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
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0

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

Test Mode	Chain	Note
802.11a	Chain1/Chain2	---
802.11n HT20	Chain1/Chain2	Cover 802.11ac VHT20
802.11n HT40	Chain1/Chain2	Cover 802.11ac VHT40
802.11ac VHT80	Chain1/Chain2	---
802.11ax HE20	Chain1/Chain2	---
802.11ax HE40	Chain1/Chain2	---
802.11ax HE80	Chain1/Chain2	---

Directional gain

Band	Chain1 Ant Gain (dBi)	Chain2 Ant Gain (dBi)	Directional Gain (dBi)	Array Gain (dBi)	Power Limit (dBm)	PSD Limit
5.2GHz	4.0	4.0	7.0	0.0	29.0	16.0(dBm/MHz)
5.8GHz	4.0	4.0	7.0	0.0	29.0	29.0(dBm/500kHz)

Duty cycle

Test Mode	Duty Cycle (%)	Correction Factor(dB)
802.11a	99.24	0.033
802.11n HT20	99.58	0.018
802.11n HT40	99.16	0.037
802.11ac VHT20	99.58	0.018
802.11ac VHT40	99.16	0.037
802.11ac VHT80	98.94	0.046
802.11ax HE20	99.56	0.019
802.11ax HE40	98.94	0.046
802.11ax HE80	98.74	0.055

Output Power
UNII-1

Mode	Tones/ RU Index	Freq. (MHz)	Average power output(dBm)		
			Chain1	Chain2	MIMO
802.11a	NA	5180	15.13	13.37	NA
		5220	15.17	13.44	NA
		5240	15.41	13.28	NA
802.11n HT20	NA	5180	13.03	11.29	15.26
		5220	12.96	11.26	15.20
		5240	13.15	10.91	15.18
802.11n HT40	NA	5190	13.12	11.52	15.40
		5230	13.54	11.78	15.76
802.11ac VHT20	NA	5180	11.83	10.55	14.25
		5220	12.03	10.36	14.29
		5240	12.14	9.83	14.15
802.11ac VHT40	NA	5190	12.35	10.68	14.61
		5230	12.68	10.97	14.92
802.11ac VHT80	NA	5210	12.47	10.67	14.67

Mode	Tones/ RU Index	Freq. (MHz)	Average power output(dBm)		
			Chain1	Chain2	MIMO
802.11ax HE20	26T/0	5180	4.86	3.49	7.24
		5220	5.09	3.40	7.34
		5240	5.33	2.69	7.22
	26T/4	5180	4.90	3.47	7.25
		5220	5.14	3.45	7.39
		5240	5.36	2.69	7.24
	26T/8	5180	4.91	3.52	7.28
		5220	5.15	3.40	7.37
		5240	5.26	2.68	7.17
	52T/37	5180	4.84	3.49	7.23
		5220	5.11	3.40	7.35
		5240	5.31	2.68	7.20
	52T/39	5180	4.88	3.47	7.24
		5220	5.15	3.43	7.38
		5240	5.34	2.76	7.25
	52T/40	5180	4.86	3.47	7.23
		5220	5.12	3.39	7.35
		5240	5.31	2.73	7.22
	106T/53	5180	10.91	9.54	13.29
		5220	11.16	9.48	13.41
		5240	11.35	8.67	13.22
	106T/54	5180	10.88	9.50	13.25
		5220	11.14	9.43	13.38
		5240	11.32	8.67	13.20
	242T/61	5180	10.92	9.56	13.30
		5220	11.18	9.48	13.42
		5240	11.36	8.76	13.26

Mode	Tones/ RU Index	Freq. (MHz)	Average power output(dBm)		
			Chain1	Chain2	MIMO
802.11ax HE40	26T/0	5190	5.16	3.53	7.43
		5230	5.49	3.78	7.73
	26T/10	5190	5.23	3.58	7.49
		5230	5.44	3.76	7.69
	26T/17	5190	5.23	3.54	7.48
		5230	5.54	3.74	7.74
	52T/37	5190	5.24	3.53	7.48
		5230	5.45	3.71	7.68
	52T/41	5190	5.22	3.52	7.46
		5230	5.47	3.79	7.72
	52T/44	5190	5.23	3.58	7.49
		5230	5.52	3.71	7.72
	106T/53	5190	11.20	9.54	13.46
		5230	11.50	9.74	13.72
	106T/55	5190	11.17	9.58	13.46
		5230	11.46	9.72	13.69
	106T/56	5190	11.18	9.54	13.45
		5230	11.45	9.78	13.71
	242T/61	5190	11.17	9.55	13.45
		5230	11.53	9.73	13.73
	242T/62	5190	11.24	9.55	13.49
		5230	11.46	9.74	13.69
	484T/65	5190	11.26	9.59	13.52
		5230	11.54	9.81	13.77

Mode	Tones/ RU Index	Freq. (MHz)	Average power outpu(dBm)		
			Chain1	Chain2	MIMO
802.11ax HE80	26T/0	5210	5.39	3.78	7.67
	26T/18	5210	5.36	3.74	7.64
	26T/36	5210	5.44	3.79	7.70
	52T/37	5210	5.40	3.78	7.68
	52T/45	5210	5.40	3.71	7.65
	52T/52	5210	5.37	3.73	7.64
	106T/53	5210	11.43	9.74	13.68
	106T/57	5210	11.44	9.78	13.70
	106T/60	5210	11.42	9.69	13.65
	242T/61	5210	11.37	9.74	13.64
	242T/63	5210	11.43	9.74	13.68
	242T/64	5210	11.37	9.71	13.63
	484T/65	5210	11.44	9.77	13.70
	484T/66	5210	11.41	9.78	13.68
	996T/67	5210	11.45	9.79	13.71

Occupied Bandwidth

Offset 11.5dB = Attenuator 10dB+ Temporary antenna connector loss 0.5dB+ Cable loss 1dB
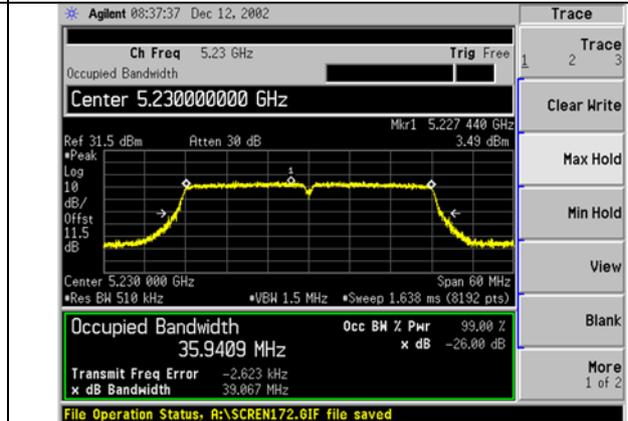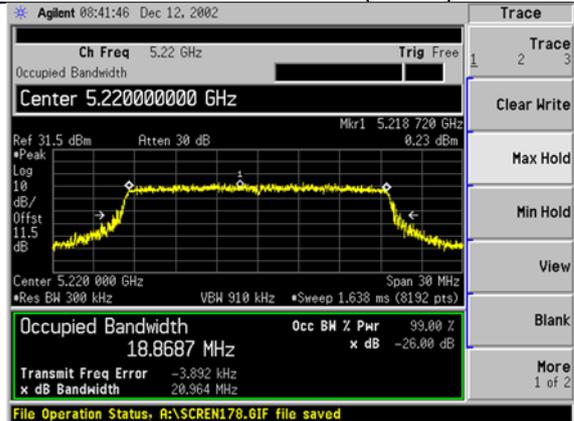
Test Mode: 802.11a

Carrier frequency (MHz)	Channel No.	26dB BW(MHz) Chain1	26dB BW(MHz) Chain2	99% BW(MHz) Chain1	99% BW(MHz) Chain2
5180	36	18.842	18.696	16.3482	16.3592
5220	44	18.514	18.514	16.3703	16.3703
5240	48	18.471	18.656	16.3852	16.3532

Test Mode: 802.11a Chain1	Test Mode: 802.11a Chain1
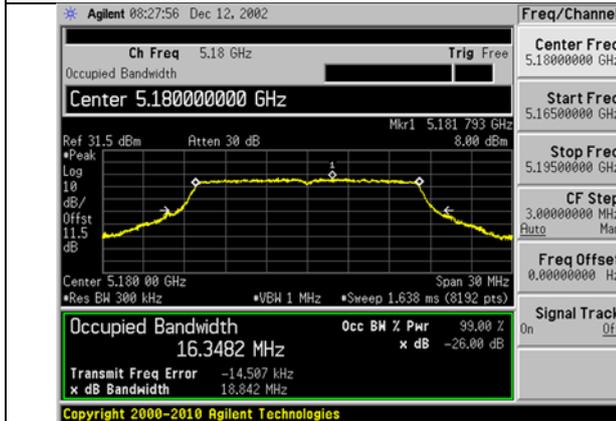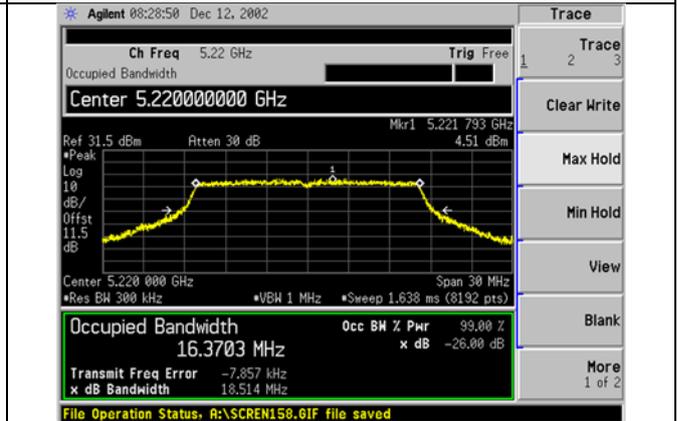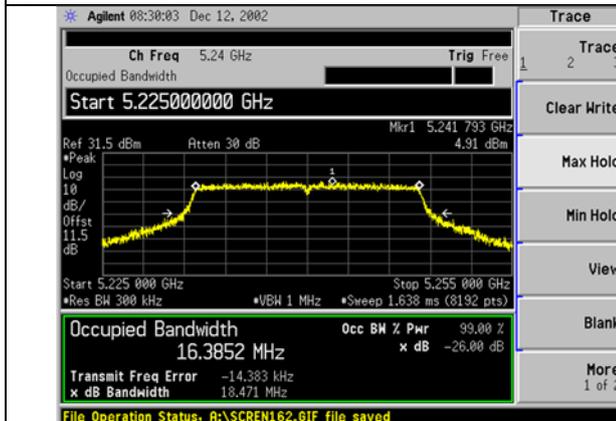
Test Mode: 802.11a Chain1	Test Mode: 802.11a Chain2
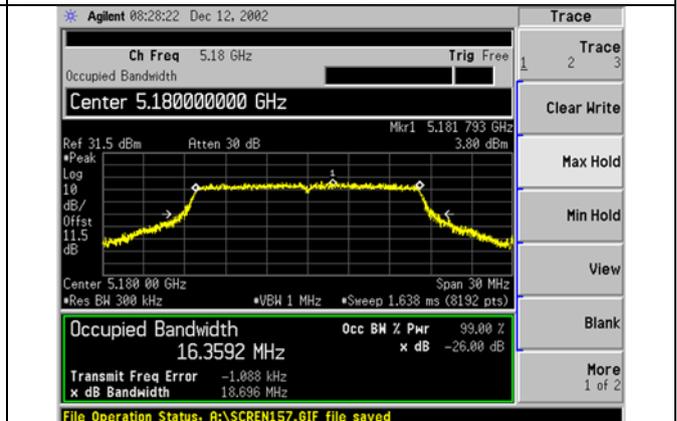
Test Mode: 802.11a Chain2	Test Mode: 802.11a Chain2
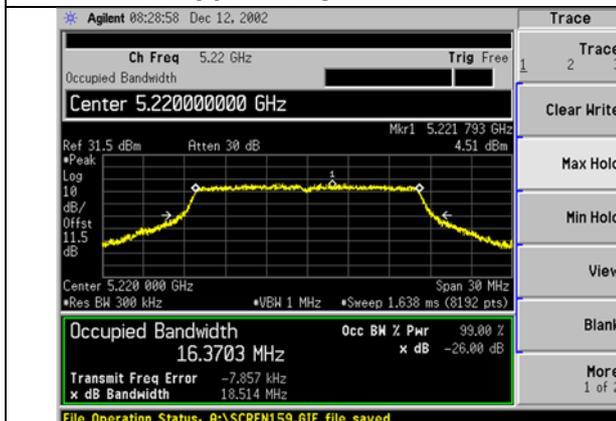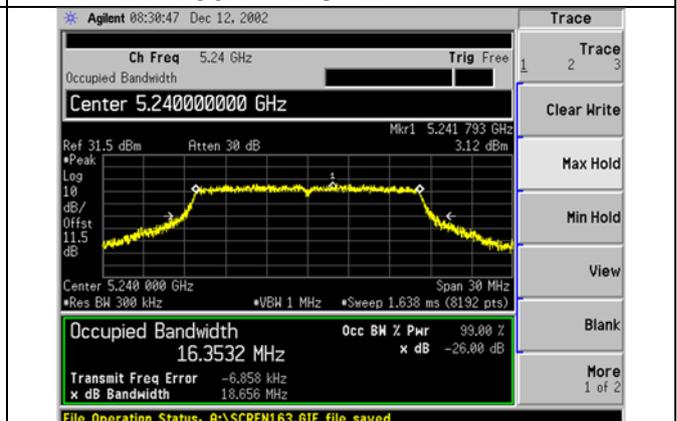
Test Mode: 802.11n HT20

Carrier frequency (MHz)	Channel No.	26dB BW(MHz) Chain1	26dB BW(MHz) Chain2	99% BW(MHz) Chain1	99% BW(MHz) Chain2
5180	36	19.735	19.511	17.5737	17.5955
5220	44	19.575	19.400	17.5543	17.5724
5240	48	19.833	19.702	17.5399	17.5957

Test Mode: 802.11n HT20 Chain1	Test Mode: 802.11n HT20 Chain1
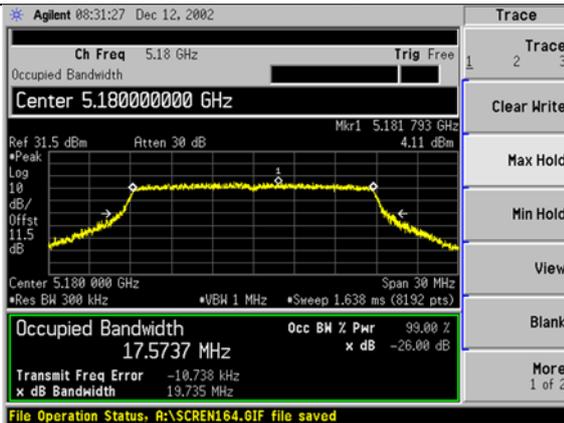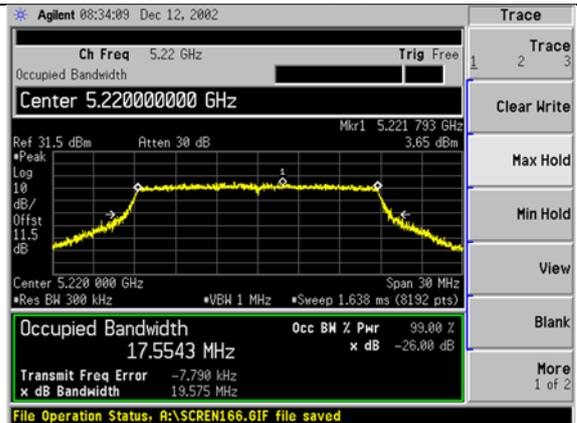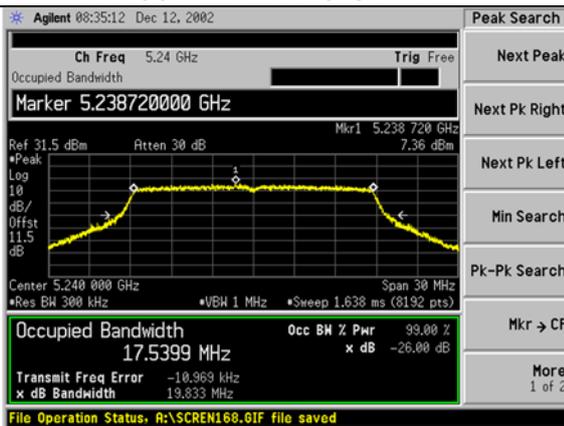
Test Mode: 802.11n HT20 Chain1	Test Mode: 802.11n HT20 Chain2
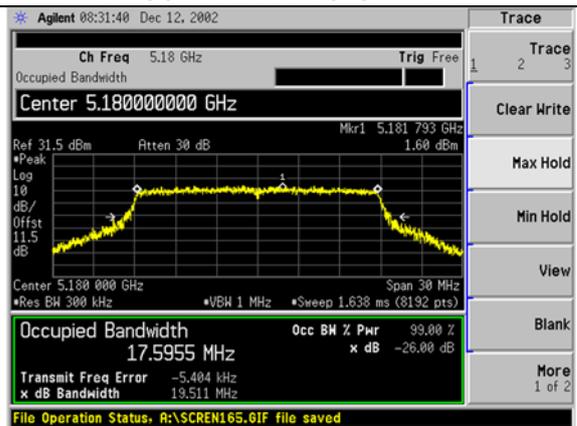
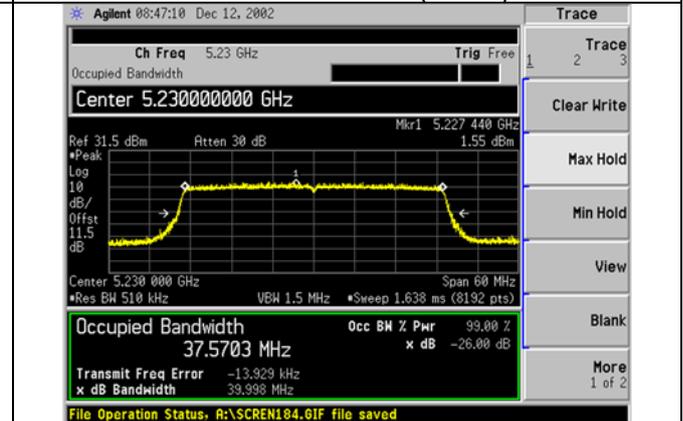| Test Mode: 802.11n HT20 Chain2	Test Mode: 802.11n HT20 Chain2
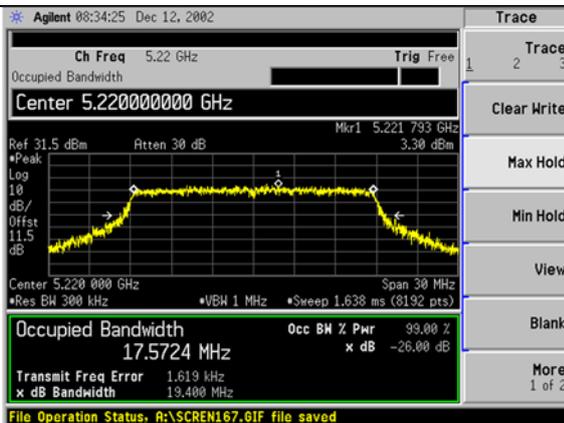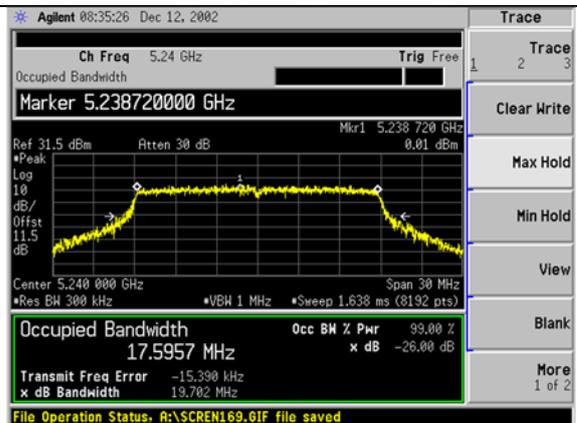
Test Mode: 802.11n HT40

Carrier frequency (MHz)	Channel No.	26dB BW(MHz) Chain1	26dB BW(MHz) Chain2	99% BW(MHz) Chain1	99% BW(MHz) Chain2
5190	38	39.003	39.134	35.9343	36.0116
5230	46	39.067	38.849	35.9409	36.0499

Test Mode: 802.11n HT40 Chain1	Test Mode: 802.11n HT40 Chain1
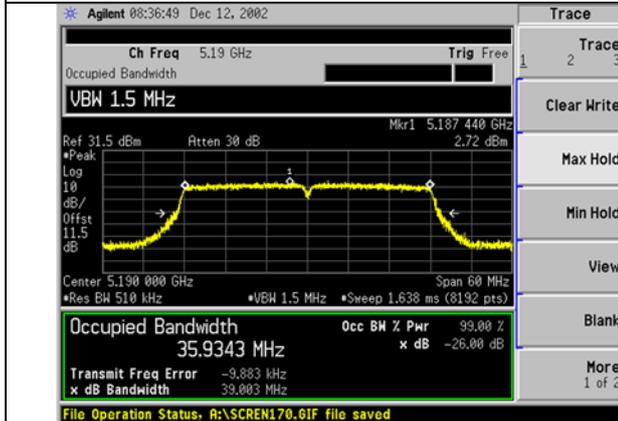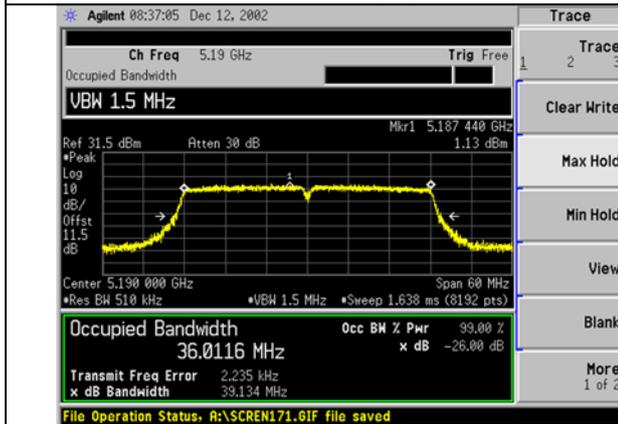
Test Mode: 802.11n HT40 Chain2	Test Mode: 802.11n HT40 Chain2
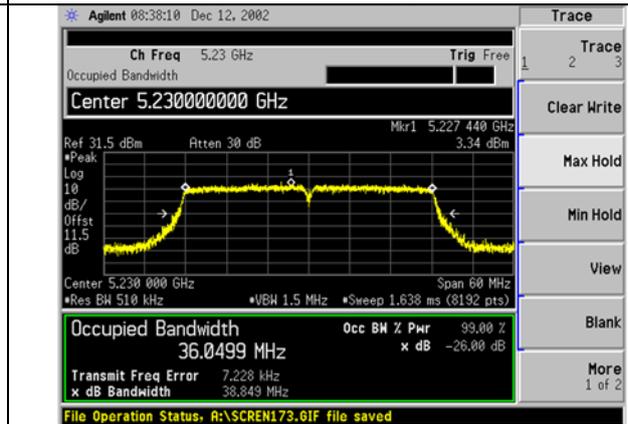
Test Mode: 802.11ac VHT80

Carrier frequency (MHz)	Channel No.	26dB BW(MHz) Chain1	26dB BW(MHz) Chain2	99% BW(MHz) Chain1	99% BW(MHz) Chain2
5190	42	81.502	81.040	75.4049	75.4493

Test Mode: 802.11ac VHT80 Chain1	Test Mode: 802.11ac VHT80 Chain2
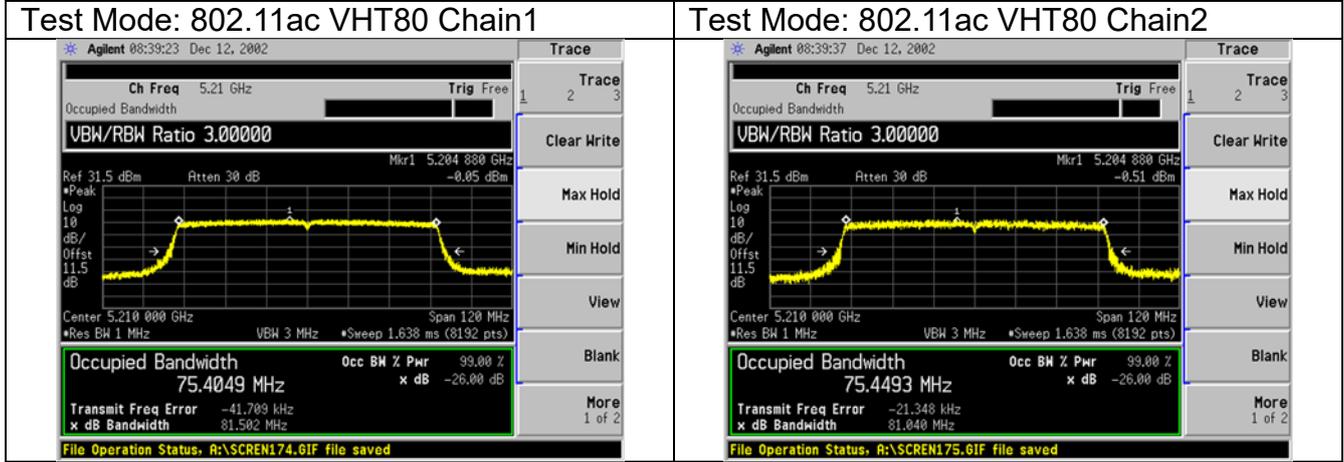
Test Mode: 802.11ax HE20(242T)

Carrier frequency (MHz)	Channel No.	26dB BW(MHz) Chain1	26dB BW(MHz) Chain2	99% BW(MHz) Chain1	99% BW(MHz) Chain2
5180	36	20.471	20.380	18.8688	18.8825
5220	44	20.964	20.220	18.8687	18.8767
5240	48	20.634	20.851	18.9203	18.8936

Test Mode: 802.11ax HE20(242T) Chain1	Test Mode: 802.11ax HE20(242T) Chain1
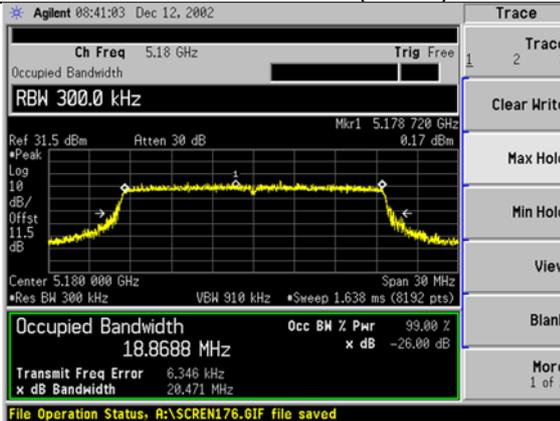
Test Mode: 802.11ax HE20(242T) Chain1	Test Mode: 802.11ax HE20(242T) Chain2
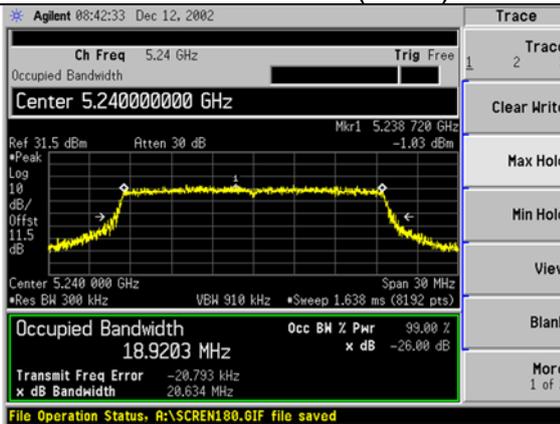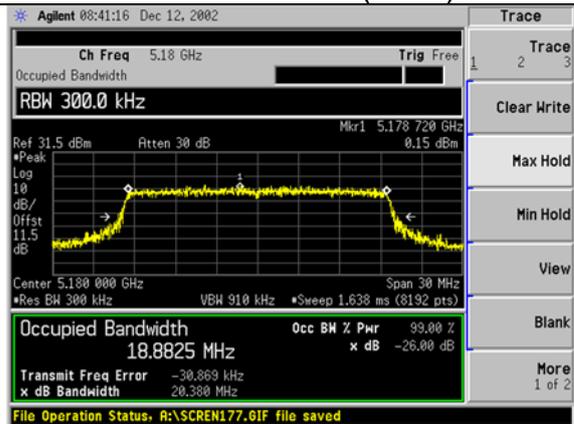
Test Mode: 802.11ax HE20(242T) Chain2	Test Mode: 802.11ax HE20(242T) Chain2
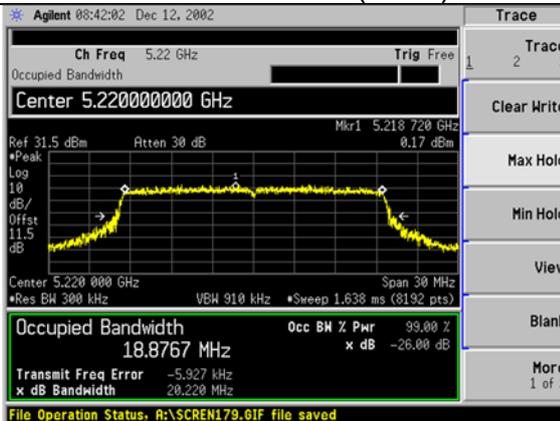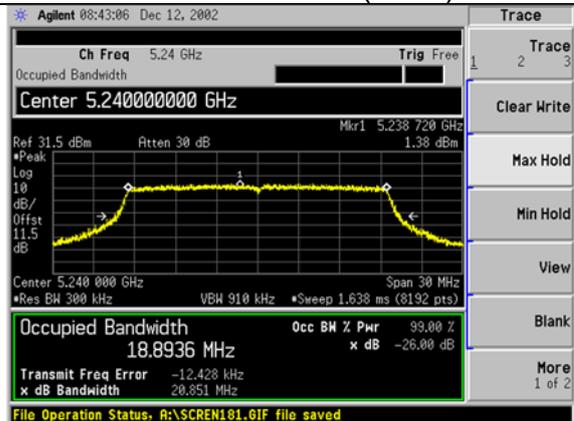
Test Mode: 802.11ax HE40(484T)

Carrier frequency (MHz)	Channel No.	26dB BW(MHz) Chain1	26dB BW(MHz) Chain2	99% BW(MHz) Chain1	99% BW(MHz) Chain2
5190	38	39.863	39.605	37.6531	37.5917
5230	46	39.998	39.717	37.5703	37.6660

Test Mode: 802.11ax HE40(484T) Chain1	Test Mode: 802.11ax HE40(484T) Chain1
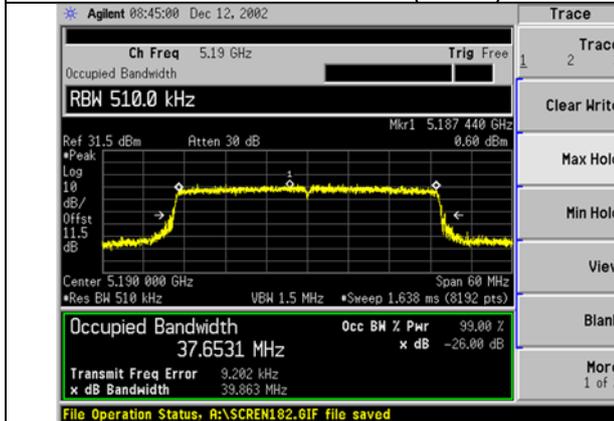
Test Mode: 802.11ax HE40(484T) Chain2	Test Mode: 802.11ax HE40(484T) Chain2
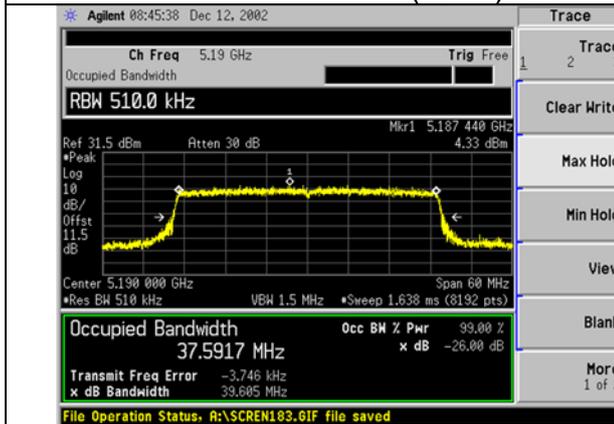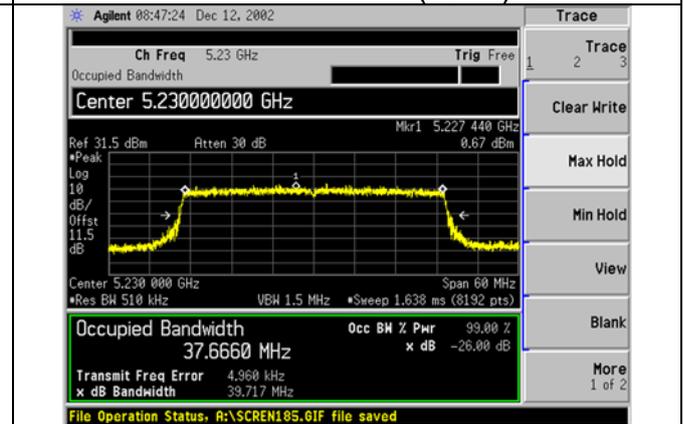
Test Mode: 802.11ax HE80(996T)

Carrier frequency (MHz)	Channel No.	26dB BW(MHz) Chain1	26dB BW(MHz) Chain2	99% BW(MHz) Chain1	99% BW(MHz) Chain2
5190	42	81.417	80.593	76.9866	76.9895

Test Mode: 802.11ax HE80(996T) Chain1	Test Mode: 802.11ax HE80(996T) Chain2
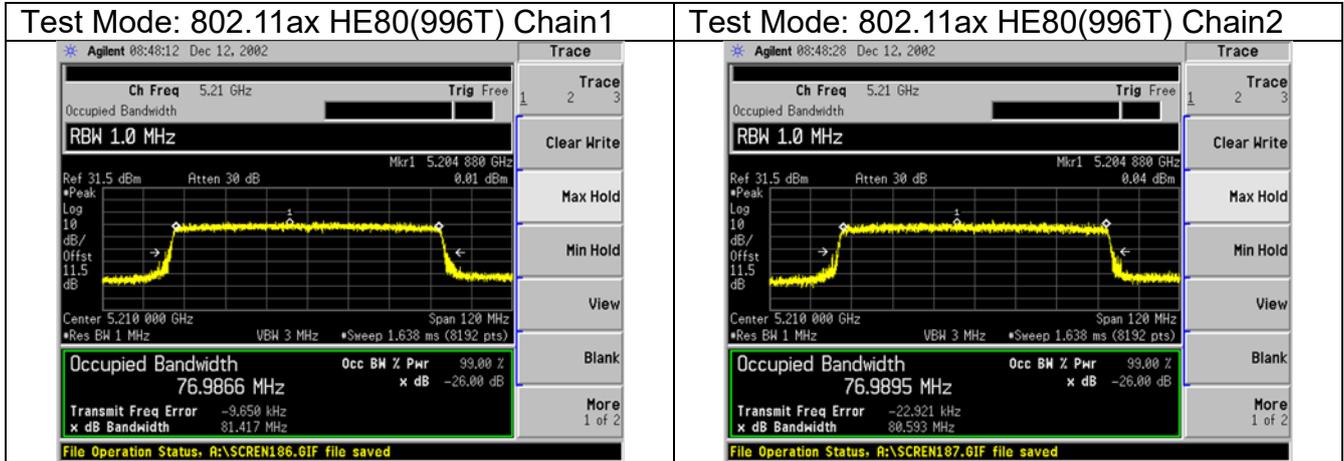
Transmitter Power Spectral Density

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) Chain1	Power Density (dBm) Chain2	MIMO Power Density (dBm)
5180	0.033	4.69	2.54	6.76
5220	0.033	4.50	2.42	6.59
5240	0.033	4.83	2.42	6.80

Test Mode: 802.11a Chain1	Test Mode: 802.11a Chain1
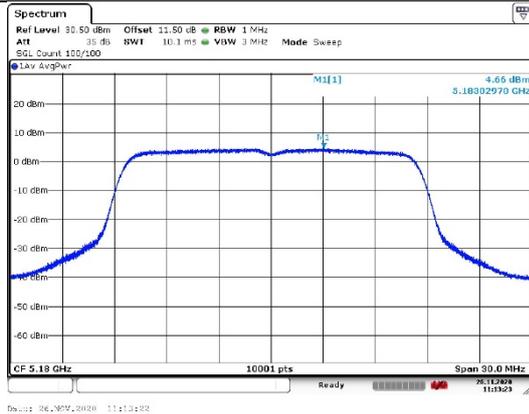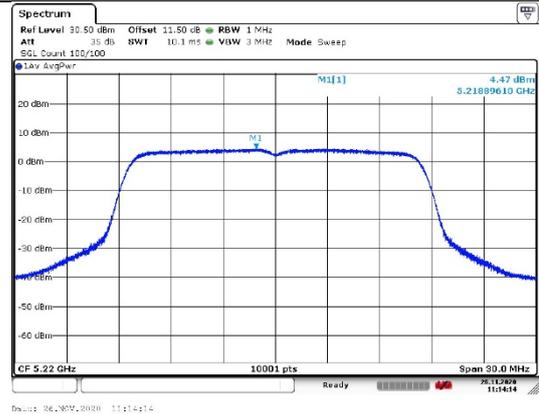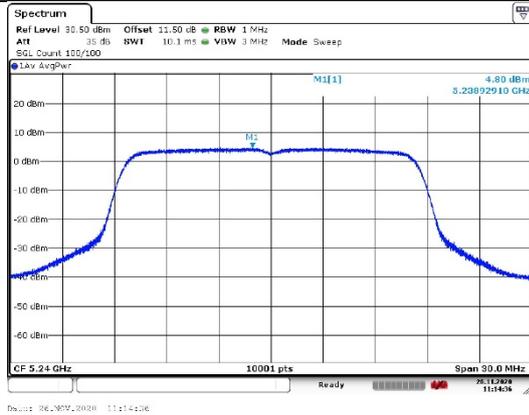
Test Mode: 802.11a Chain1	Test Mode: 802.11a Chain2
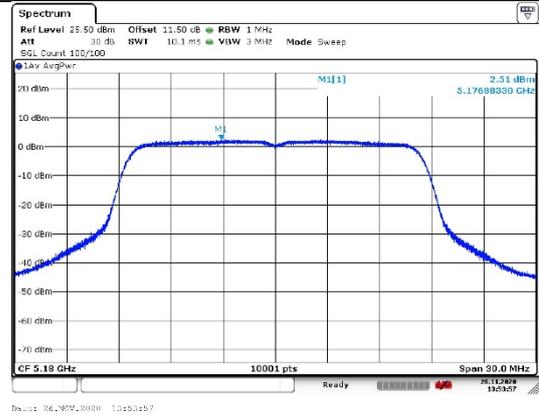
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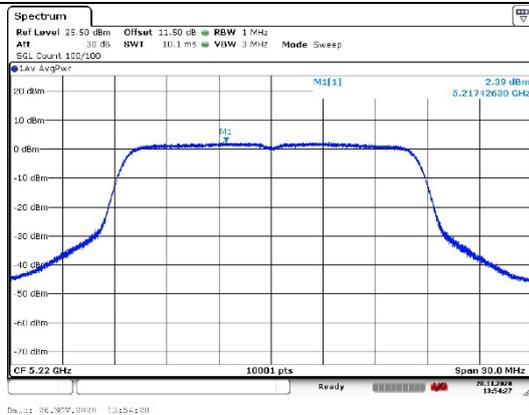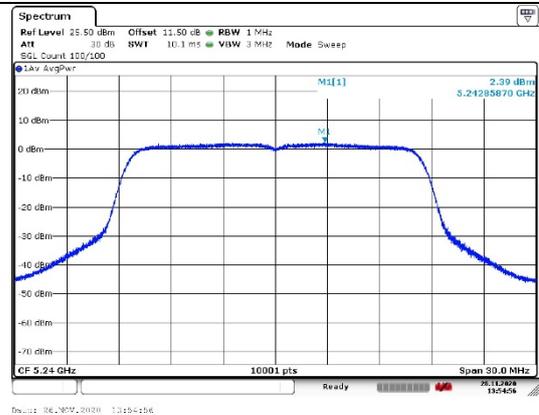
Test Mode: 802.11n HT20

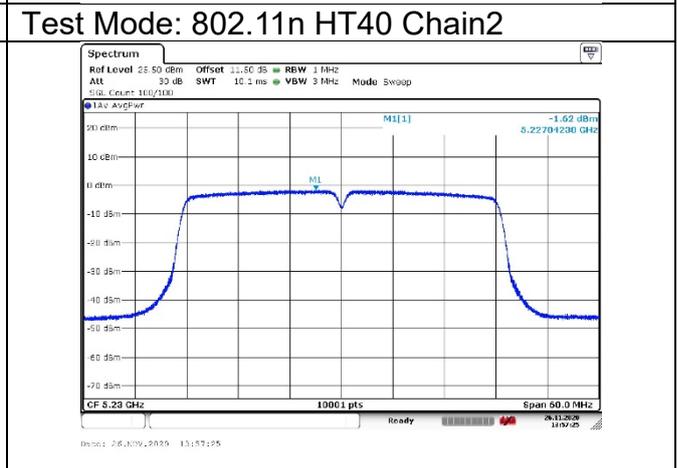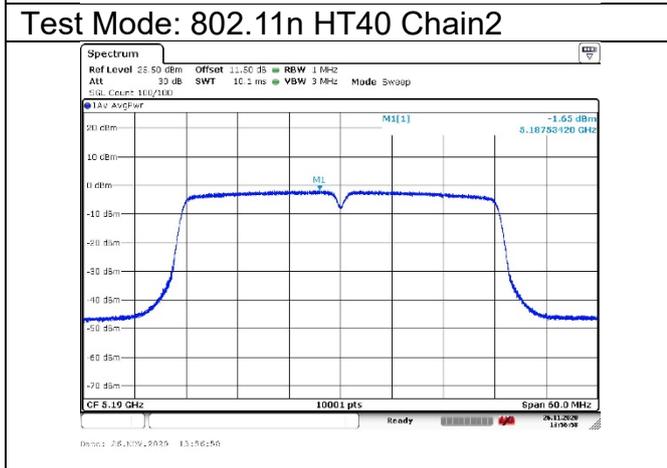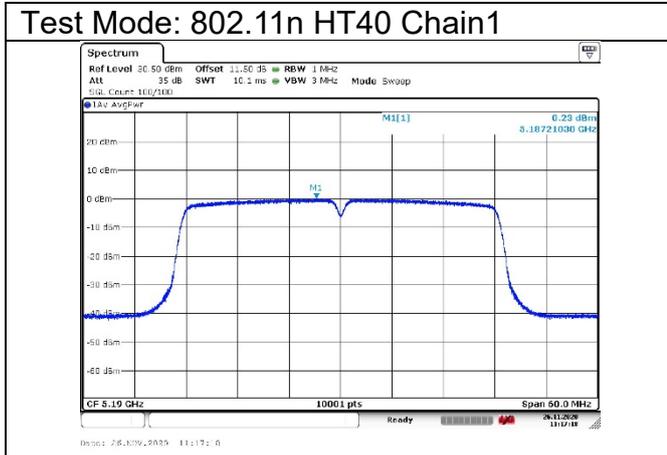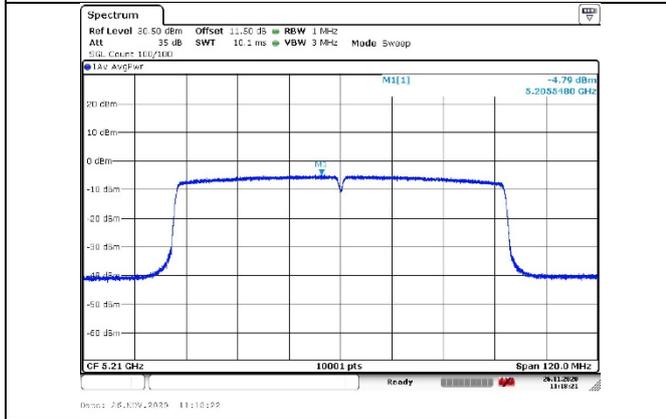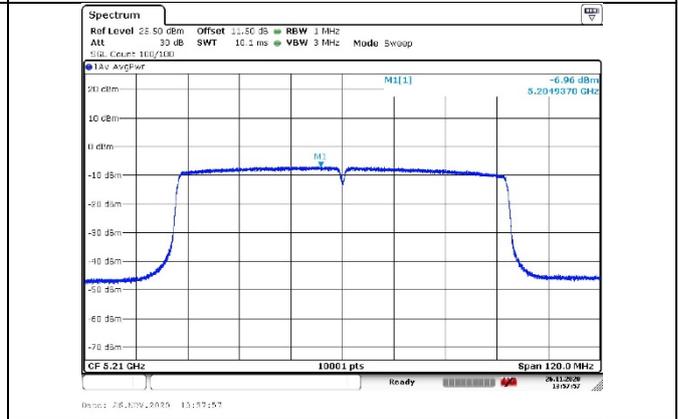| Carrier frequency (MHz)	Correction Factor(dB)	Power Density (dBm) Chain1	Power Density (dBm) Chain2	MIMO Power Density (dBm)
5180	0.018	2.54	0.90	4.81
5220	0.018	2.51	0.61	4.67
5240	0.018	2.78	0.32	4.73

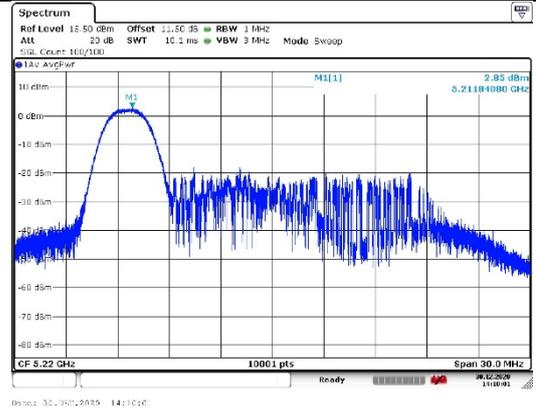| Test Mode: 802.11n HT20 Chain1	Test Mode: 802.11n HT20 Chain1
Test Mode: 802.11n HT20 Chain1	**Test Mode: 802.11n HT20 Chain2**
Test Mode: 802.11n HT20 Chain2	**Test Mode: 802.11n HT20 Chain2**

Test Mode: 802.11n HT40

Carrier frequency (MHz)	Correction Factor(dB)	Power Density (dBm) Chain1	Power Density (dBm) Chain2	MIMO Power Density (dBm)
5190	0.037	0.27	-1.61	2.44
5230	0.037	0.59	-1.58	2.65
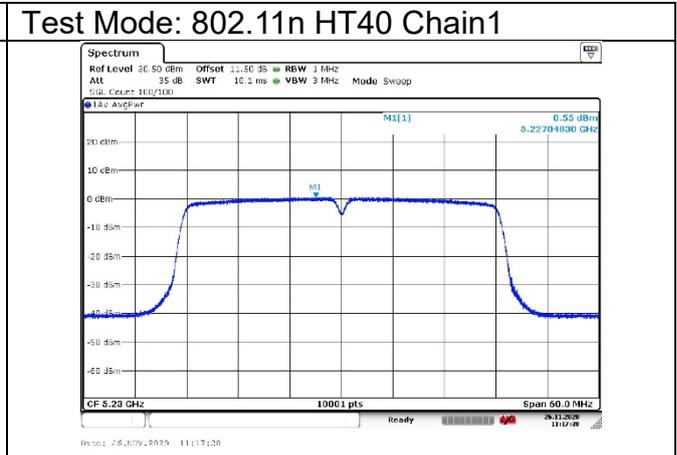
Test Mode: 802.11n HT40 Chain1	Test Mode: 802.11n HT40 Chain1

Test Mode: 802.11n HT40 Chain2	Test Mode: 802.11n HT40 Chain2

Test Mode: 802.11ac VHT80

Carrier frequency (MHz)	Correction Factor(dB)	Power Density (dBm) Chain1	Power Density (dBm) Chain2	MIMO Power Density (dBm)
5210	0.046	-4.74	-6.91	-2.68

Test Mode: 802.11ac VHT80 Chain1	Test Mode: 802.11ac VHT80 Chain2

Test Mode: 802.11ax HE20(26T)

Carrier frequency (MHz)	Correction Factor(dB)	Power Density (dBm) Chain1	Power Density (dBm) Chain2	MIMO Power Density (dBm)
5180	0.019	2.86	1.59	5.28
5220	0.019	2.87	1.30	5.17
5240	0.019	2.88	0.09	4.72

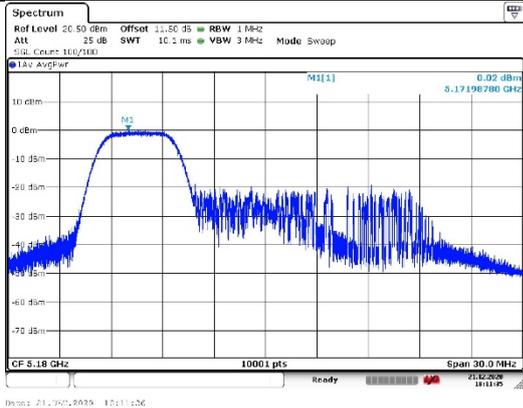| Test Mode: 802.11ax HE20 Chain1	Test Mode: 802.11ax HE20 Chain1
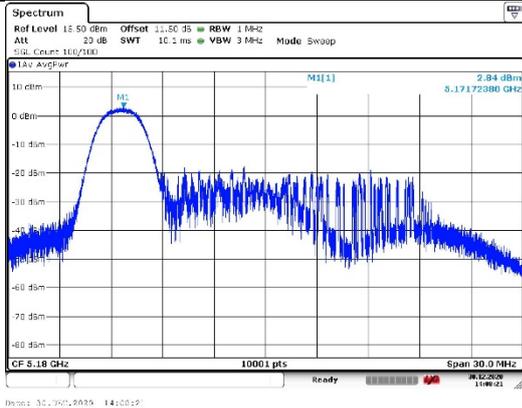
Test Mode: 802.11ax HE20 Chain1	Test Mode: 802.11ax HE20 Chain2
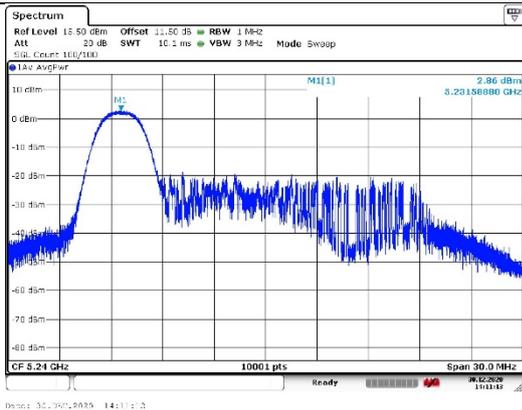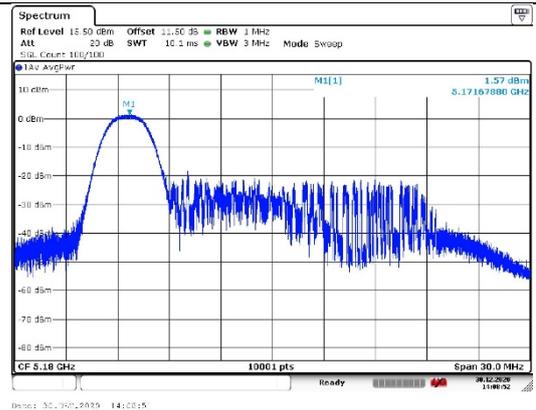
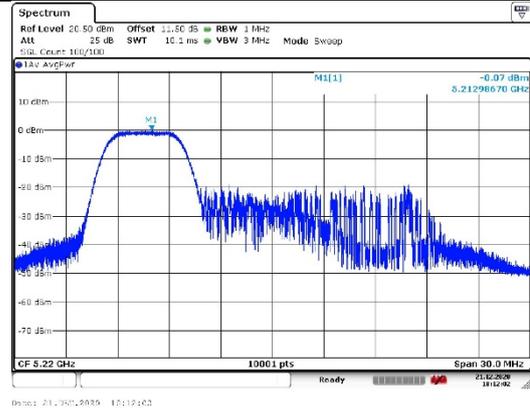| Test Mode: 802.11ax HE20 Chain2	Test Mode: 802.11ax HE20 Chain2
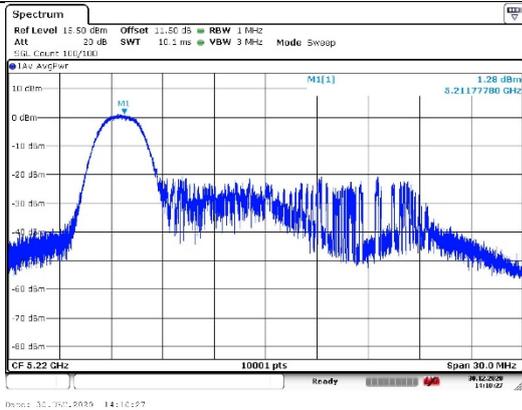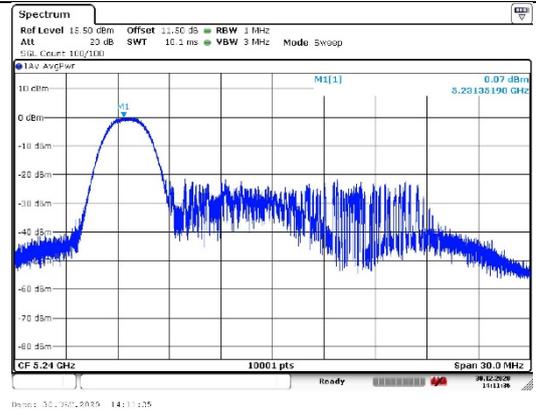
Test Mode: 802.11ax HE20(52T)

Carrier frequency (MHz)	Correction Factor(dB)	Power Density (dBm) Chain1	Power Density (dBm) Chain2	MIMO Power Density (dBm)
5180	0.019	0.04	-1.60	2.31
5220	0.019	-0.05	-1.88	2.14
5240	0.019	0.04	-2.77	1.87

Test Mode: 802.11ax HE20 Chain1	Test Mode: 802.11ax HE20 Chain1

Test Mode: 802.11ax HE20 Chain1	Test Mode: 802.11ax HE20 Chain2

Test Mode: 802.11ax HE20 Chain2	Test Mode: 802.11ax HE20 Chain2