

6 Radiated emission test (FCC Part 15.209)

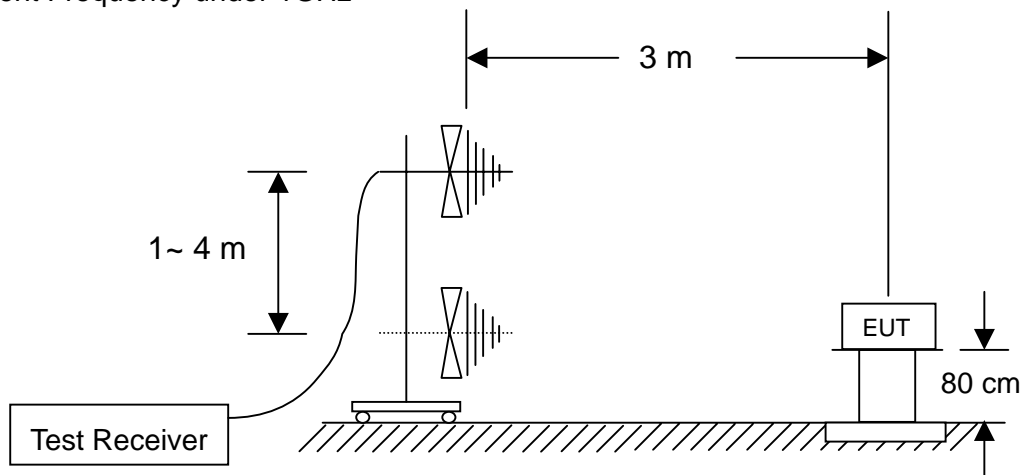
6.1 Limits

The radiated emission shall comply with §15.209(a).

Frequency (MHz)	Field strength dB(μ V/m)	Measurement distance (meters)
1.705~30.0	29.5	30
30 ~ 88	40	3
88~216	43.5	3
216~960	46	3
Above 960	54	3

6.2 Configuration of Measurement

Measurement Frequency under 1GHz



6.3 Test Procedure

Radiated emission measurements were performed from 30MHz to1GHz. Spectrum Analyzer Resolution Bandwidth is 100kHz or greater.

The EUT for testing is arranged on a wooden turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to present worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.

6.4 Test Result

PASS.

The final test data is shown on as following pages.

Radiated spurious emission

Test Environment

Ambient temperature : 26.0°C
 Relative humidity : 45%

Radiated Emission below 1GHz

After verifying Single Tx & Dual Tx & Triple Tx, the worse case determine by Single Tx Mode (802.11a Chain A CH120), the data will present on report.

Worst case: 802.11a CH120 5600MHz								
Frequency (MHz)	Antenna Polarization	Reading (dB μV)	Preamp (dB)	Correction Factor (dB/m)	Corrected Level (dB μV/m)	Limits (dB μV/m)	Margin (dB)	Det. Mode
32.425	H	32.38	29.59	13.06	15.85	40.00	-24.15	QP
255.525	H	29.75	30.04	12.33	12.04	46.00	-33.96	QP
696.875	H	39.37	31.01	29.47	37.83	46.00	-8.17	QP
803.575	H	42.48	31.34	30.80	41.94	46.00	-4.06	QP
63.950	V	30.61	29.58	12.89	13.92	40.00	-26.08	QP
422.850	V	37.78	30.50	24.09	31.37	46.00	-14.63	QP
728.450	V	34.86	31.14	26.57	30.29	46.00	-15.71	QP
801.150	V	43.78	31.33	25.71	38.16	46.00	-7.84	QP

Remark : Corrected Level = Reading + Correction Factor – Preamp
 Correction Factor = Antenna Factor + Cable Loss

The present spurious only show those points are above noise level and the frequency range test from 30MHz to 1GHz.

7 Band edge test

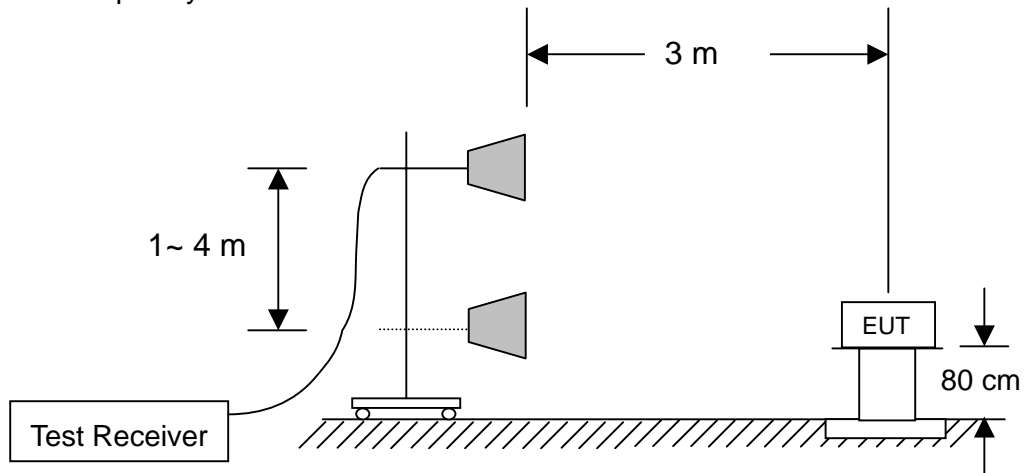
7.1 Limit

According to FCC Part 15.205 requirement :

Any radiated emission in the restricted bands shall be complied with the limits in 15.209.

7.2 Configuration of Measurement

Measurement Frequency above 1GHz



7.3 Test Procedure

Set RBW =1M, VBW= RBW for peak, and VBW=10Hz for average.

The EUT for testing is arranged on a wooden turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to present worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.

7.4 Test Result

PASS.

The final test data is shown on as following pages.

Band edge test

Single Tx

802.11a Chain A					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
36	4500~5150	66.14	74	-7.86	PK
		48.51	54	-5.49	AV
64	5350~5460	66.02	74	-7.98	PK
		48.32	54	-5.68	AV
100	5350-5460	57.64	74	-16.36	PK
		45.23	54	-8.77	AV

802.11a Chain B					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
36	4500~5150	64.09	74	-9.91	PK
		46.75	54	-7.25	AV
64	5350~5460	61.39	74	-12.61	PK
		46.38	54	-7.62	AV
100	5350-5460	58.51	74	-15.49	PK
		45.21	54	-8.79	AV

802.11a Chain C					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
36	4500~5150	66.74	74	-7.26	PK
		48.16	54	-5.84	AV
64	5350~5460	64.70	74	-9.30	PK
		48.02	54	-5.98	AV
100	5350-5460	62.63	74	-11.37	PK
		46.31	54	-7.69	AV

802.11n (HT20) Chain A					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
36	4500~5150	67.41	74	-6.59	PK
		49.95	54	-4.05	AV
64	5350~5460	67.47	74	-6.53	PK
		49.27	54	-4.73	AV
100	5350-5460	58.43	74	-15.57	PK
		45.28	54	-8.72	AV

802.11n (HT20) Chain B					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
36	4500~5150	61.09	74	-12.91	PK
		45.29	54	-8.71	AV
64	5350~5460	59.39	74	-14.61	PK
		45.93	54	-8.07	AV
100	5350-5460	57.74	74	-16.26	PK
		45.08	54	-8.92	AV

802.11n (HT20) Chain C					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
36	4500~5150	65.00	74	-9.00	PK
		48.37	54	-5.63	AV
64	5350~5460	62.67	74	-11.33	PK
		46.94	54	-7.06	AV
100	5350-5460	59.45	74	-14.55	PK
		46.37	54	-7.63	AV

802.11n (HT40) Chain A					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
38	4500~5150	66.69	74	-7.31	PK
		52.44	54	-1.56	AV
62	5350~5460	65.02	74	-8.98	PK
		48.23	54	-5.77	AV
102	5350-5460	61.65	74	-12.35	PK
		47.69	54	-6.31	AV

802.11n (HT40) Chain B					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
38	4500~5150	64.17	74	-9.83	PK
		48.85	54	-5.15	AV
62	5350~5460	59.64	74	-14.36	PK
		47.25	54	-6.75	AV
102	5350-5460	57.82	74	-16.18	PK
		45.66	54	-8.34	AV

802.11n (HT40) Chain C					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
38	4500~5150	62.24	74	-11.76	PK
		48.02	54	-5.98	AV
62	5350~5460	60.97	74	-13.03	PK
		48.28	54	-5.72	AV
102	5350-5460	64.36	74	-9.64	PK
		48.31	54	-5.69	AV

Band edge test

Dual Tx

802.11n (HT20) Chain A+B					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
36	4500~5150	57.99	74	-16.01	PK
		45.01	54	-8.99	AV
64	5350~5460	59.22	74	-14.78	PK
		45.80	54	-8.20	AV
100	5350-5460	57.86	74	-16.14	PK
		45.32	54	-8.68	AV

802.11n (HT20) Chain B+C					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
36	4500~5150	58.57	74	-15.43	PK
		45.26	54	-8.74	AV
64	5350~5460	59.90	74	-14.10	PK
		46.04	54	-7.96	AV
100	5350-5460	58.74	74	-15.26	PK
		45.42	54	-8.58	AV

802.11n (HT20) Chain A+C					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
36	4500~5150	59.33	74	-14.67	PK
		46.26	54	-7.74	AV
64	5350~5460	58.86	74	-15.14	PK
		46.28	54	-7.72	AV
100	5350-5460	58.70	74	-15.30	PK
		45.64	54	-8.36	AV

802.11n (HT40) Chain A+B					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
38	4500-5150	64.39	74	-9.61	PK
		50.19	54	-3.81	AV
62	5350-5460	59.71	74	-14.29	PK
		47.59	54	-6.41	AV
102	5350-5460	59.66	74	-14.34	PK
		46.33	54	-7.67	AV

802.11n (HT40) Chain B+C					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
38	4500-5150	67.48	74	-6.52	PK
		52.22	54	-1.78	AV
62	5350-5460	63.31	74	-10.69	PK
		49.71	54	-4.29	AV
102	5350-5460	63.39	74	-10.61	PK
		49.20	54	-4.80	AV

802.11n (HT40) Chain A+C					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
38	4500-5150	67.84	74	-6.16	PK
		53.29	54	-0.71	AV
62	5350-5460	63.96	74	-10.04	PK
		51.09	54	-2.91	AV
102	5350-5460	65.05	74	-8.95	PK
		50.65	54	-3.35	AV

Band edge test

Triple Tx

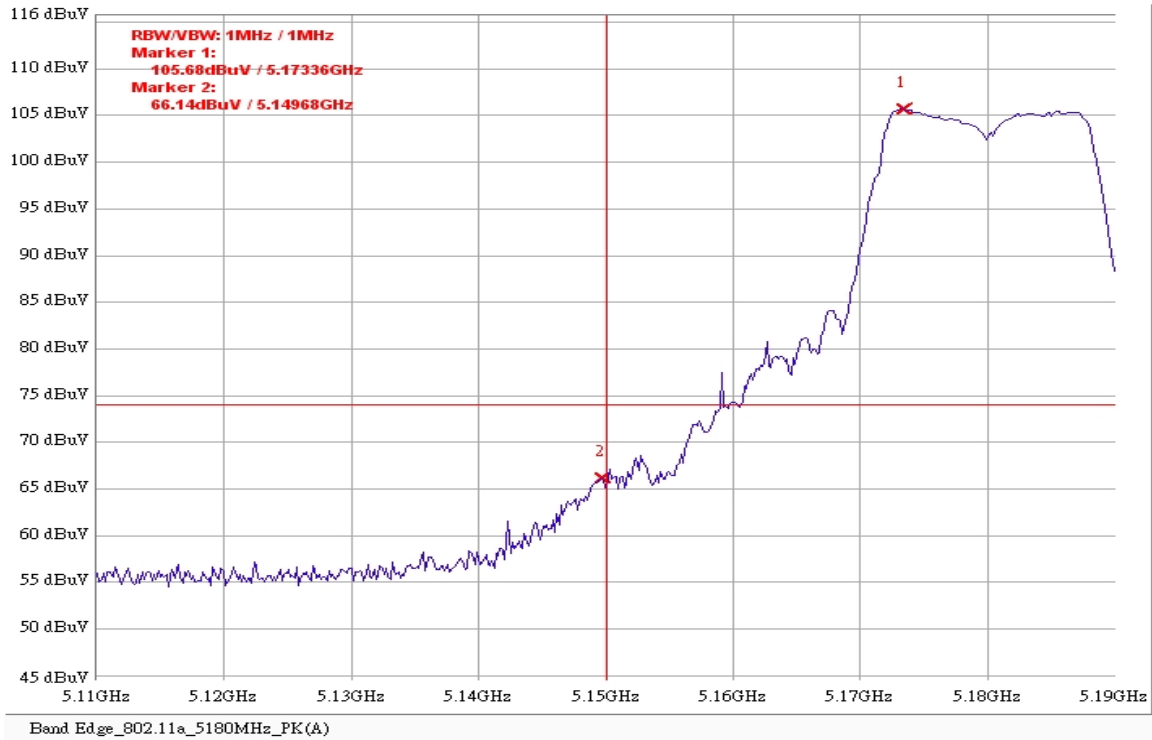
802.11n (HT20) Chain A+B+C					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
36	4500~5150	58.68	74	-15.32	PK
		45.33	54	-8.67	AV
64	5350~5460	59.04	74	-14.96	PK
		46.20	54	-7.80	AV
100	5350-5460	58.07	74	-15.93	PK
		45.16	54	-8.84	AV

802.11n (HT40) Chain A+B+C					
CH	Restricted Band (MHz)	Maximum Level (dB μ V/m)	Limit (dBm)	Margin (dB)	Detector Mode
38	4500-5150	65.66	74	-8.34	PK
		51.60	54	-2.40	AV
62	5350-5460	64.50	74	-9.50	PK
		48.39	54	-5.61	AV
102	5350-5460	67.02	74	-6.98	PK
		48.16	54	-5.84	AV

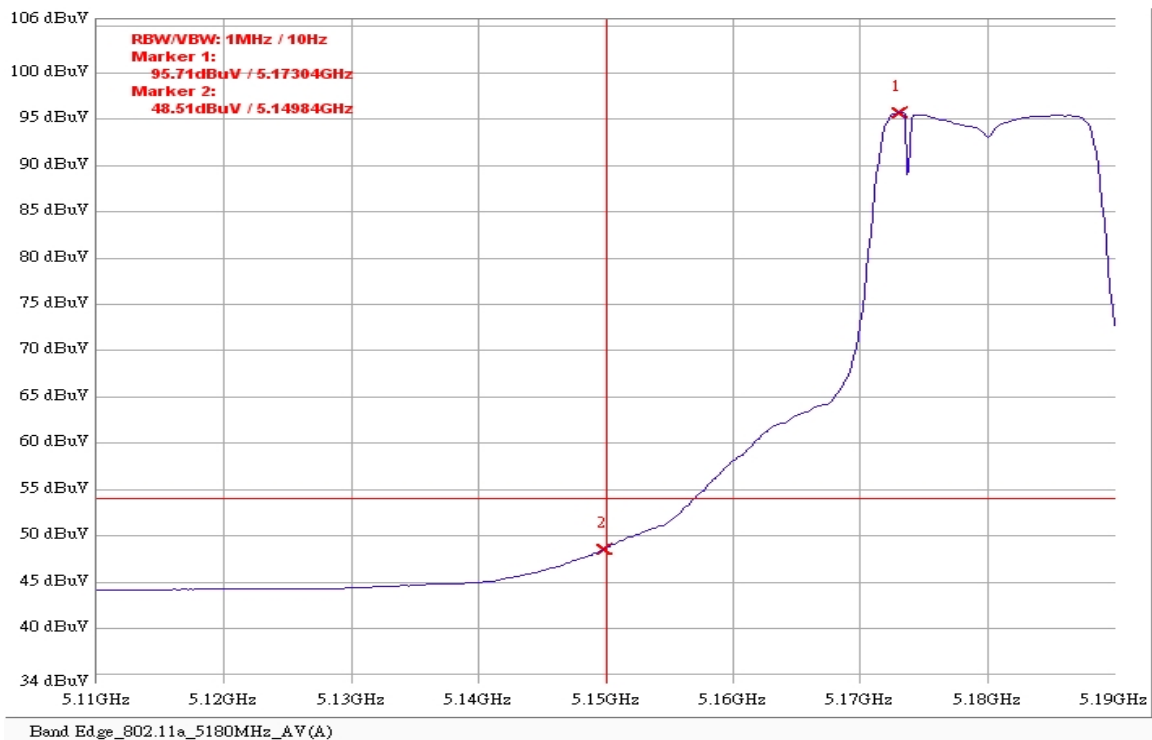
Band edge test

Single Tx

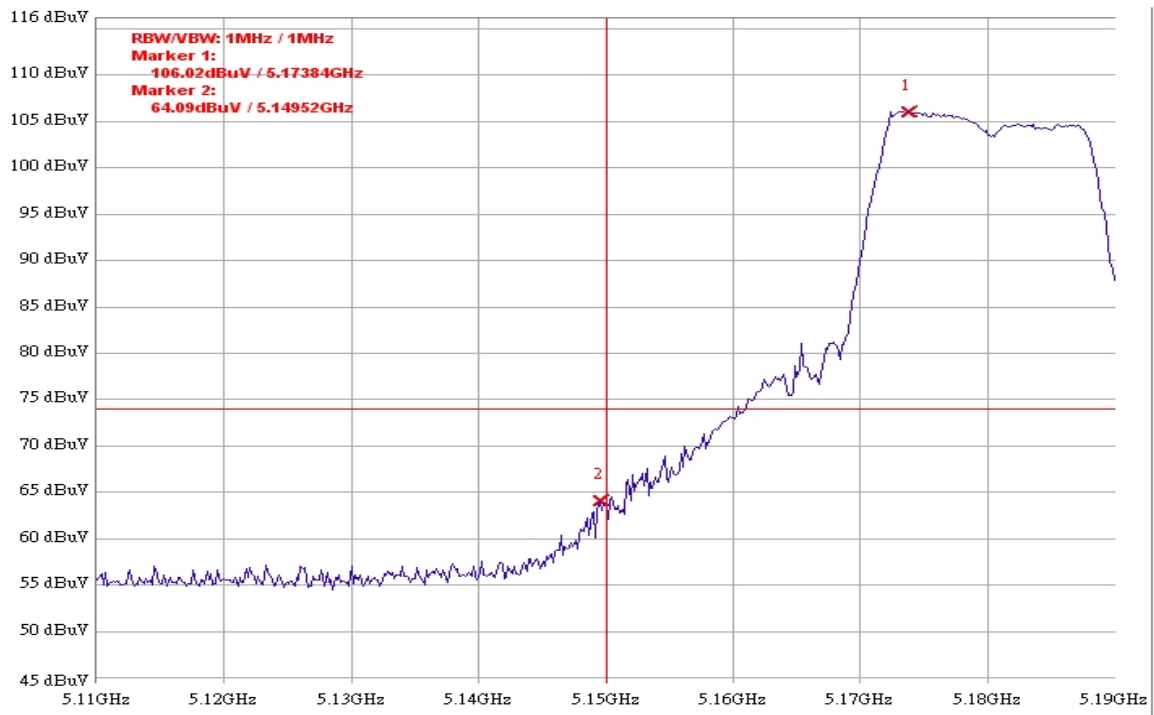
802.11a CH36 5180MHz PK Chain A



802.11a CH36 5180MHz AV Chain A

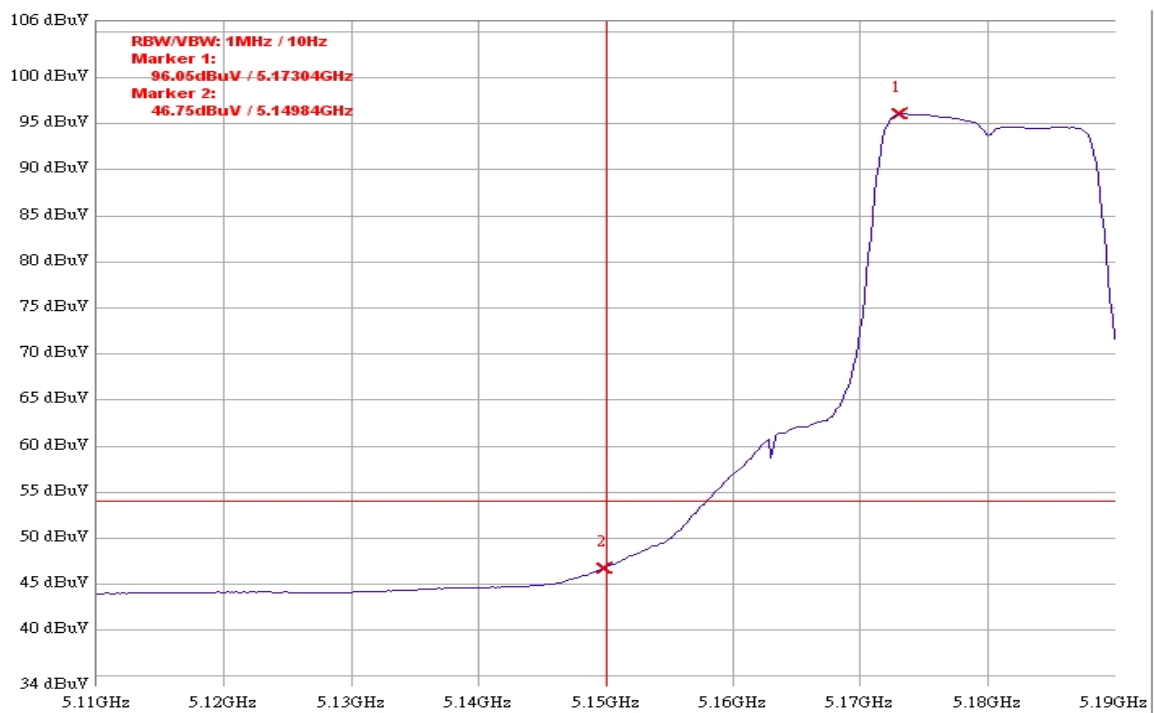


802.11a CH36 5180MHz PK Chain B



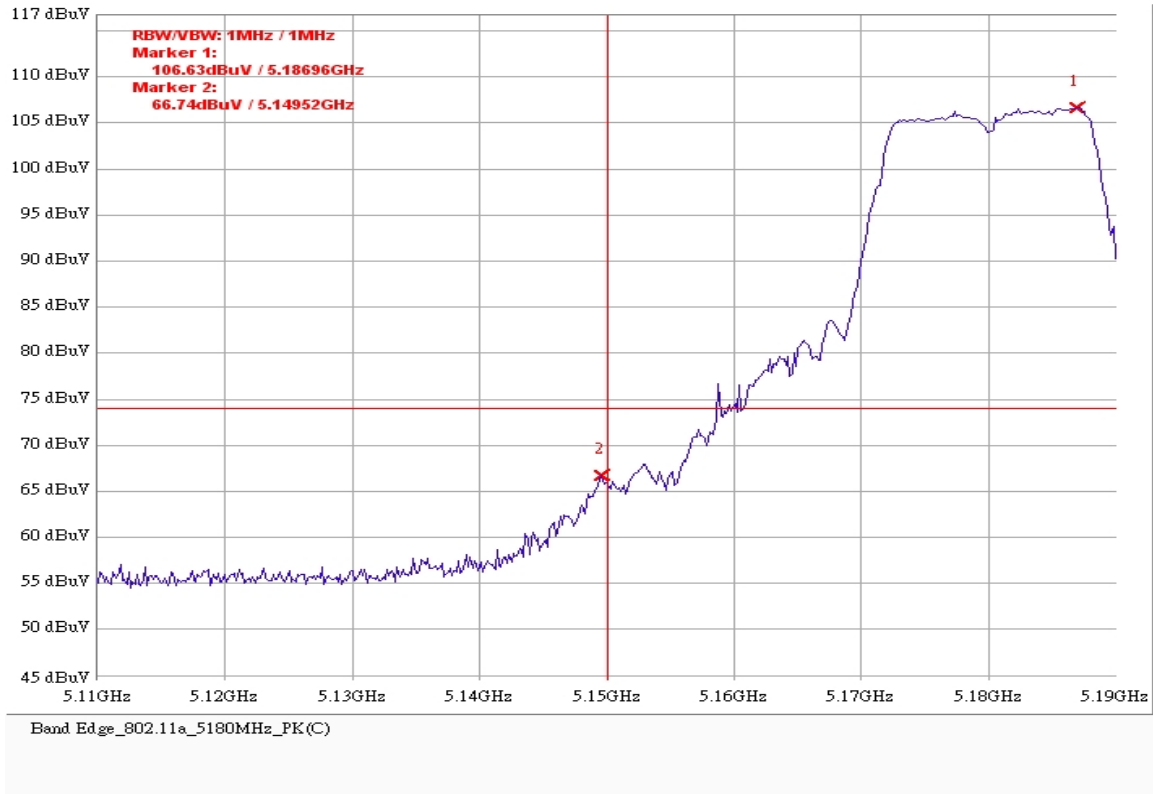
Band Edge_802.11a_5180MHz_PK(B)

802.11a CH36 5180MHz AV Chain B

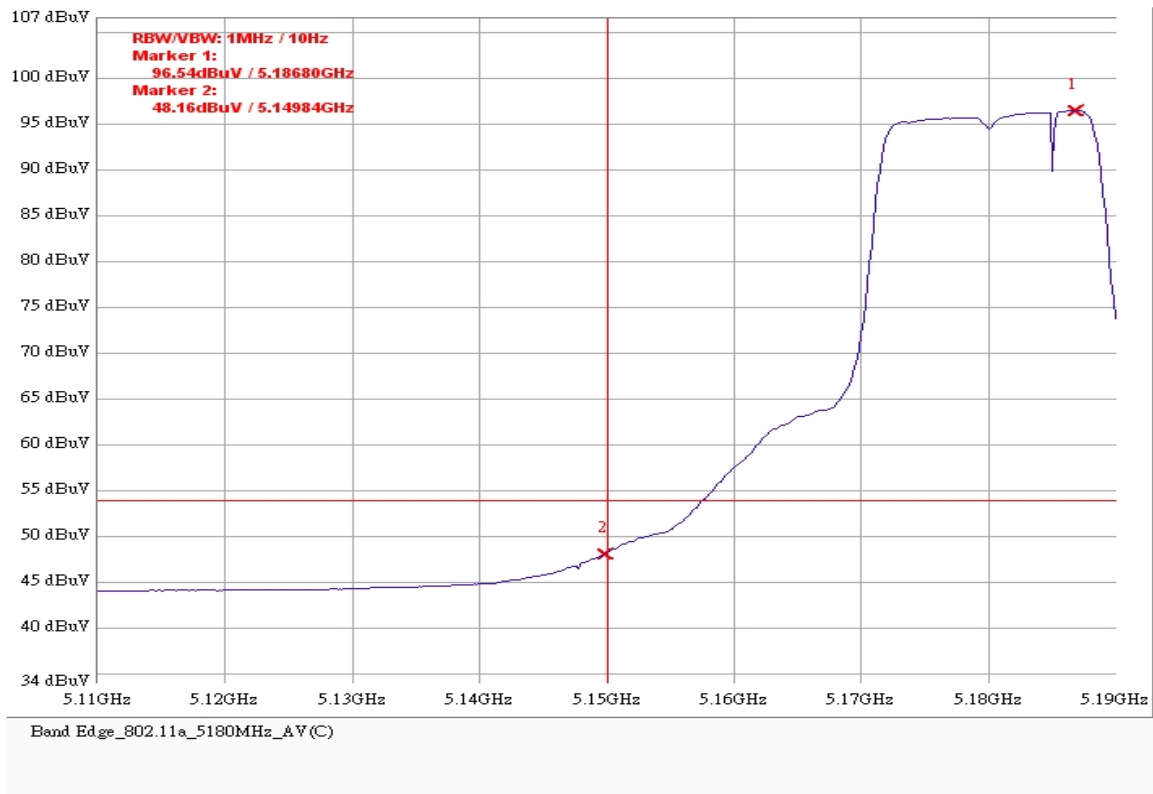


Band Edge_802.11a_5180MHz_AV(B)

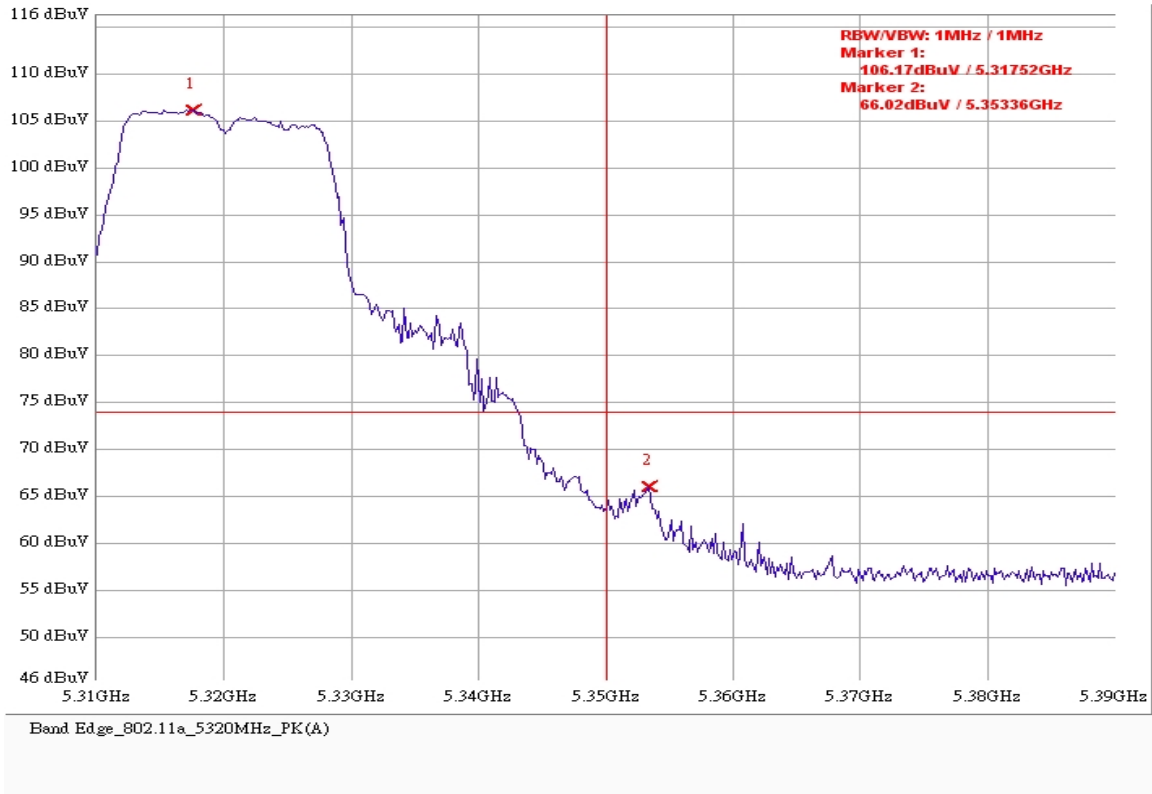
802.11a CH36 5180MHz PK Chain C



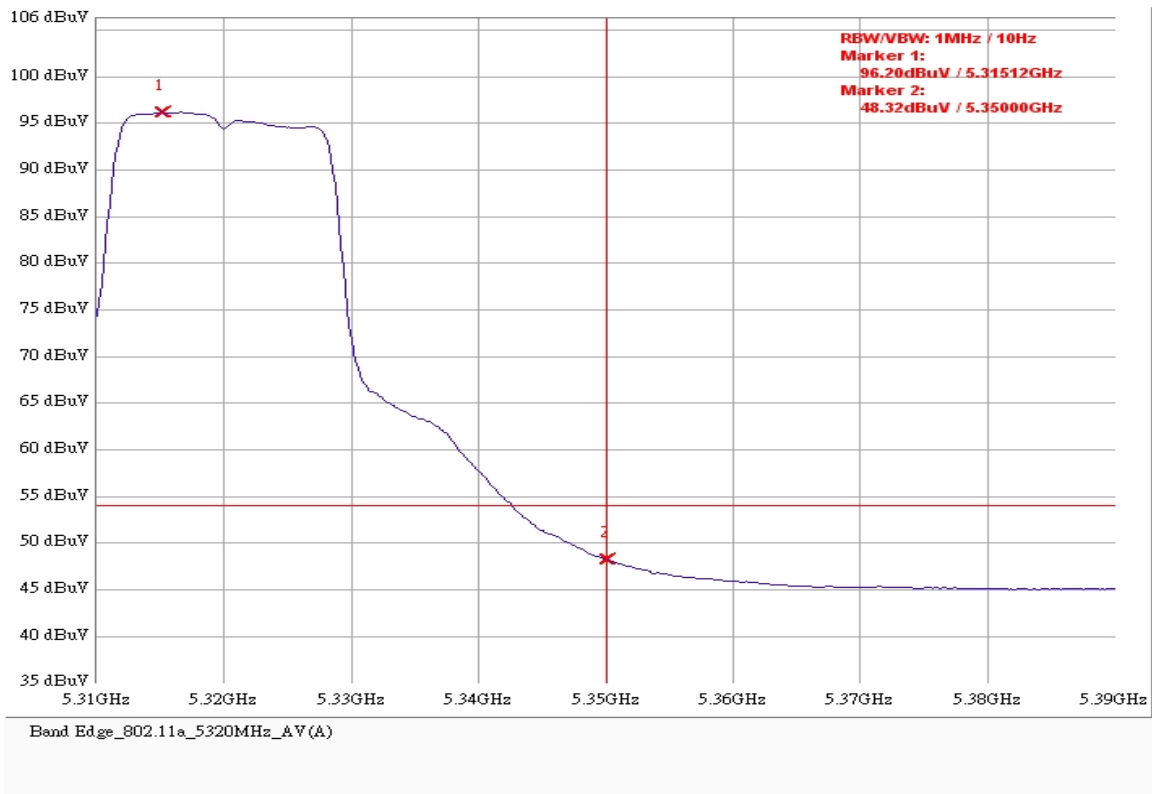
802.11a CH36 5180MHz AV Chain C



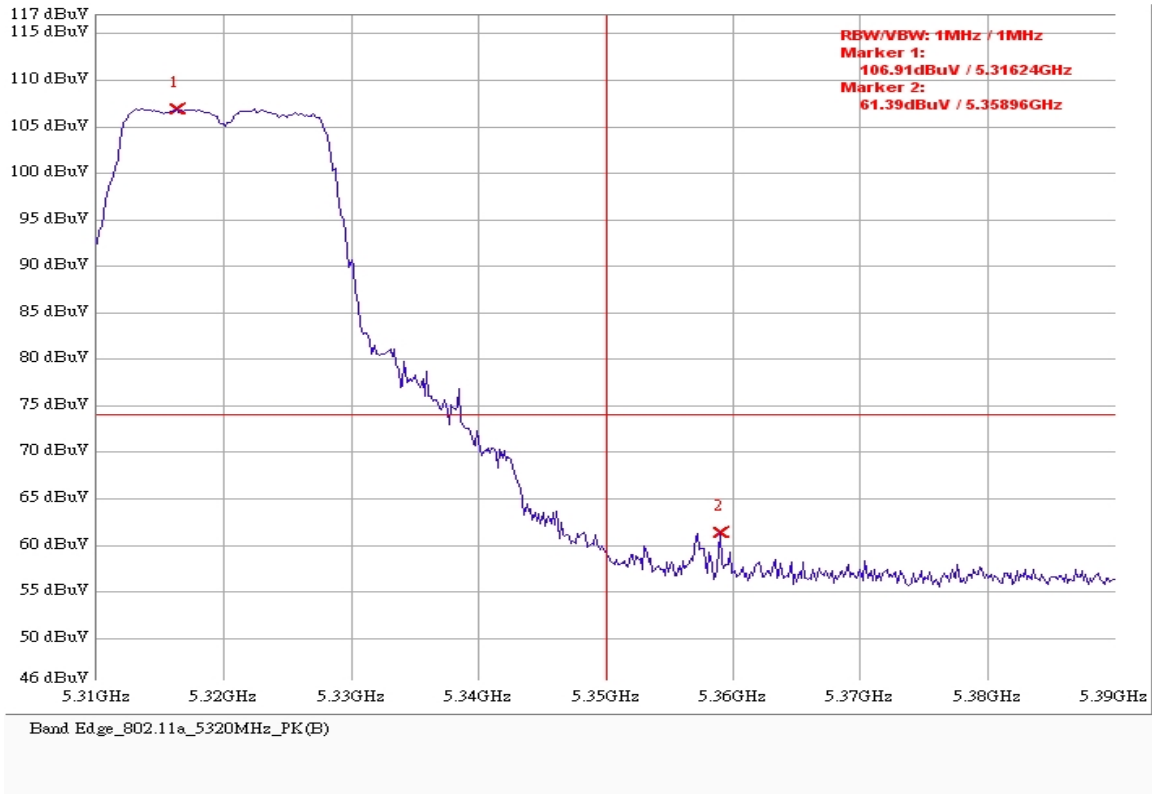
802.11a CH64 5320MHz PK Chain A



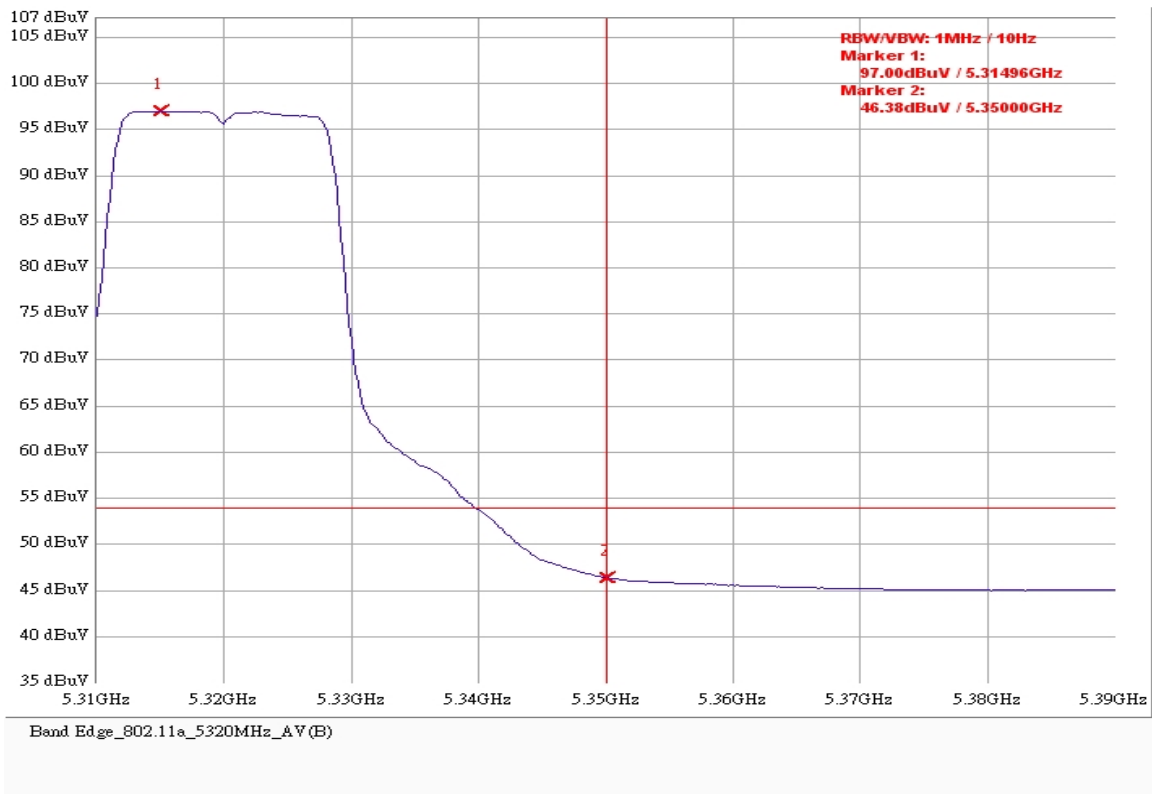
802.11a CH64 5320MHz AV Chain A



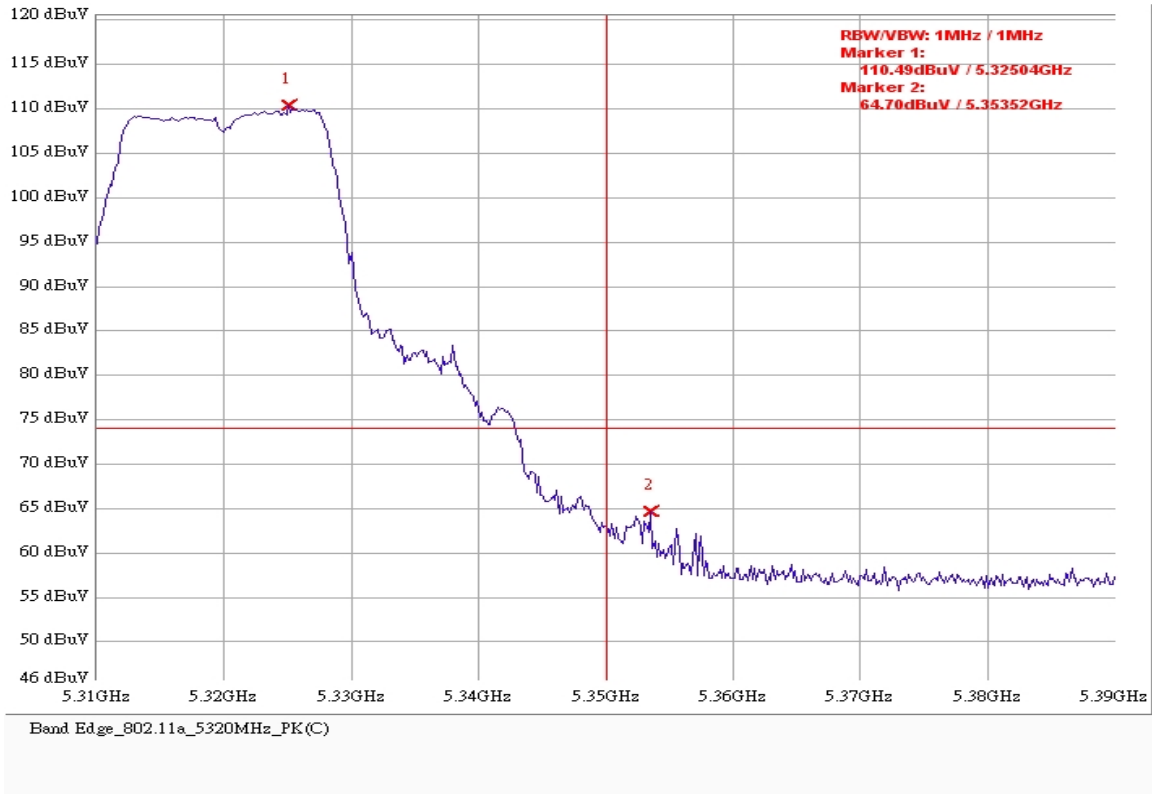
802.11a CH64 5320MHz PK Chain B



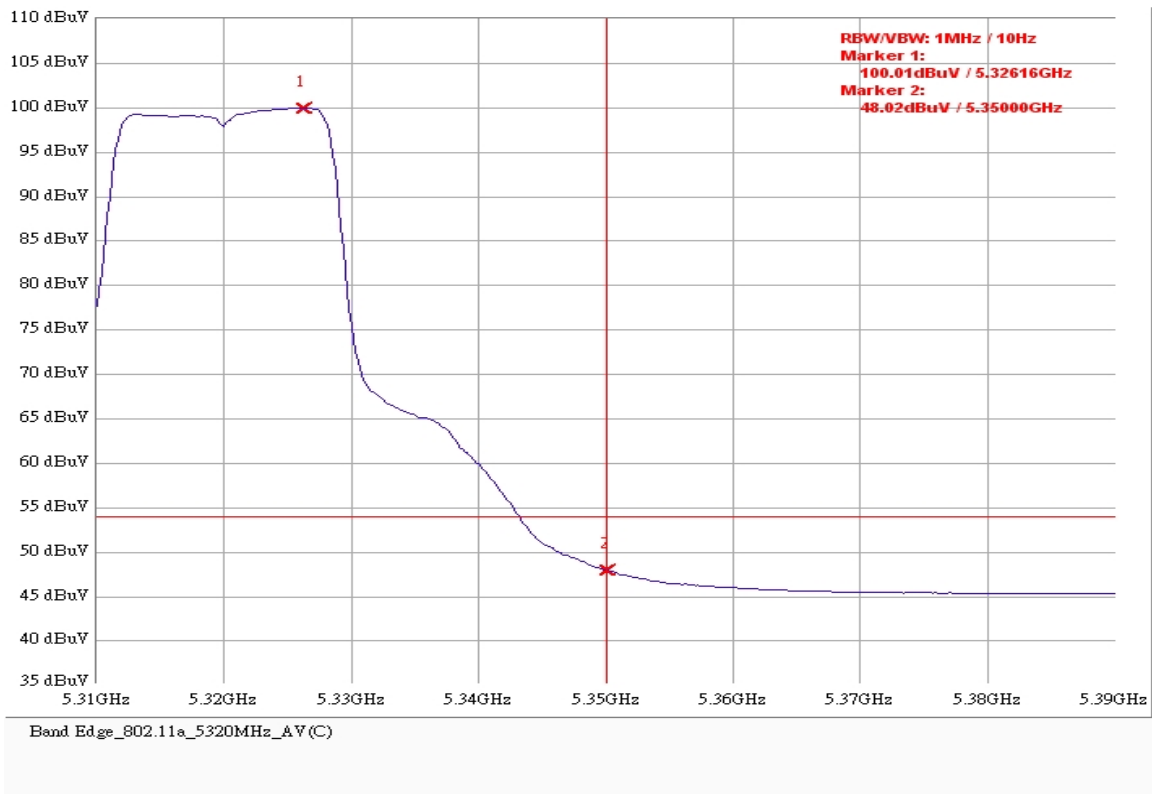
802.11a CH64 5320MHz AV Chain B



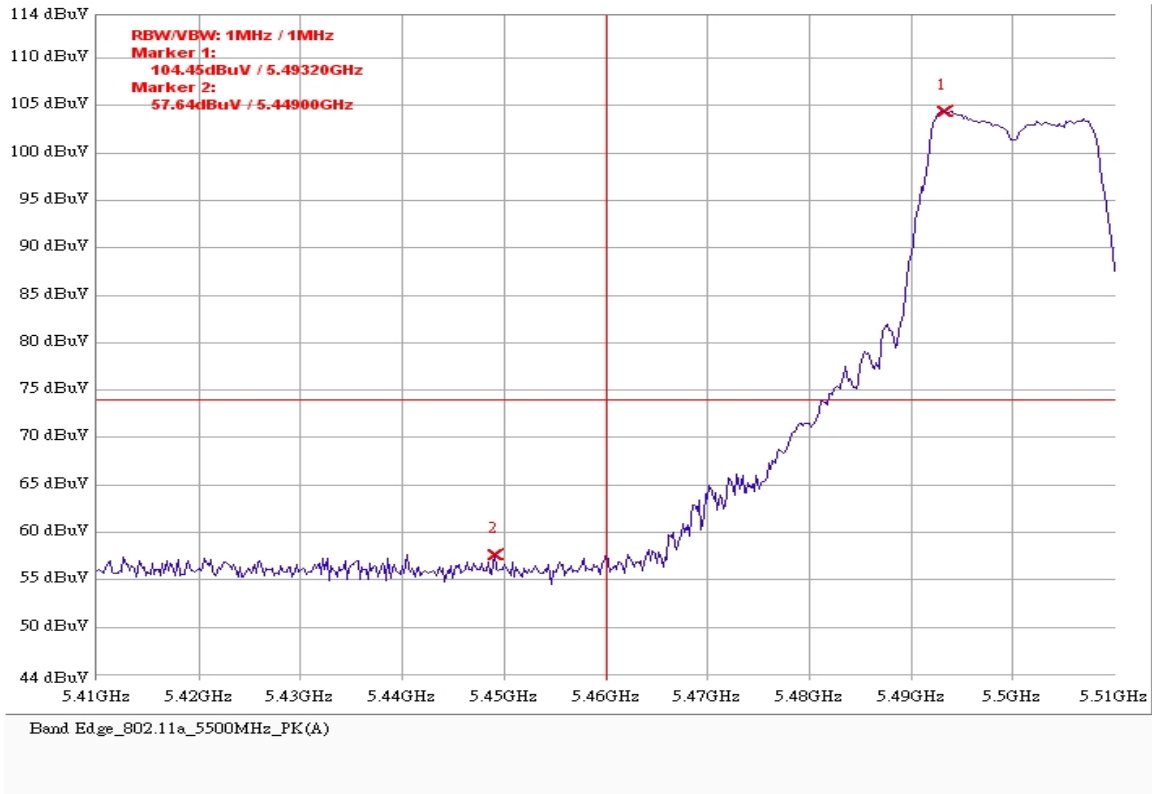
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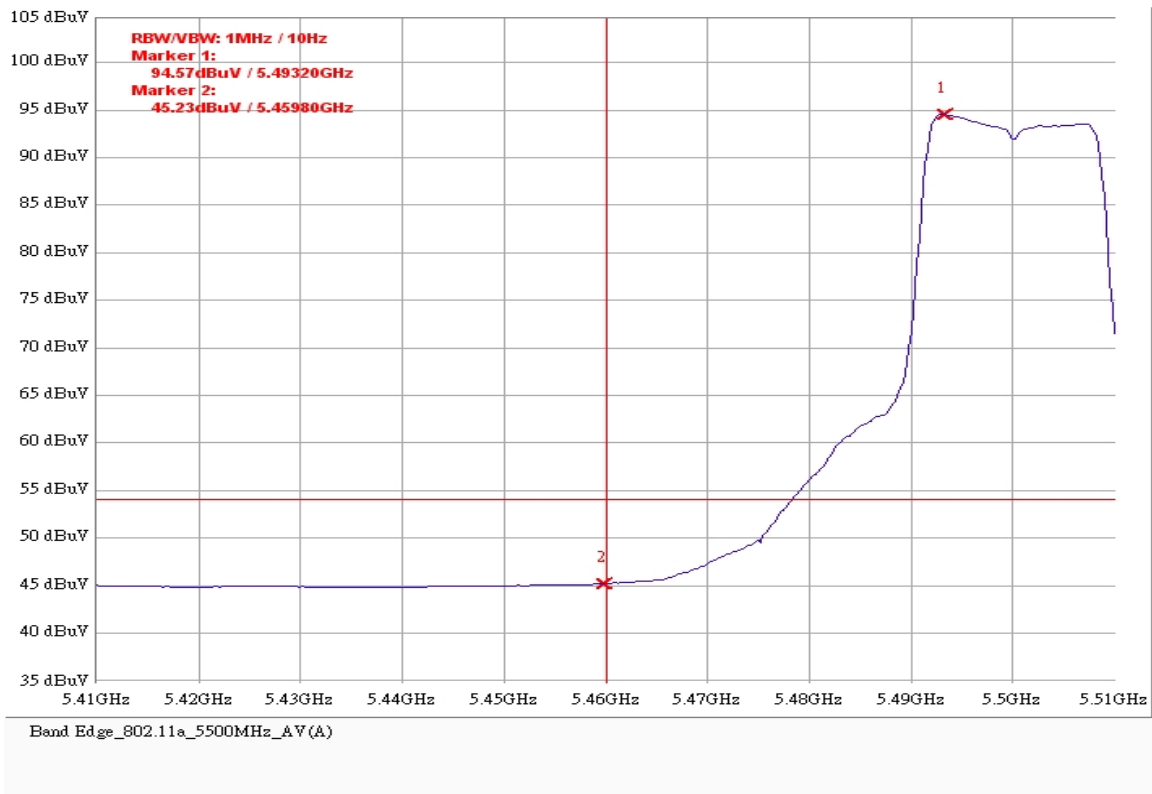
802.11a CH64 5320MHz AV Chain C



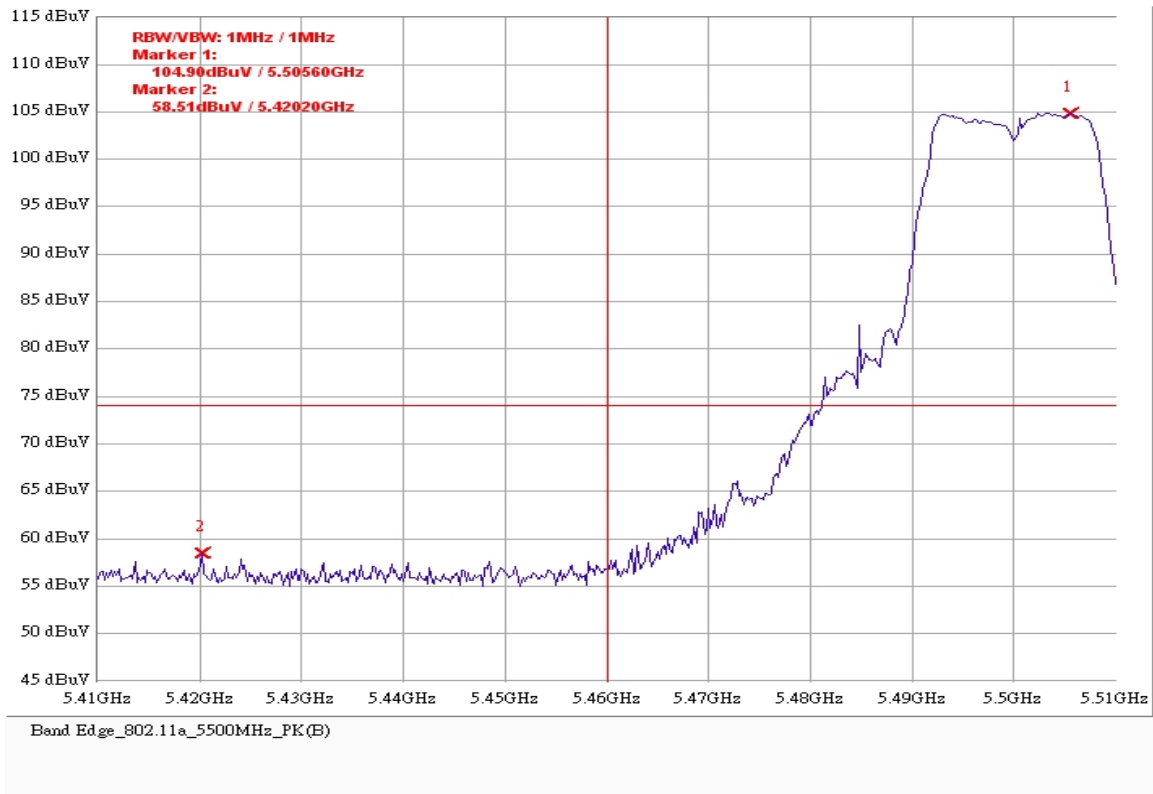
802.11a CH100 5500MHz PK Chain A



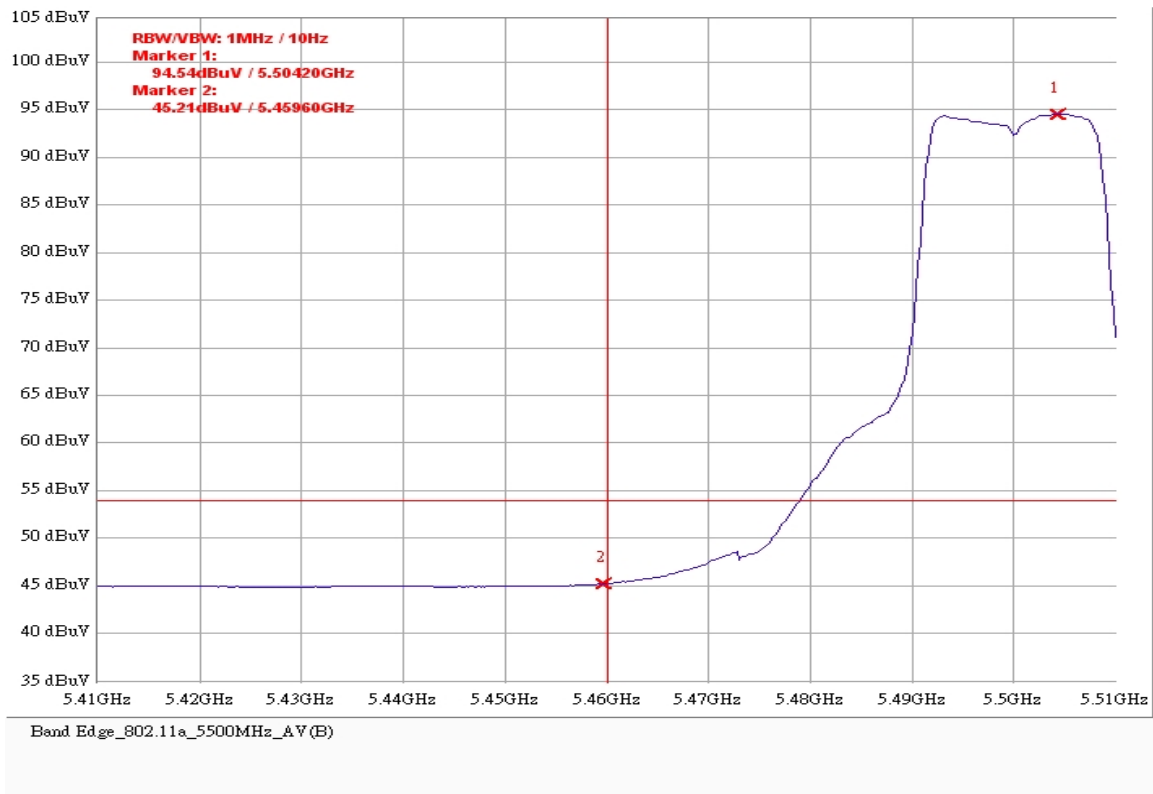
802.11a CH100 5500MHz AV Chain A



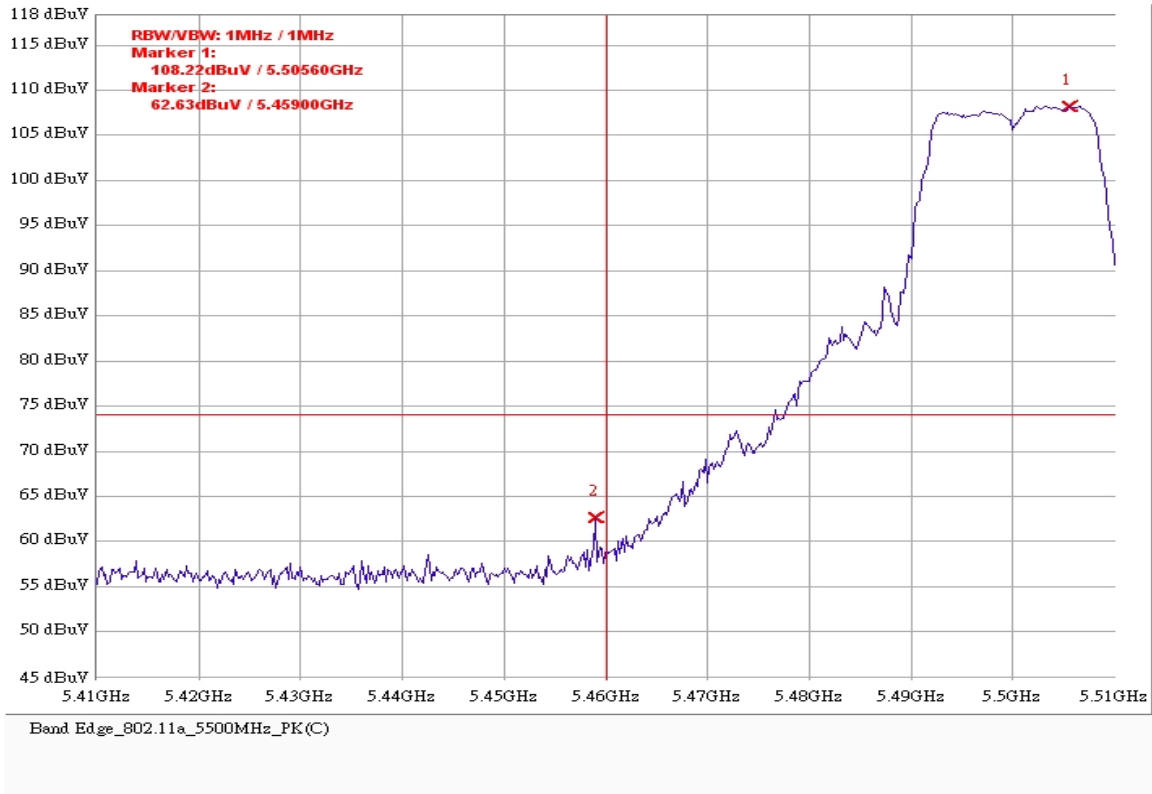
802.11a CH100 5500MHz PK Chain B



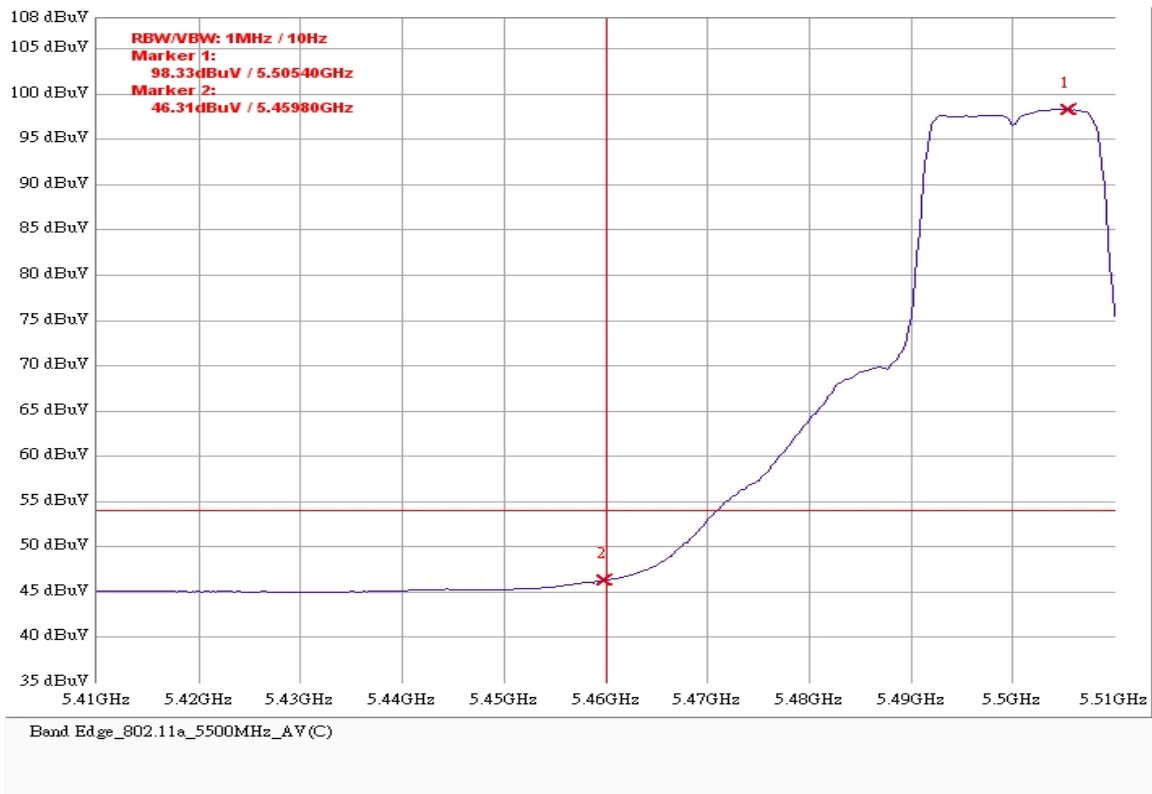
802.11a CH100 5500MHz AV Chain B



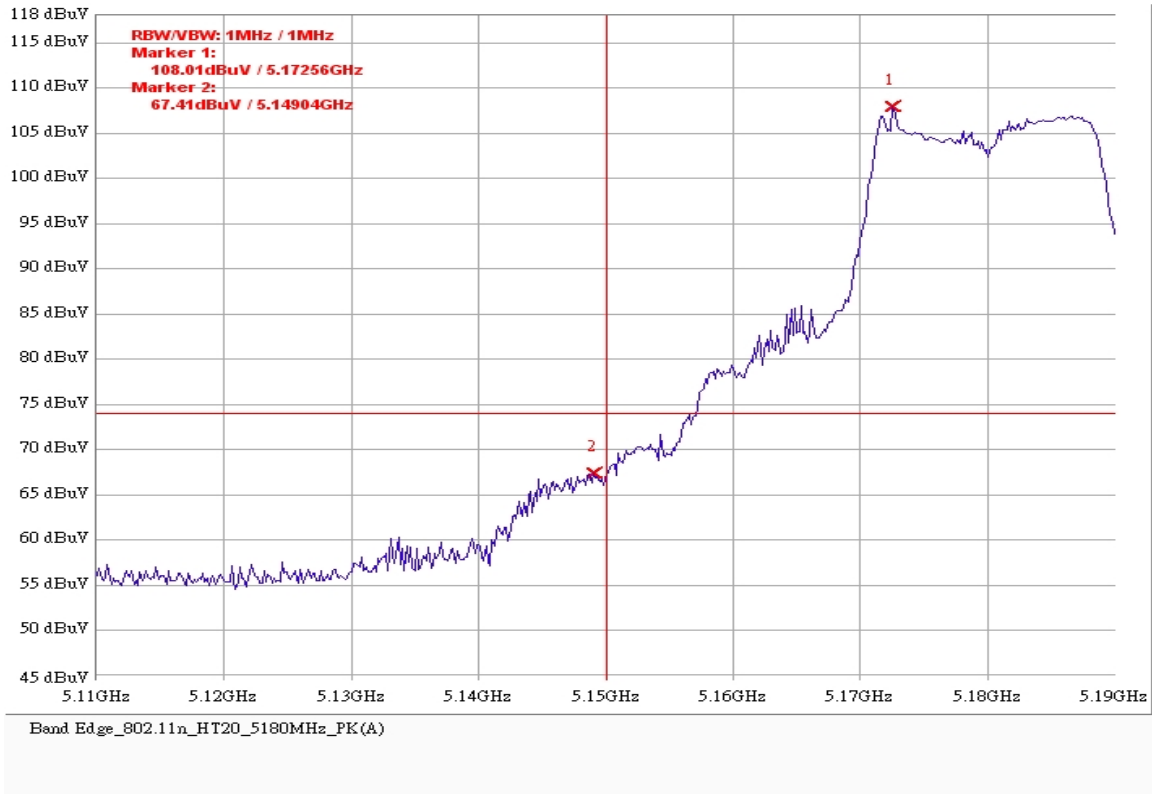
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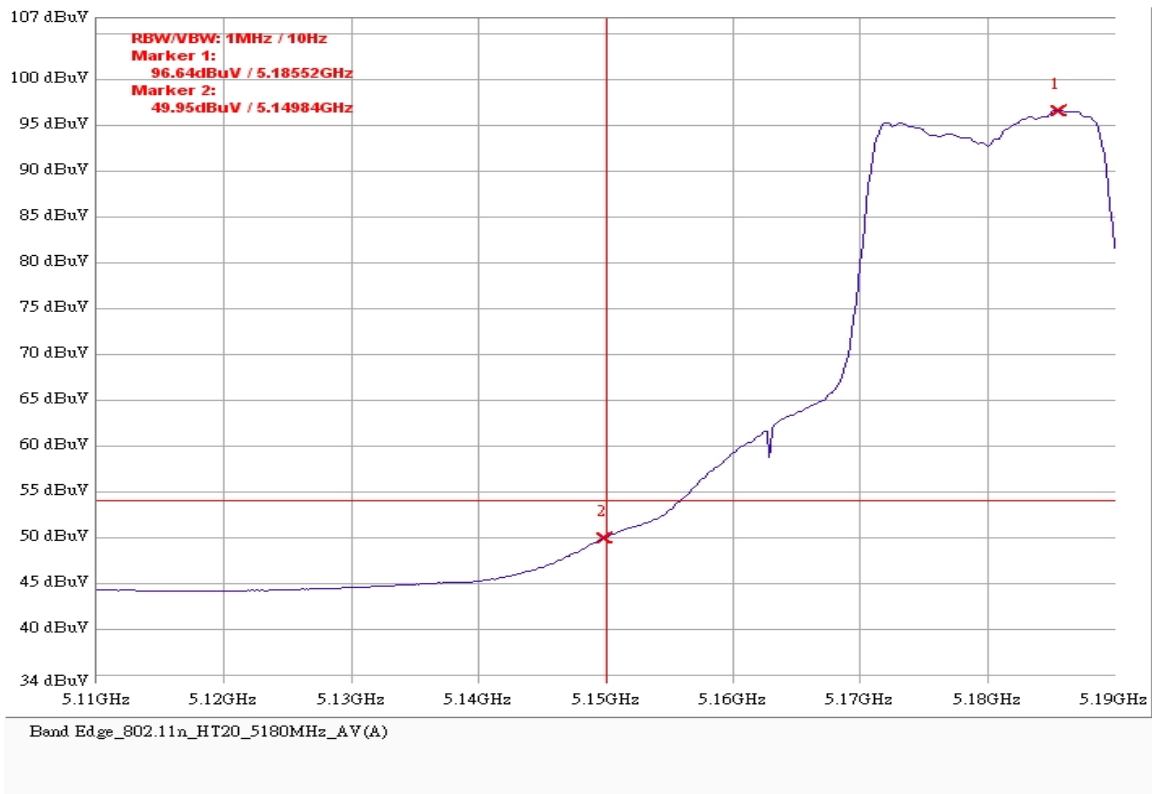
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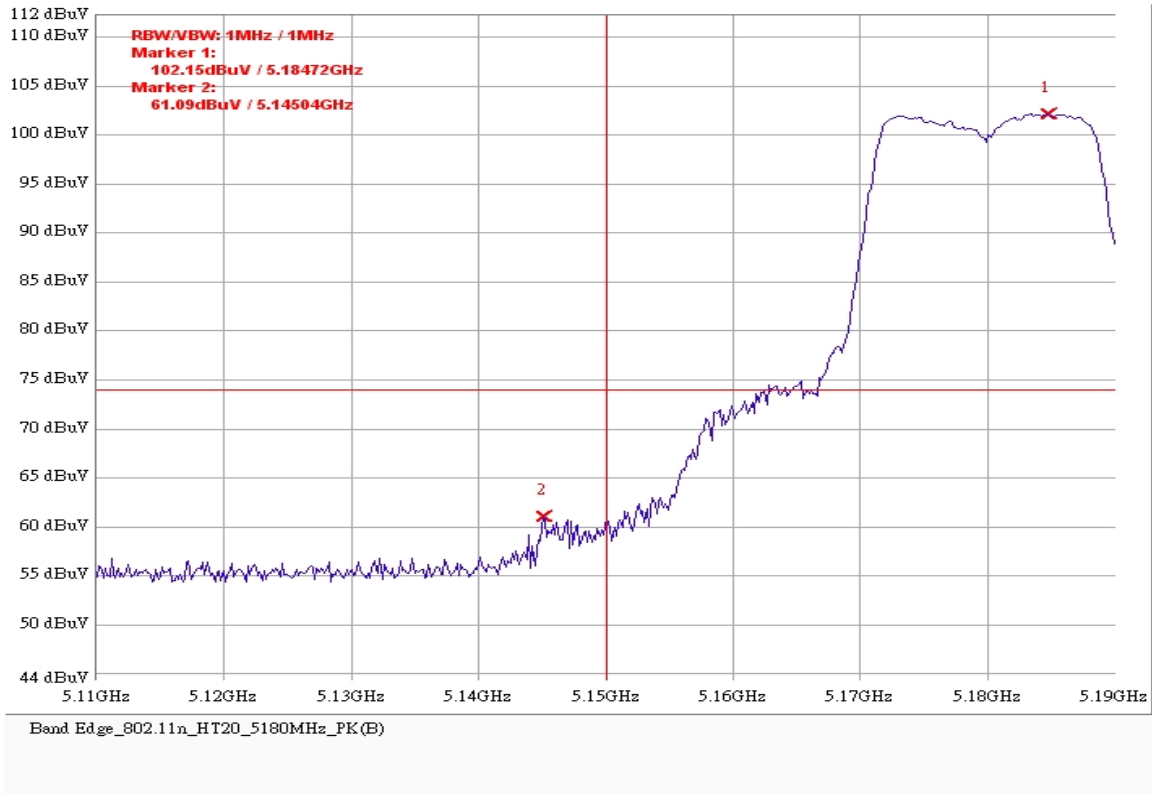
802.11 n (HT20) CH36 5180MHz PK Chain A



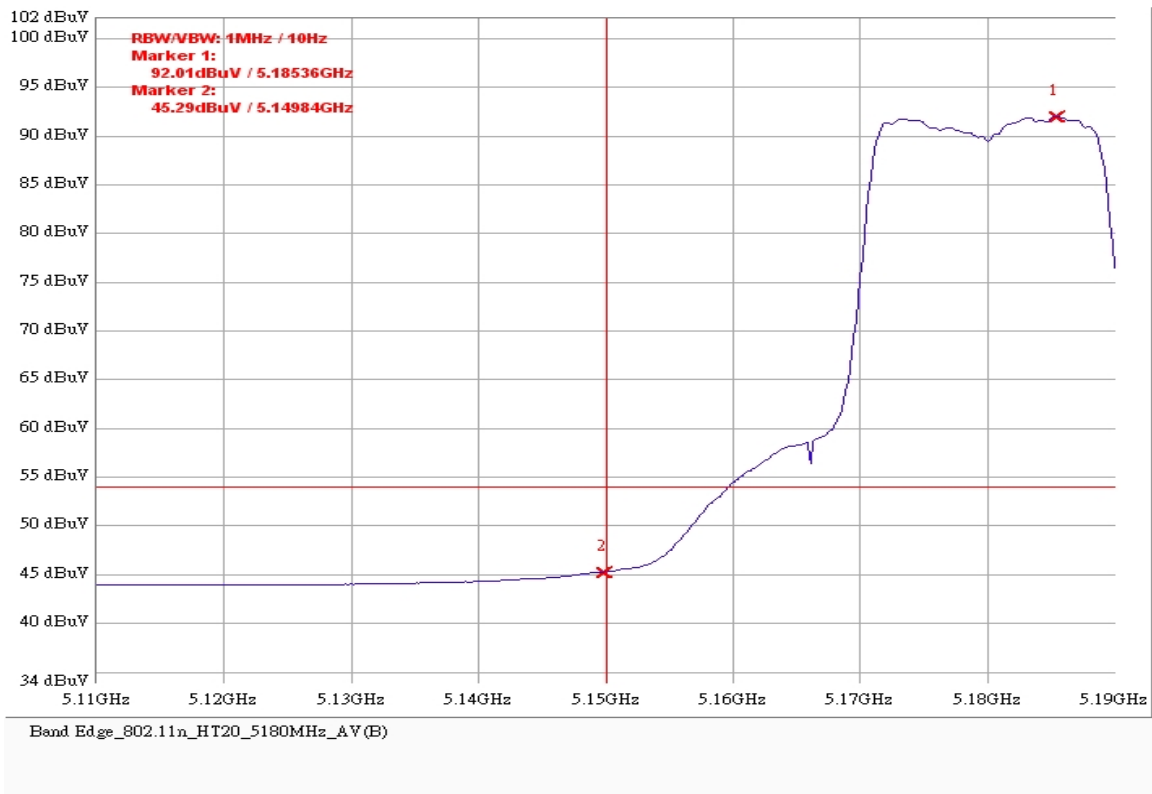
802.11 n (HT20) CH36 5180MHz AV Chain A



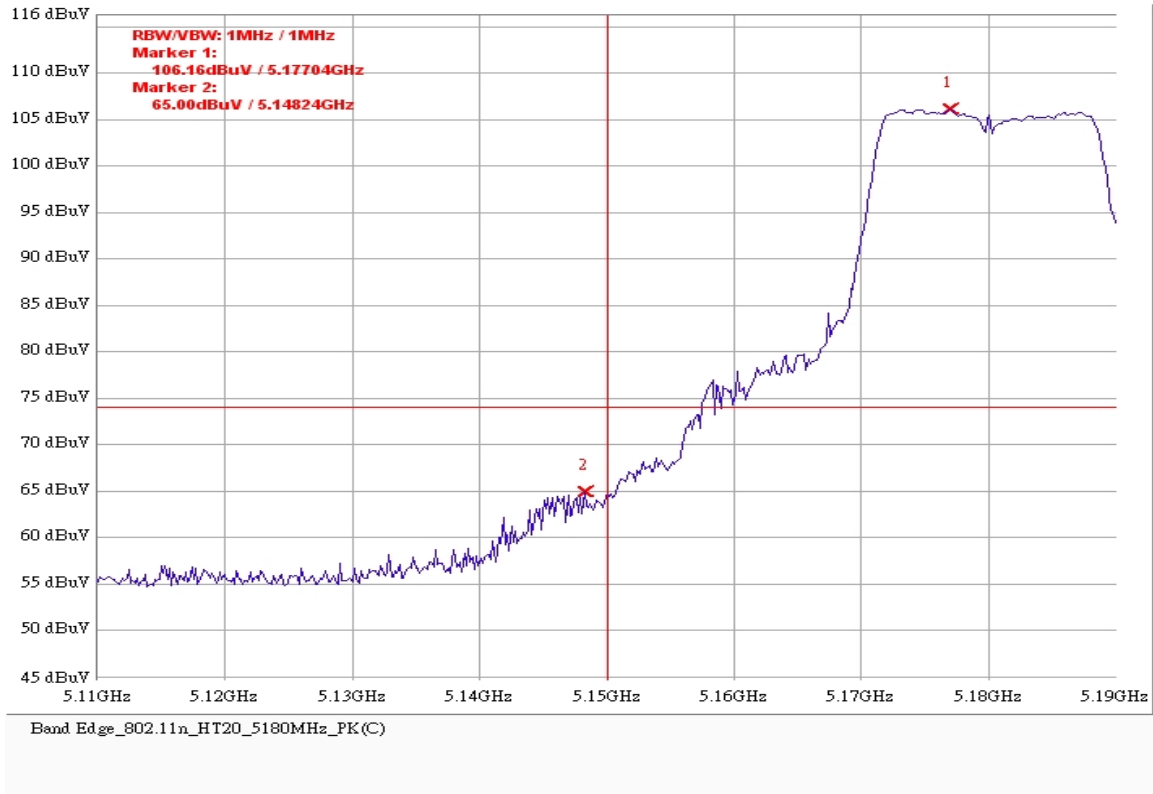
802.11n (HT20) CH36 5180MHz PK Chain B



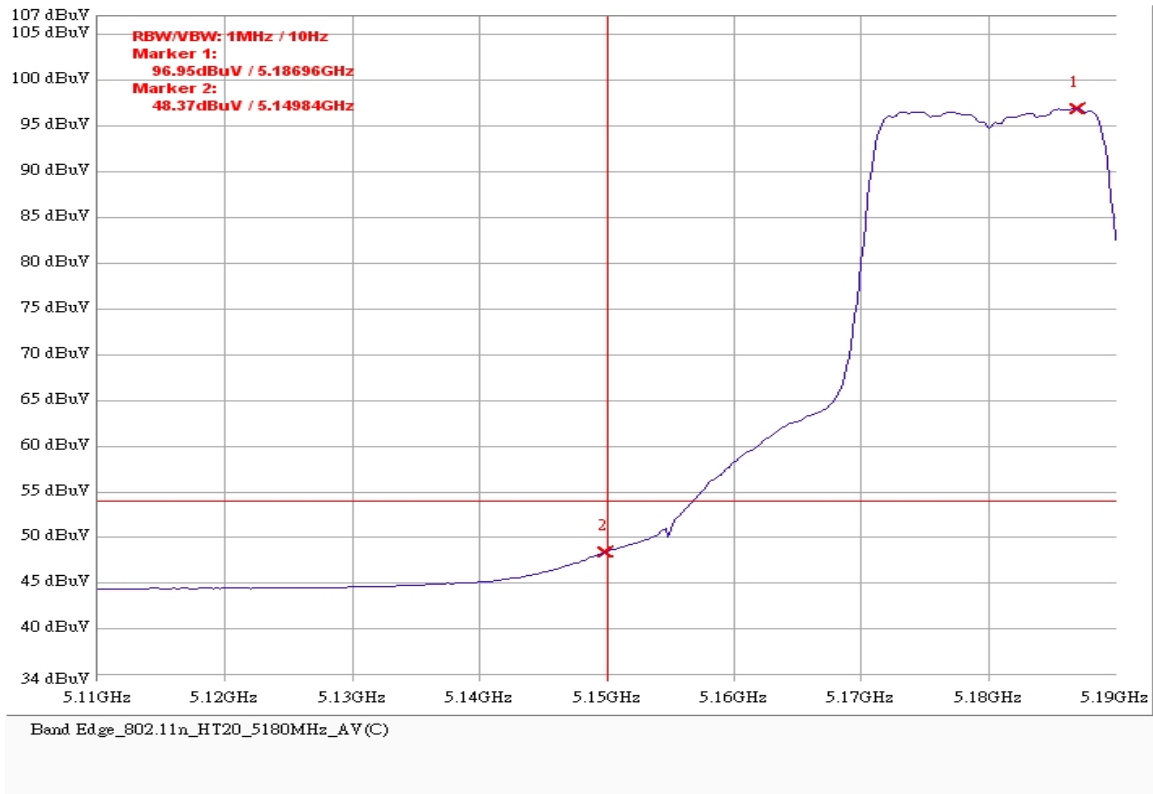
802.11n (HT20) CH36 5180MHz AV Chain B



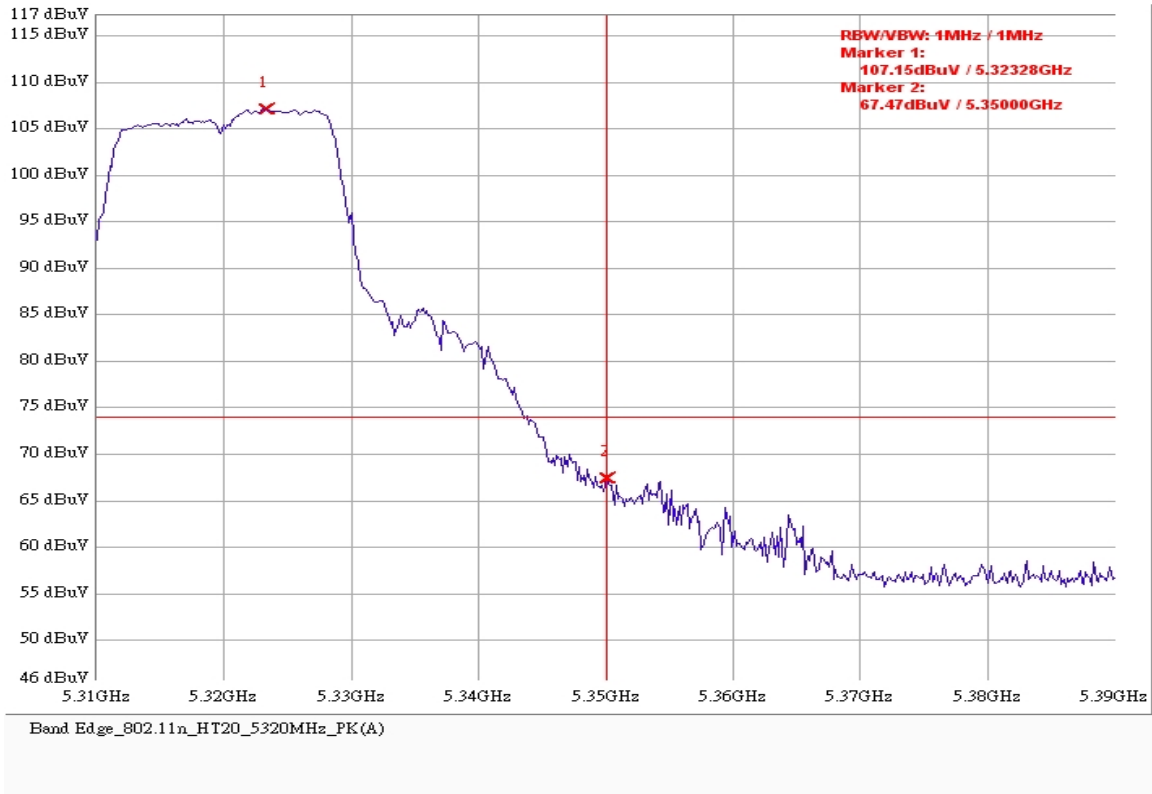
802.11n (HT20) CH36 5180MHz PK Chain C



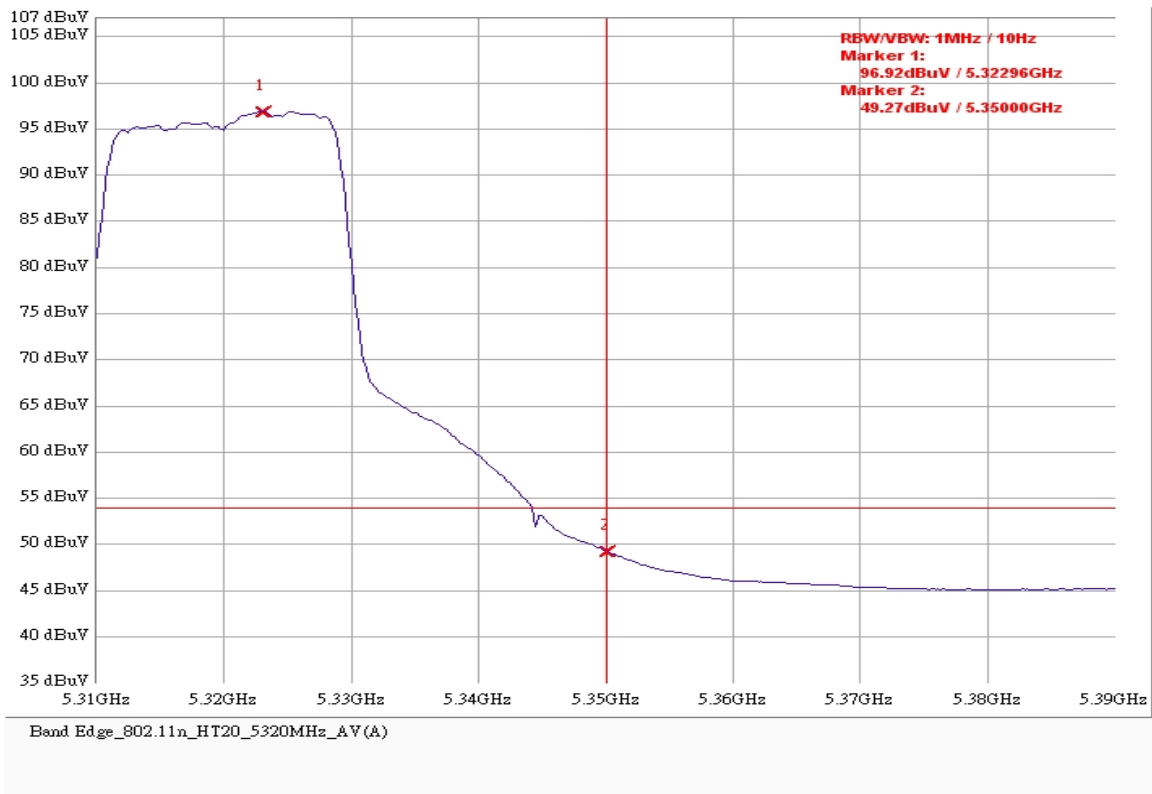
802.11n (HT20) CH36 5180MHz AV Chain C



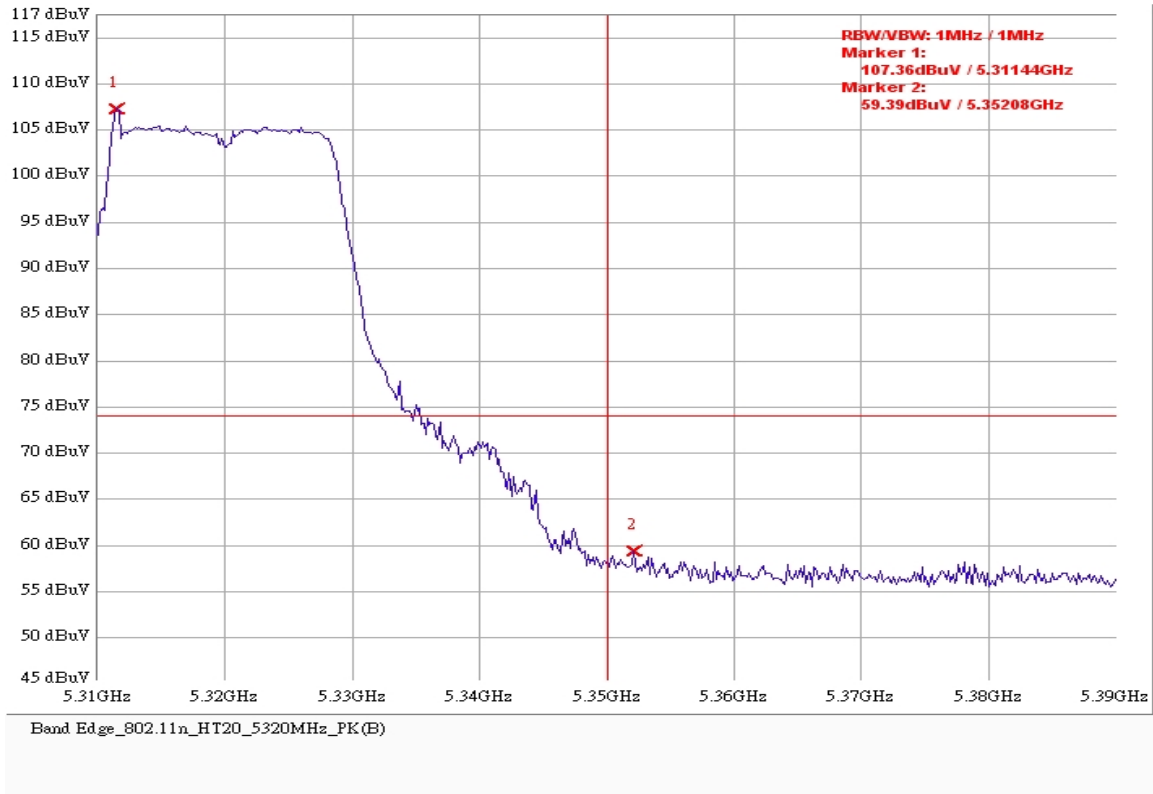
802.11n (HT20) CH64 5320MHz PK Chain A



802.11n (HT20) CH64 5320MHz AV Chain A



802.11n (HT20) CH64 5320MHz PK Chain B



802.11n (HT20) CH64 5320MHz AV Chain B

