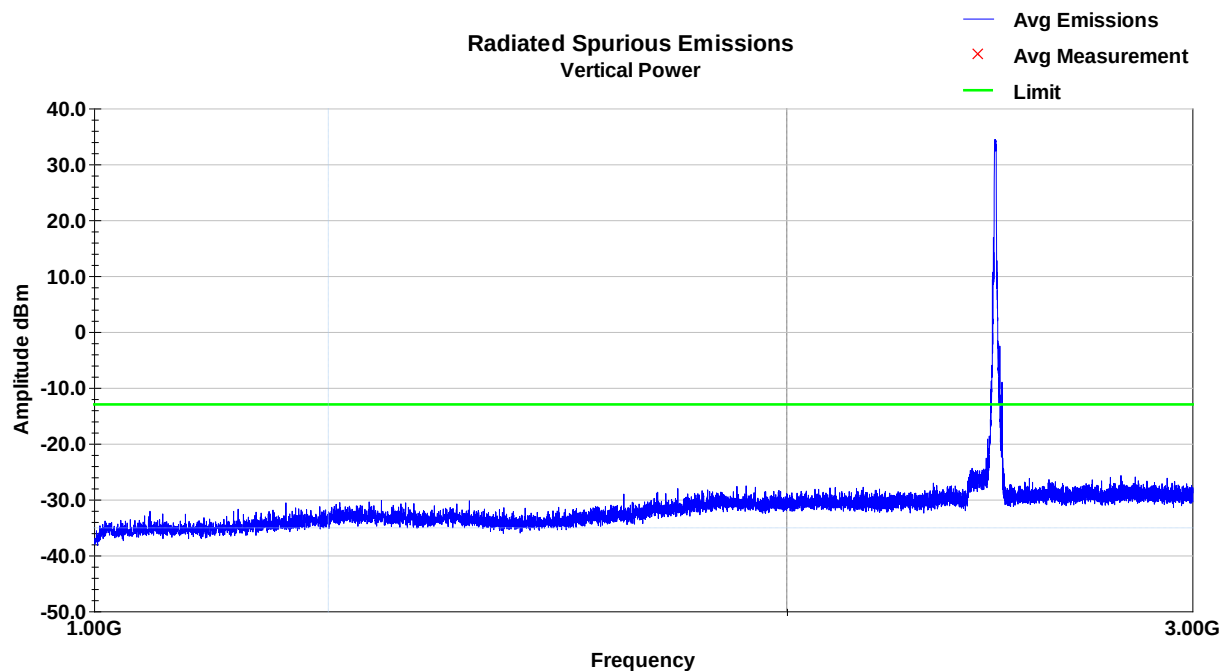
Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11g LCH)



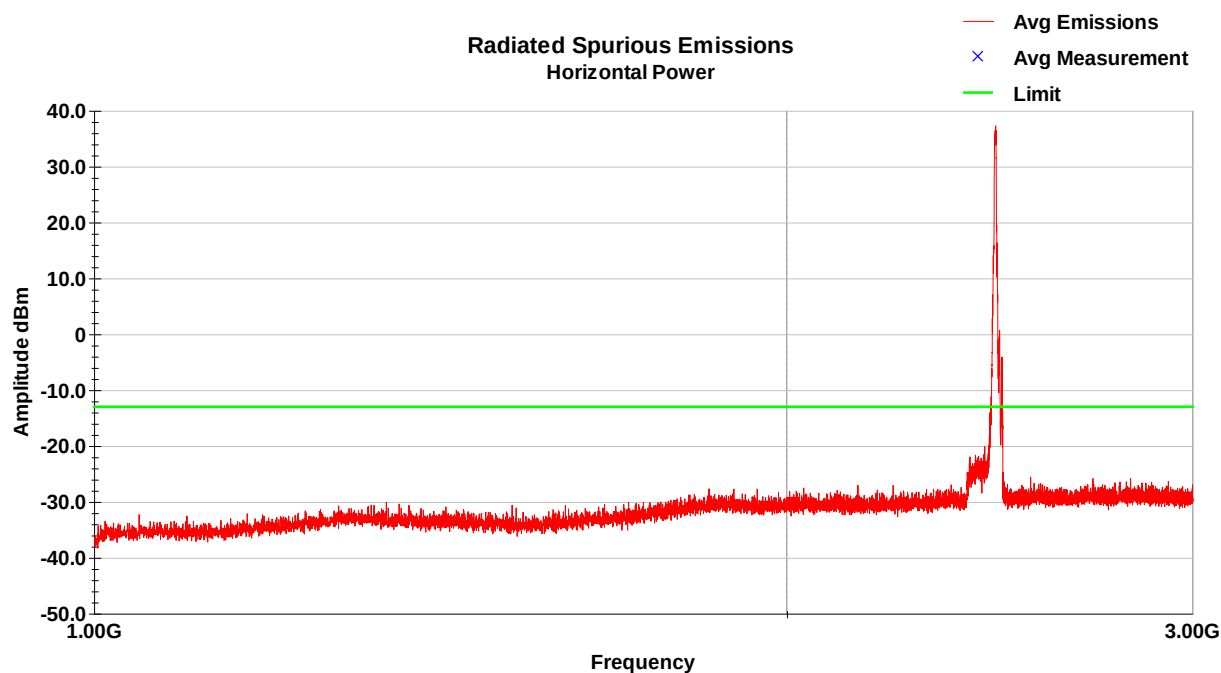
Horizontal Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11g LCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9824.14	-37.4	H	226.0	180.0	36.9	2.9	42.0	-39.5	-13.0	-26.5
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

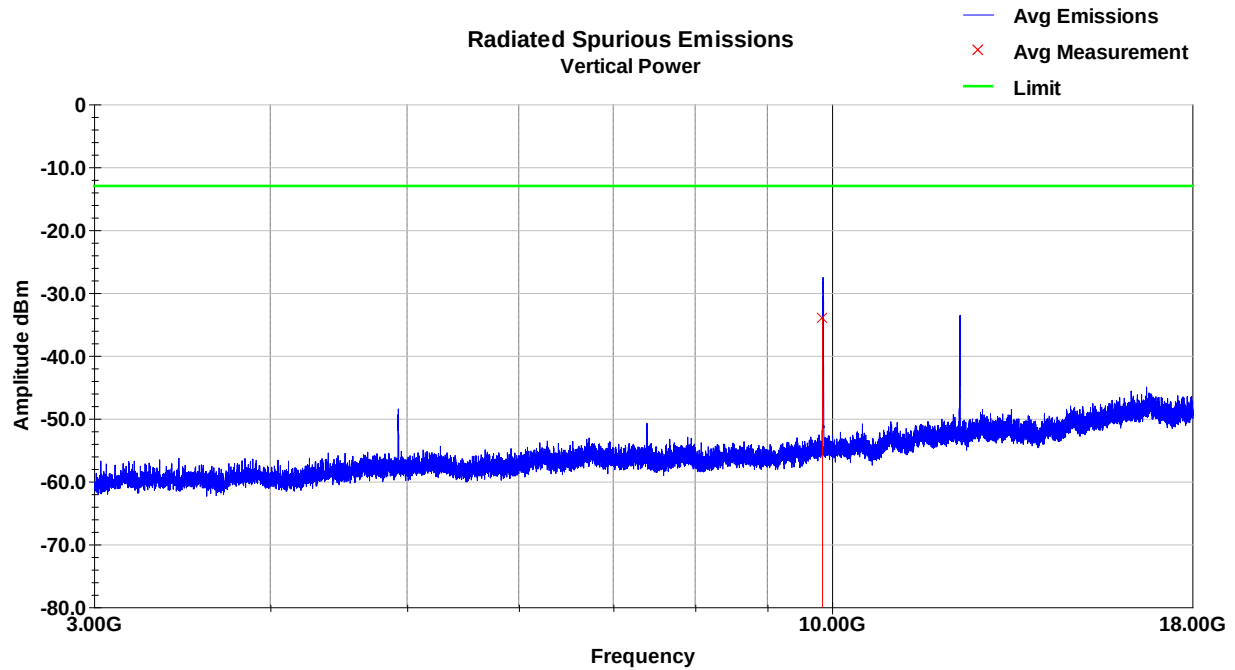
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11g MCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11g MCH)



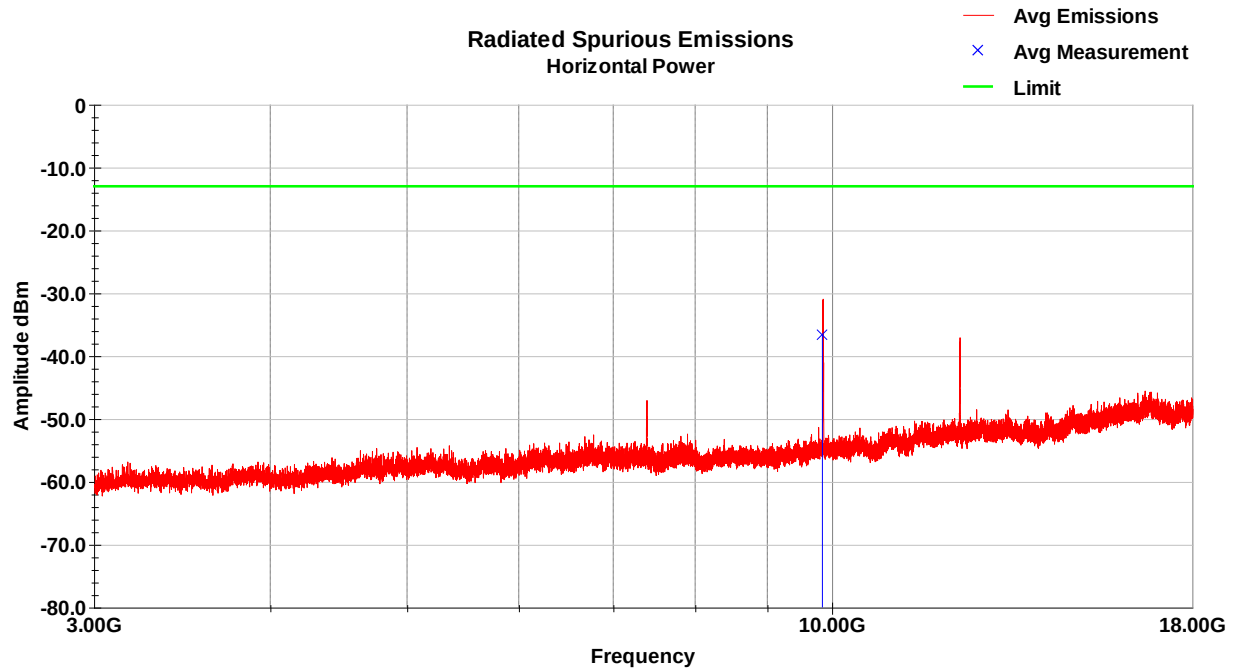
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11g MCH)



Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11g MCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9848.62	-31.5	V	157.0	165.0	36.9	2.9	42.2	-33.9	-13.0	-20.9
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

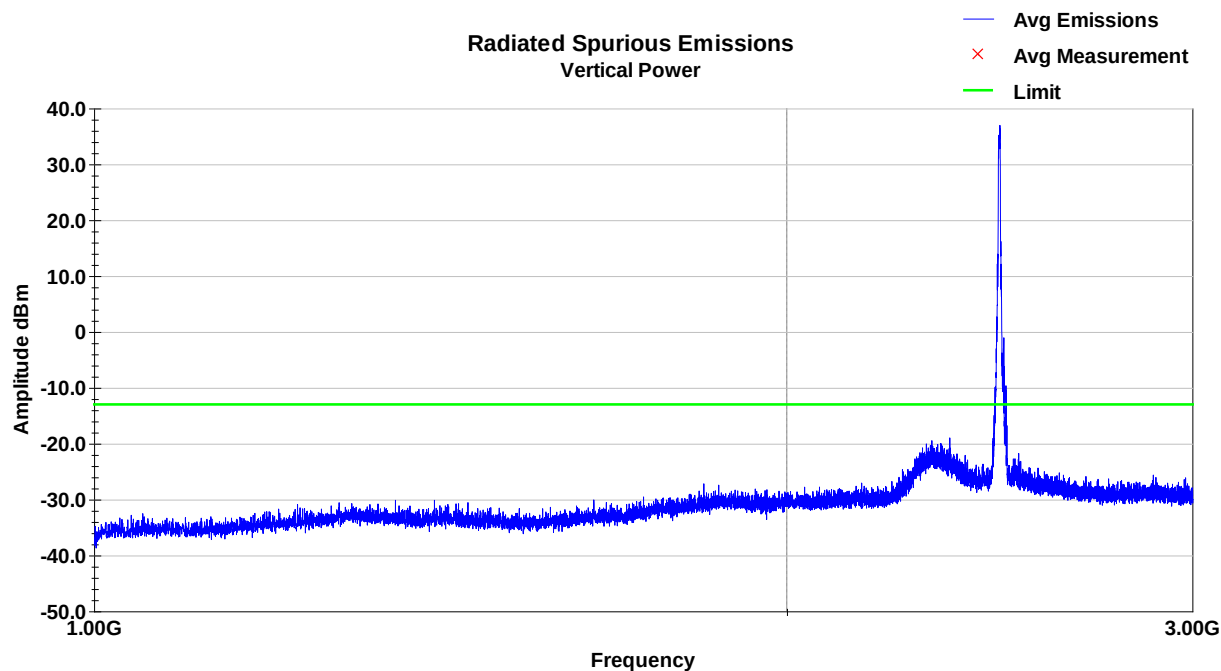
Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11g MCH)



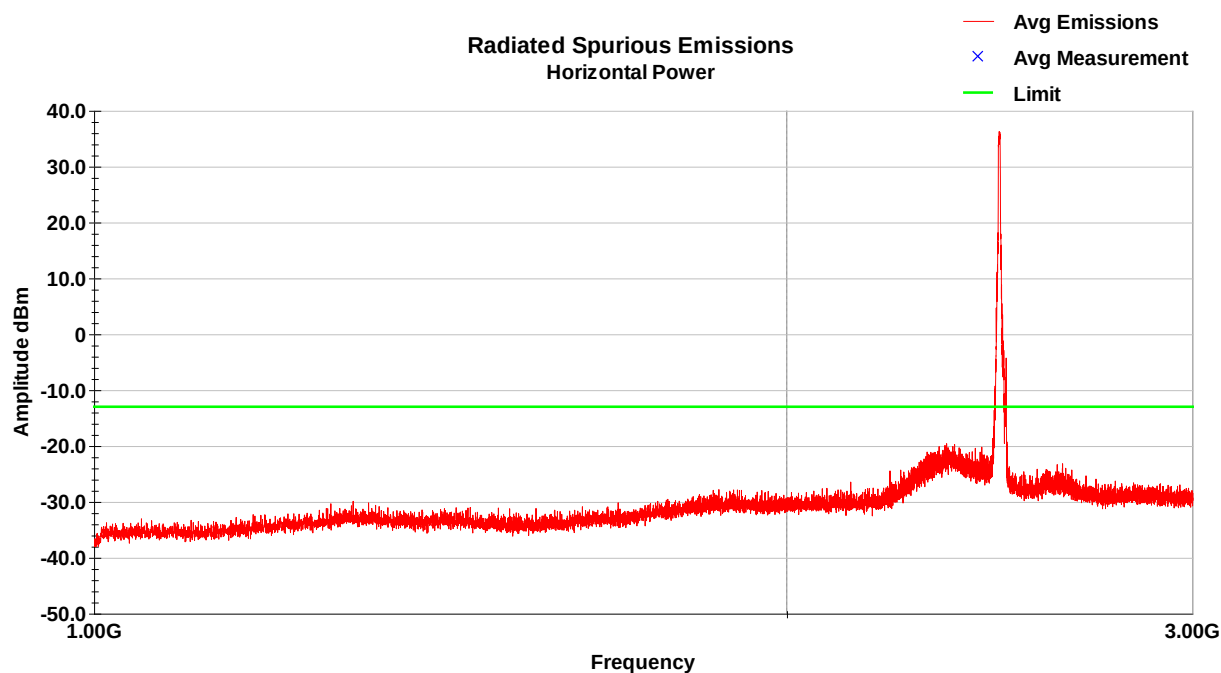
Horizontal Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11g MCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9846.28	-34.2	H	230.0	142.0	36.9	2.9	42.2	-36.6	-13.0	-23.6
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

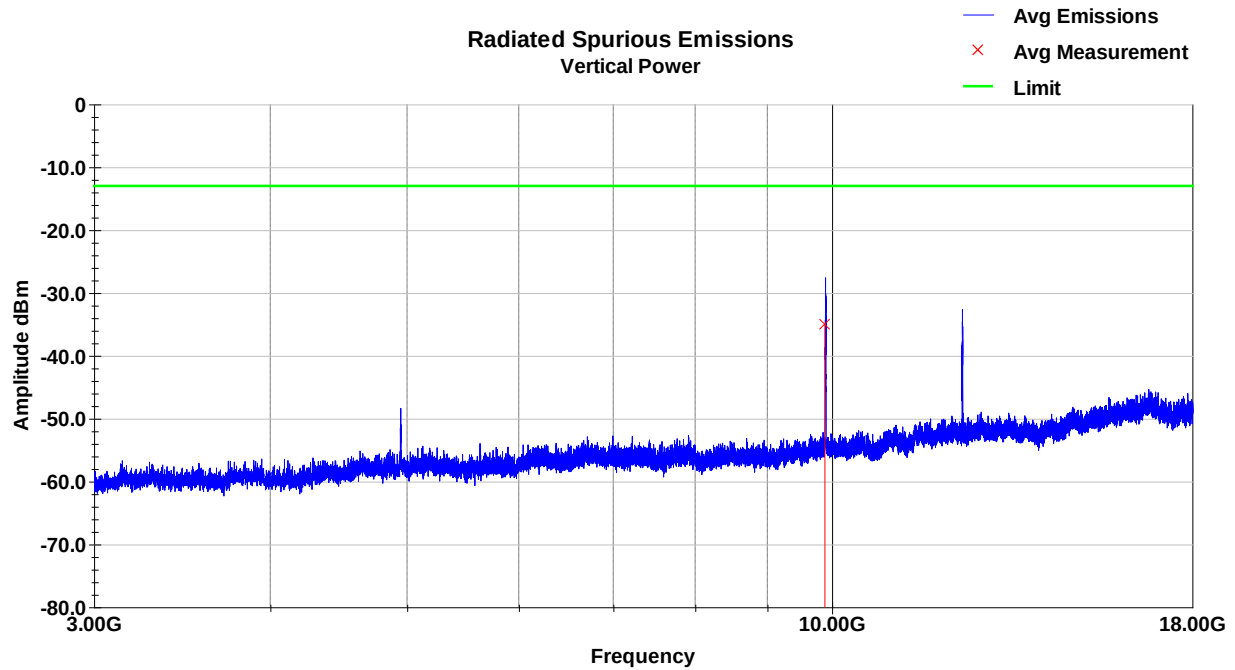
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11g HCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11g HCH)



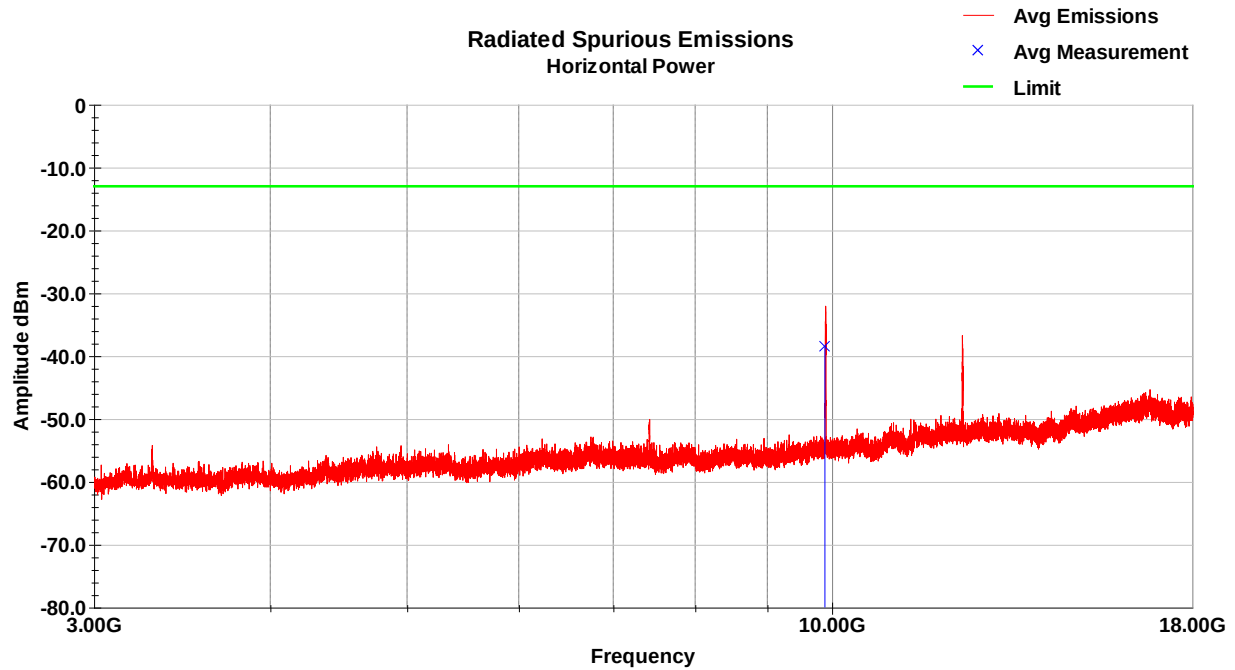
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11g HCH)



Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11g HCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9887.62	-32.9	V	157.0	200.0	37.0	2.6	41.8	-35.1	-13.0	-22.1
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

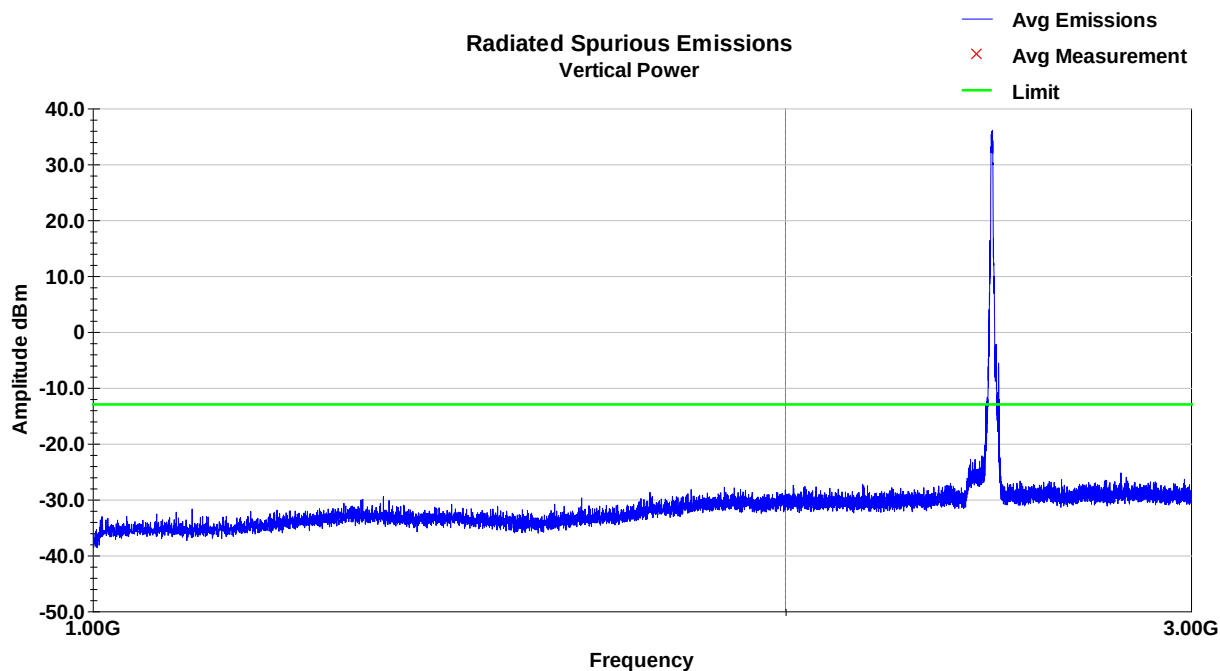
Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11g HCH)



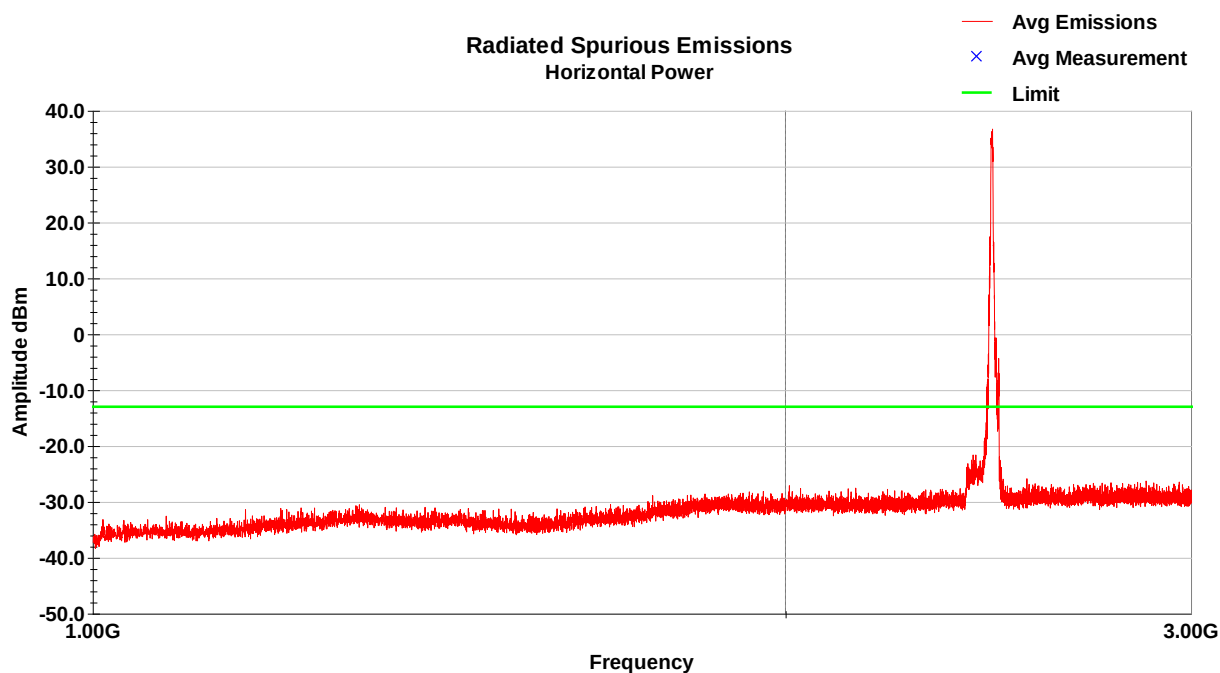
Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11g HCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9887.46	-36.3	H	205.0	159.0	37.0	2.6	41.8	-38.5	-13.0	-25.5
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

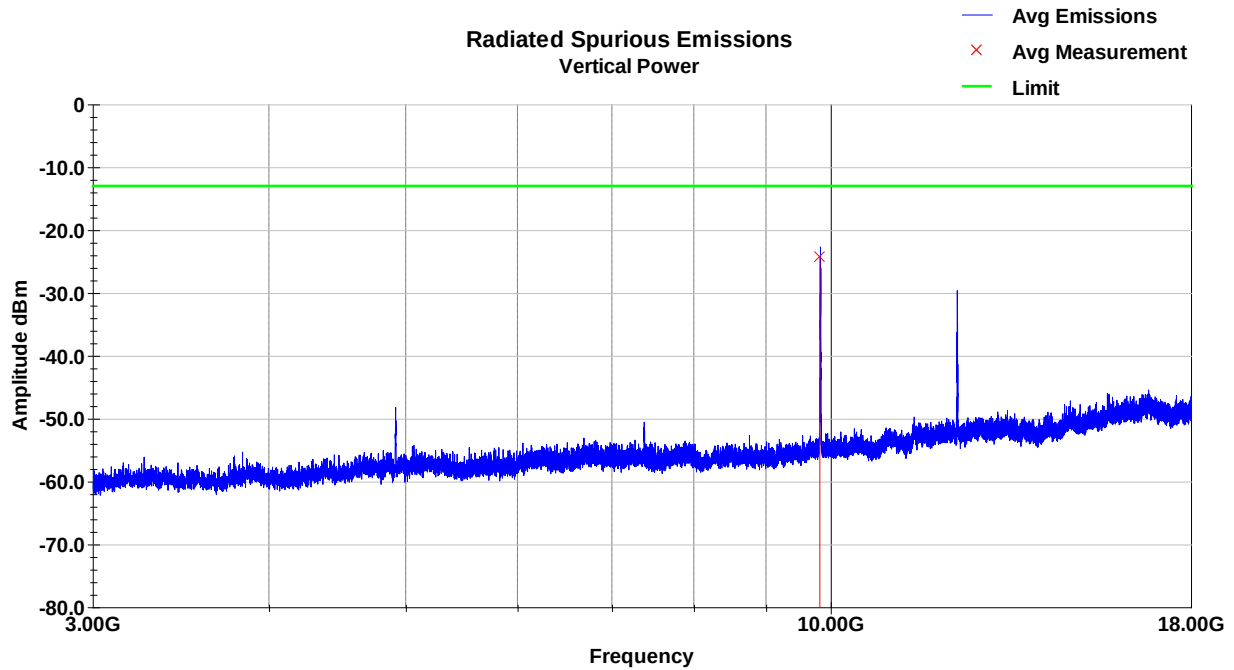
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11n LCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11n LCH)



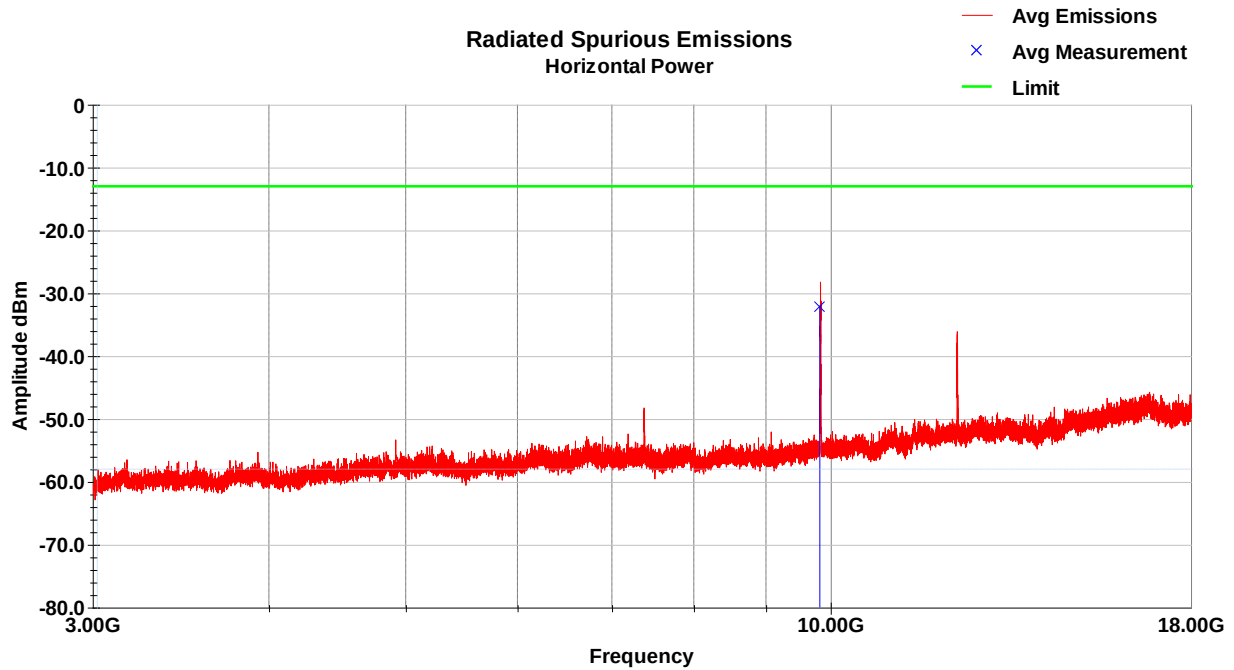
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11n LCH)



Vertical Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11n LCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9826.66	-22.1	V	159.0	194.0	36.9	2.9	42.0	-24.3	-13.0	-11.3
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

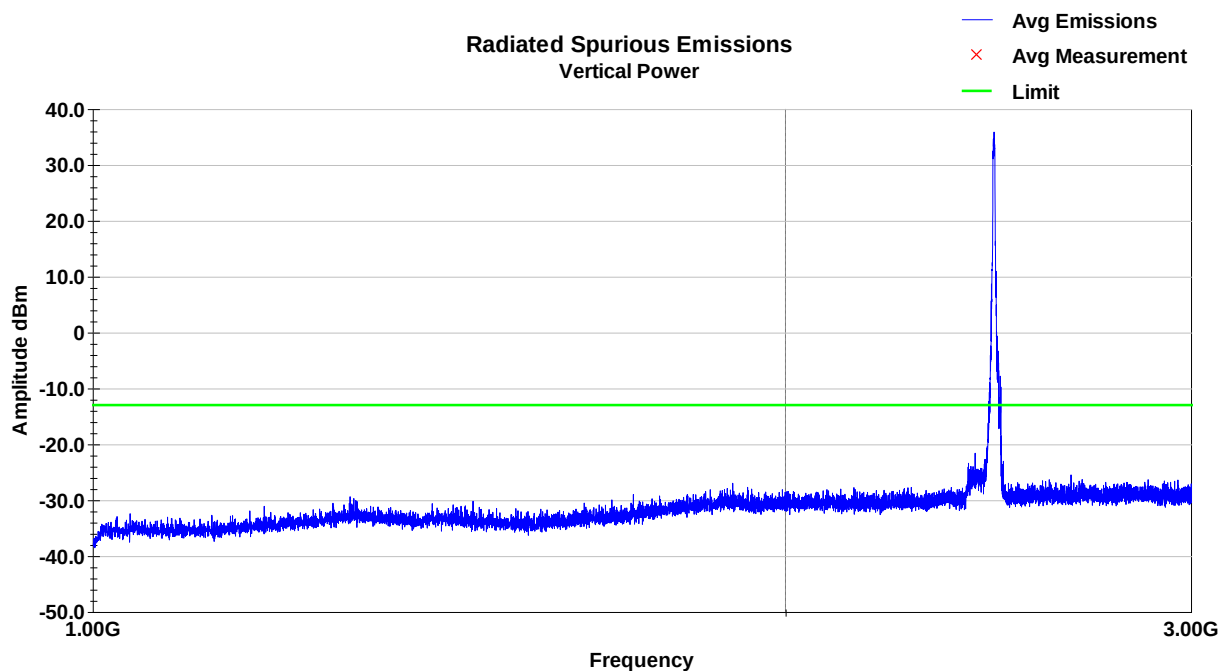
Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11n LCH)



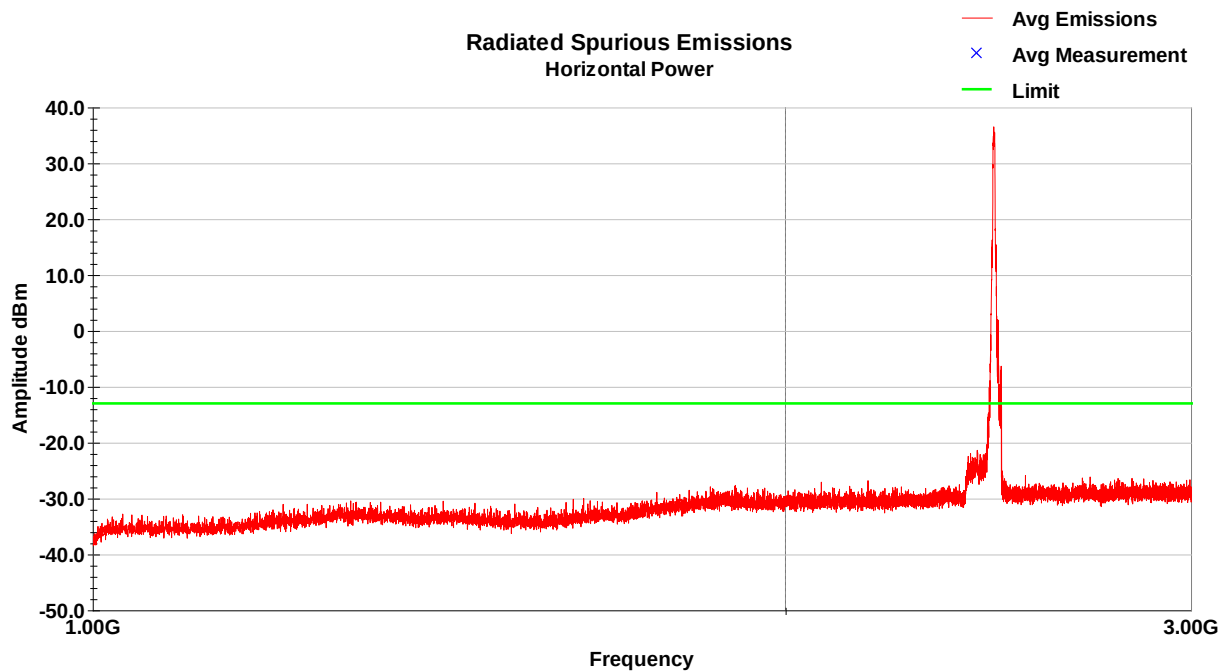
Horizontal Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11n LCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9826.42	-29.9	H	300.0	161.0	36.9	2.9	42.0	-32.1	-13.0	-19.1
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

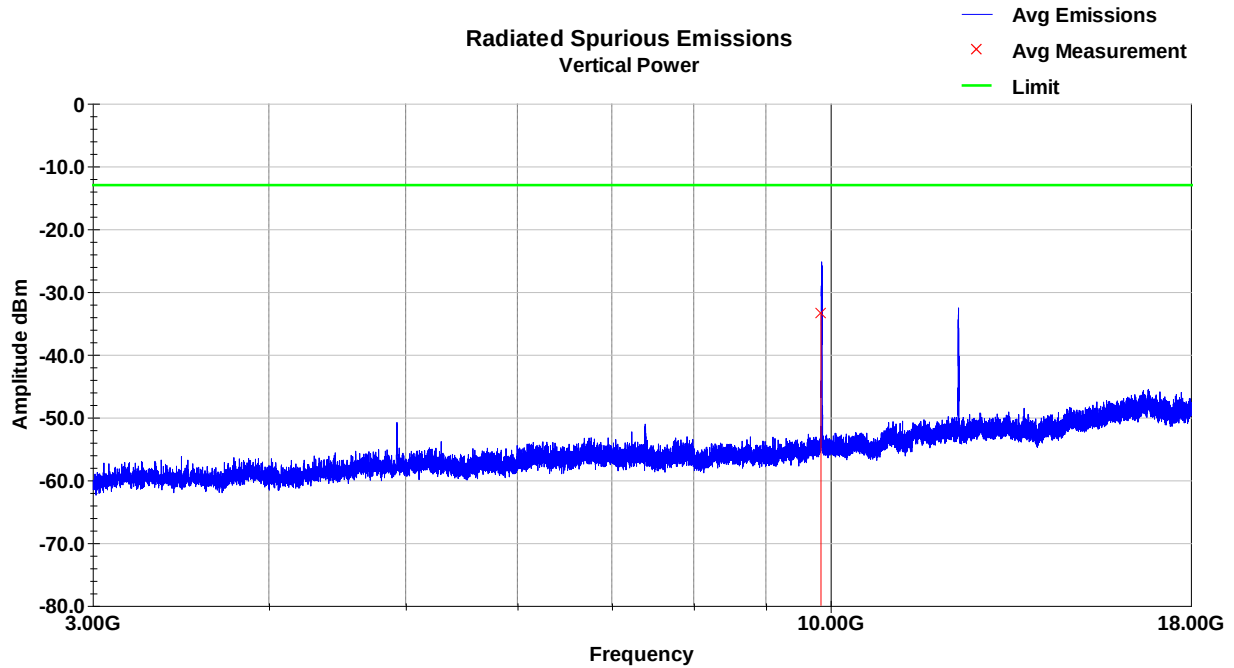
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11n MCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11n MCH)



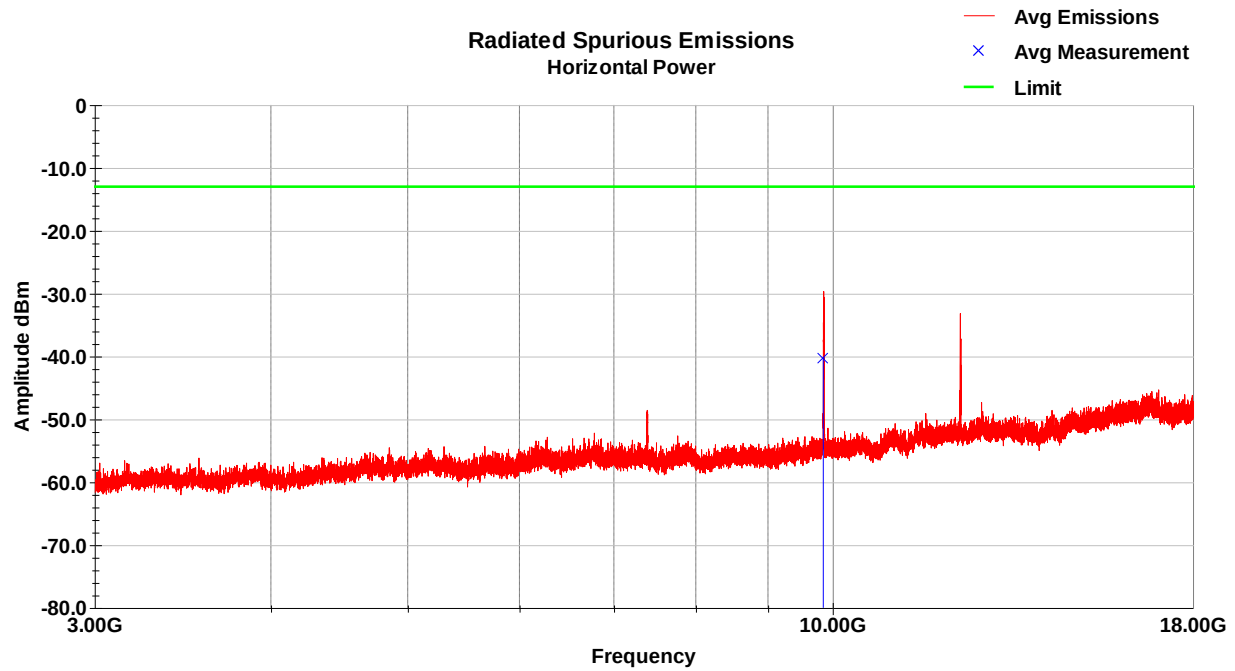
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11n MCH)



Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11n MCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9846.46	-31.0	V	312.0	186.0	36.9	2.9	42.2	-33.3	-13.0	-20.3
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

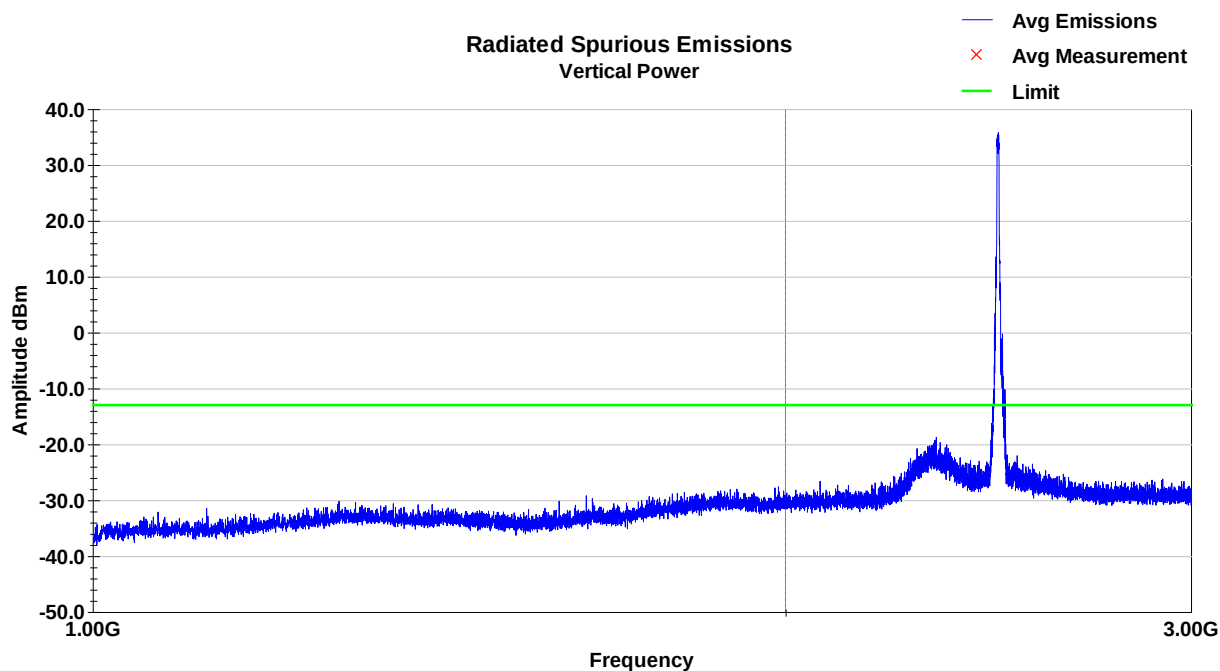
Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11n MCH)



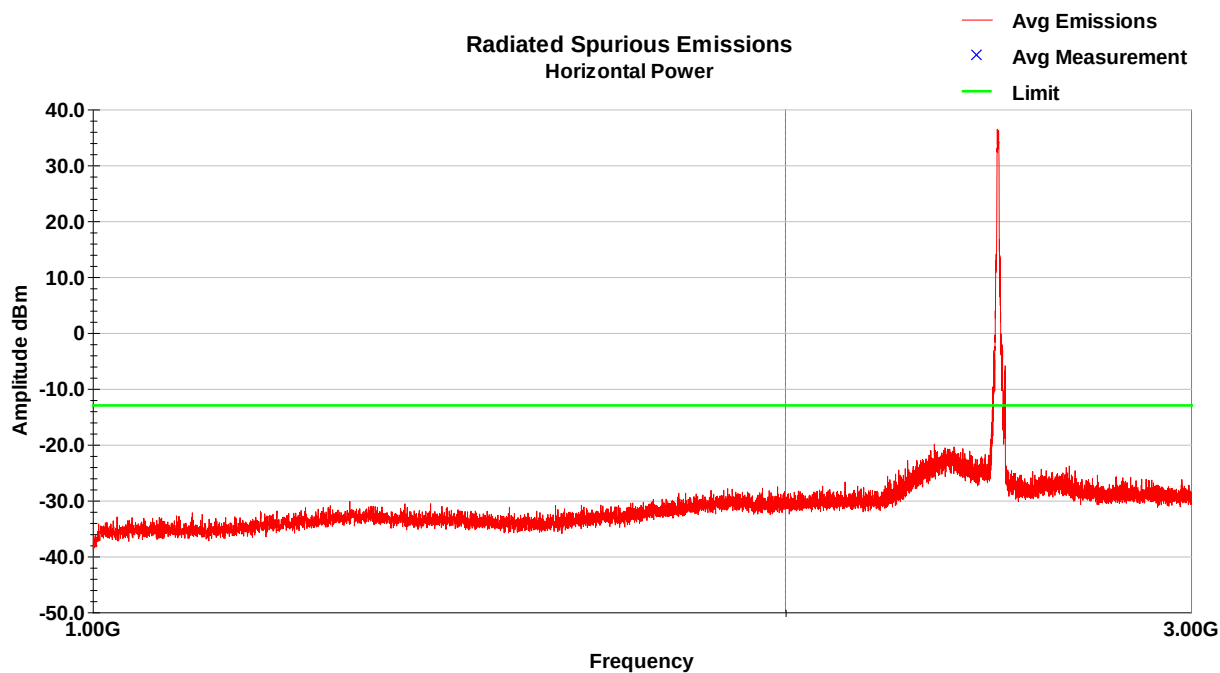
Horizontal Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11n MCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9850.38	-37.8	H	91.0	174.0	36.9	2.9	42.2	-40.2	-13.0	-27.2
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

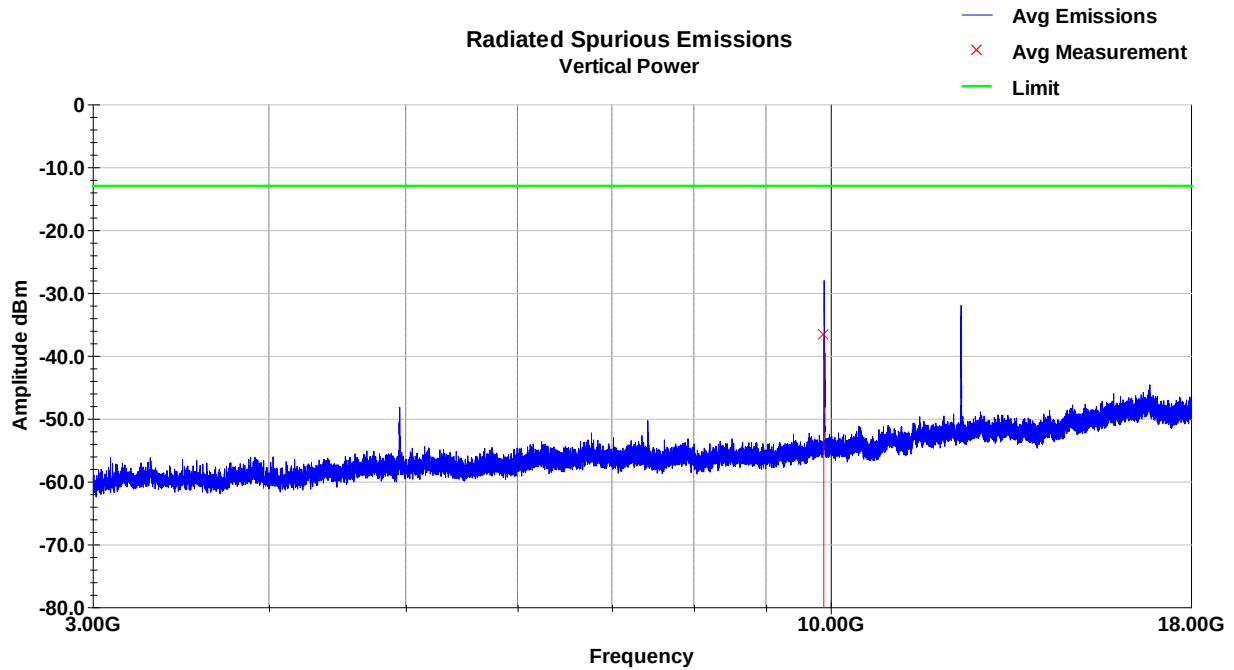
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11n HCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11n HCH)



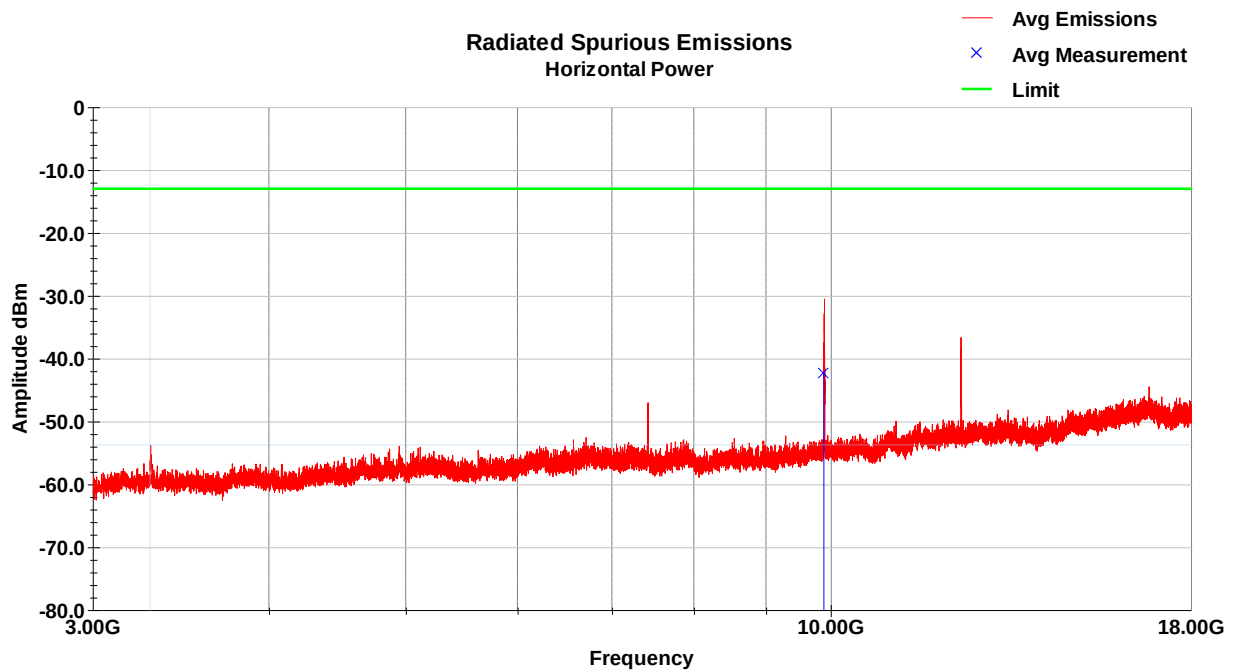
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11n HCH)



Vertical Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11n HCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9890.36	-34.6	V	155.0	173.0	37.0	2.6	41.8	-36.7	-13.0	-23.7
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11n HCH)



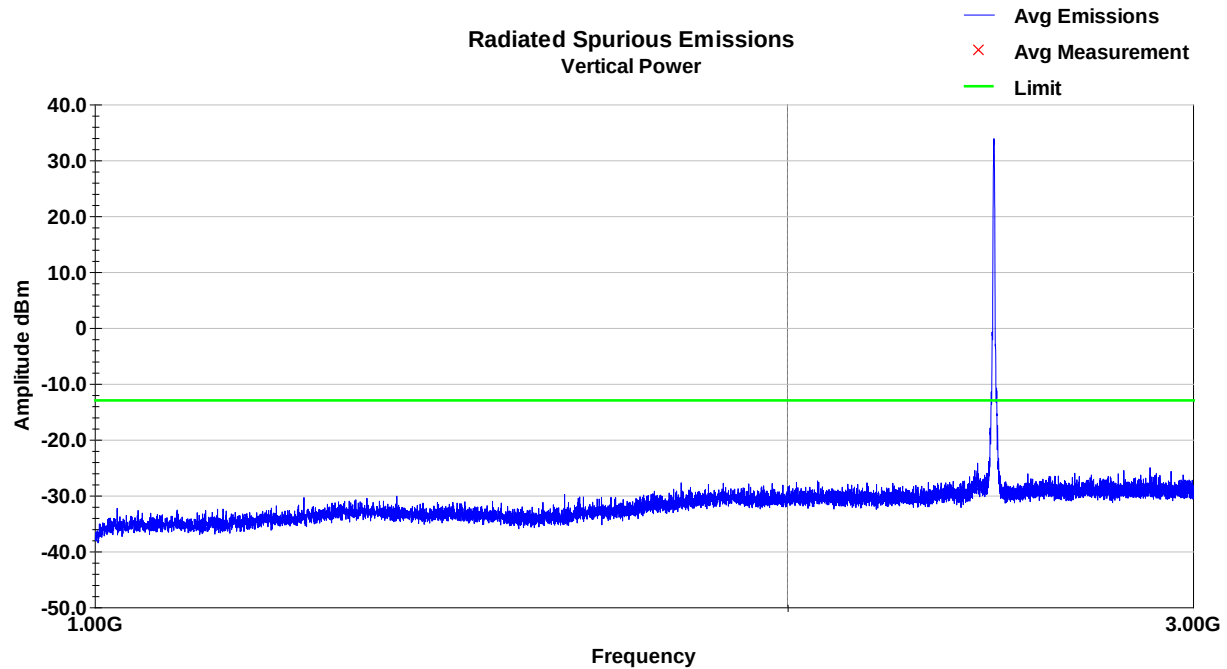
Horizontal Radiated Spurious Emissions Tabular Data – 3-18GHz (802.11n HCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9891.52	-40.3	H	229.0	191.0	37.0	2.6	41.7	-42.4	-13.0	-29.4
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

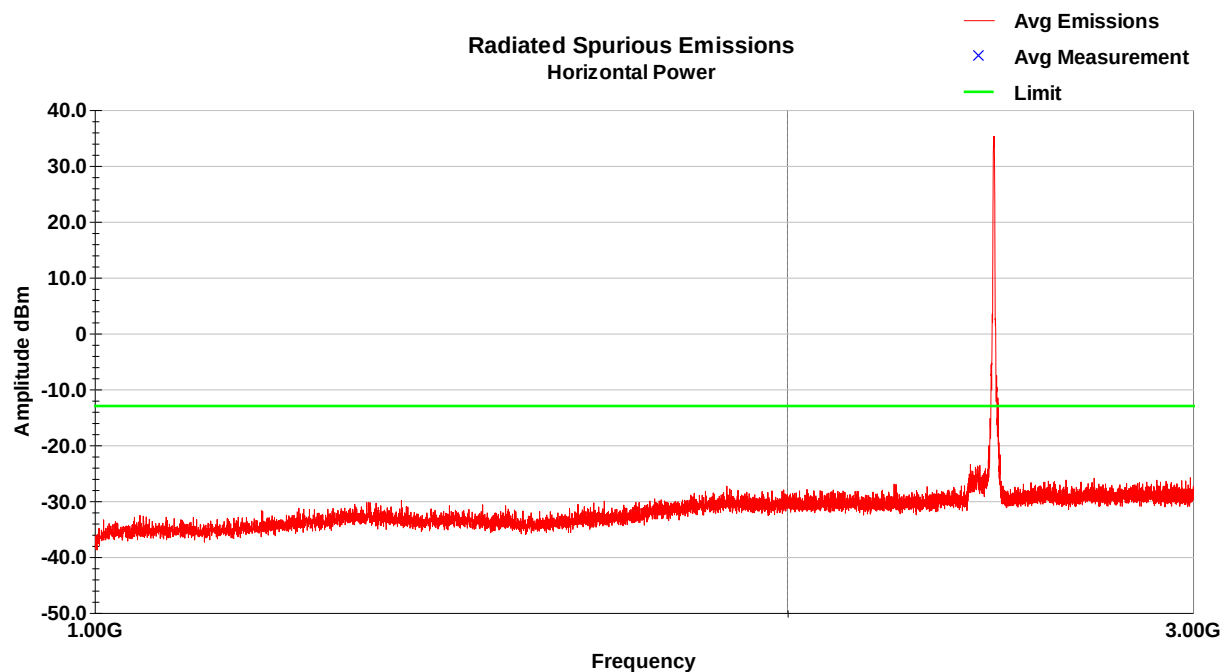
There were no discernible emissions from 18 to 26 GHz (see plots in 1x1 SISO section above).

7.5.3 Chains: 3x3 MIMO

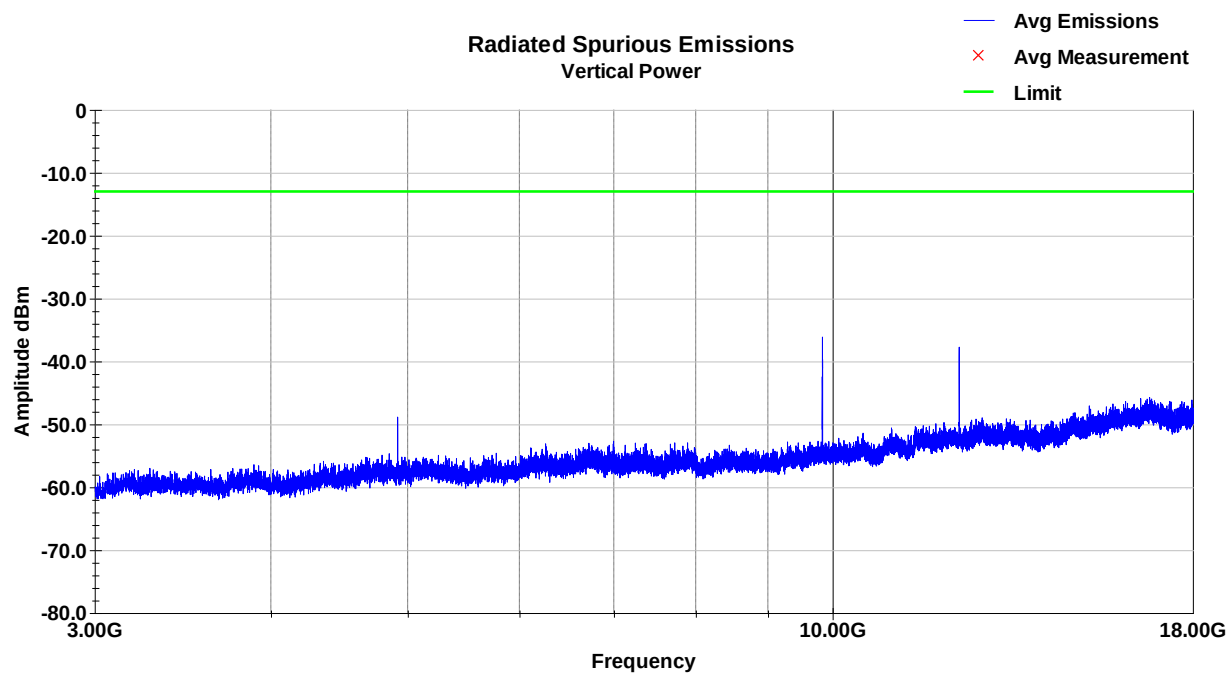
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11b LCH)



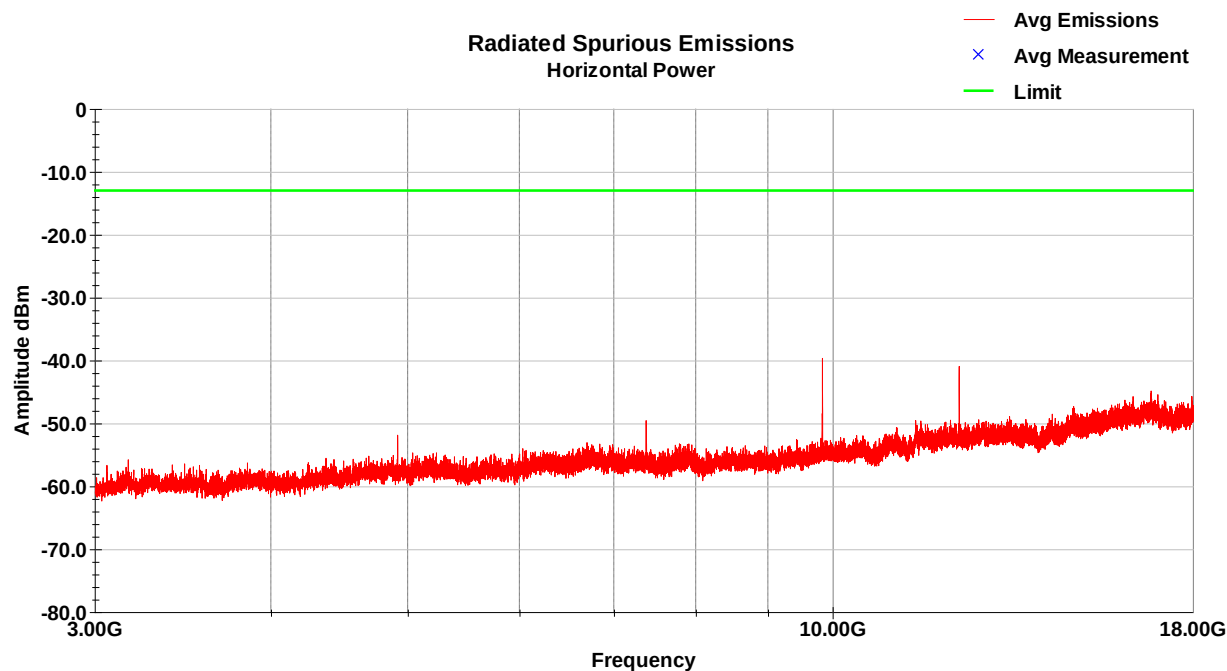
Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11b LCH)



Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11b LCH)

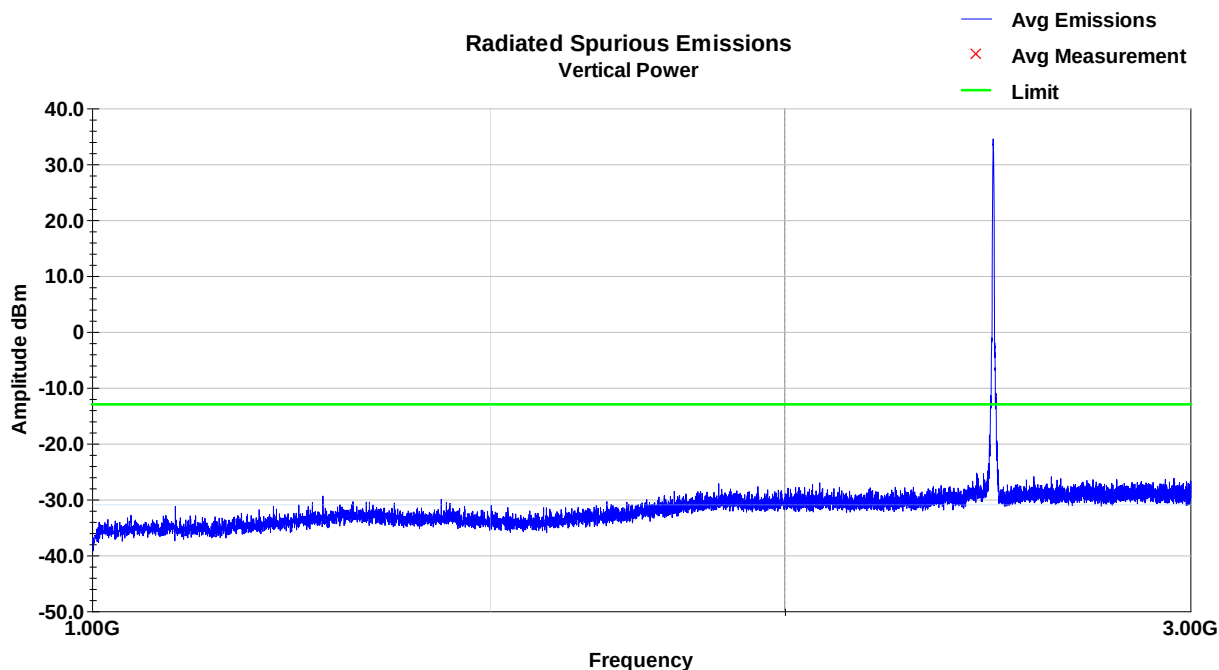


Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11b LCH)

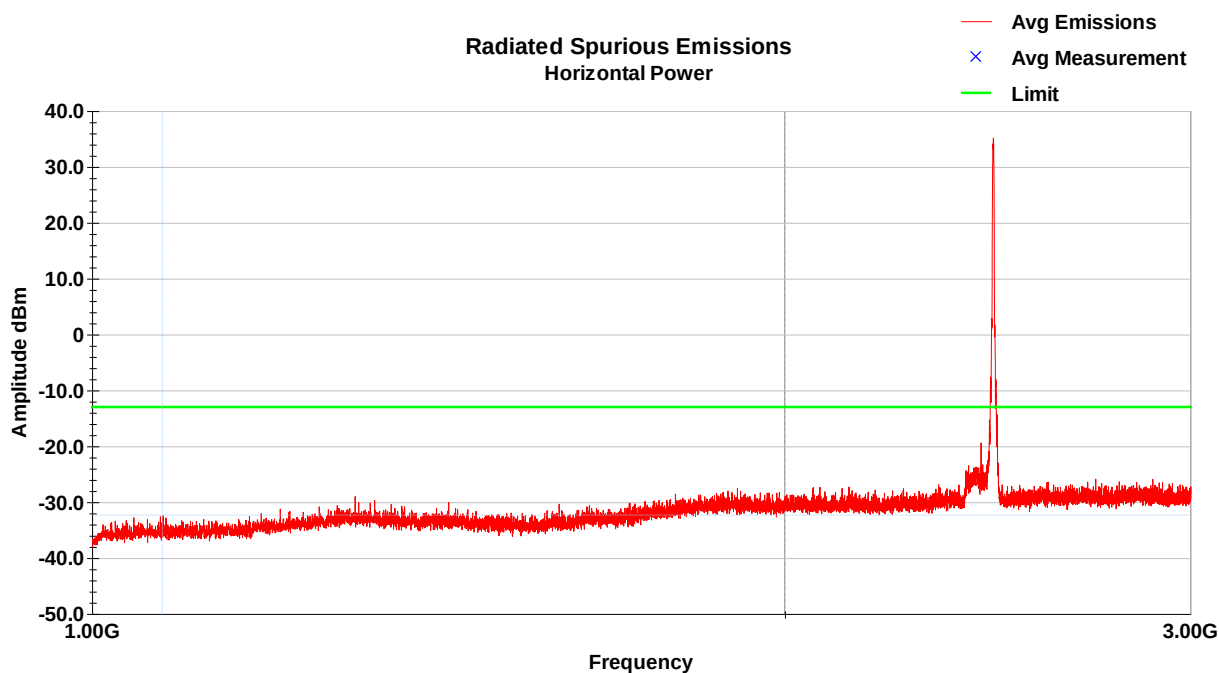


All pre-scan emissions are more than 20dB below the limit.

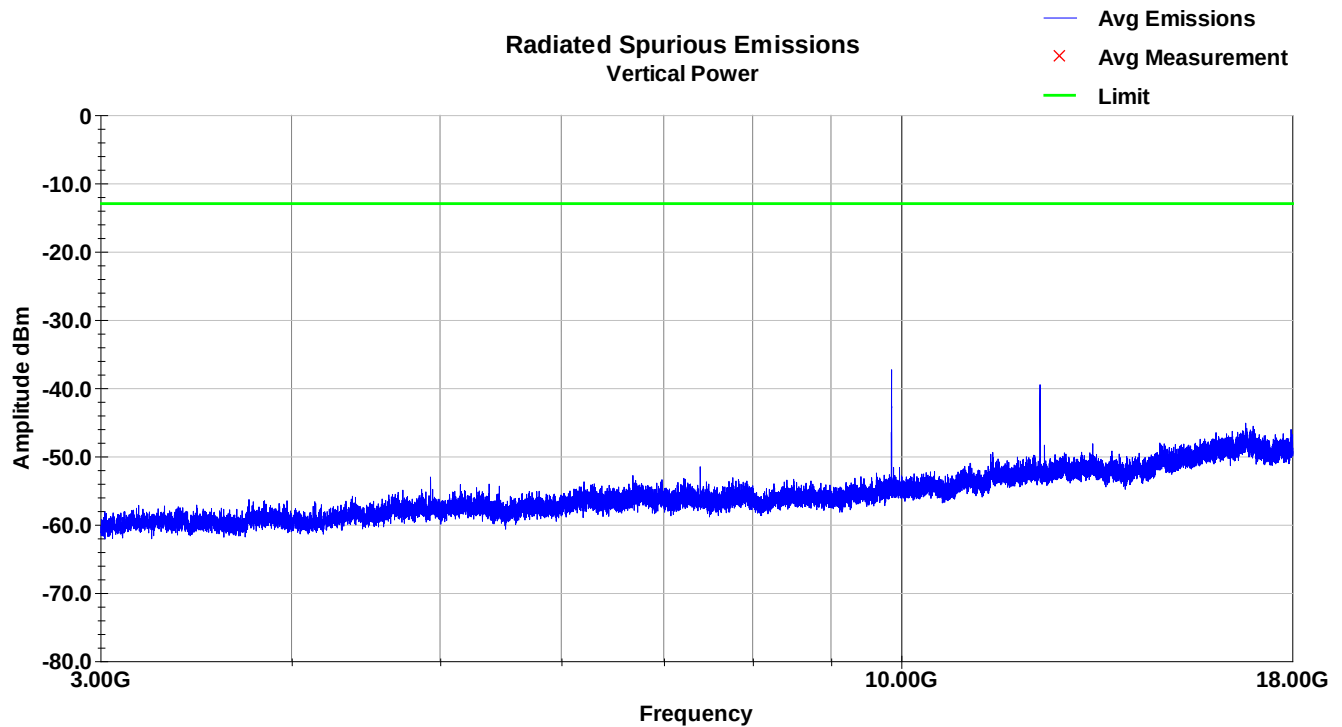
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11b MCH)



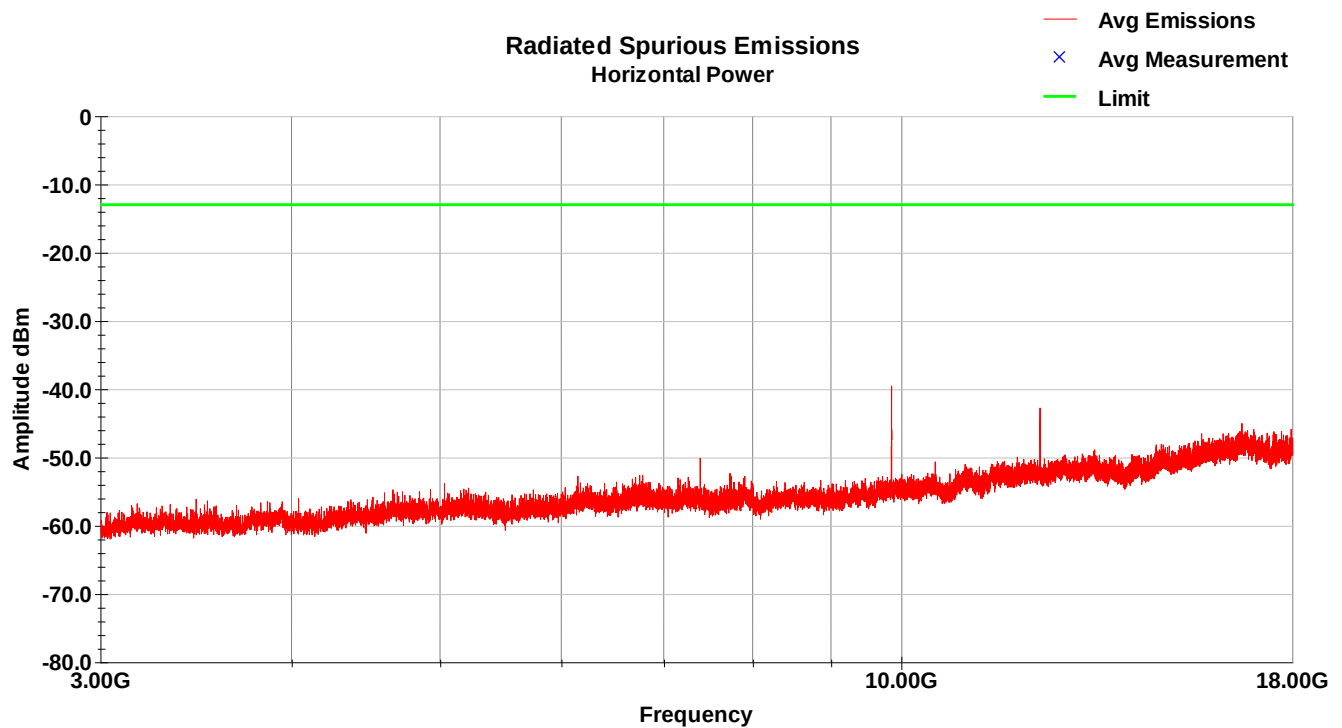
Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11b MCH)



Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11b MCH)

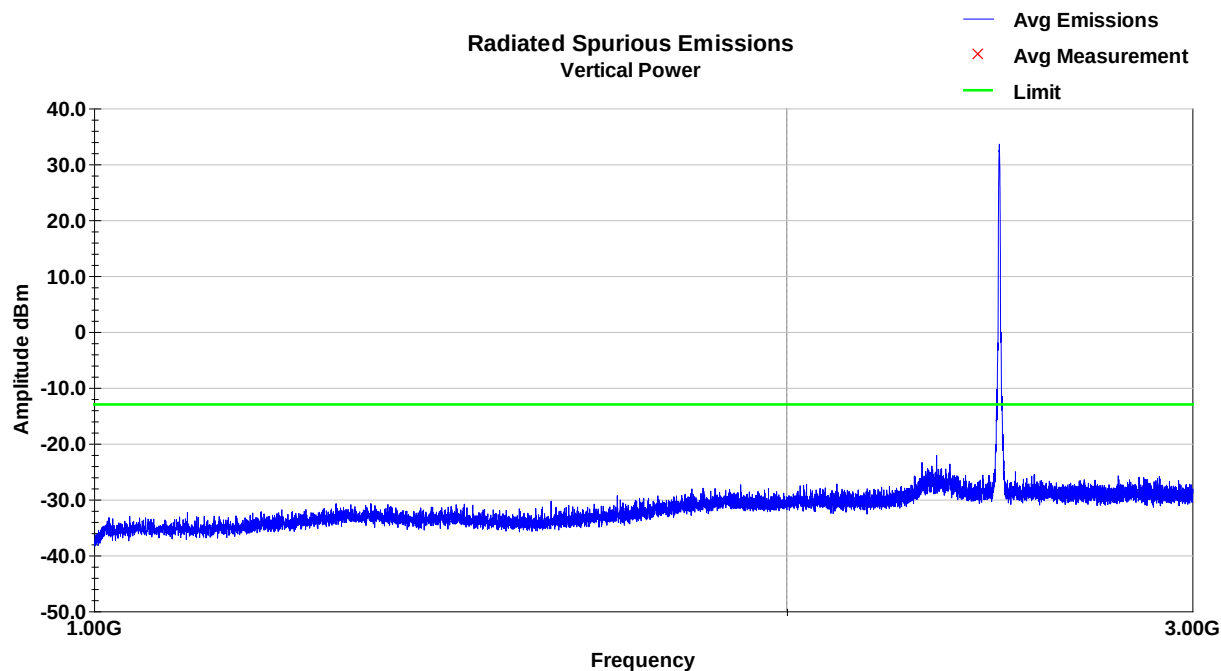


Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11b MCH)

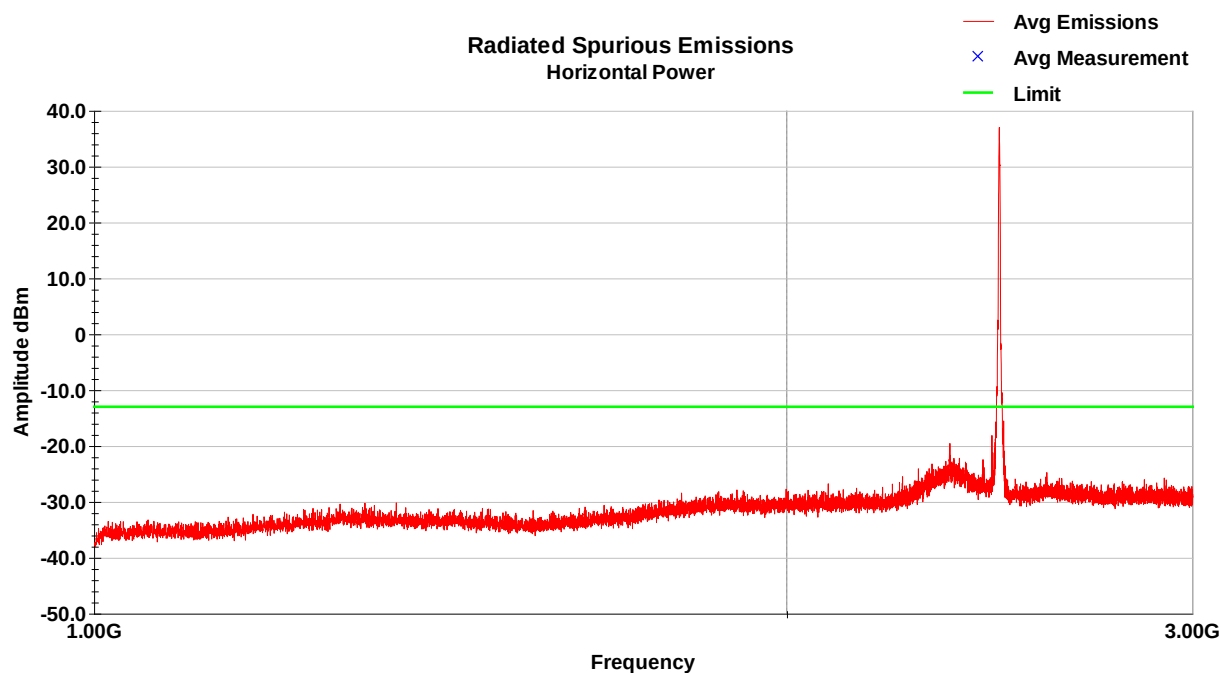


All pre-scan emissions are more than 20dB below the limit.

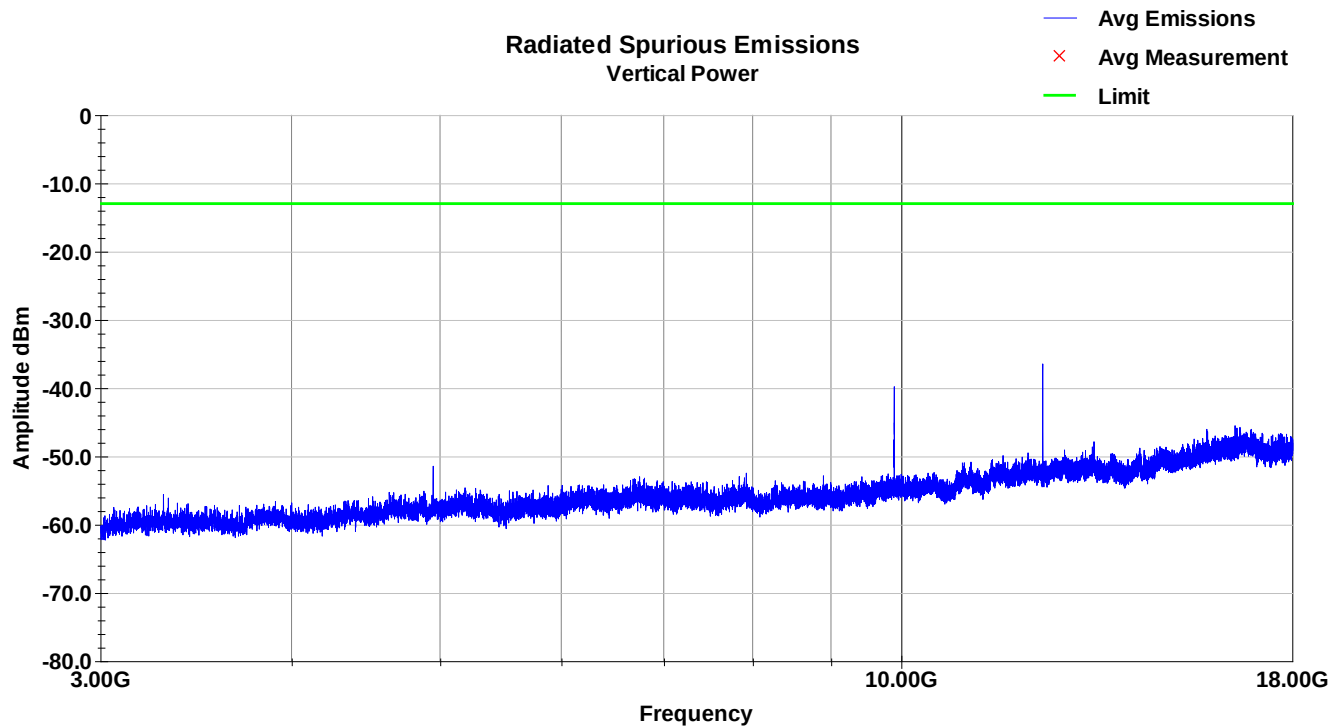
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11b HCH)



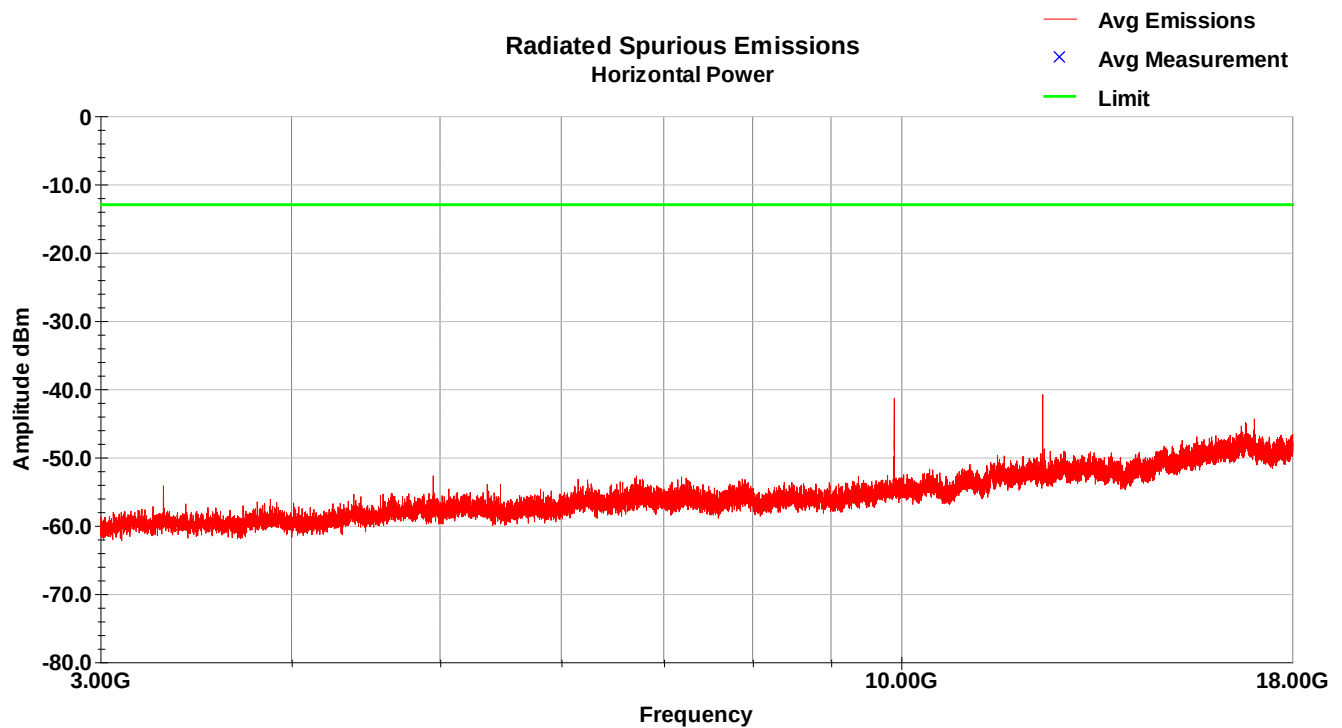
Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11b HCH)



Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11b HCH)

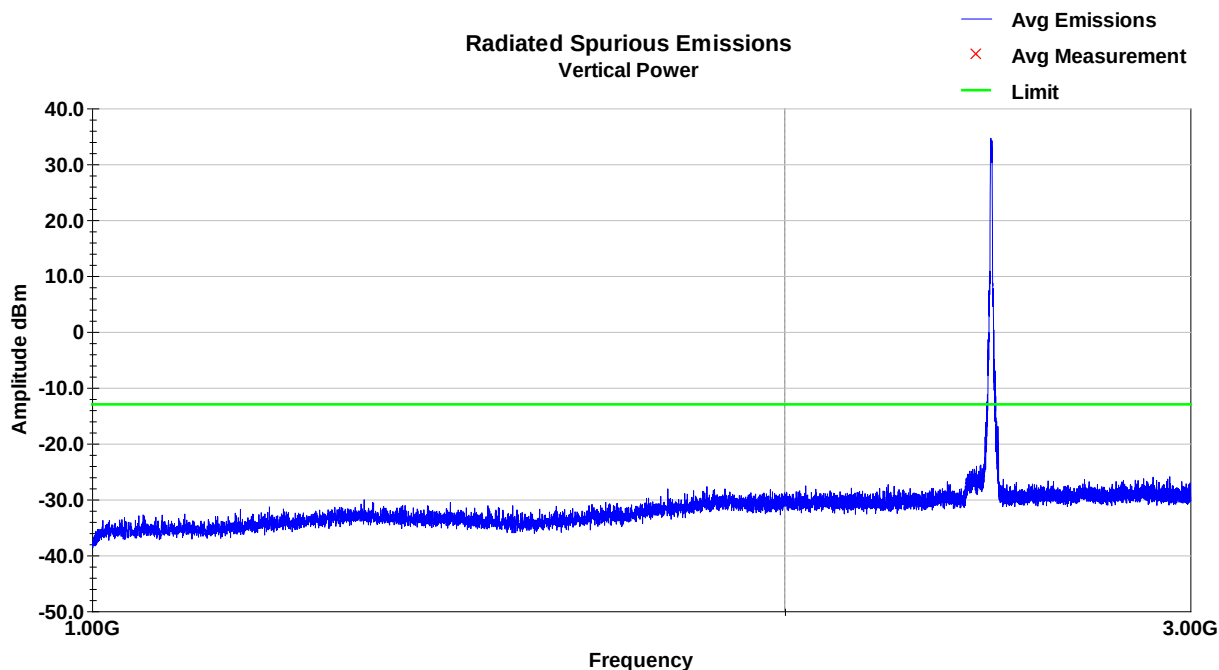


Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11b HCH)

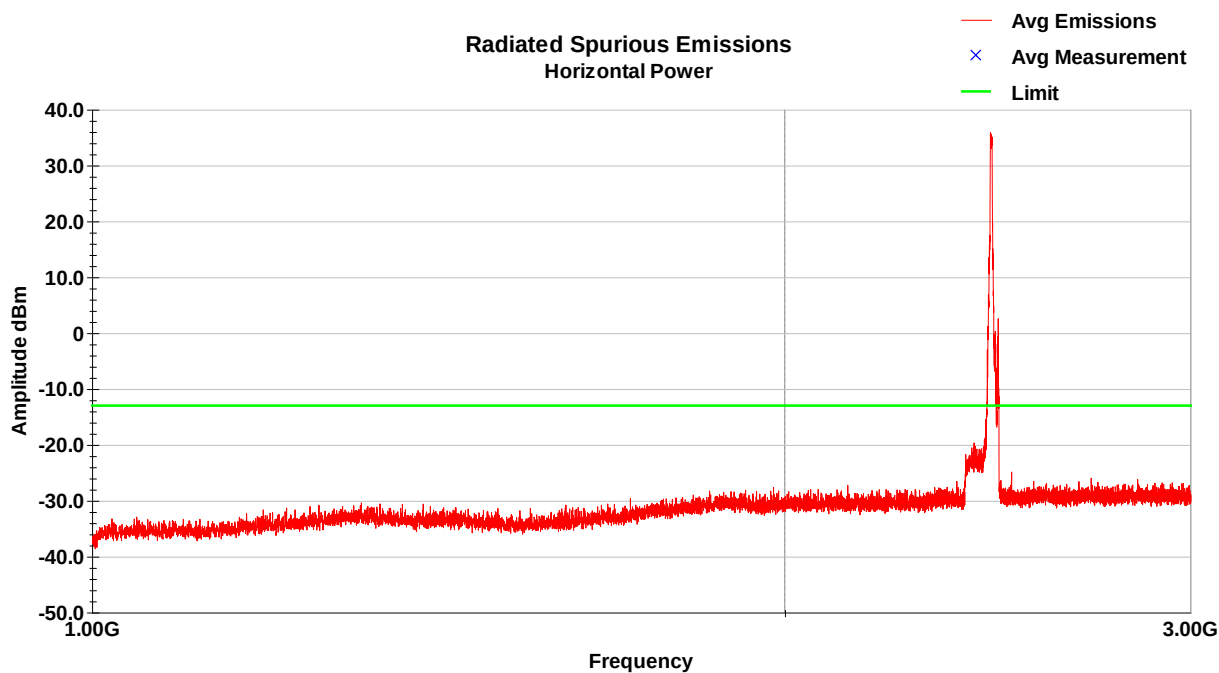


All pre-scan emissions are more than 20dB below the limit.

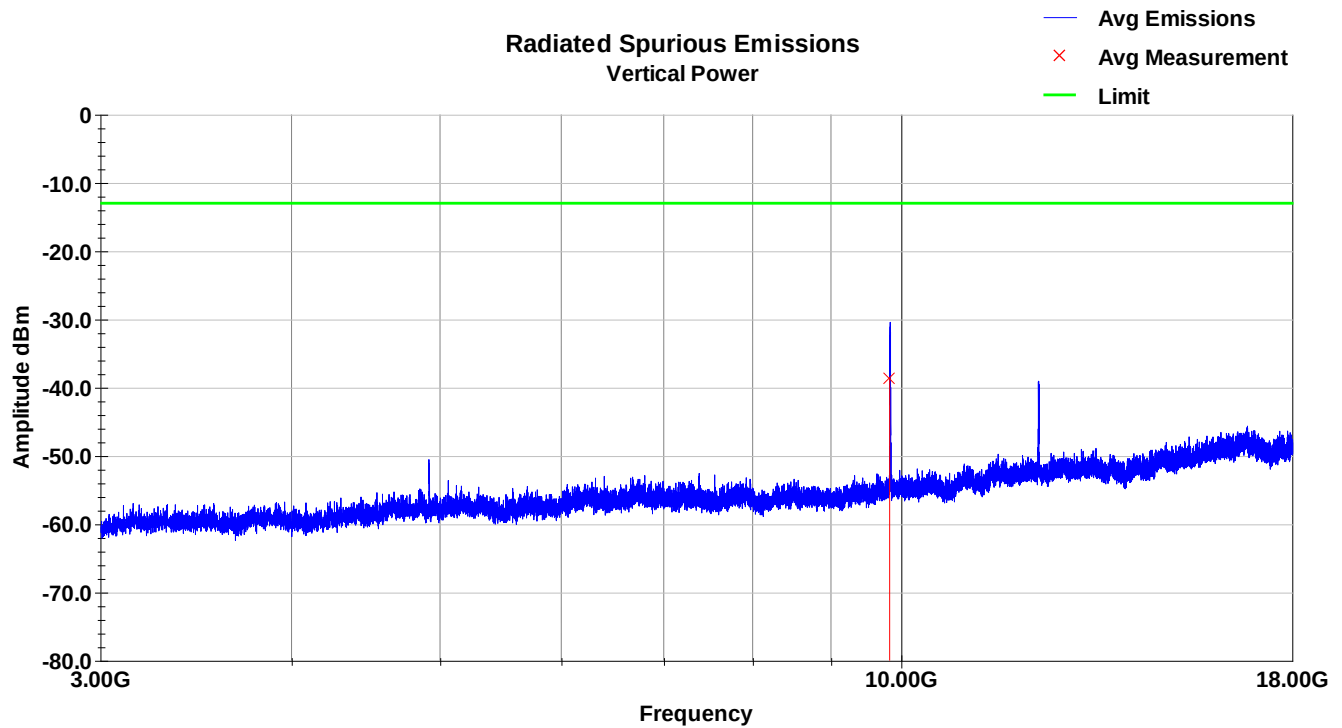
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11g LCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11g LCH)



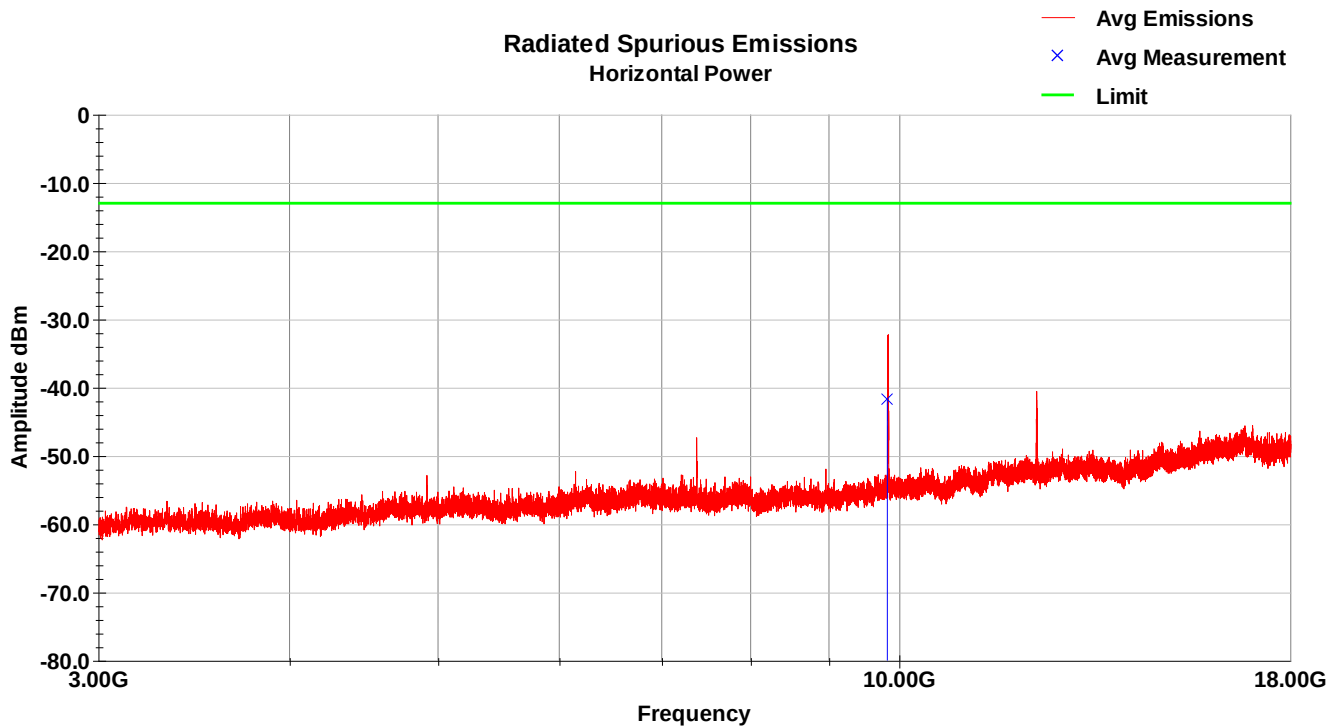
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11g LCH)



Vertical Radiated Spurious Emissions Data – 3-18GHz (802.11g LCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9829.82	-36.4	V	194.0	142.0	36.9	3.0	42.0	-38.6	-13.0	-25.6
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

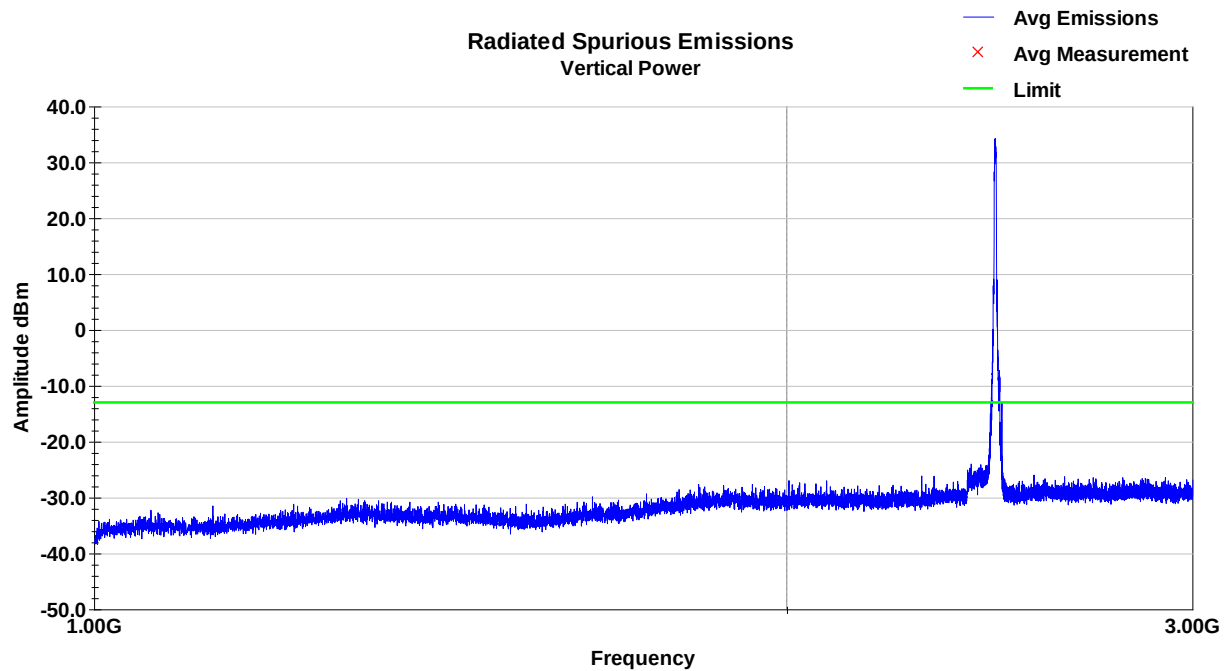
Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11g LCH)



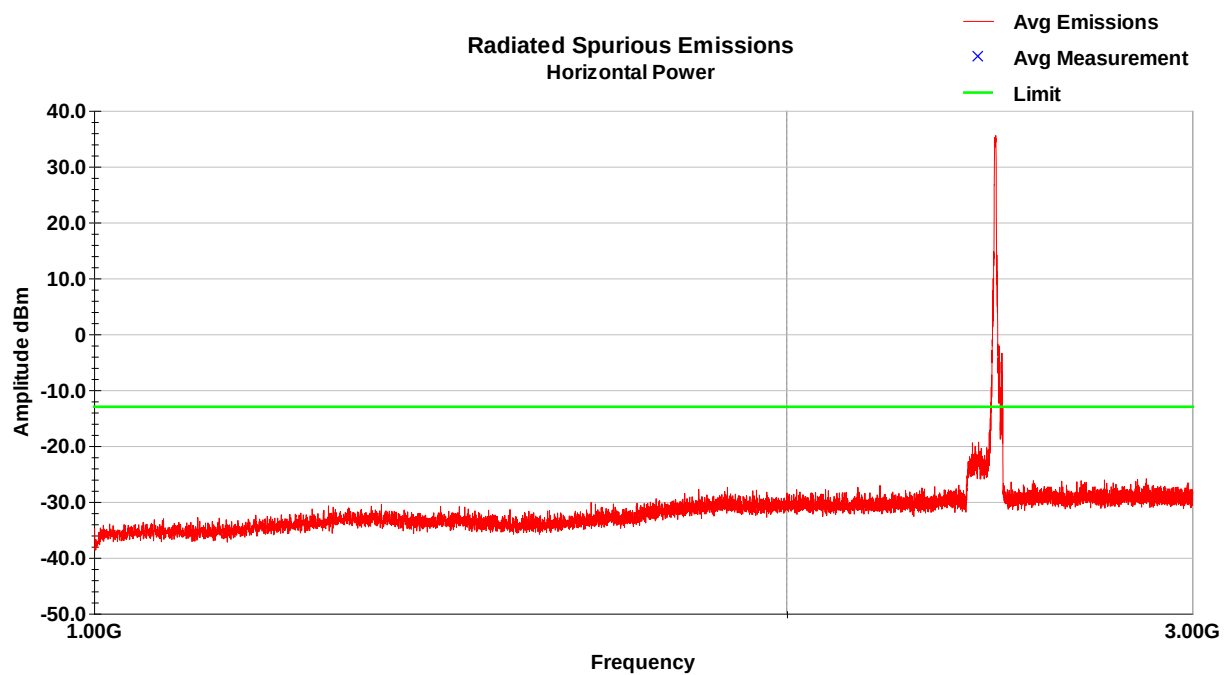
Horizontal Radiated Spurious Emissions Data – 3-18GHz (802.11g LCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9824.74	-39.6	H	121.0	146.0	36.9	2.9	42.0	-41.8	-13.0	-28.8
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

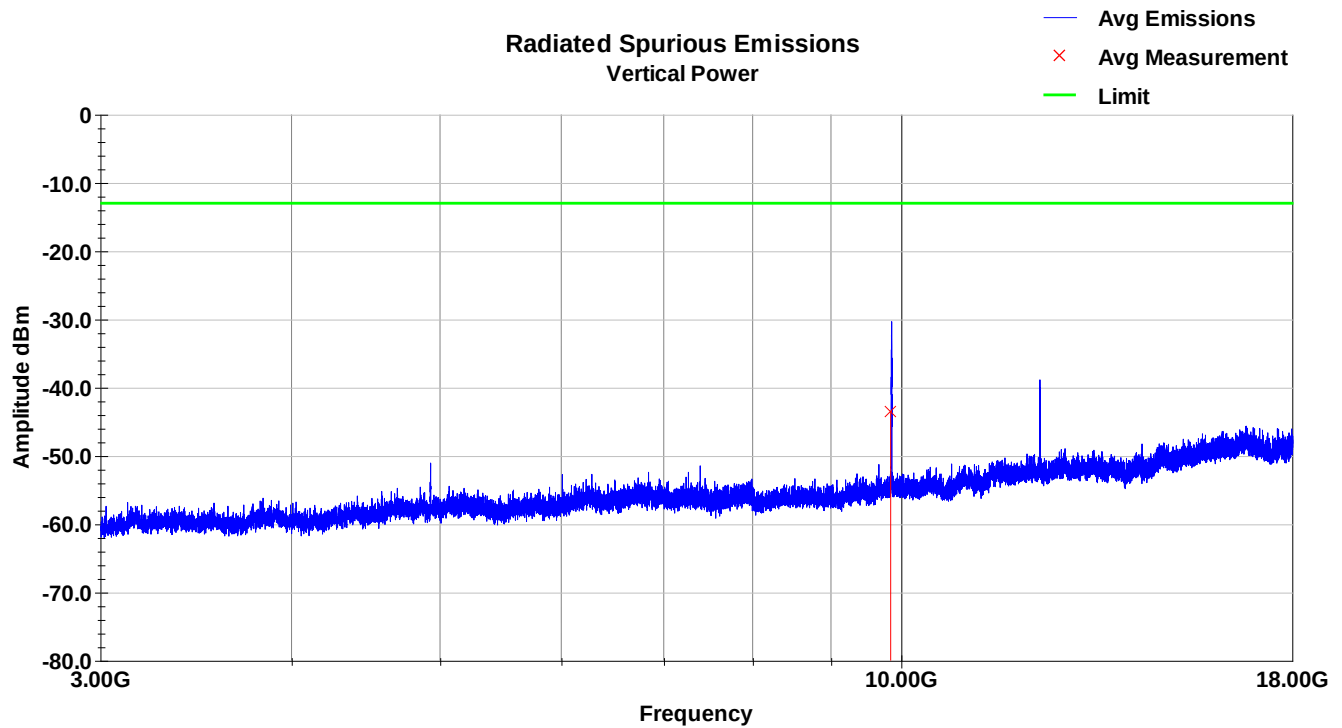
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11g MCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11g MCH)



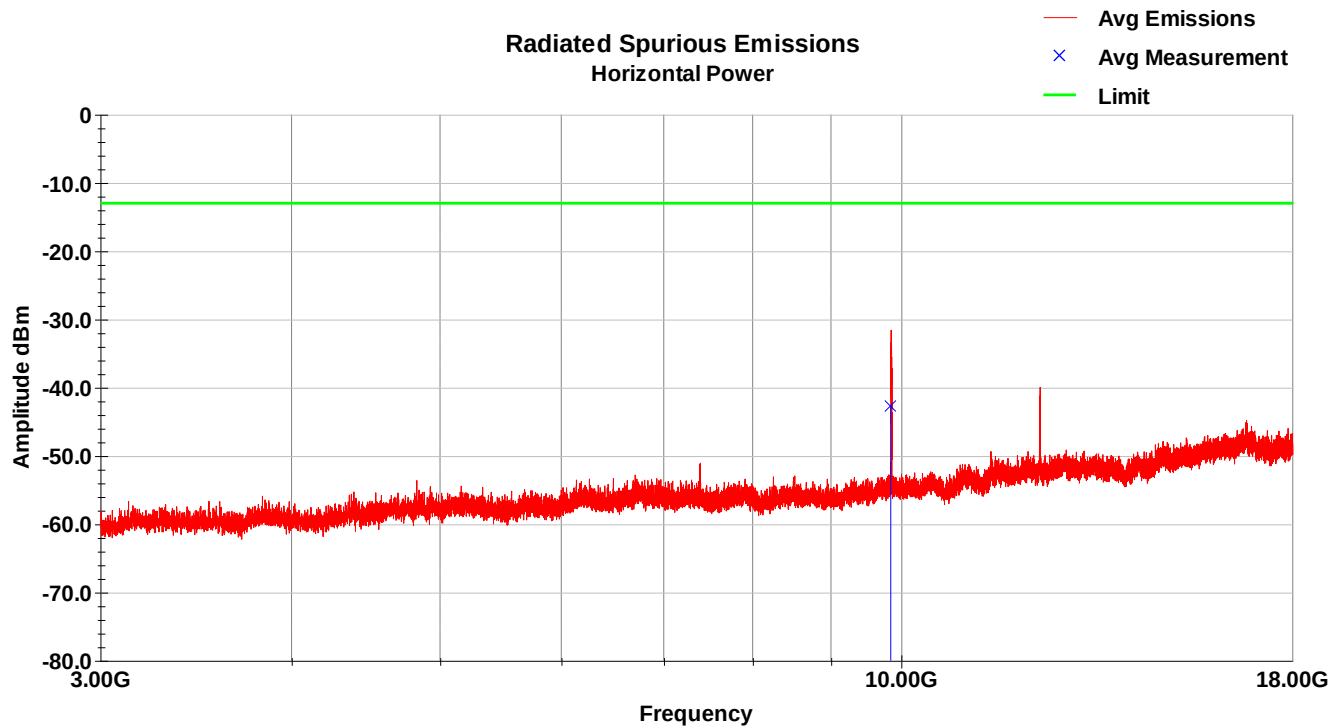
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11g MCH)



Vertical Radiated Spurious Emissions Data – 3-18GHz (802.11g MCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9845.48	-41.1	V	153.0	154.0	36.9	2.9	42.2	-43.4	-13.0	-30.4
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

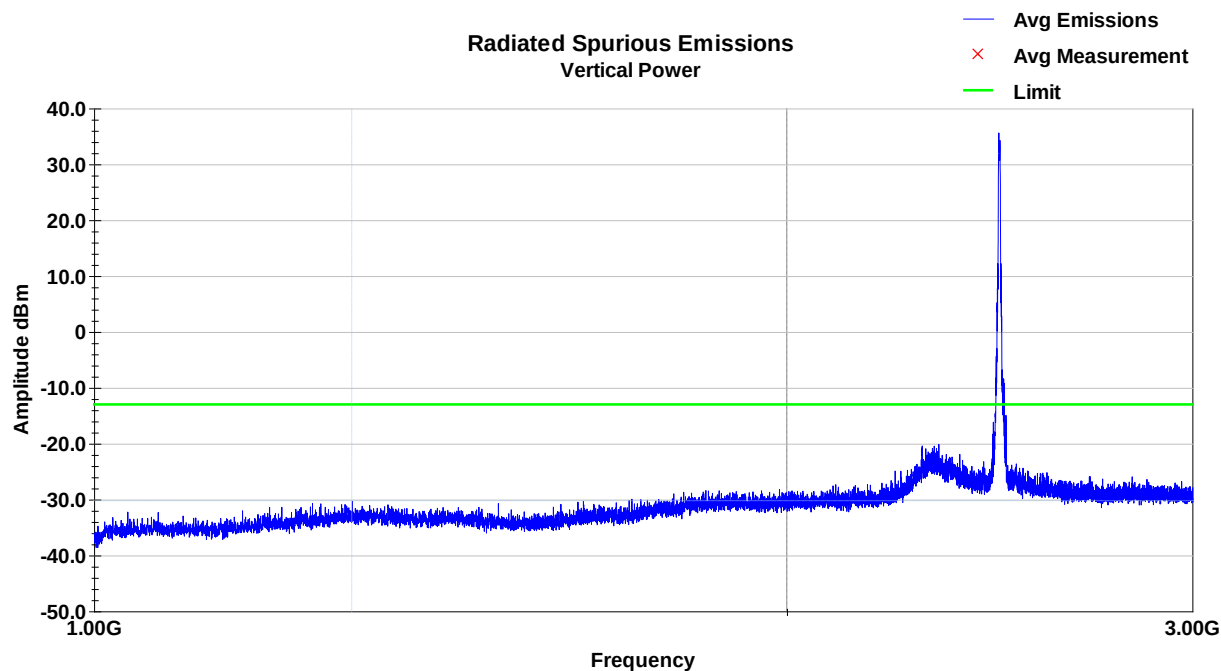
Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11g MCH)



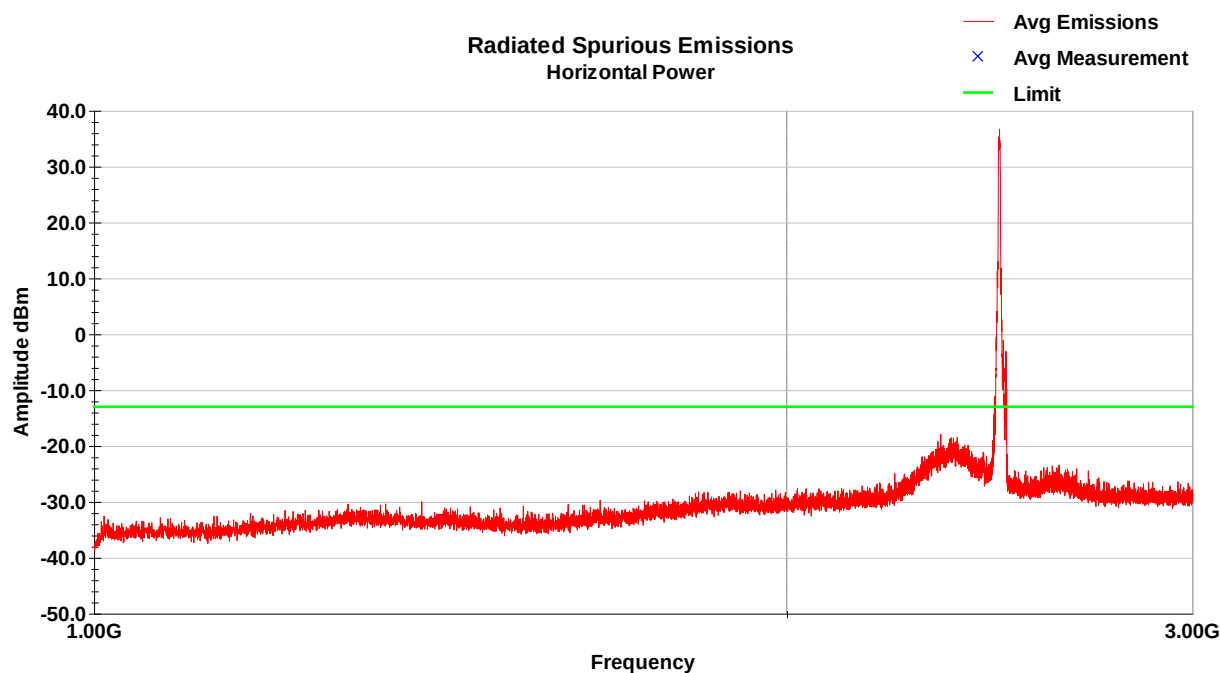
Horizontal Radiated Spurious Emissions Data – 3-18GHz (802.11g MCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9847.00	-40.3	H	137.0	157.0	36.9	2.9	42.2	-42.6	-13.0	-29.6
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

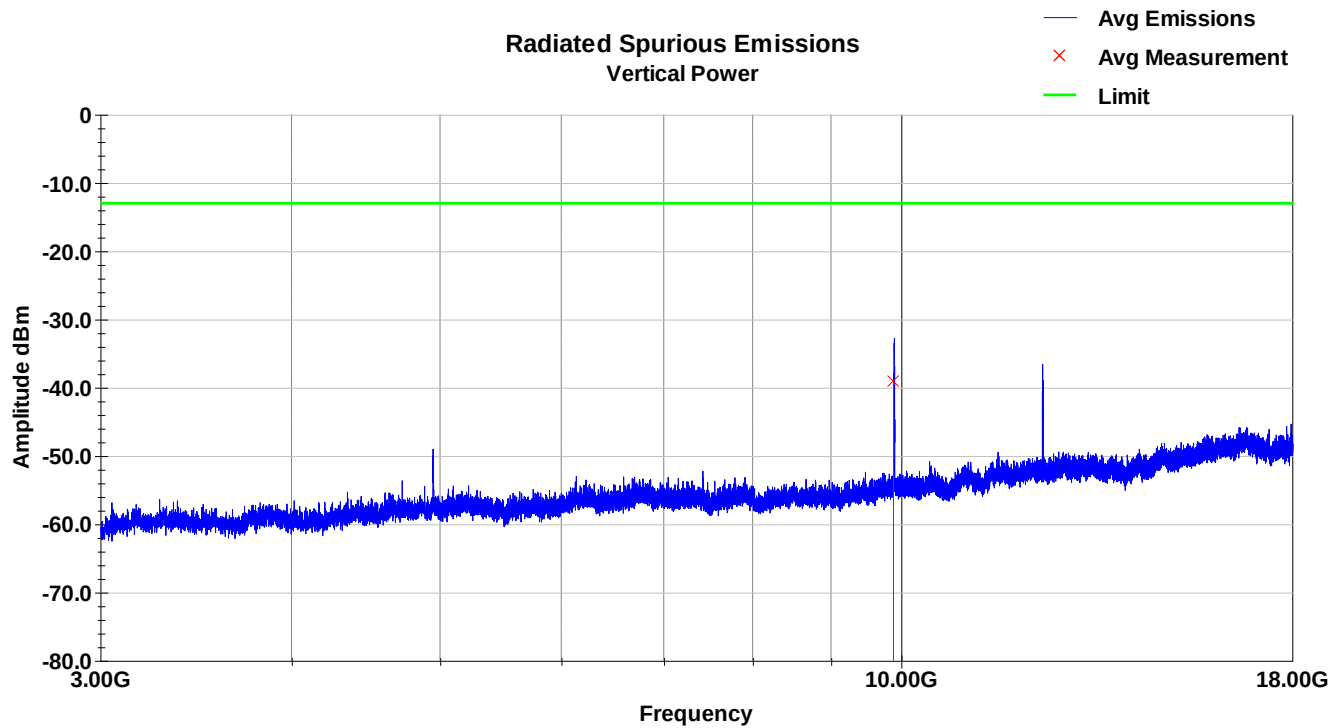
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11g HCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11g HCH)



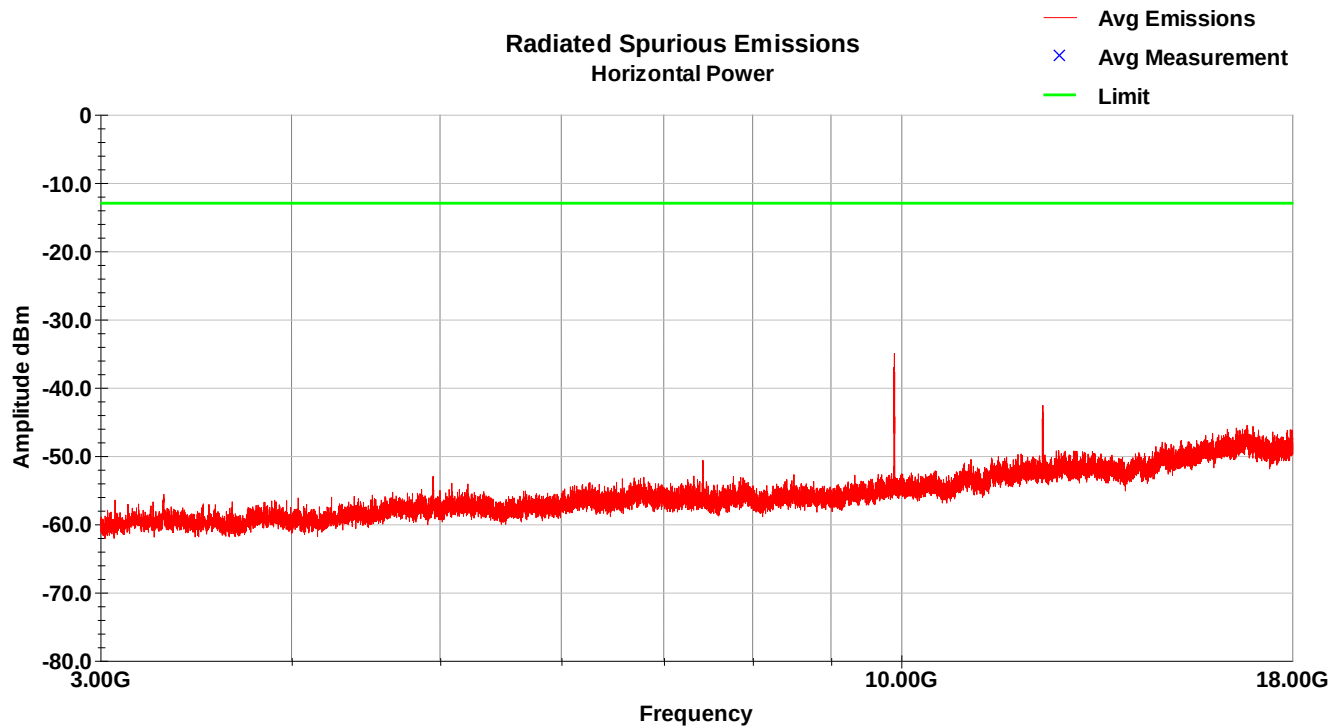
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11g HCH)



Vertical Radiated Spurious Emissions Data – 3-18GHz (802.11g HCH)

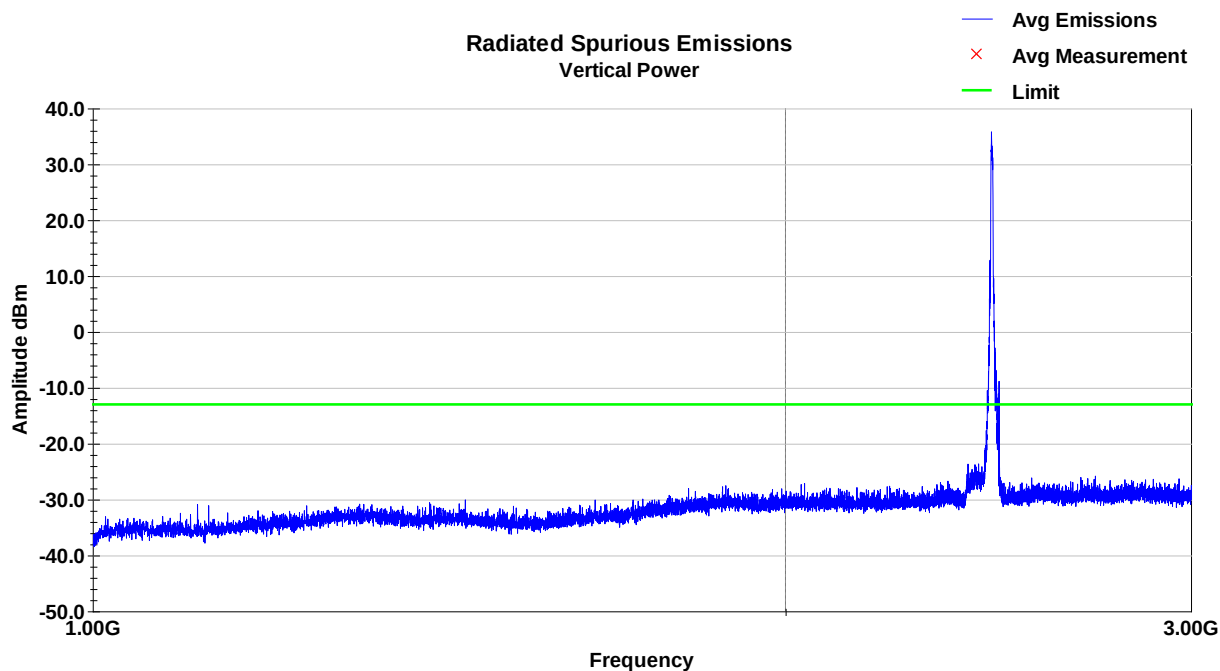
Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9887.28	-37.0	V	155.0	166.0	37.0	2.6	41.8	-39.1	-13.0	-26.1
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11g HCH)

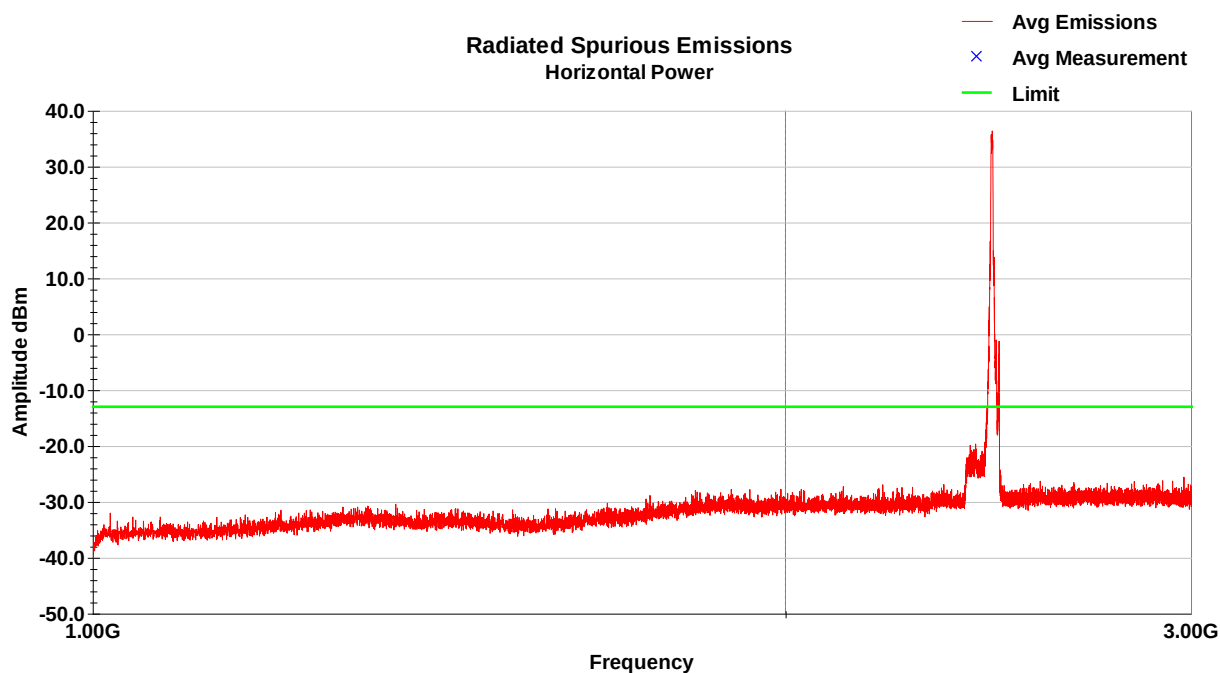


All pre-scan emissions are more than 20dB below the limit.

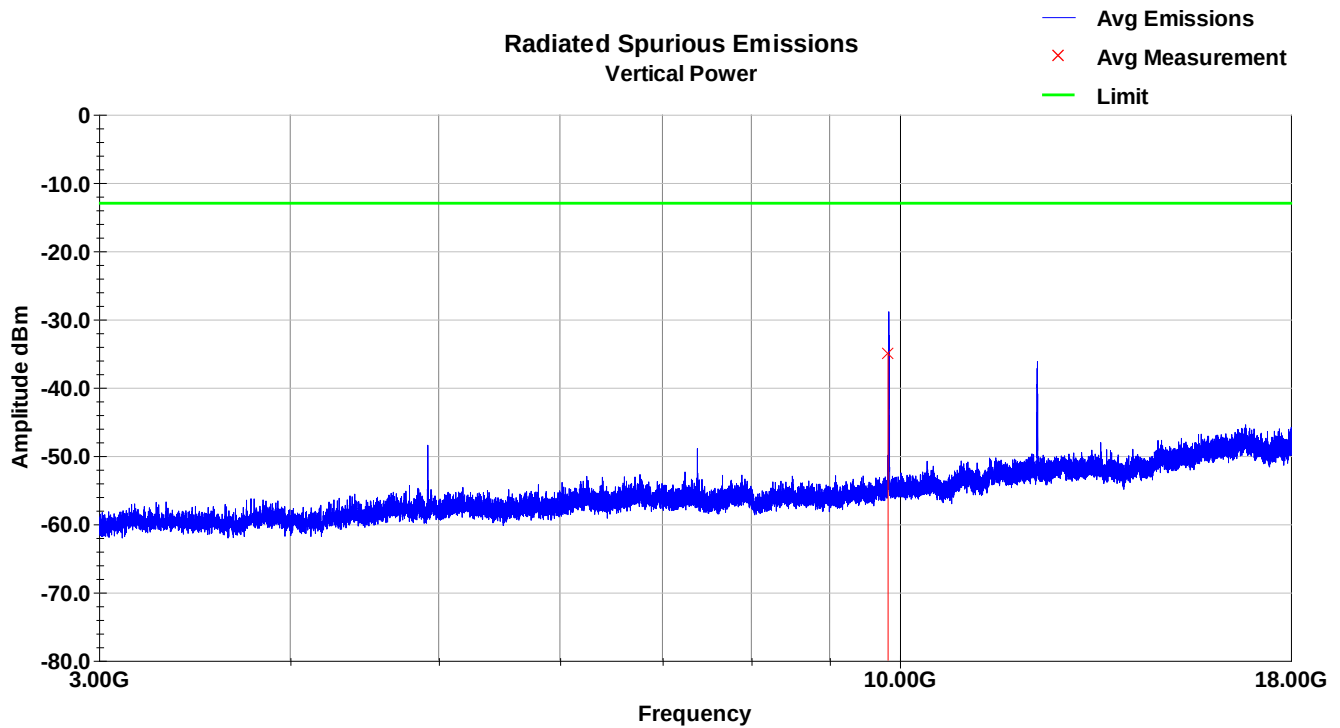
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11n LCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11n LCH)



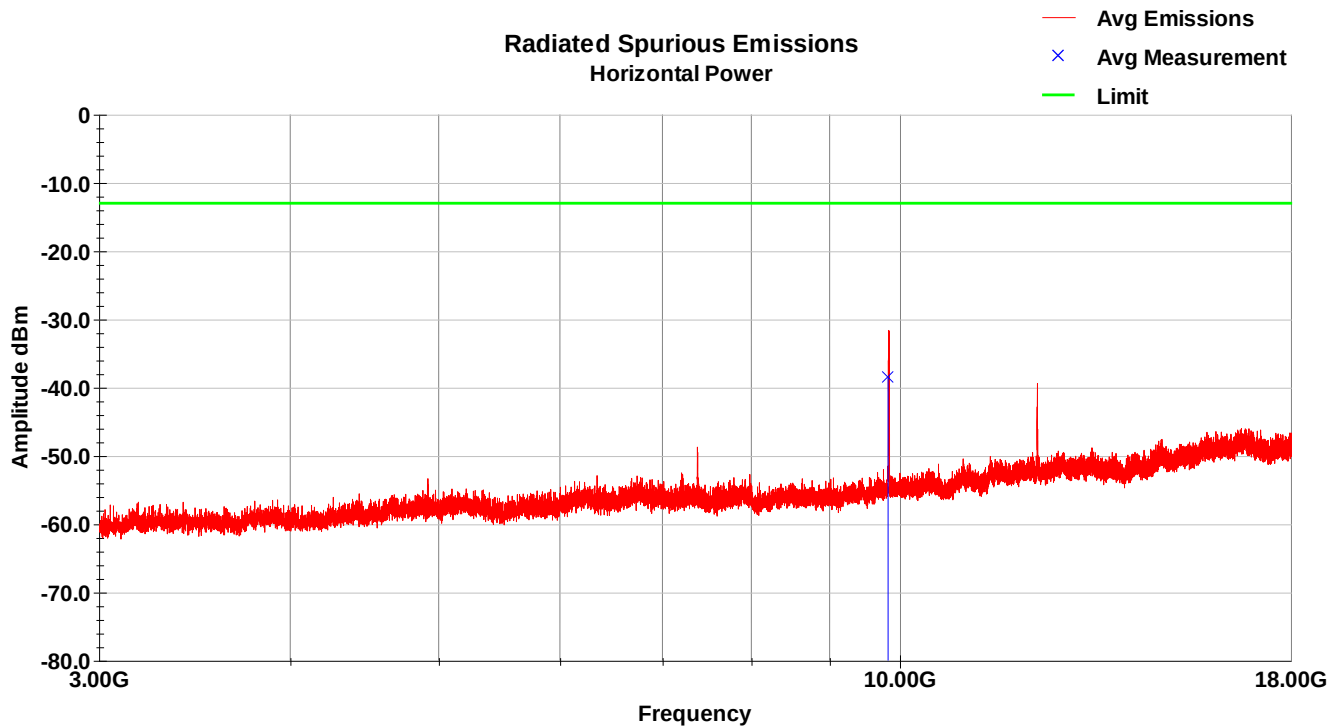
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11n LCH)



Vertical Radiated Spurious Emissions Data – 3-18GHz (802.11n LCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9827.16	-32.9	V	158.0	175.0	36.9	2.9	42.0	-35.1	-13.0	-22.1
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

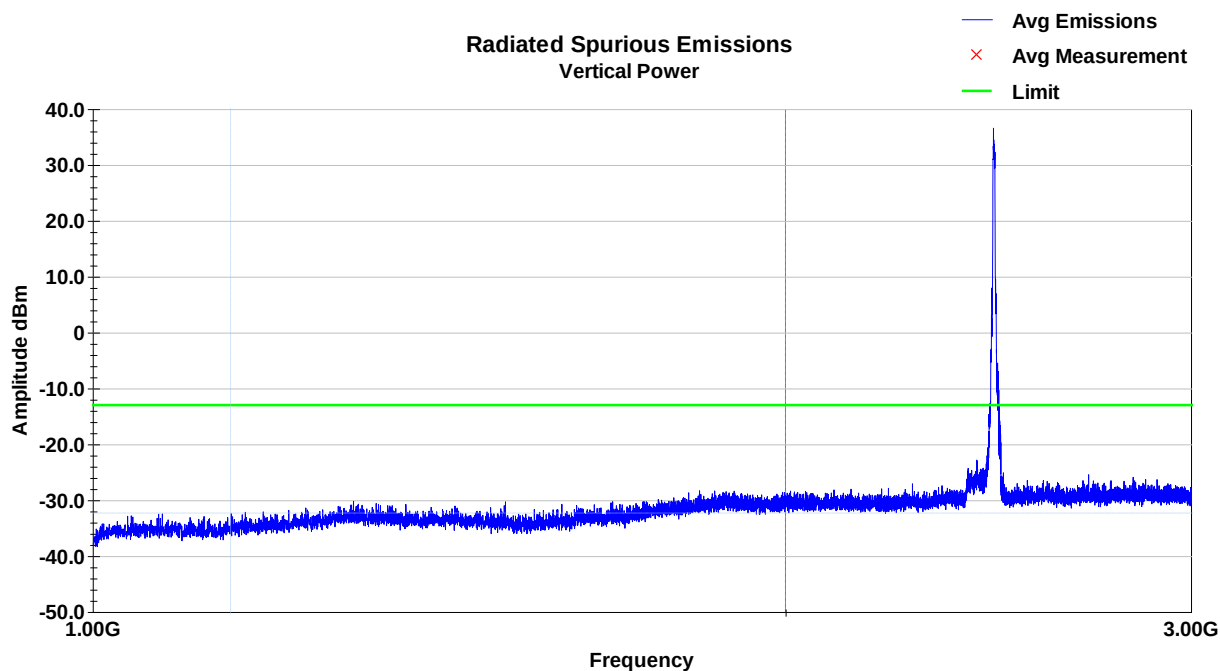
Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11n LCH)



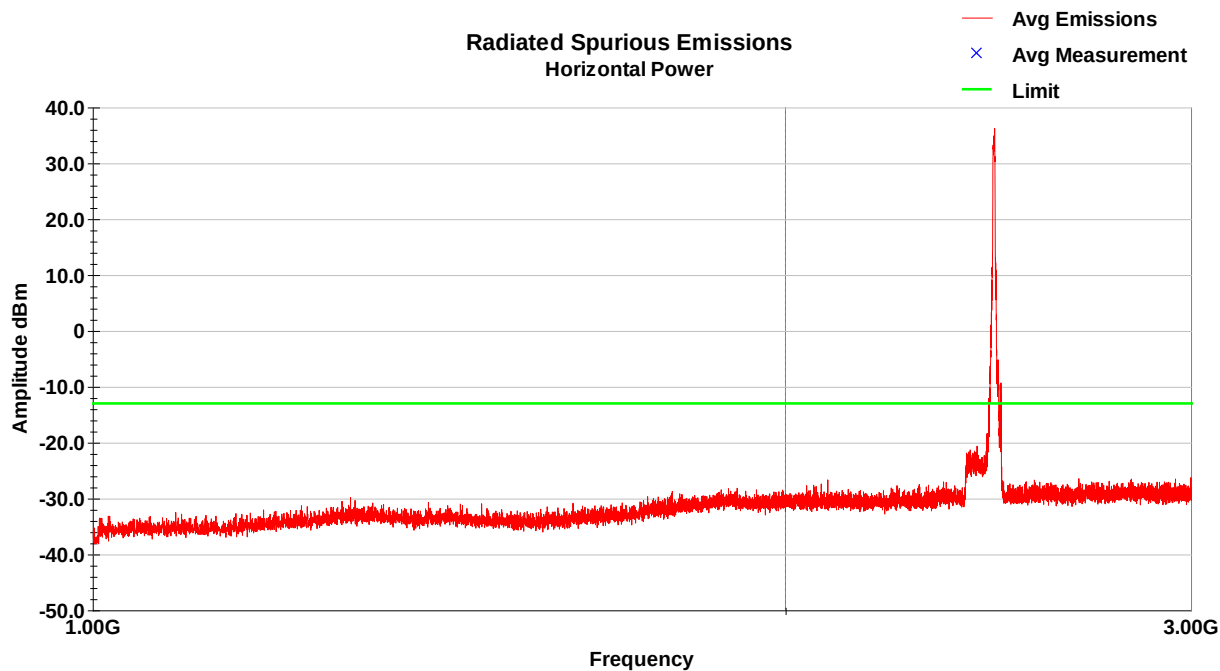
Horizontal Radiated Spurious Emissions Data – 3-18GHz (802.11n LCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9827.26	-36.4	H	121.0	145.0	36.9	2.9	42.0	-38.5	-13.0	-25.5
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

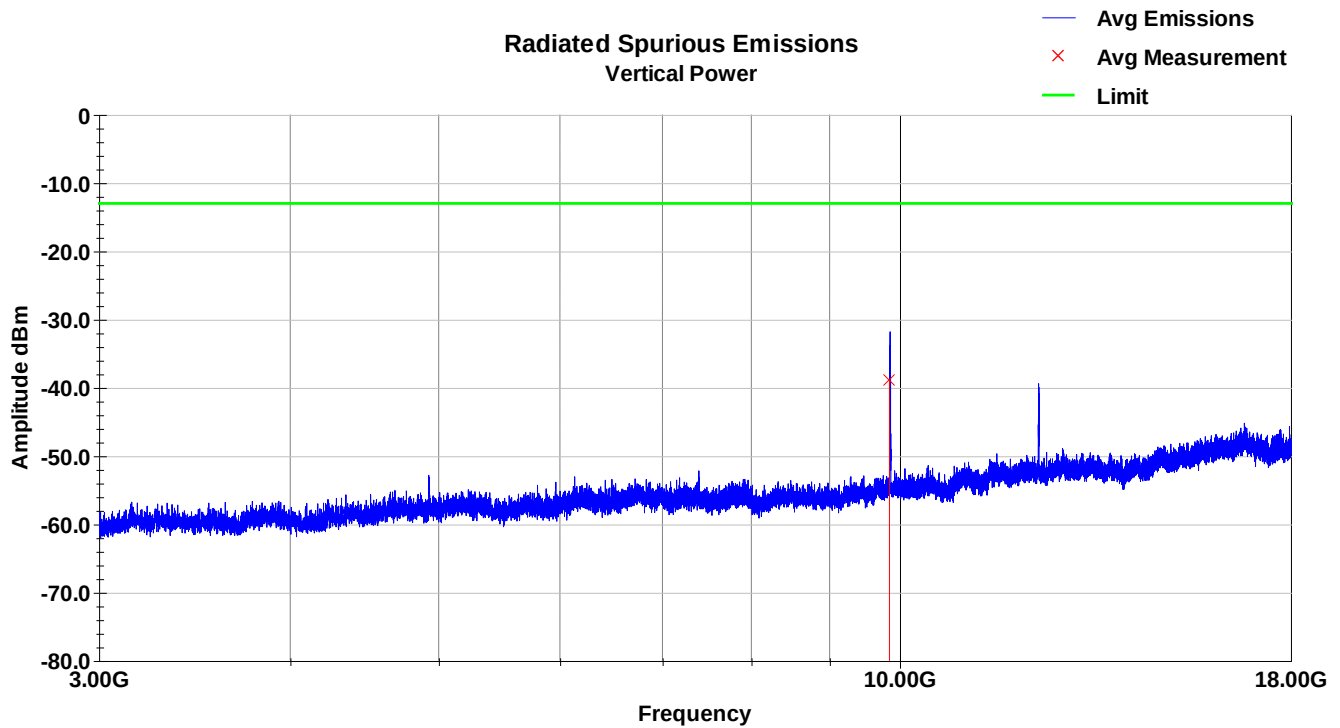
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11n MCH)



Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11n MCH)



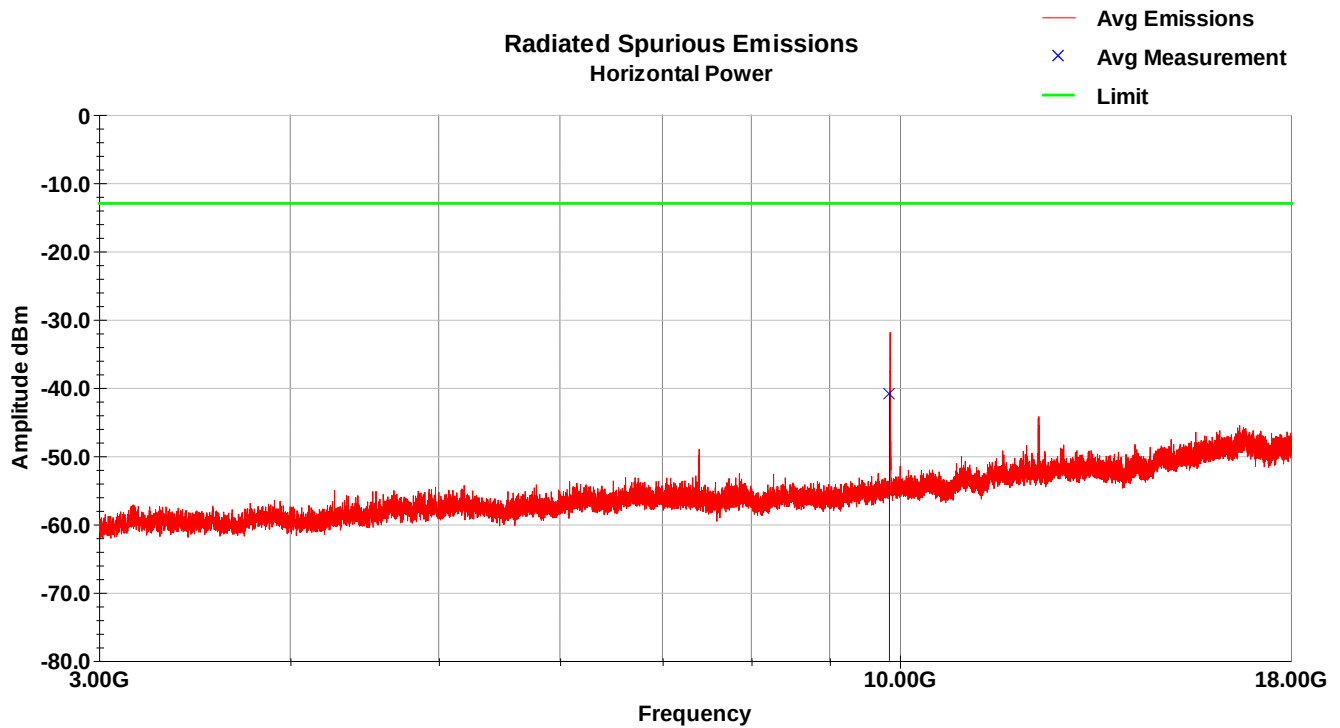
Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11n MCH)



Vertical Radiated Spurious Emissions Data – 3-18GHz (802.11n MCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9846.54	-36.5	V	184.0	120.0	36.9	2.9	42.2	-38.8	-13.0	-25.8
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

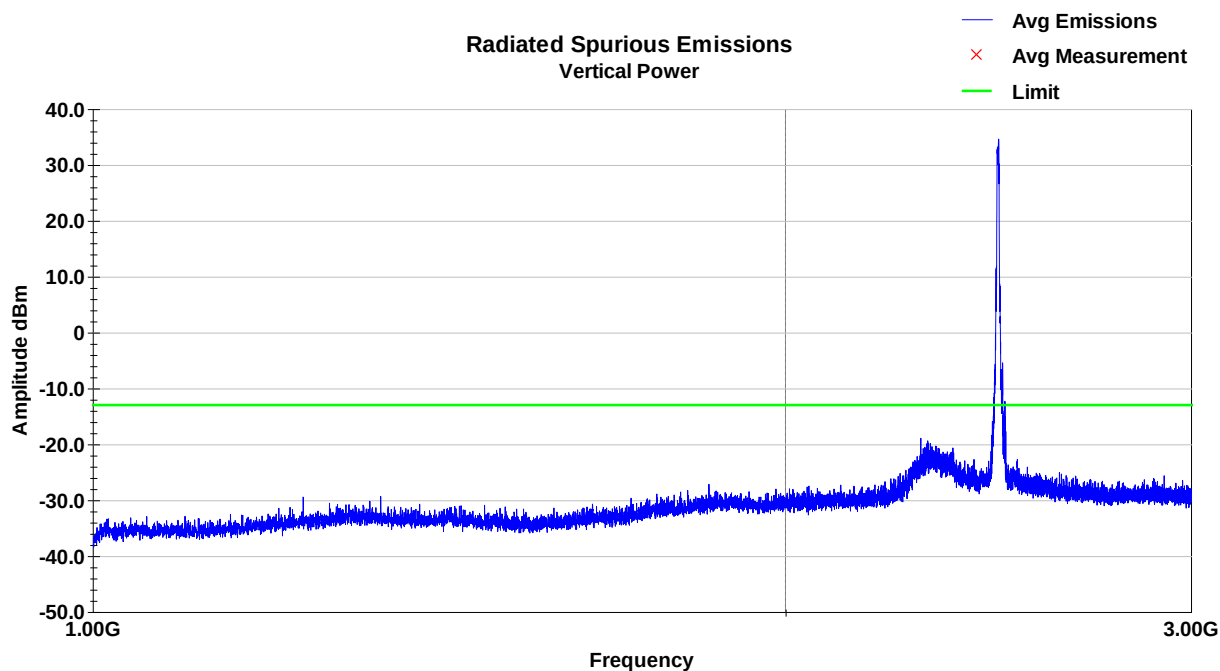
Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11n MCH)



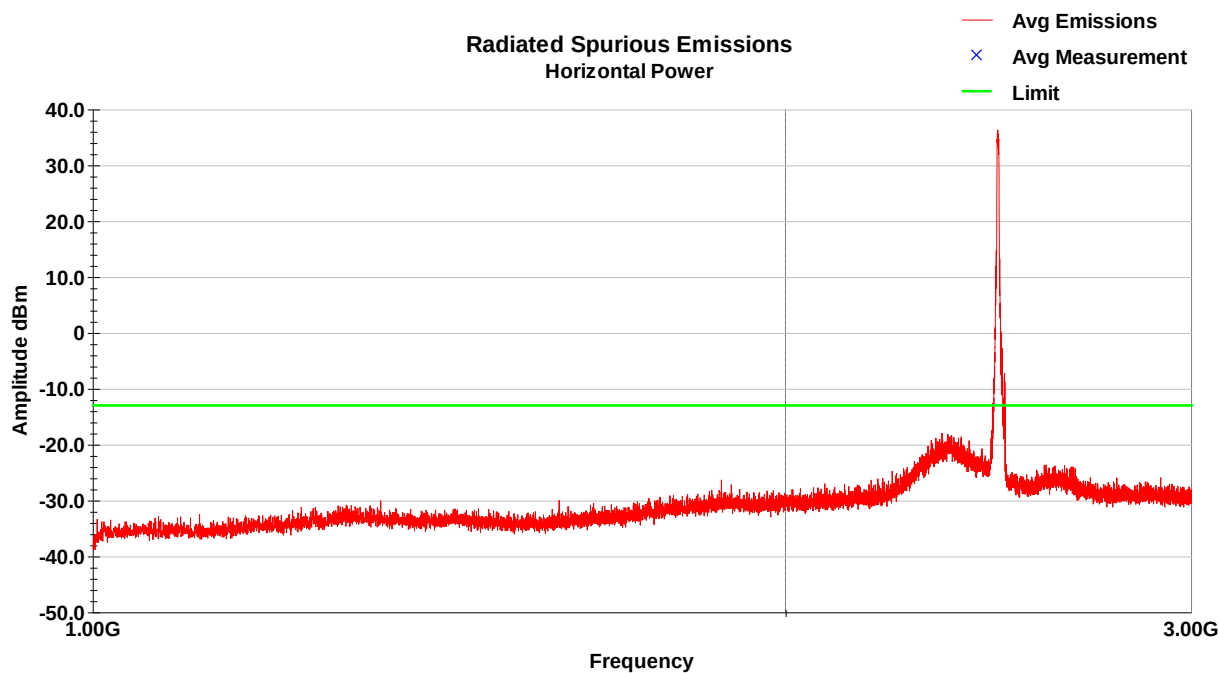
Horizontal Radiated Spurious Emissions Data – 3-18GHz (802.11n MCH)

Frequency MHz	Raw Avg dBm	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	Amp dB	Avg Value dBm	Limit dBm	Margin dB
9846.56	-38.5	H	226.0	123.0	36.9	2.9	42.2	-40.8	-13.0	-27.8
Avg Value = Raw Avg + AF + Loss - Amp										
Margin = Avg Value - Limit										

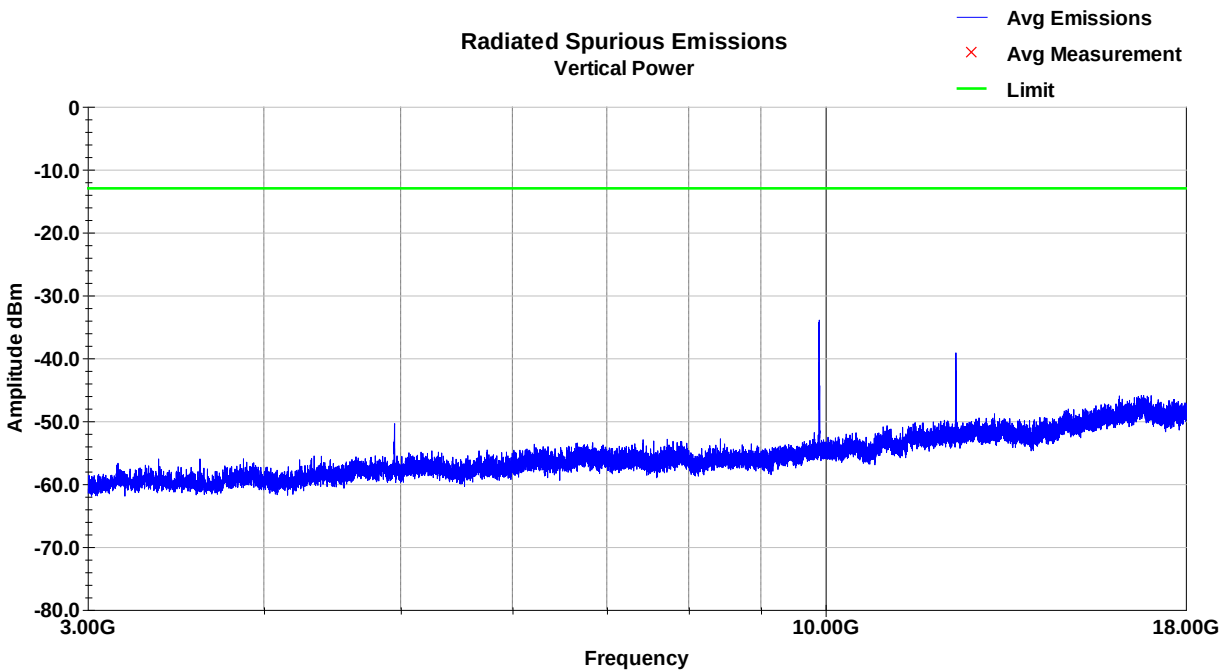
Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11n HCH)



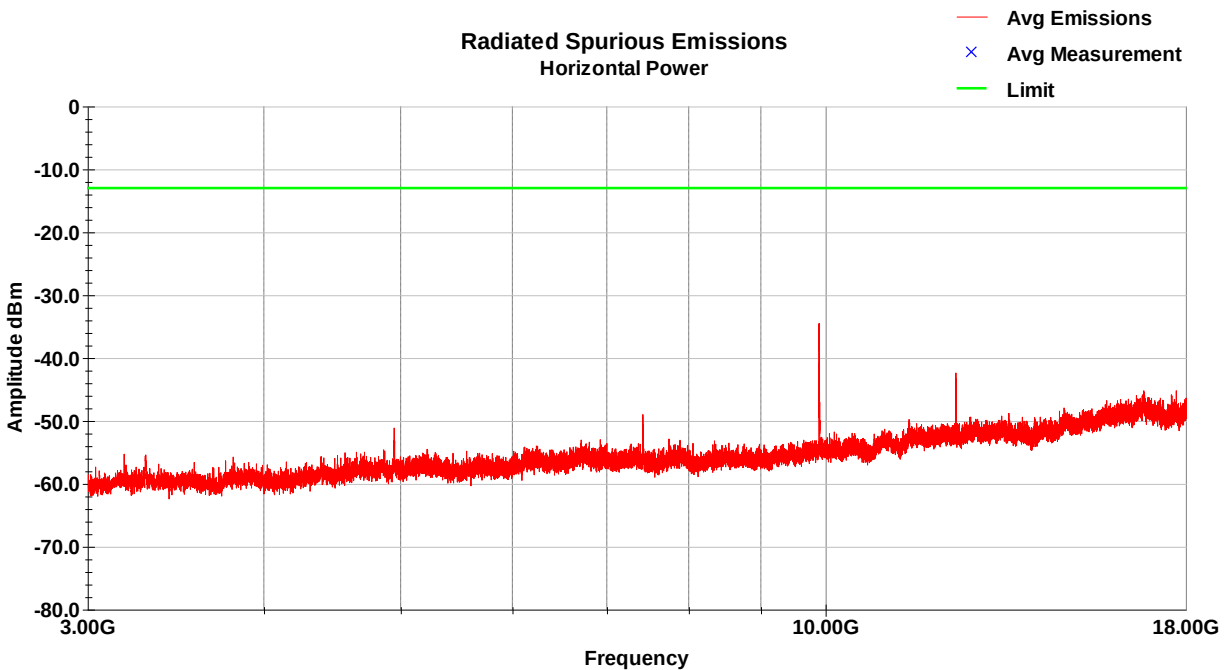
Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11n HCH)



Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11n HCH)



Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11n HCH)



All pre-scan emissions are more than 20dB below the limit.

There were no discernible emissions from 18 to 26 GHz (see plots in 1x1 SISO section above).

8 Measurement Uncertainty

The measurement uncertainty figures are be calculated in accordance with TR 100 028-1 [2] and correspond to an expansion factor (coverage factor) $k = 2$ (which provide confidence levels of 95,45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Measurement uncertainty is not used to adjust the measurements to determine compliance.

Parameter	Expanded Uncertainty for Normal k factor equal to 2	
	Required	Laboratory Actual
Radio Frequency	$\pm 1 \times 10^{-5}$	$\pm 9.8 \times 10^{-8}$
total RF power, conducted	± 1.5 dB	± 1.2 dB
RF power density, conducted	± 3 dB	± 0.7 dB
spurious emissions, conducted	± 3 dB	± 2.1 dB
all emissions, radiated	± 6 dB	± 4.8 dB
temperature	$\pm 1^{\circ}\text{C}$	$\pm 0.5^{\circ}\text{C}$
humidity	± 5 %	$\pm 3.5\%$
DC and low frequency voltages	± 3 %	$\pm 0.4\%$

9 Revision History

Revision Level	Description of changes	Revision Date
Draft	--	19 December 2024
0	Initial Release	07 February 2025
1	Corrected 40dB attenuator calibration dates in sections 3.4, 4.4, 5.4 & 6.4	03 April 2025