

APPENDIX A – TEST DATA OF CONDUCTED EMISSION

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Test Mode	Data Rate
802.11a	6Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11acVHT20	MCS0
802.11acVHT40	MCS0
802.11acVHT80	MCS0

We chose the Worst-modes are shown as following table:

Test Mode	Chain	Note
802.11a	Chain0/Chain1	---
802.11ac VHT20	Chain0/Chain1	Cover 802.11n HT20
802.11ac VHT40	Chain0/Chain1	Cover802.11n HT40
802.11ac VHT80	Chain0/Chain1	---

Directional gain

Band	Chain0 AntGain (dBi)	Chain1 AntGain (dBi)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit
5.2GHz	2.7	2.7	5.7	29.0	16.0(dBm/MHz)
5.8GHz	2.7	2.7	5.7	29.0	29.0(dBm/500kHz)

Dutycycle

Test Mode	Duty Cycle (%)	Correction Factor(dB)
802.11a	91.98	0.363
802.11n HT20	91.41	0.390
802.11n HT40	82.06	0.858
802.11ac VHT20	91.91	0.366
802.11ac VHT40	82.50	0.835
802.11ac VHT80	67.97	1.677

Output Power UNII-1

Mode	Freq. (MHz)	Average power output(dBm)		
		Chain0	Chain1	MIMO
802.11a	5180	13.07	13.33	16.22
	5220	12.98	13.30	16.16
	5240	13.04	13.27	16.17
802.11nHT20	5180	12.06	11.71	14.90
	5220	12.02	11.76	14.90
	5240	12.04	11.74	14.90
802.11nHT40	5190	10.24	10.49	13.38
	5230	9.98	10.42	13.21
802.11acVHT20	5180	13.02	13.30	16.17
	5220	12.94	13.34	16.15
	5240	12.86	13.33	16.11
802.11acVHT40	5190	11.20	11.36	14.29
	5230	11.12	11.47	14.30
802.11acVHT80	5210	10.28	10.60	13.45

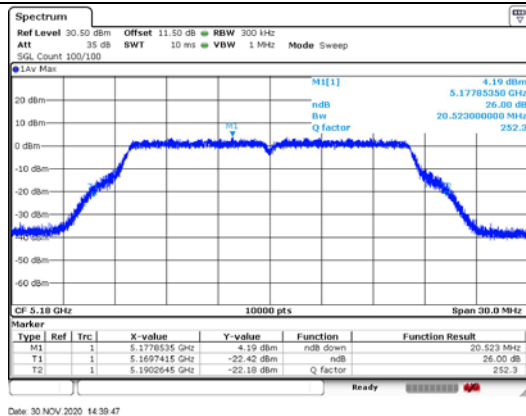
26dB Occupied Bandwidth

Offset 11.5dB = Attenuator 10dB+ Temporary antenna connector loss 0.5dB+ Cable loss 1dB

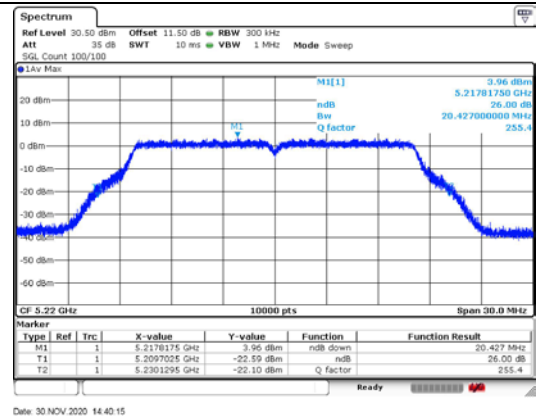
Test Mode: 802.11a

Carrier frequency (MHz)	Channel No.	26dB BW(MHz) Chain0	26dB BW(MHz) Chain1
5180	36	20.523	20.772
5220	44	20.427	20.628
5240	48	20.622	20.466

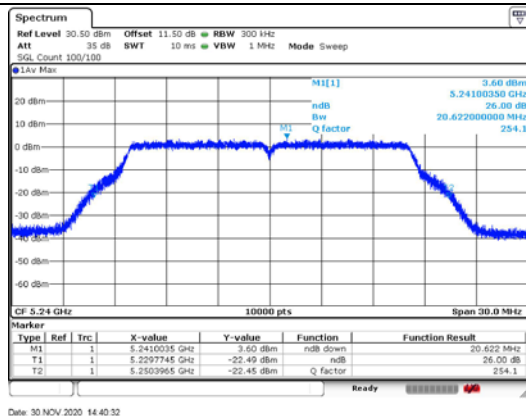
Test Mode: 802.11aChain0



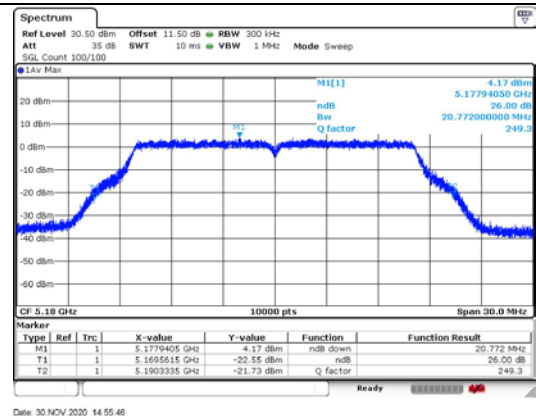
Test Mode: 802.11aChain0



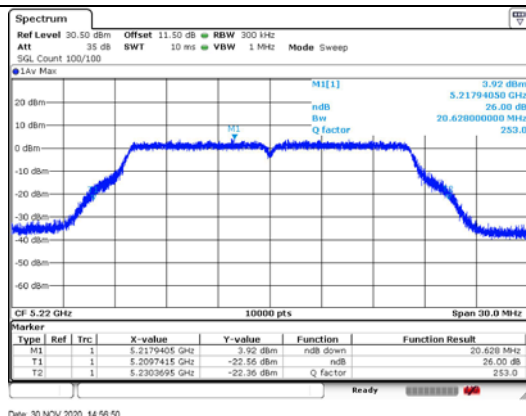
Test Mode: 802.11aChain0



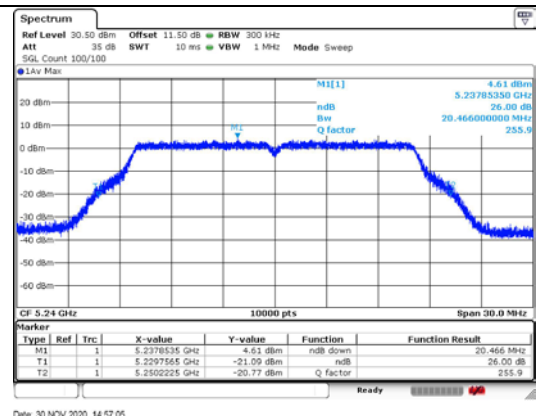
Test Mode: 802.11aChain1



Test Mode: 802.11aChain1



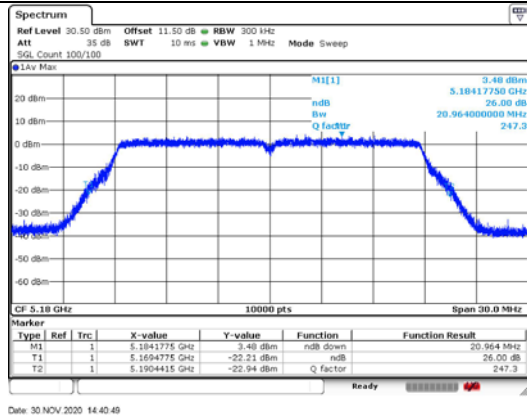
Test Mode: 802.11aChain1



Test Mode: 802.11ac VHT20

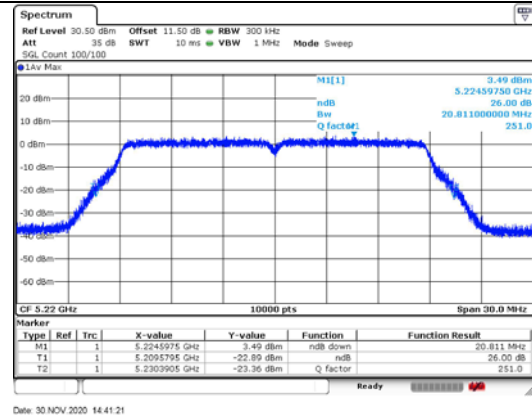
Carrier frequency (MHz)	Channel No.	26dB BW(MHz) Chain0	26dB BW(MHz) Chain1
5180	36	20.964	21.018
5220	44	20.811	20.883
5240	48	21.069	20.985

Test Mode: 802.11ac VHT20Chain0



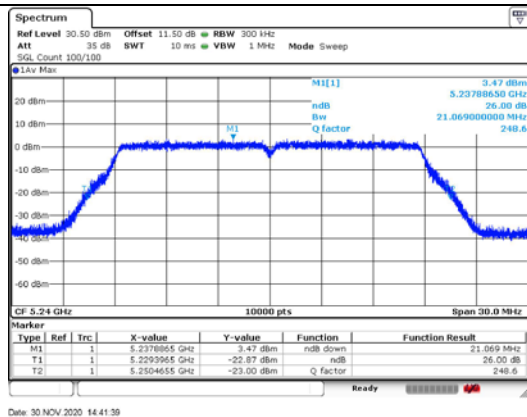
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Test Mode: 802.11ac VHT20Chain0



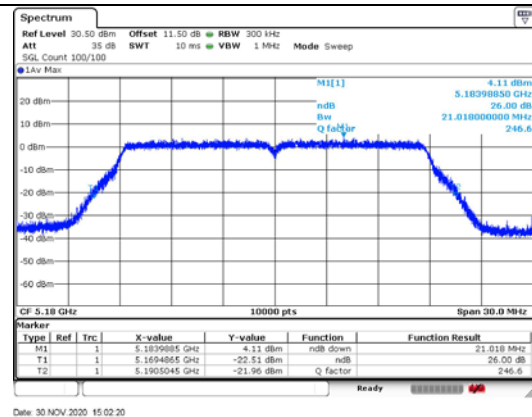
Date: 30 NOV 2020 14:41:21

Test Mode: 802.11ac VHT20Chain0



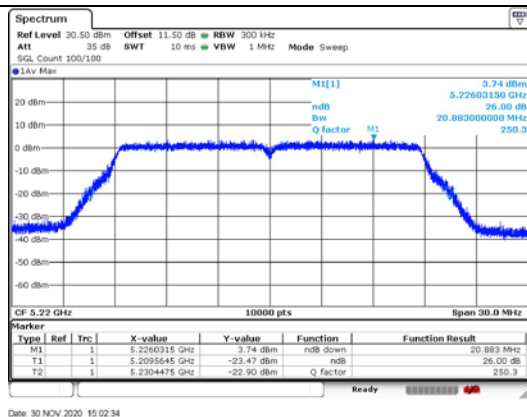
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Test Mode: 802.11ac VHT20Chain1



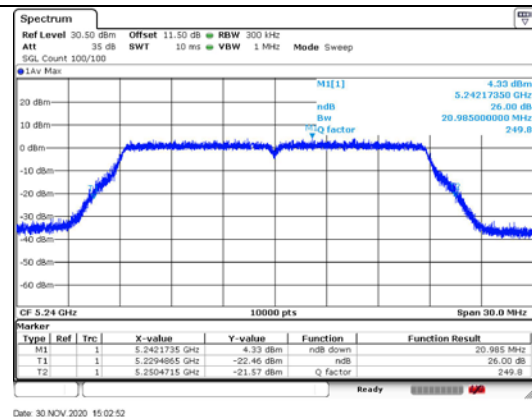
Date: 30 NOV 2020 15:02:20

Test Mode: 802.11ac VHT20Chain1



Date: 30 NOV 2020 15:02:34

Test Mode: 802.11ac VHT20Chain1

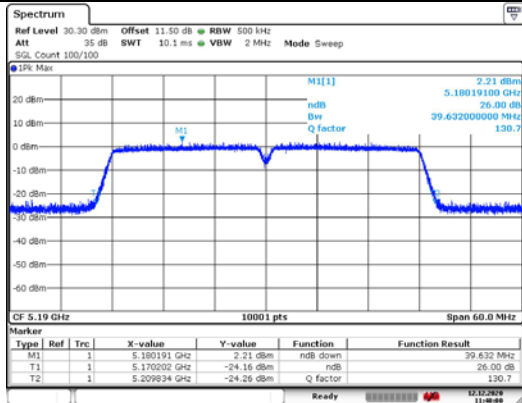


Date: 30 NOV 2020 15:02:52

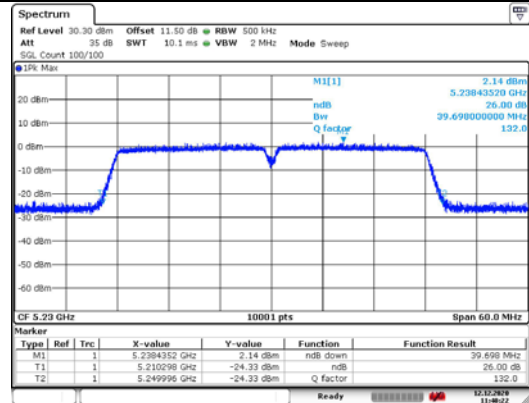
Test Mode: 802.11ac VHT40

Carrier frequency (MHz)	Channel No.	26dB BW(MHz) Chain0	26dB BW(MHz) Chain1
5190	38	39.632	39.500
5230	46	39.698	39.668

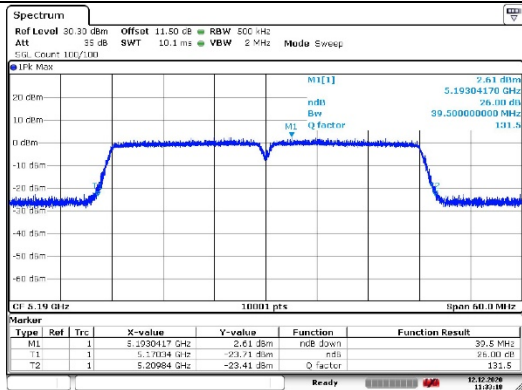
Test Mode: 802.11ac VHT40Chain0



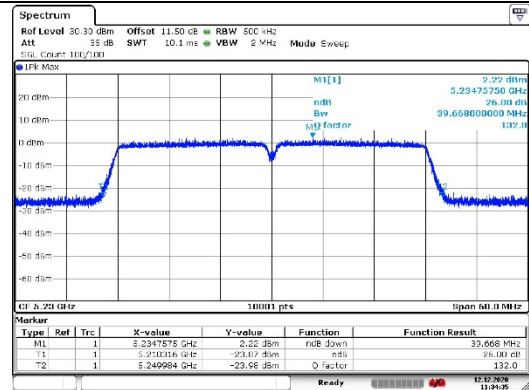
Test Mode: 802.11ac VHT40Chain0



Test Mode: 802.11ac VHT40Chain1



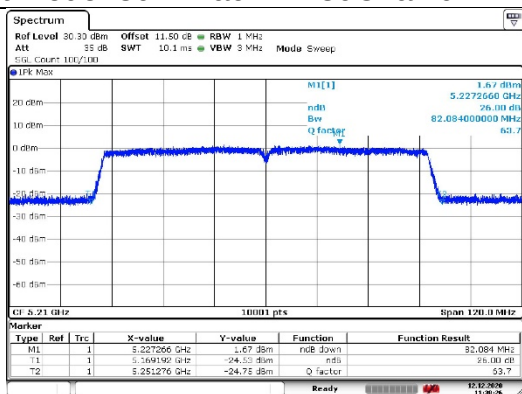
Test Mode: 802.11ac VHT40Chain1



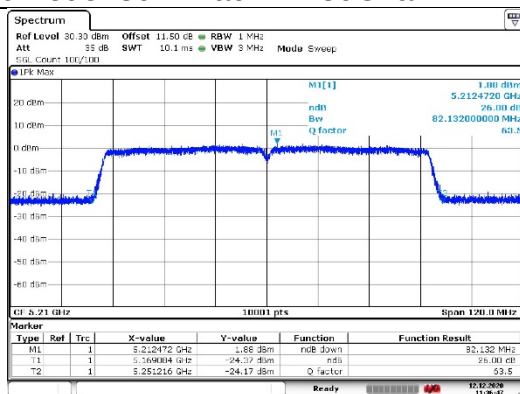
Test Mode: 802.11ac VHT80

Carrier frequency (MHz)	Channel No.	26dB BW(MHz) Chain0	26dB BW(MHz) Chain1
5210	42	82.084	82.668

Test Mode: 802.11ac VHT80Chain0



Test Mode: 802.11ac VHT80Chain1



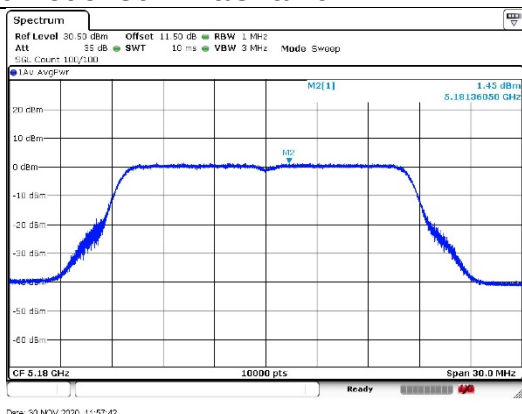
Transmitter Power Spectral Density

Offset 11.5dB = Attenuator 10dB+ Temporary antenna connector loss 0.5dB+ Cable loss 1dB

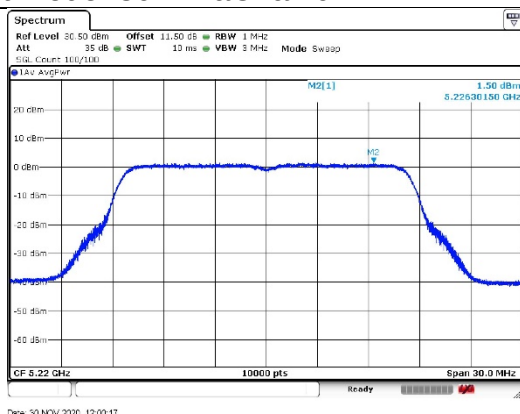
Test Mode: 802.11a

Carrier frequency (MHz)	Correction Factor(dB)	Power Density(dBm) Chain0	Power Density (dBm) Chain1	Power Density (dBm) MIMO
5180	0.363	1.81	2.07	4.96
5220	0.363	1.86	1.96	4.92
5240	0.363	2.04	1.86	4.96

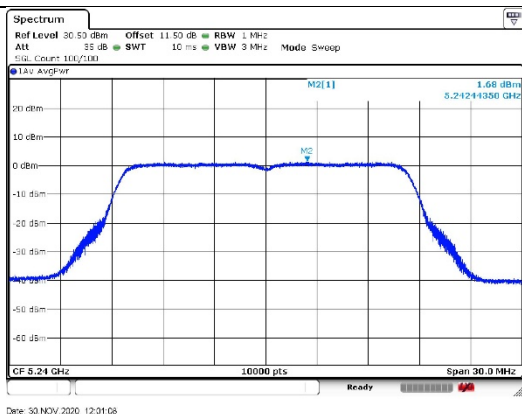
Test Mode: 802.11aChain0



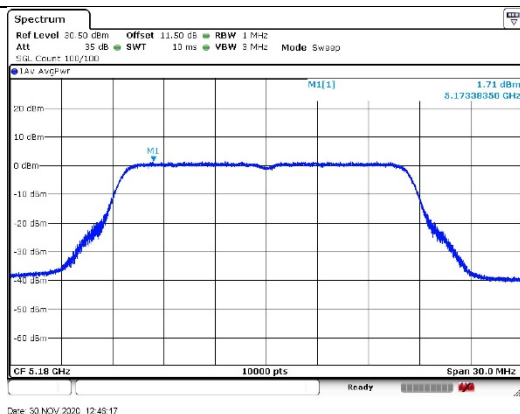
Test Mode: 802.11aChain0



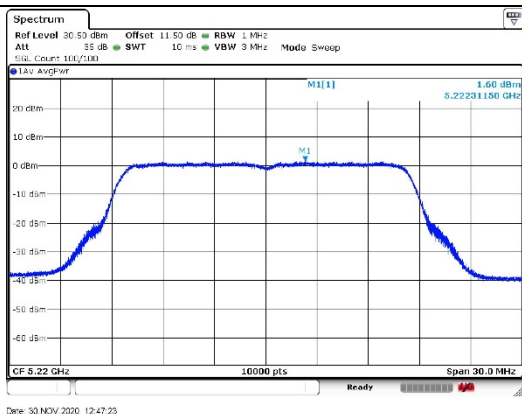
Test Mode: 802.11aChain0



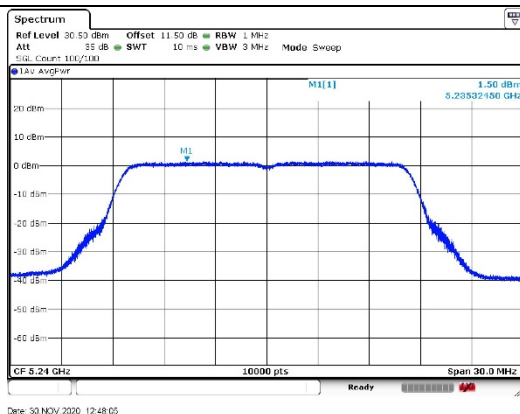
Test Mode: 802.11aChain1



Test Mode: 802.11aChain1



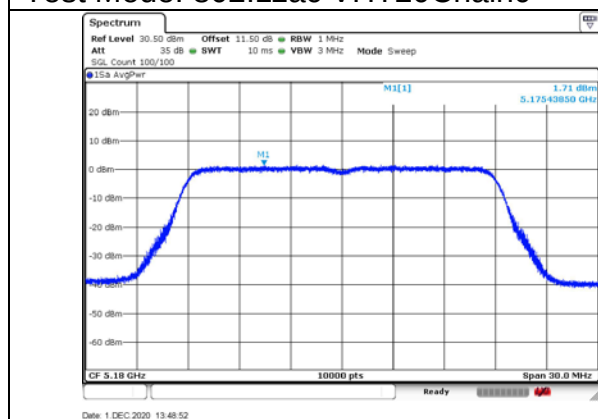
Test Mode: 802.11aChain1



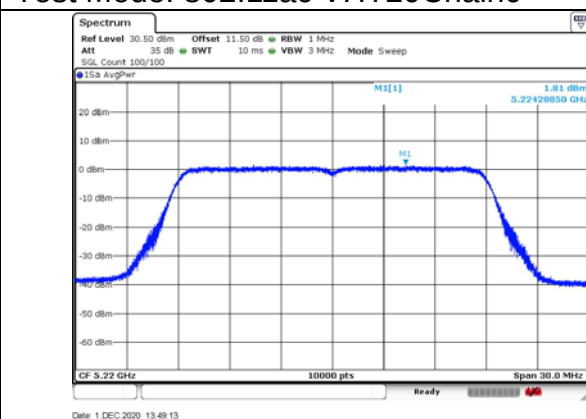
Test Mode: 802.11ac VHT20

Carrier frequency (MHz)	Correction Factor(dB)	Power Density (dBm) Chain0	Power Density (dBm) Chain1	Power Density (dBm) MIMO
5180	0.366	2.08	1.39	4.75
5220	0.366	2.18	1.48	4.85
5240	0.366	1.93	1.54	4.75

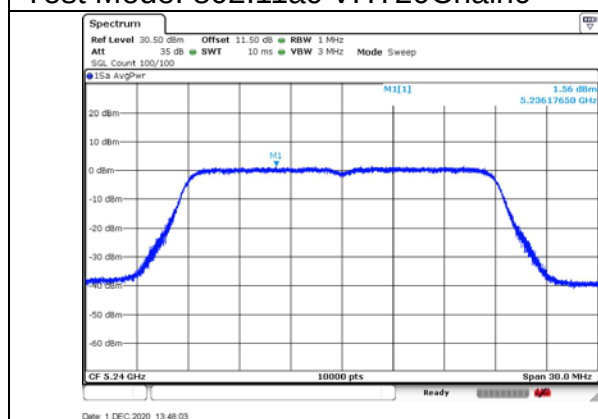
Test Mode: 802.11ac VHT20Chain0



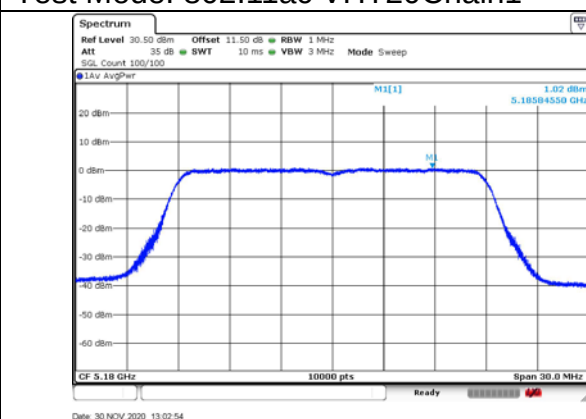
Test Mode: 802.11ac VHT20Chain0



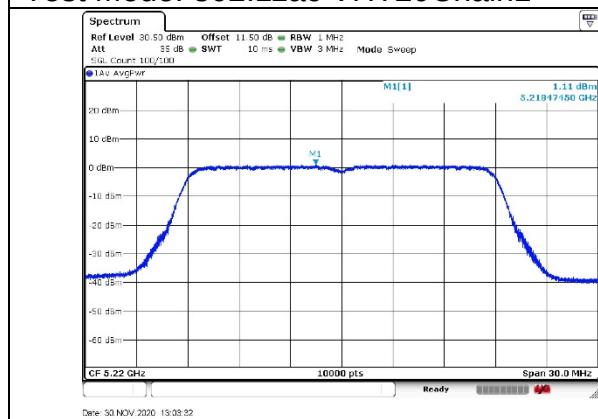
Test Mode: 802.11ac VHT20Chain0



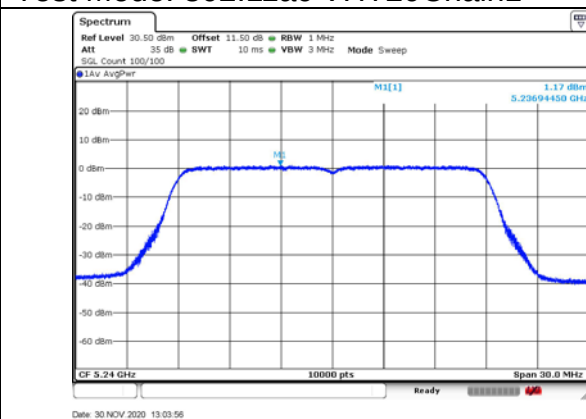
Test Mode: 802.11ac VHT20Chain1



Test Mode: 802.11ac VHT20Chain1



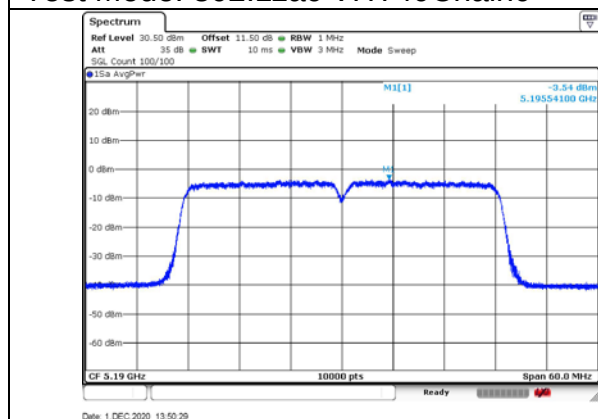
Test Mode: 802.11ac VHT20Chain1



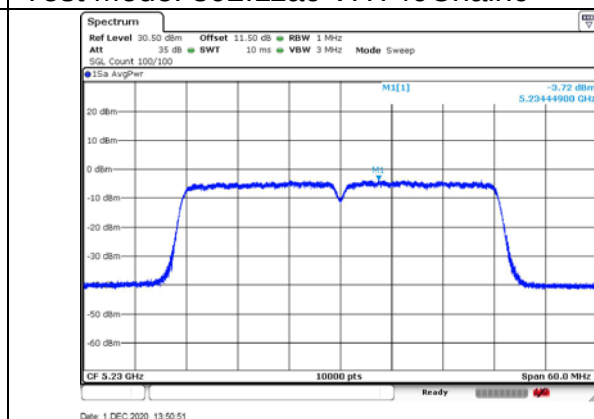
Test Mode: 802.11ac VHT40

Carrier frequency (MHz)	Correction Factor(dB)	Power Density(dBm) Chain0	Power Density (dBm) Chain1	Power Density (dBm)MIMO
5190	0.835	-2.71	-3.46	-0.05
5230	0.835	-2.89	-3.29	-0.07

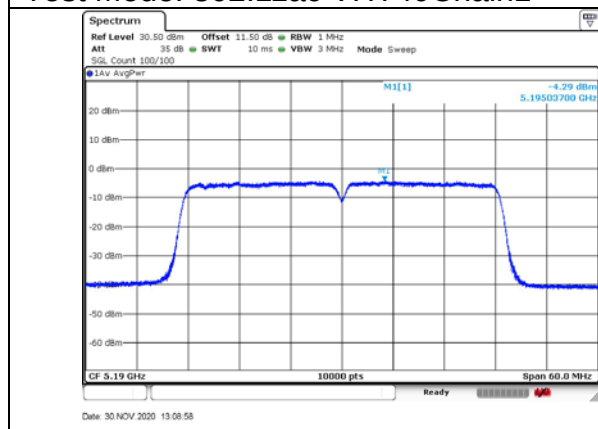
Test Mode: 802.11ac VHT40Chain0



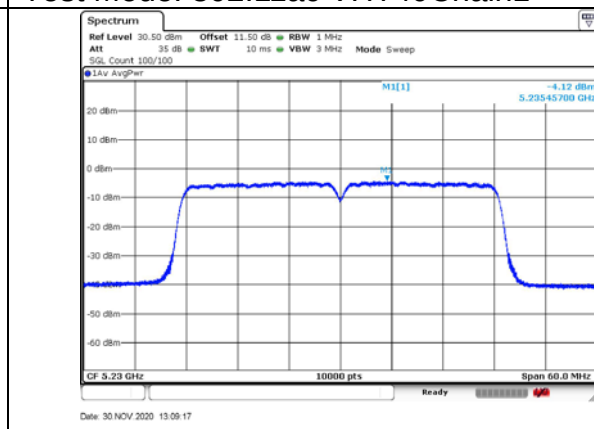
Test Mode: 802.11ac VHT40Chain0



Test Mode: 802.11ac VHT40Chain1



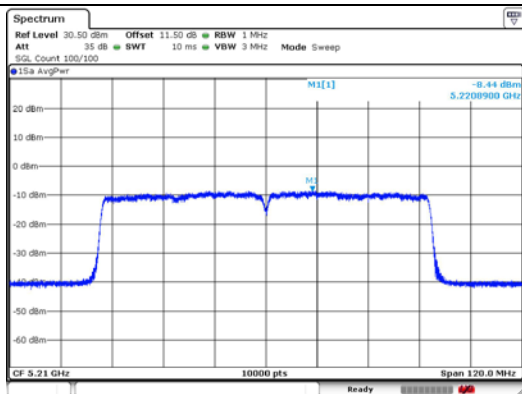
Test Mode: 802.11ac VHT40Chain1



Test Mode: 802.11ac VHT80

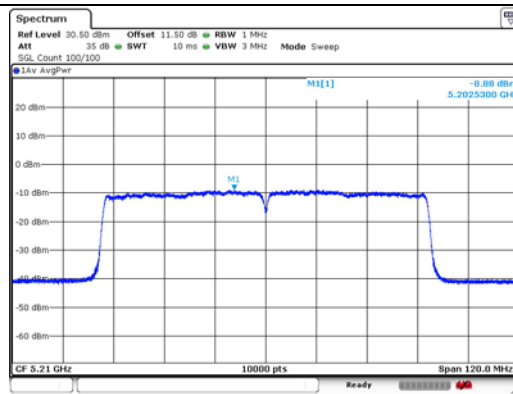
Carrier frequency (MHz)	Correction Factor(dB)	Power Density(dBm) Chain0	Power Density (dBm) Chain1	Power Density (dBm)MIMO
5210	1.677	-6.76	-7.20	-3.97

Test Mode: 802.11acVHT80 Chain0



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Test Mode: 802.11acVHT80 Chain1



Date: 30 NOV 2020 13:07:15

Frequency Stability

Mode	Data Rate	Ant	CenterFrequency (MHz)	MeasuredFrequency (MHz)	Frequency Stability (ppm)	Voltage (V)	Temperature (°C)
802.11a	6Mbps	Chain 0	5180	5180.37708	72.80	NV	-20
			5180	5180.37845	73.06	NV	-10
			5180	5180.37755	72.89	NV	0
			5180	5180.37735	72.85	NV	+10
			5180	5180.37725	72.83	HV	+20
			5180	5180.37745	72.87	LV	+20
			5180	5180.37765	72.91	NV	+20
			5180	5180.37815	73.00	NV	+30
			5180	5180.37805	72.98	NV	+40
			5180	5180.37775	72.92	NV	+50
802.11a	6Mbps	Chain 1	5180	5180.38655	74.62	NV	-20
			5180	5180.39805	76.84	NV	-10
			5180	5180.39485	76.23	NV	0
			5180	5180.39385	76.03	NV	+10
			5180	5180.39295	75.86	HV	+20
			5180	5180.39195	75.67	LV	+20
			5180	5180.39075	75.43	NV	+20
			5180	5180.39025	75.34	NV	+30
			5180	5180.38995	75.28	NV	+40
			5180	5180.38955	75.20	NV	+50