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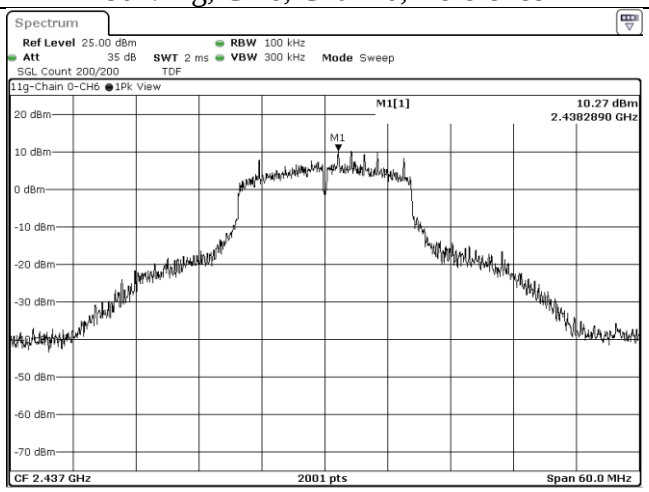

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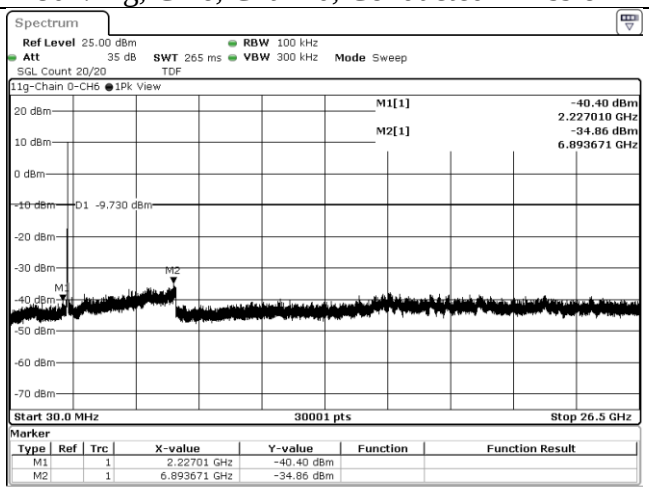

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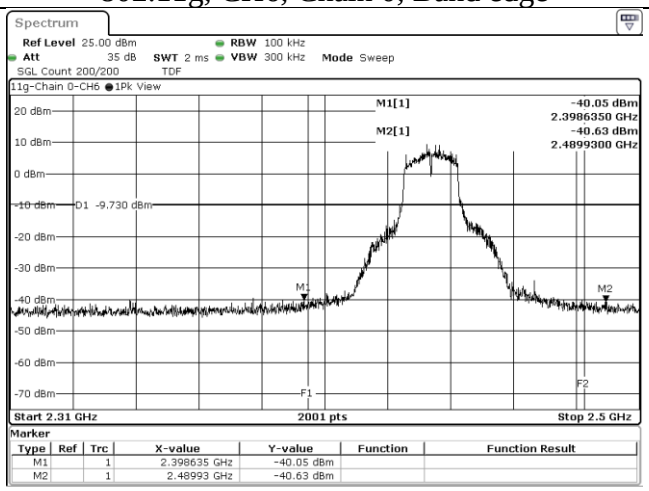

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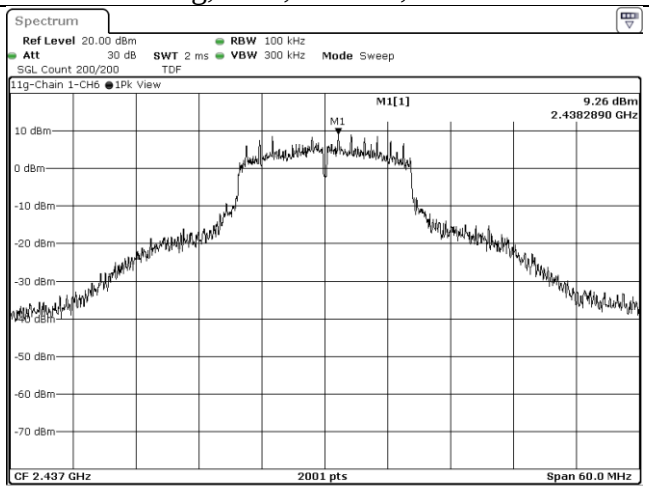

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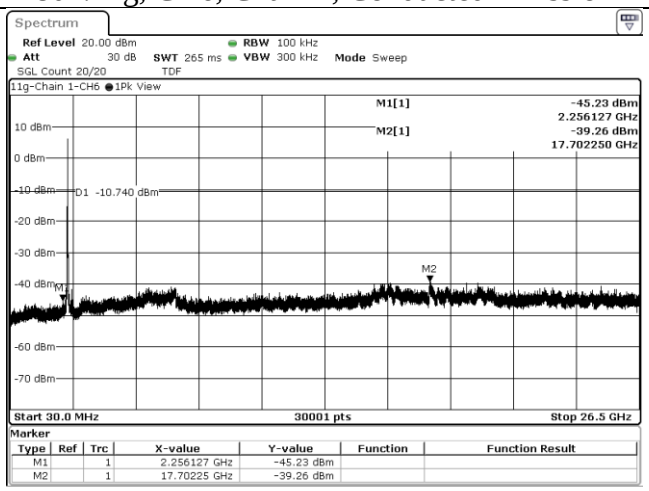

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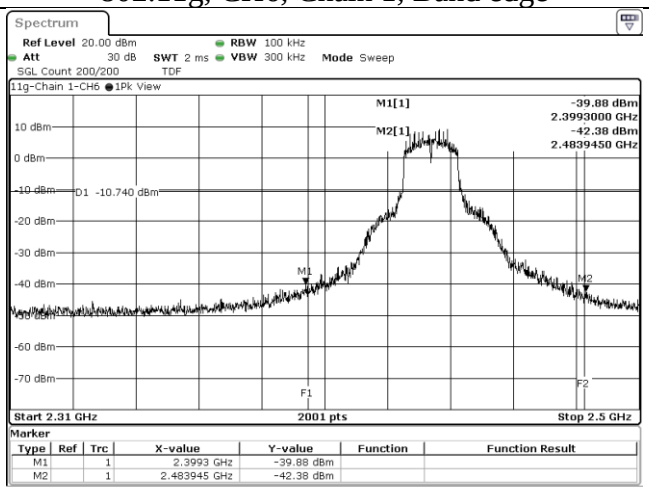

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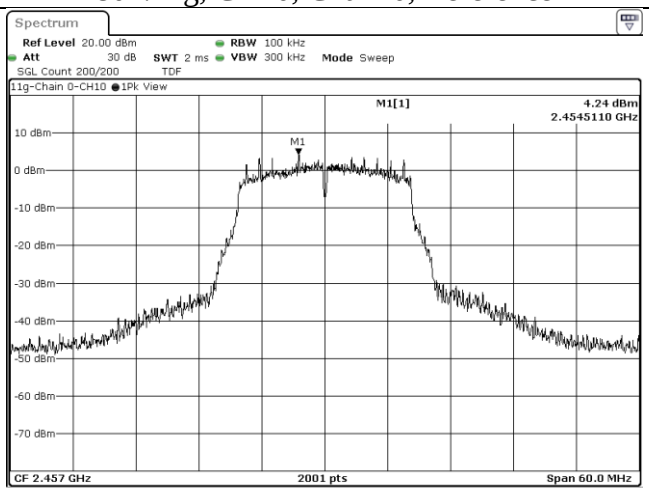

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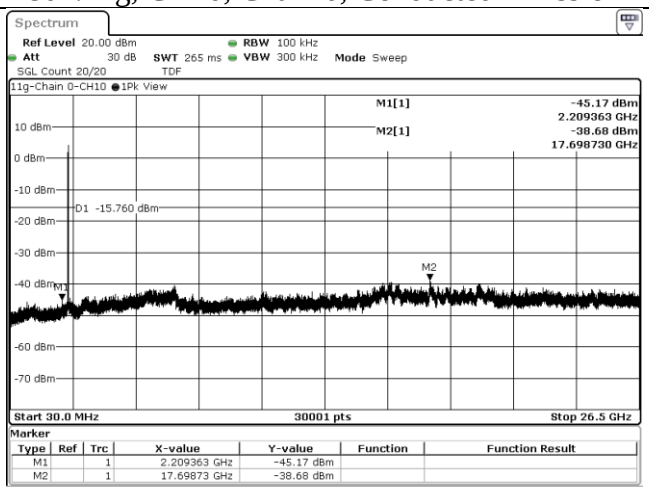

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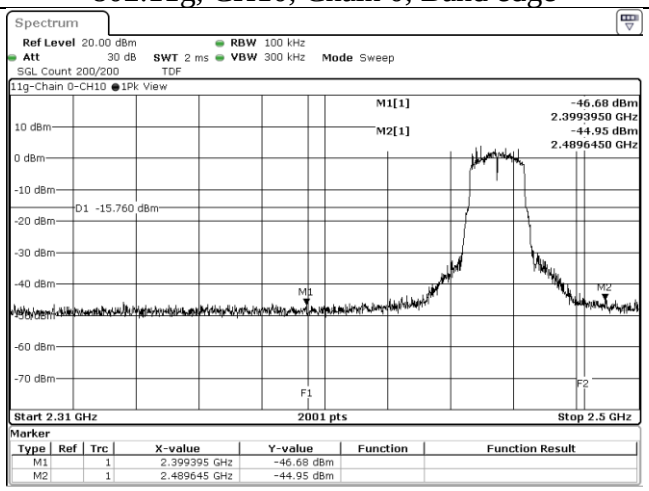

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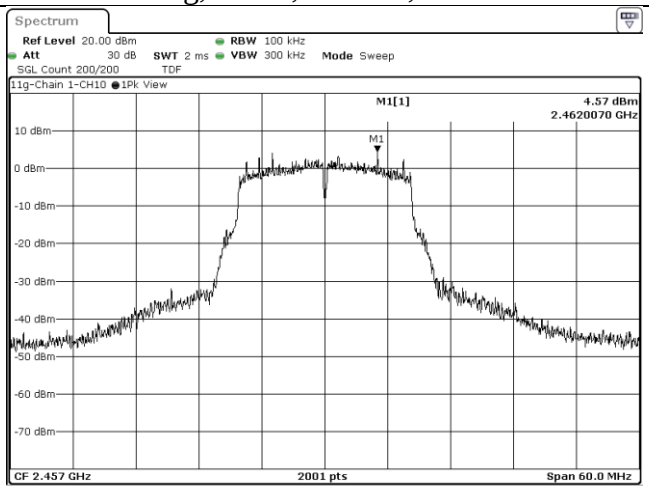

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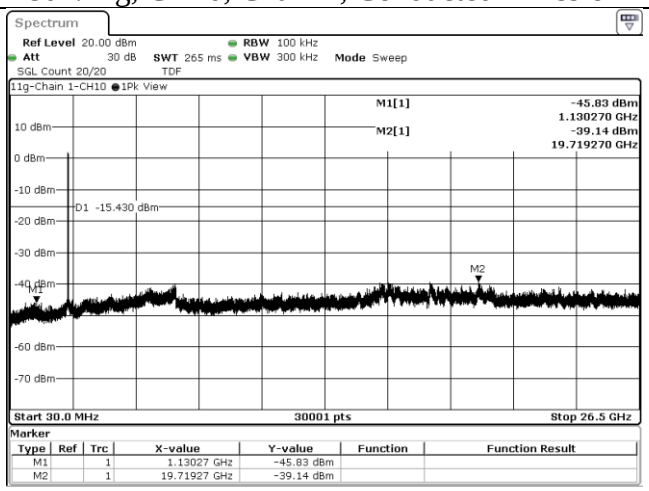

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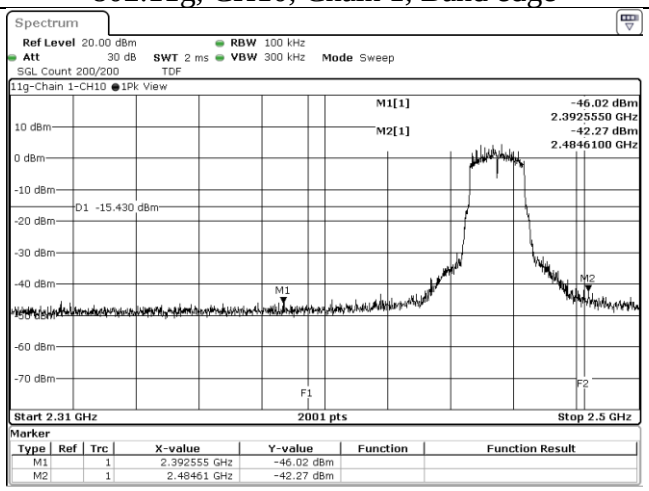

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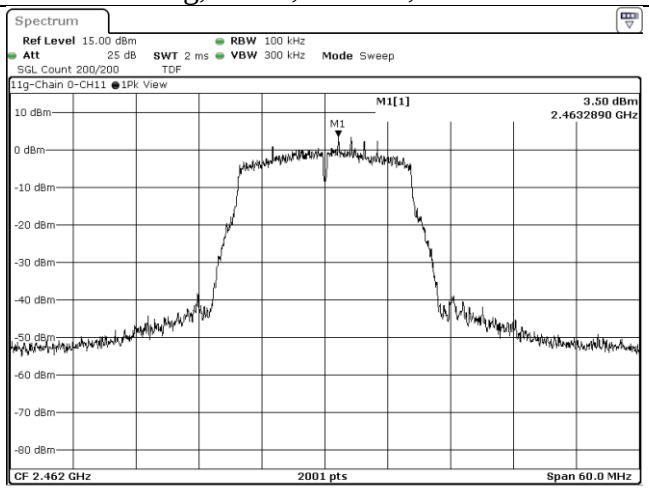

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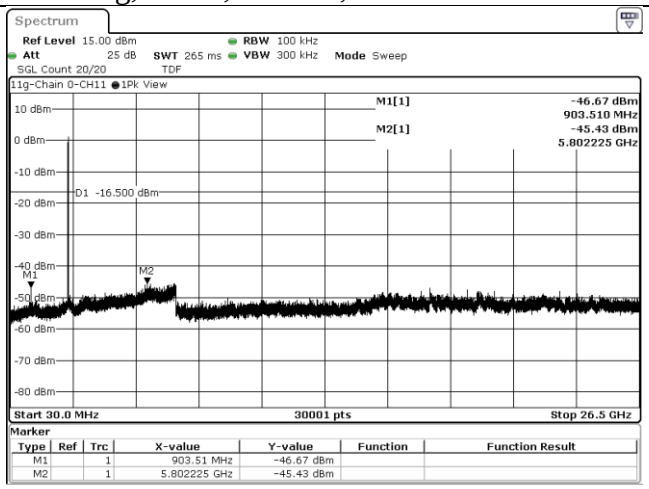

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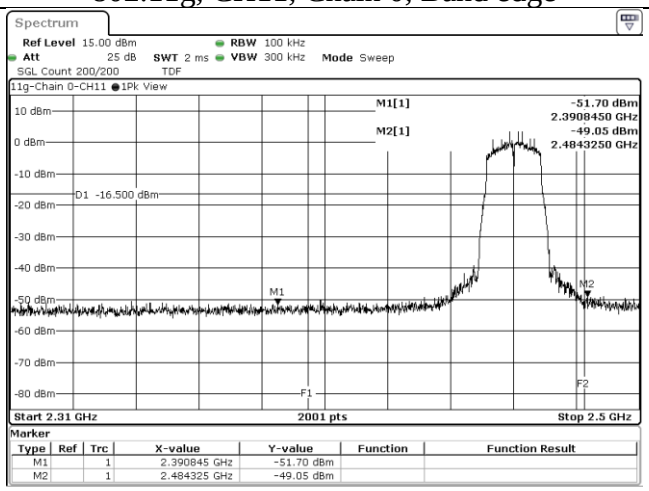

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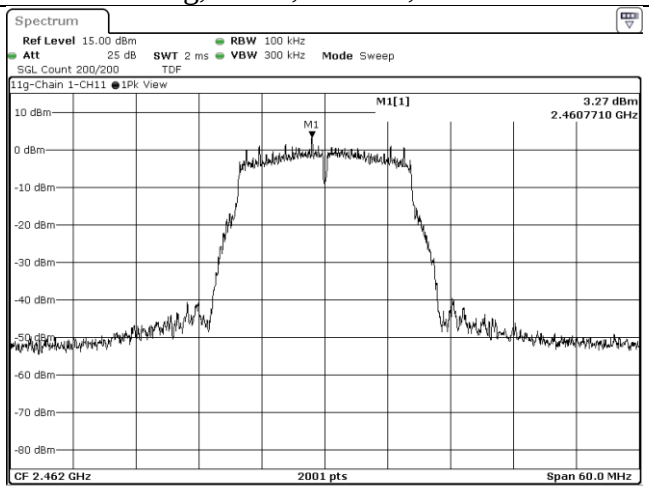

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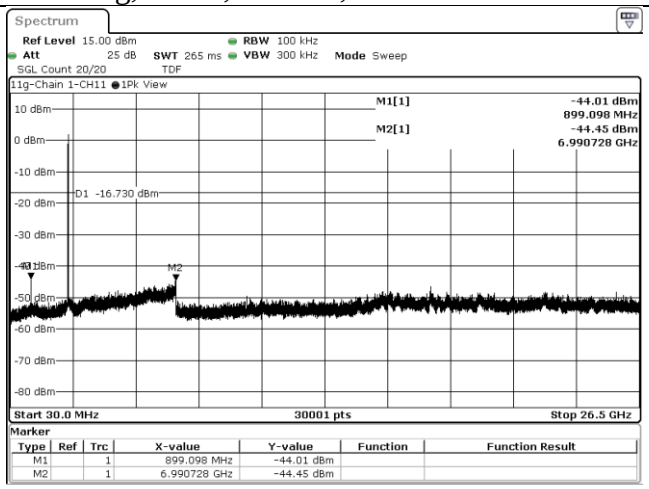

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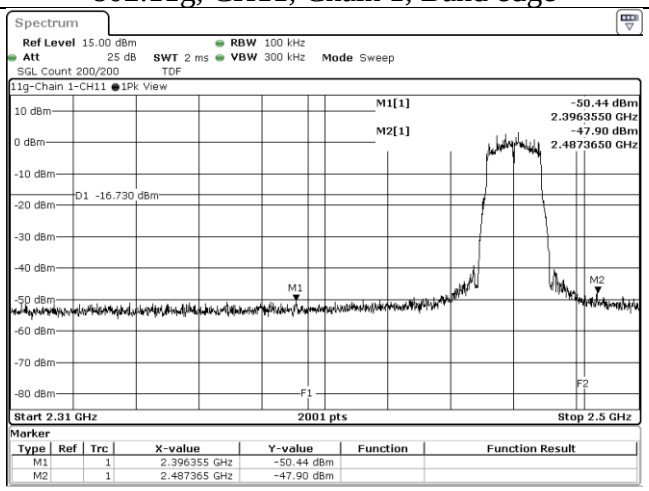

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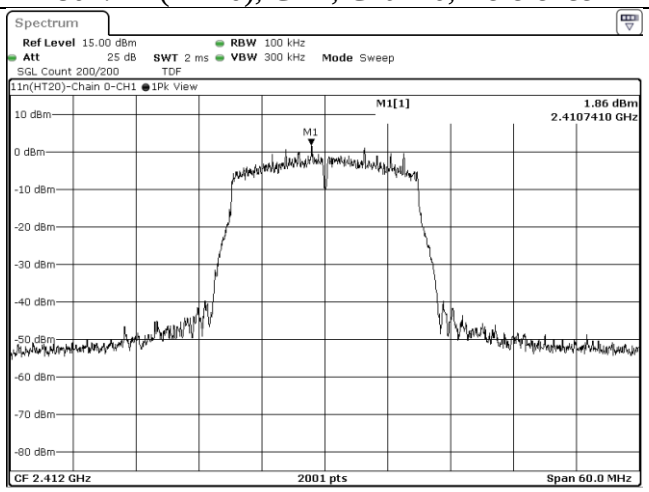

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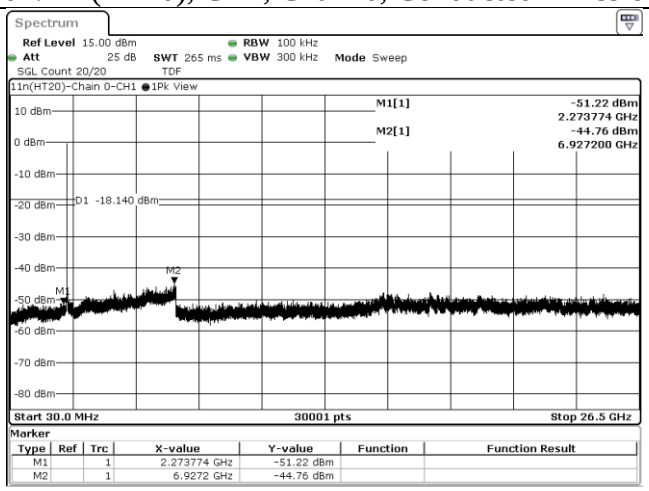

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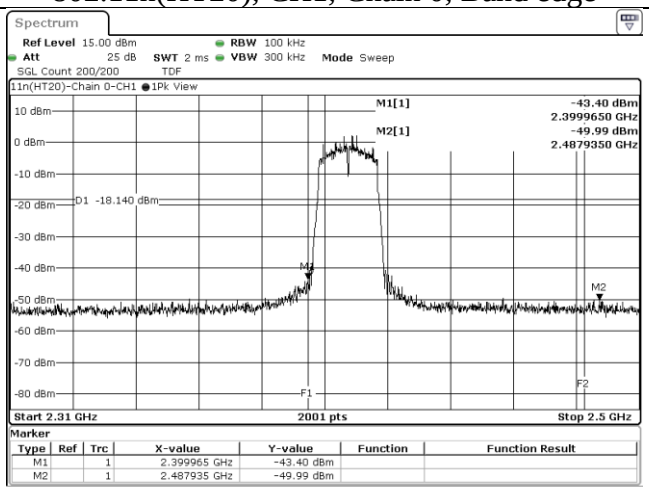

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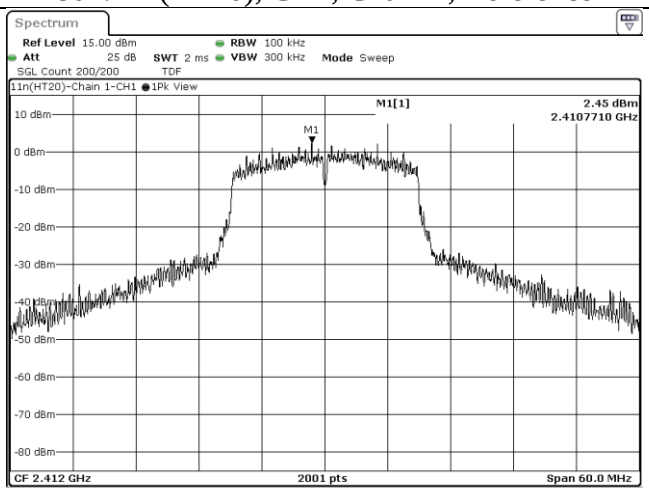

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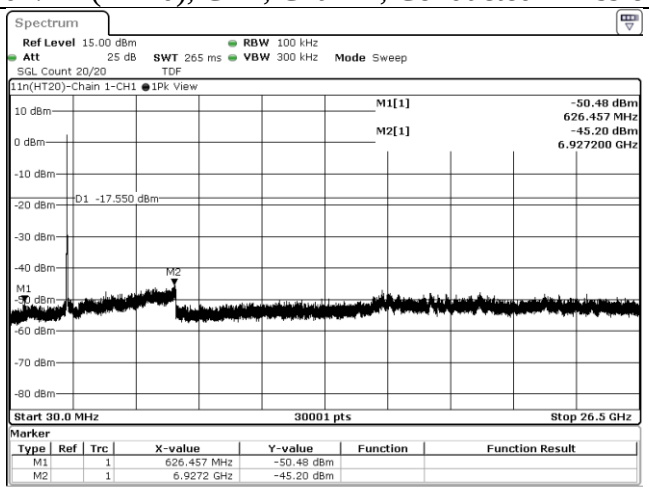

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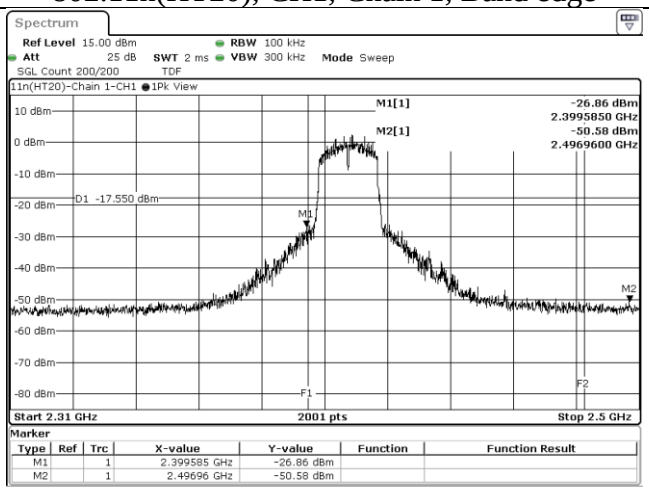

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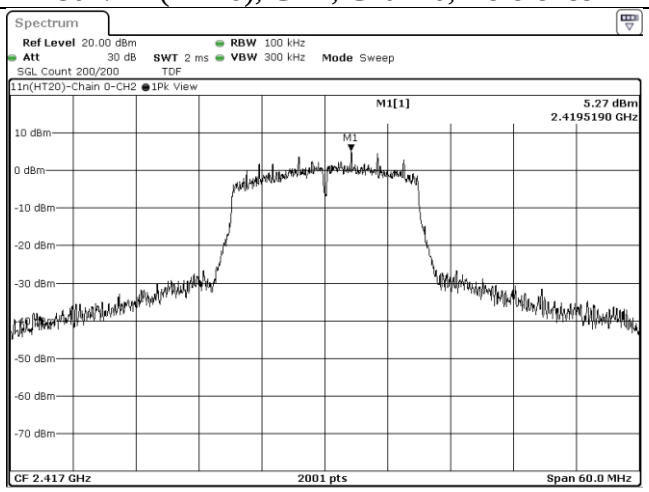

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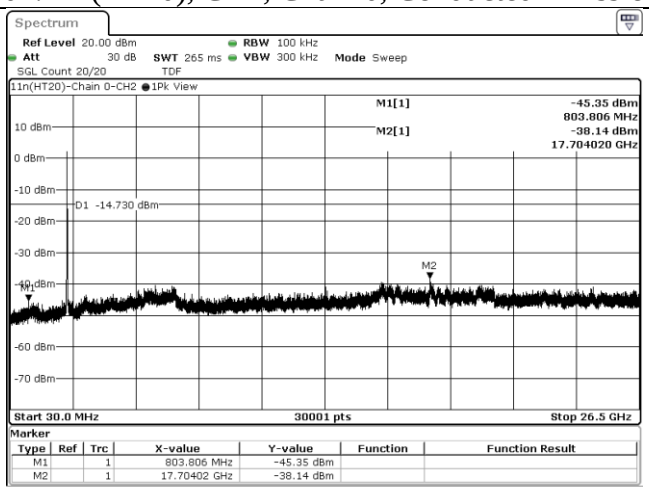

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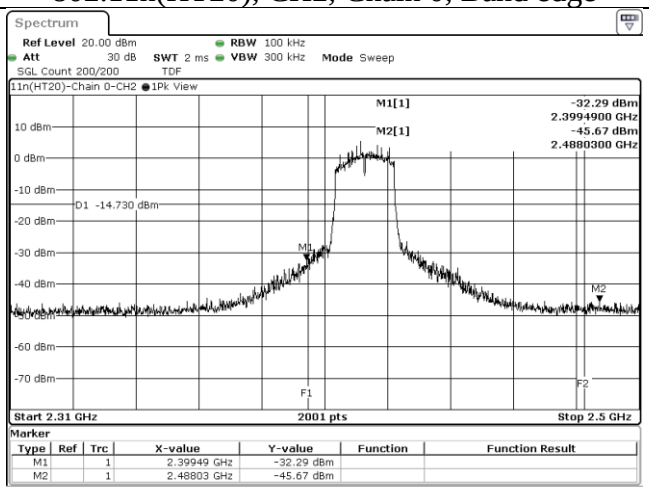

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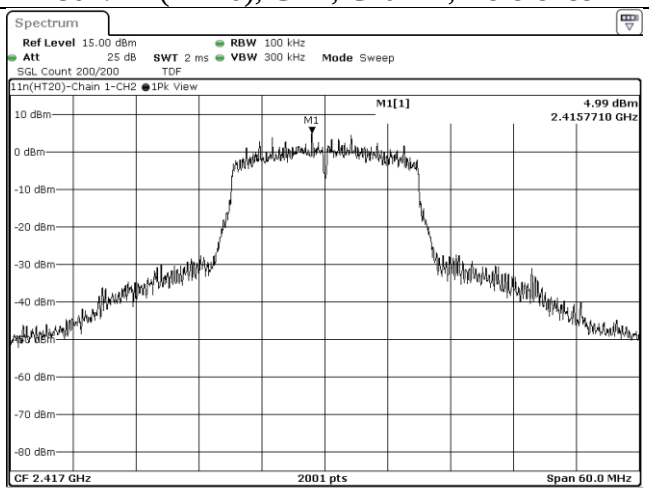

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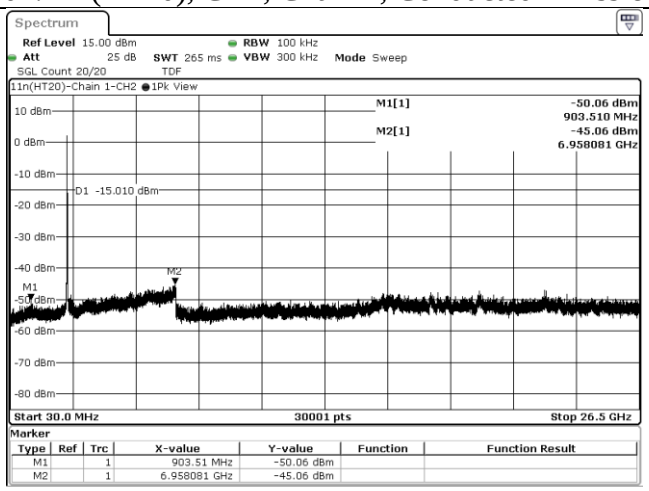

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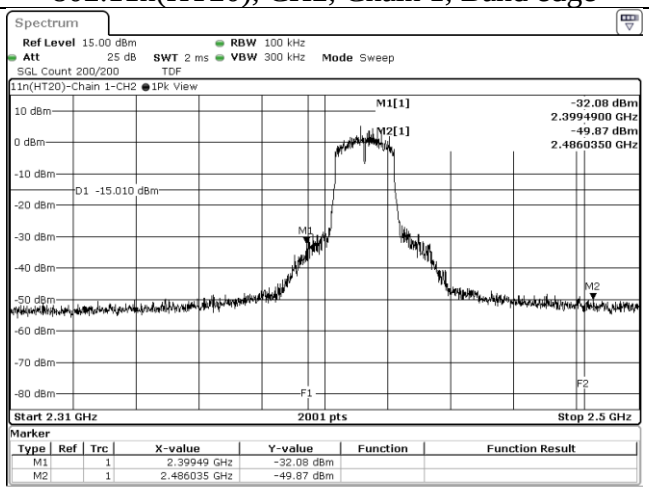

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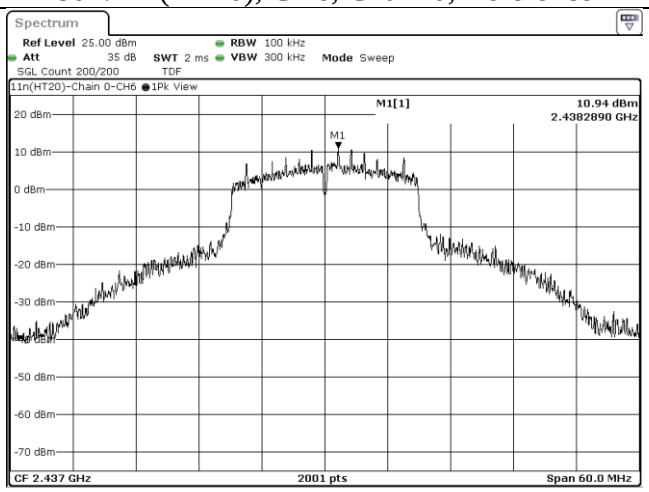

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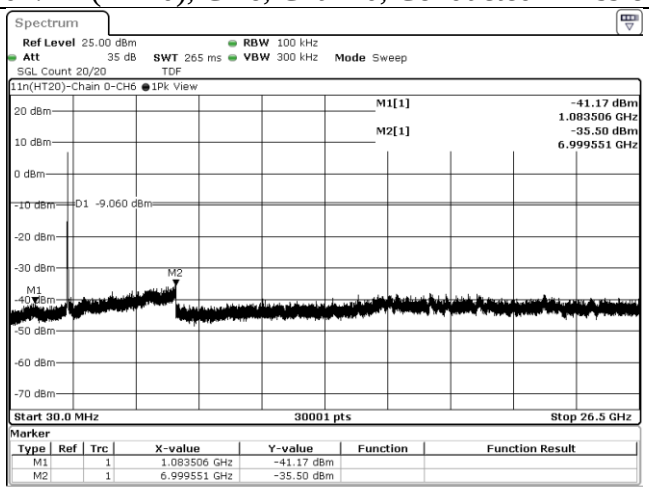

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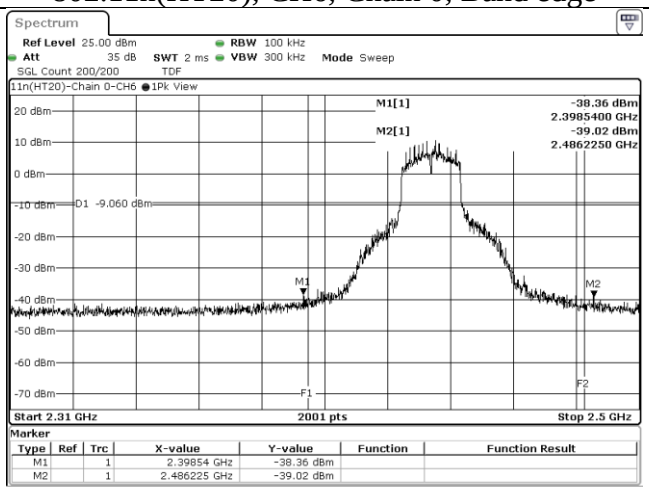

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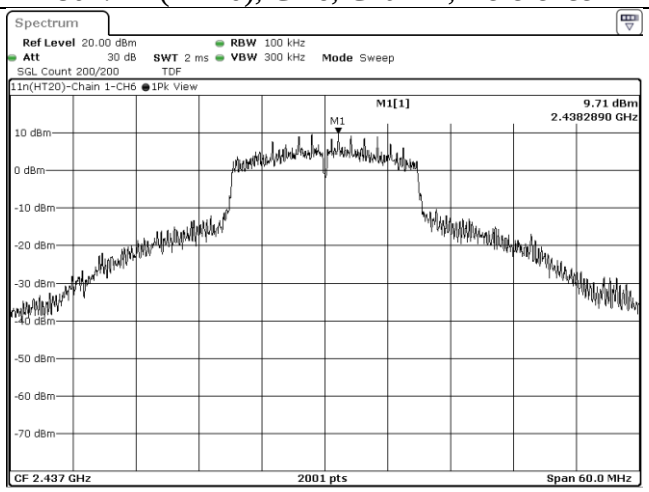

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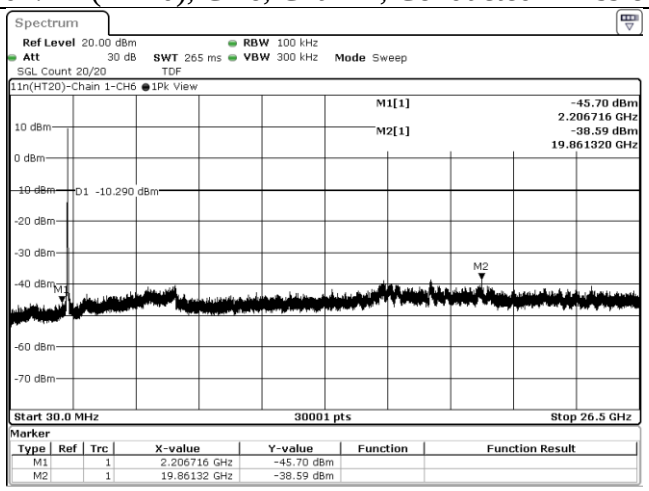

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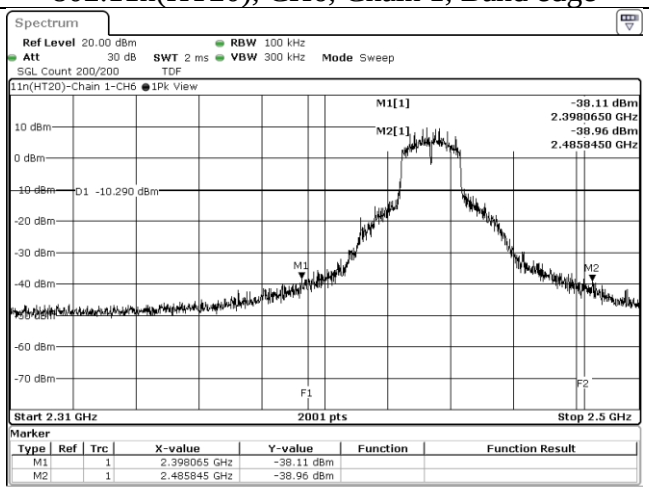

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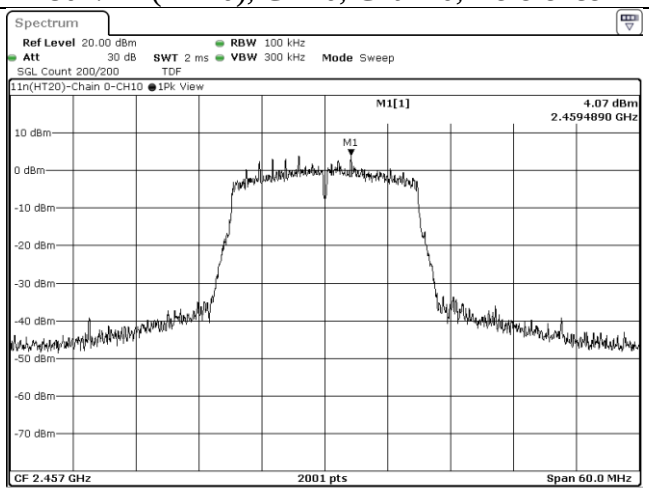

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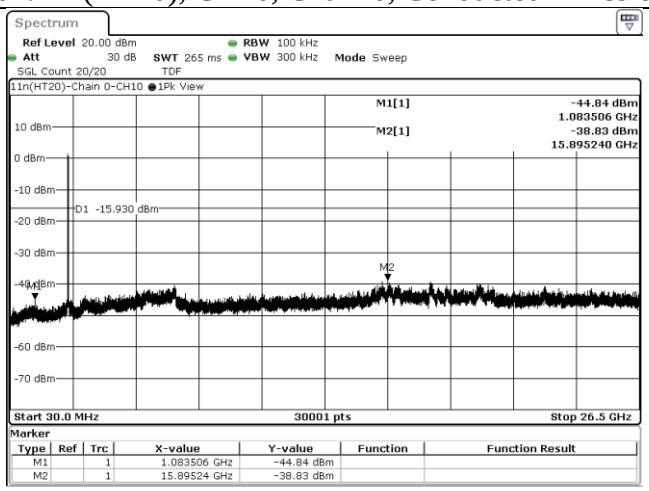

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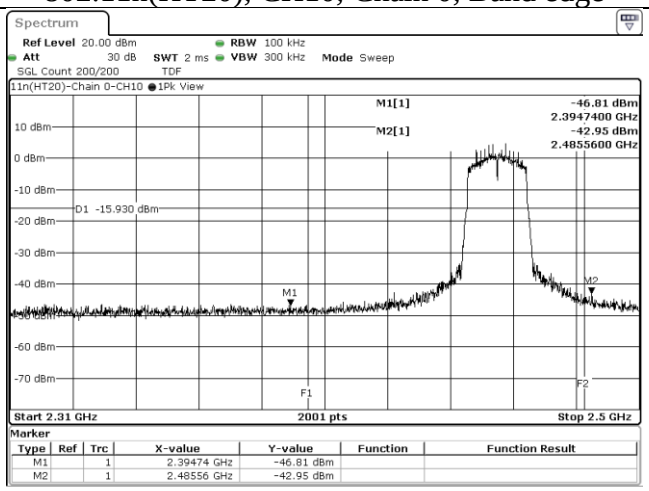

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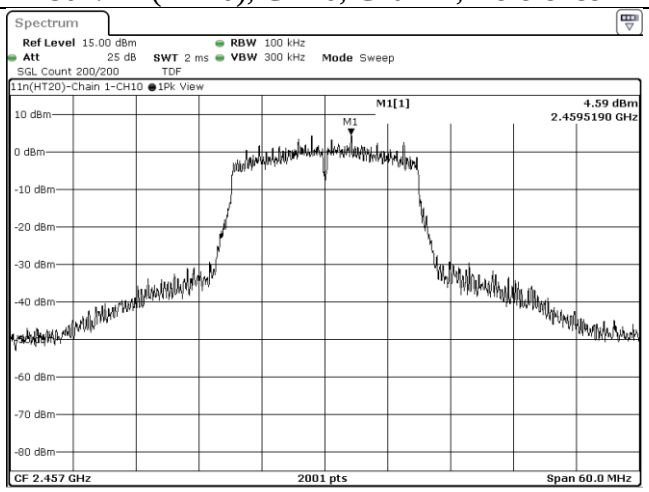

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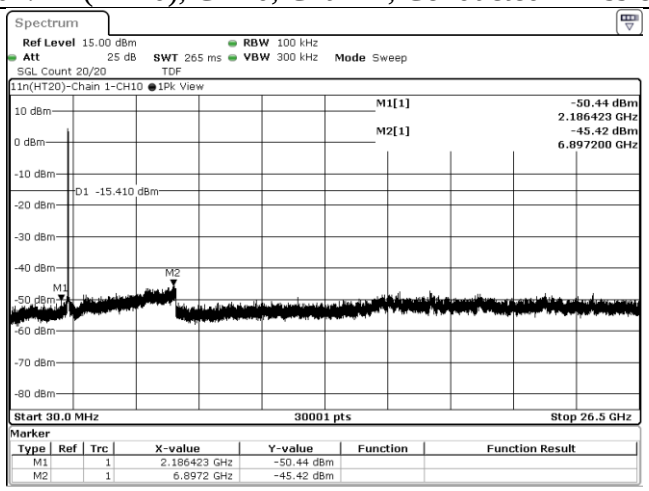

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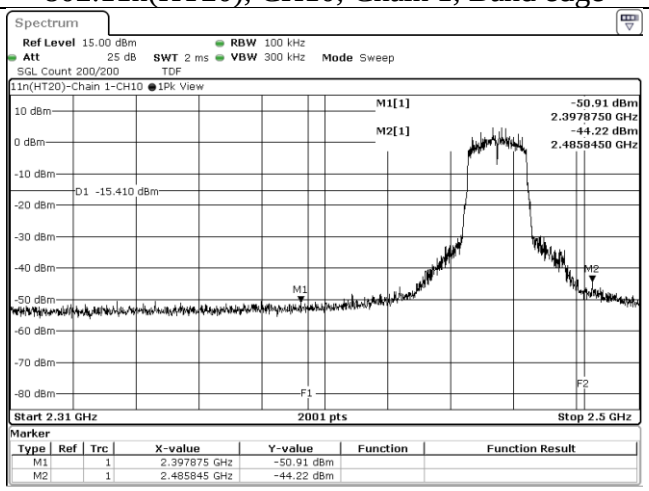

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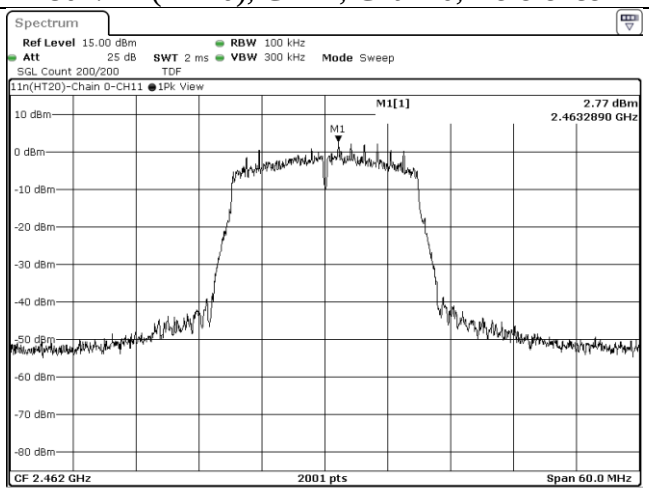

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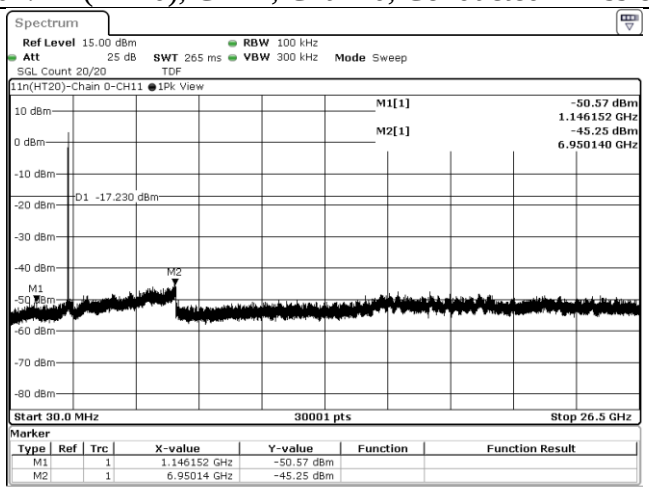

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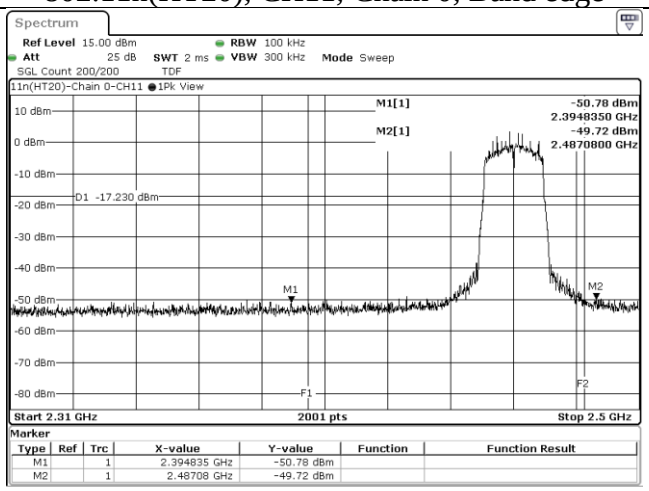

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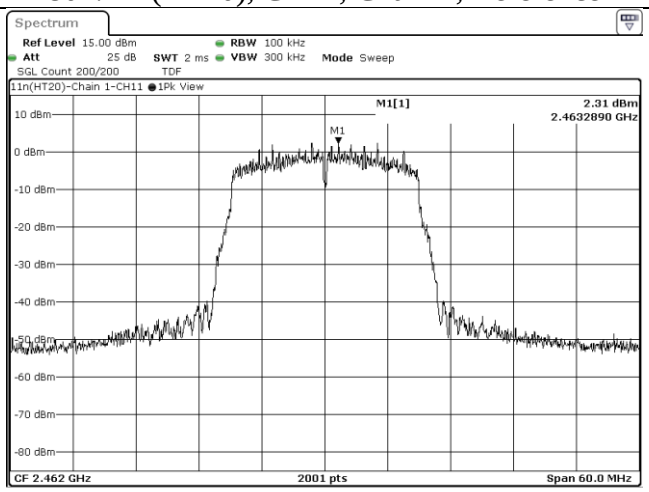

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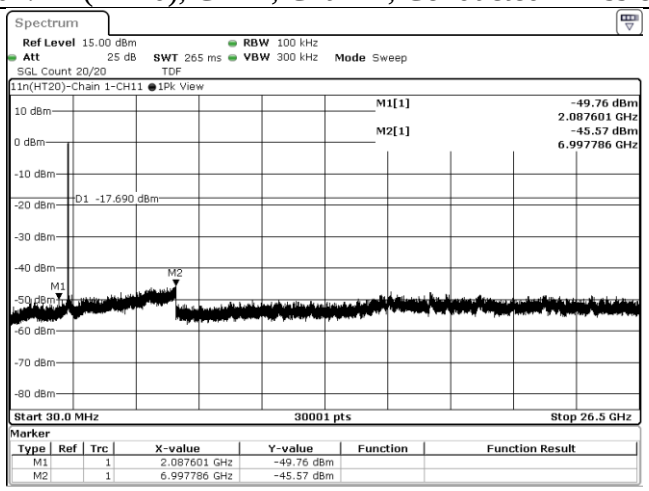
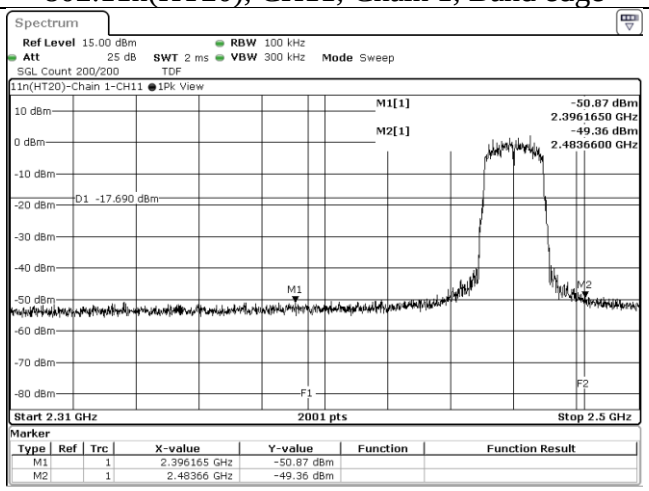


802.11n(HT20), CH11, Chain 1, Band edge



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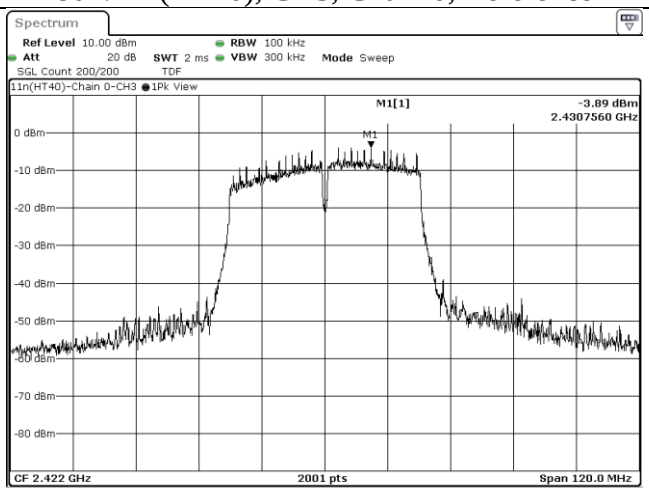

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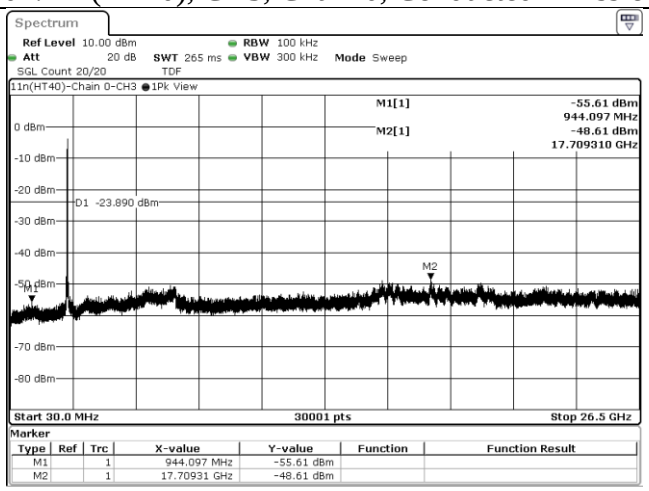

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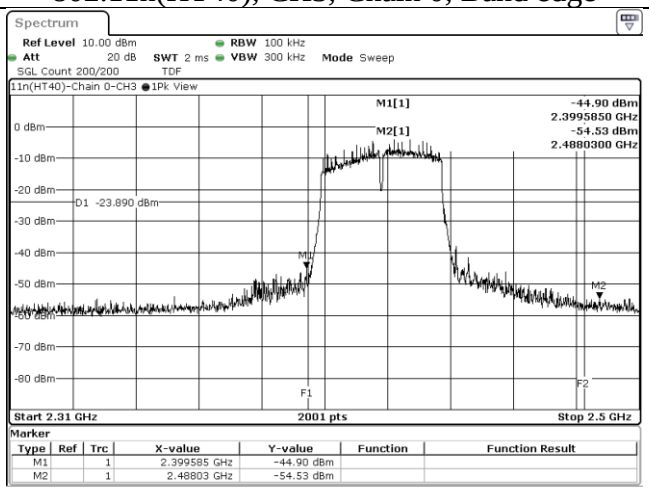
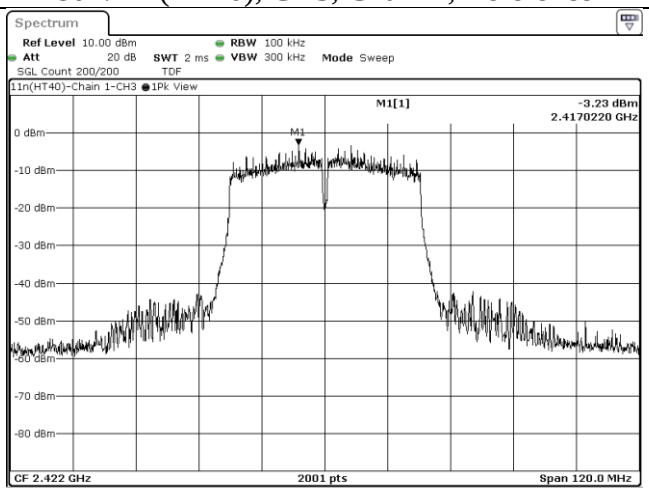
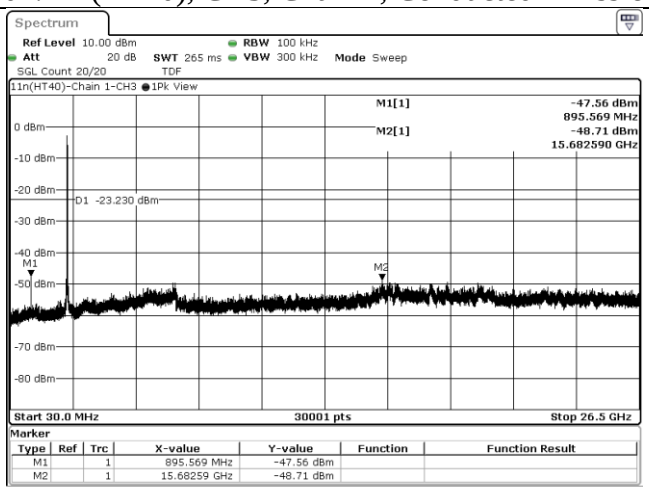


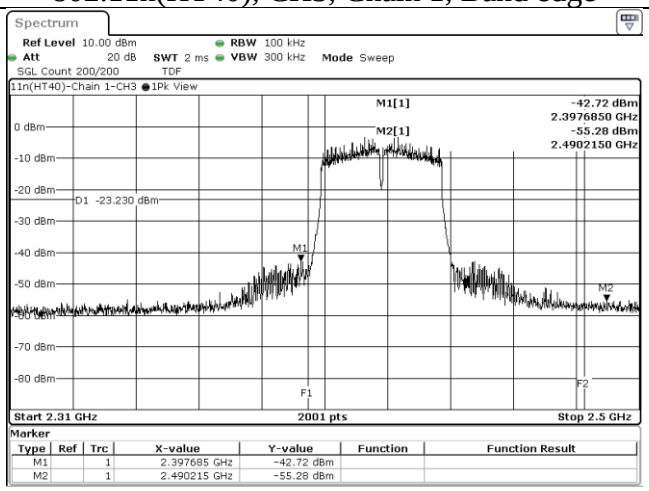
802.11n(HT40), CH3, Chain 1, Reference



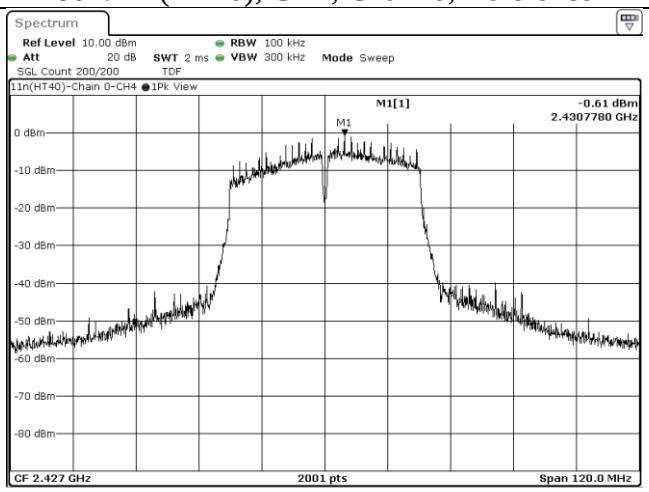
802.11n(HT40), CH3, Chain 1, Conducted Emission



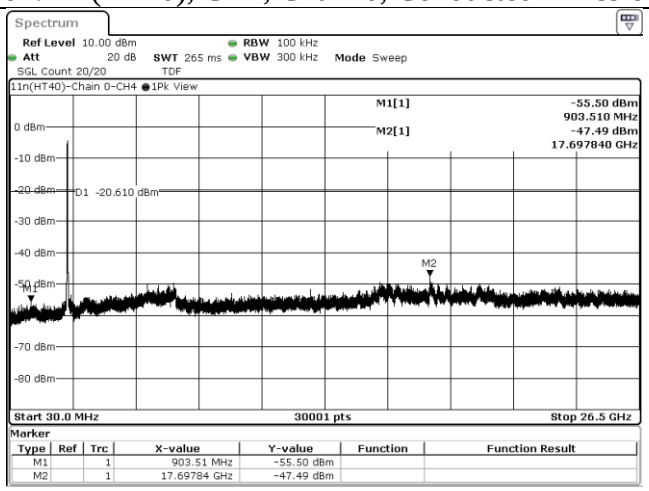
802.11n(HT40), CH3, Chain 1, Band edge



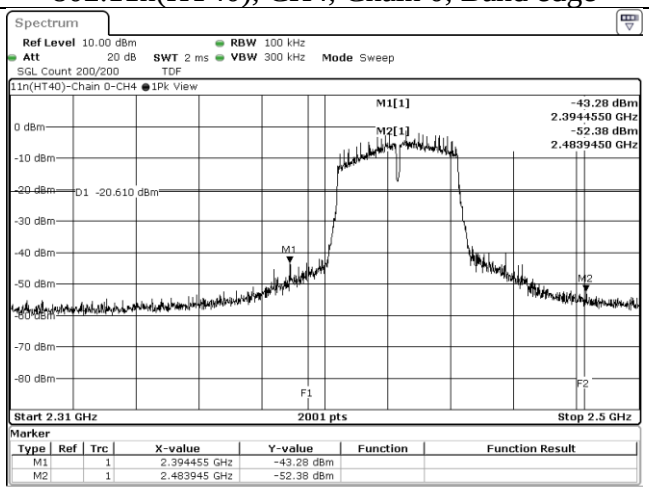
802.11n(HT40), CH4, Chain 0, Reference



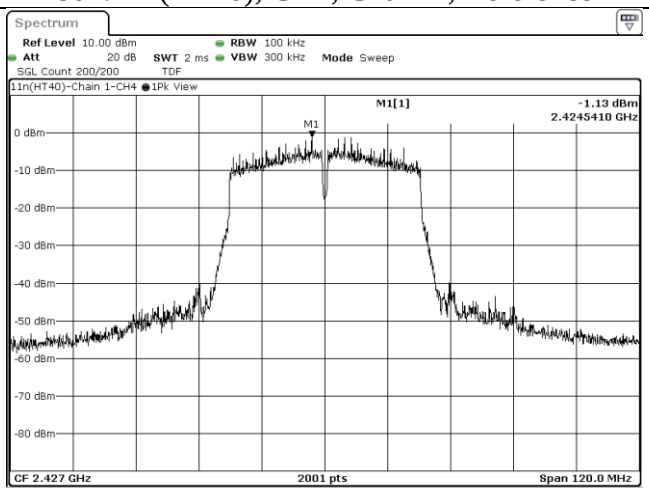
802.11n(HT40), CH4, Chain 0, Conducted Emission



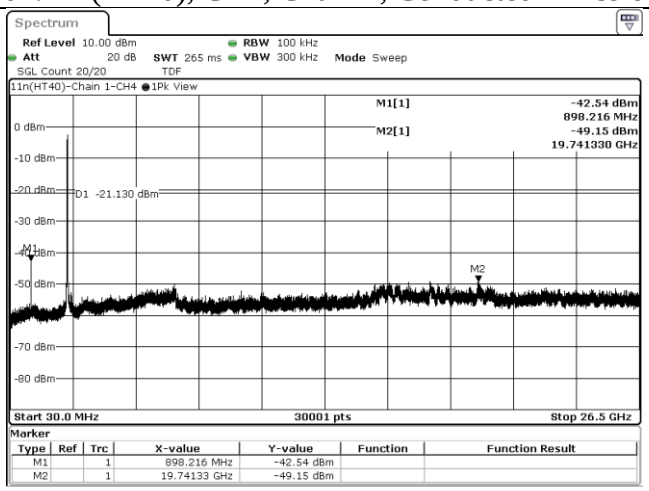
802.11n(HT40), CH4, Chain 0, Band edge



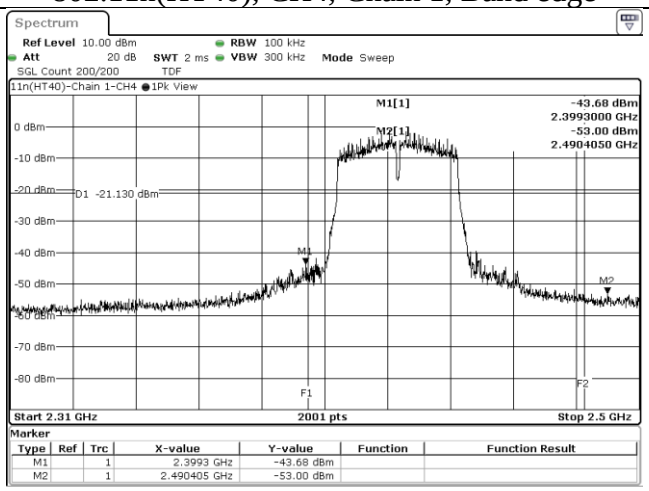
802.11n(HT40), CH4, Chain 1, Reference



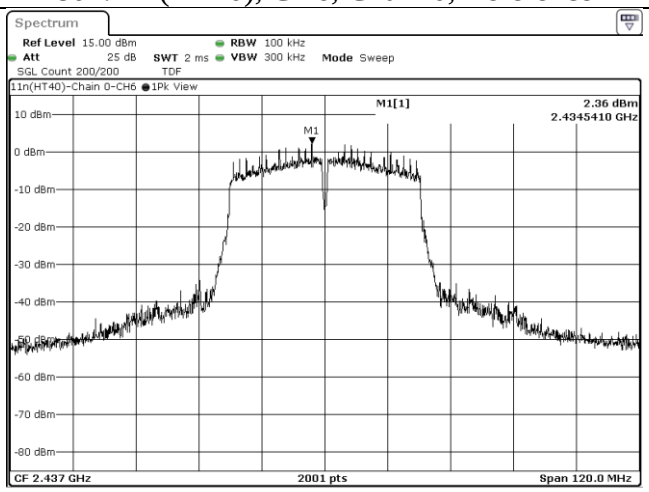
802.11n(HT40), CH4, Chain 1, Conducted Emission



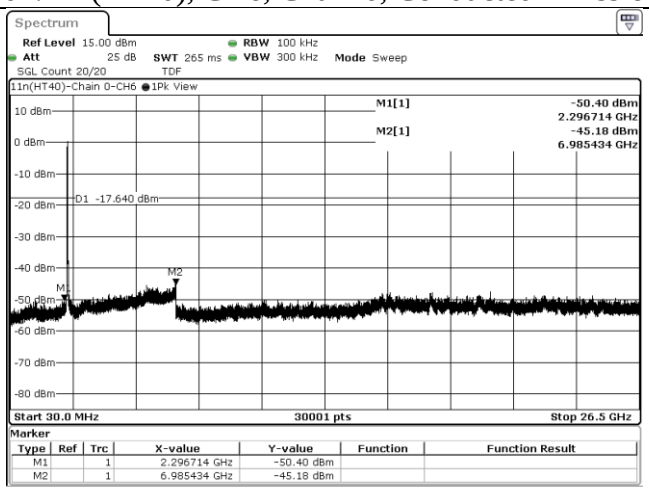
802.11n(HT40), CH4, Chain 1, Band edge



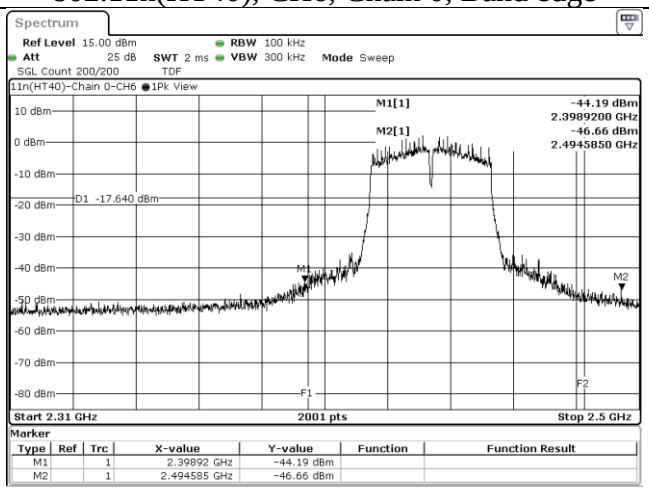
802.11n(HT40), CH6, Chain 0, Reference



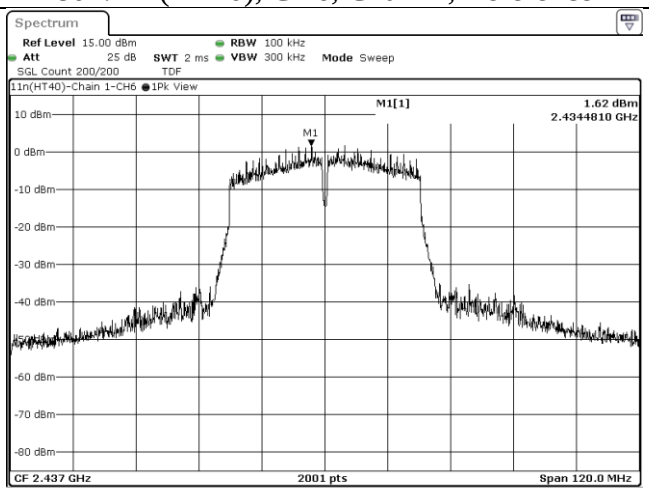
802.11n(HT40), CH6, Chain 0, Conducted Emission



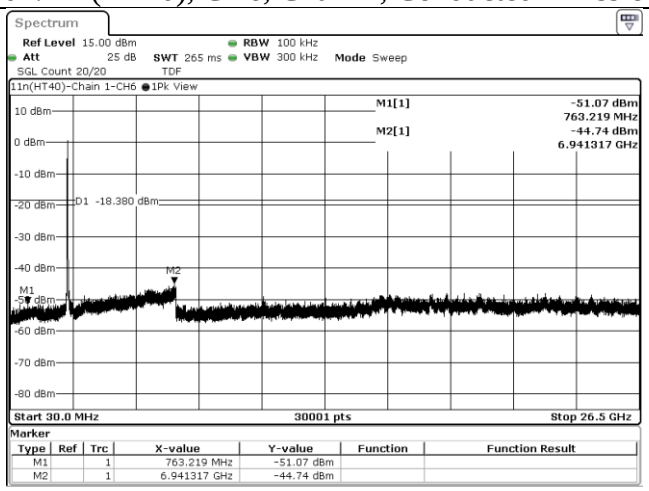
802.11n(HT40), CH6, Chain 0, Band edge



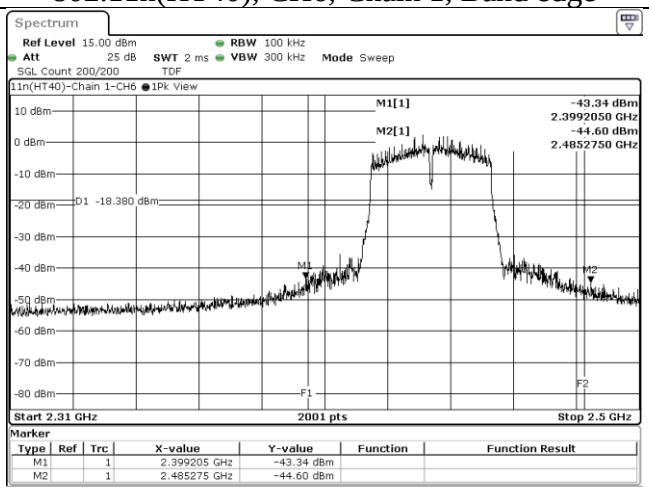
802.11n(HT40), CH6, Chain 1, Reference



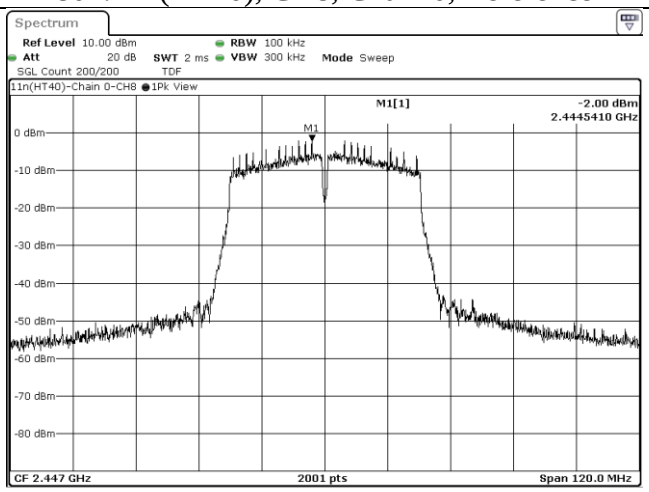
802.11n(HT40), CH6, Chain 1, Conducted Emission



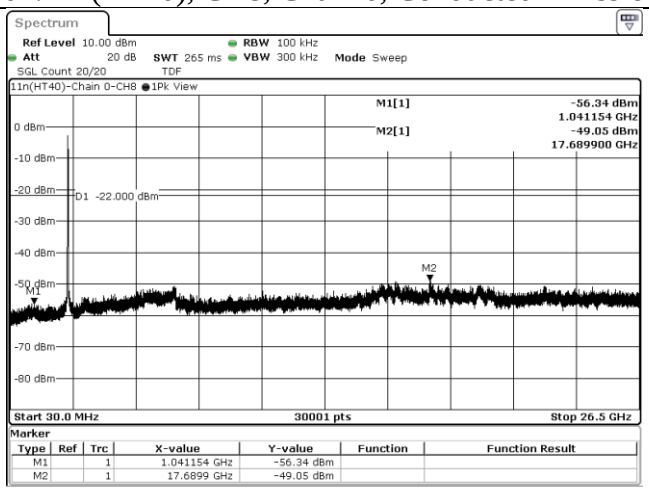
802.11n(HT40), CH6, Chain 1, Band edge



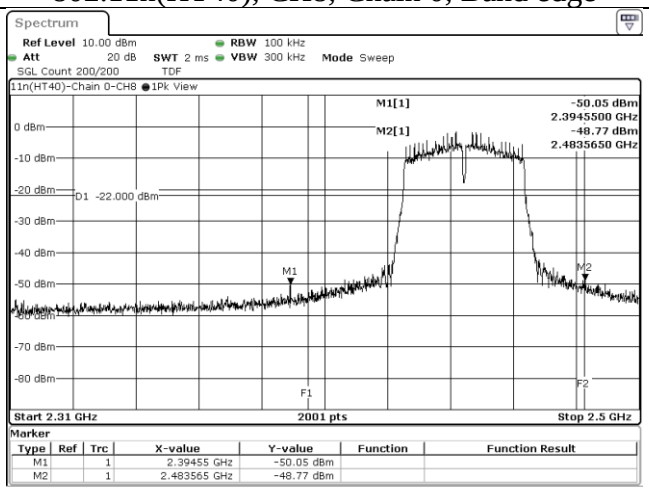
802.11n(HT40), CH8, Chain 0, Reference



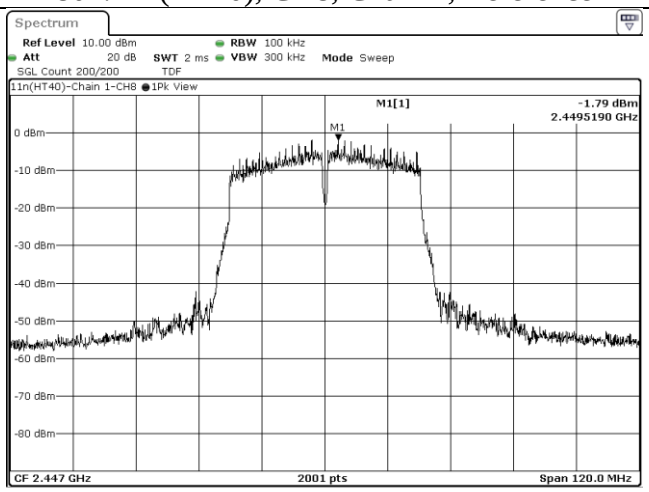
802.11n(HT40), CH8, Chain 0, Conducted Emission



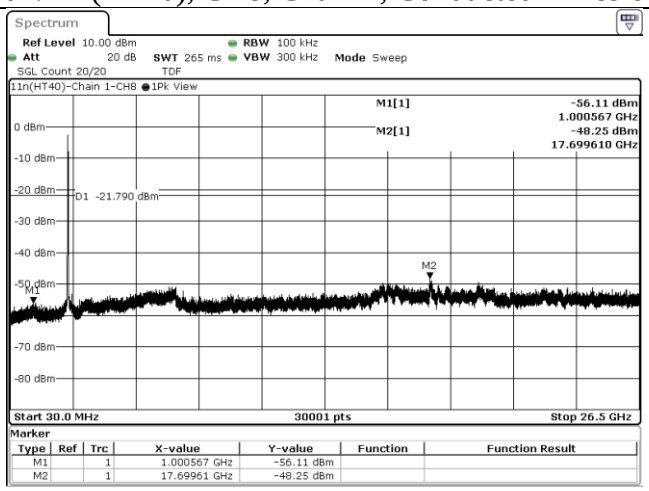
802.11n(HT40), CH8, Chain 0, Band edge



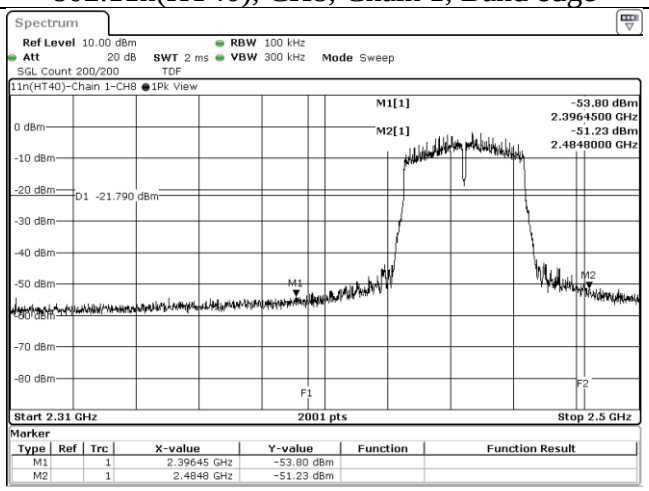
802.11n(HT40), CH8, Chain 1, Reference



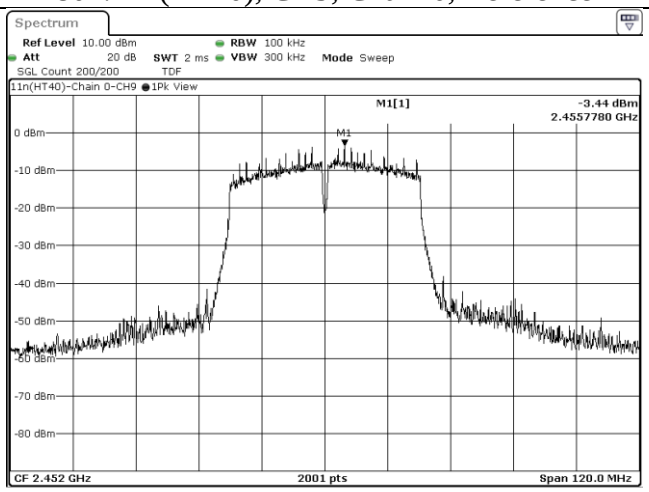
802.11n(HT40), CH8, Chain 1, Conducted Emission



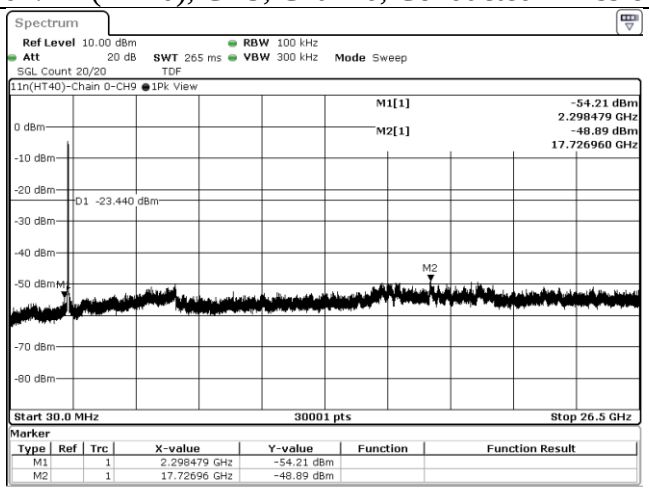
802.11n(HT40), CH8, Chain 1, Band edge



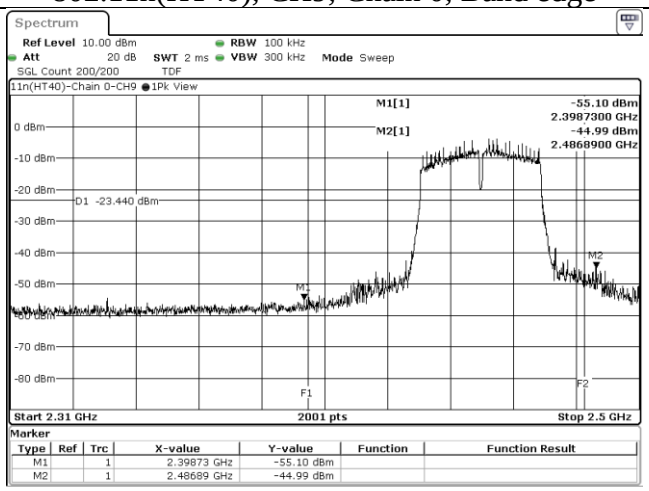
802.11n(HT40), CH9, Chain 0, Reference



802.11n(HT40), CH9, Chain 0, Conducted Emission



802.11n(HT40), CH9, Chain 0, Band edge



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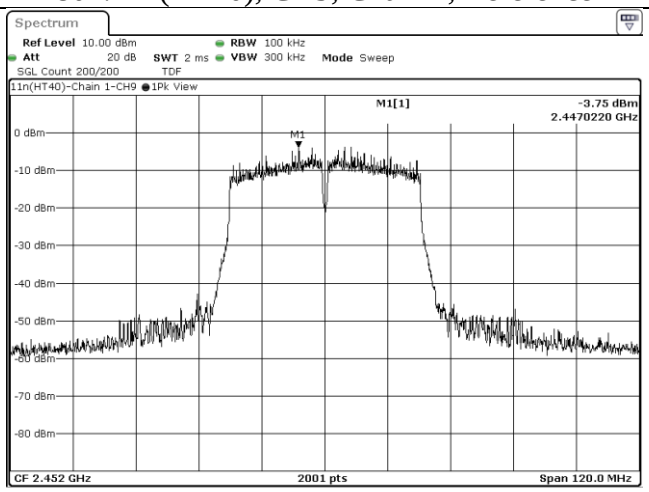
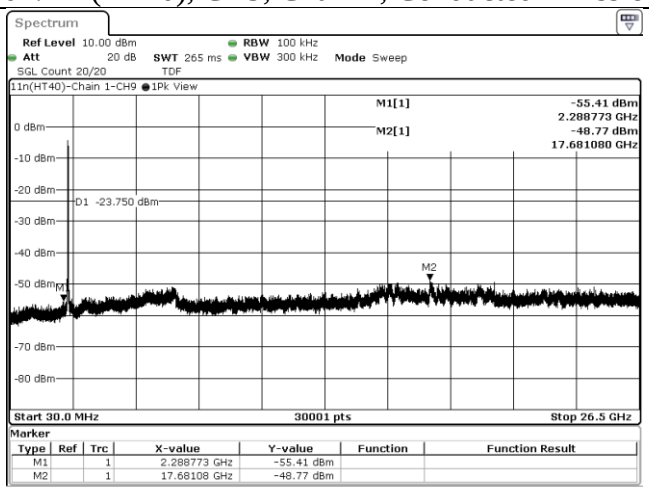
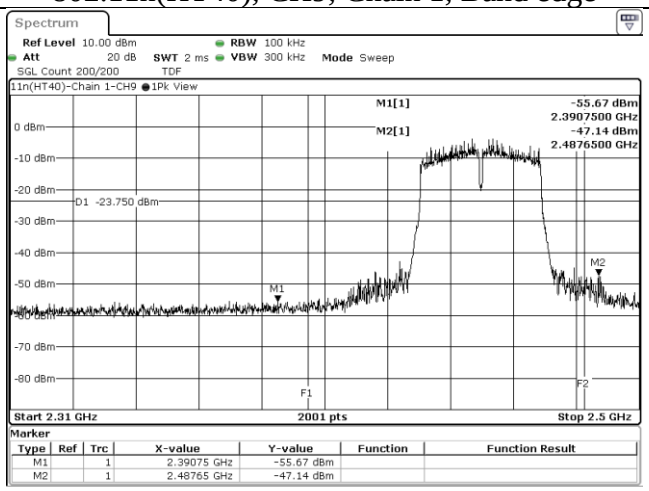


802.11n(HT40), CH9, Chain 1, Conducted Emission



802.11n(HT40), CH9, Chain 1, Band edge



9.5. Radiated Spurious Emission

Requirements

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

Frequency(MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:
1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Test Procedures

[For 9 kHz ~ 30 MHz]

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. For measurement below 30MHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

NOTE:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

[For above 30 MHz]

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
f. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

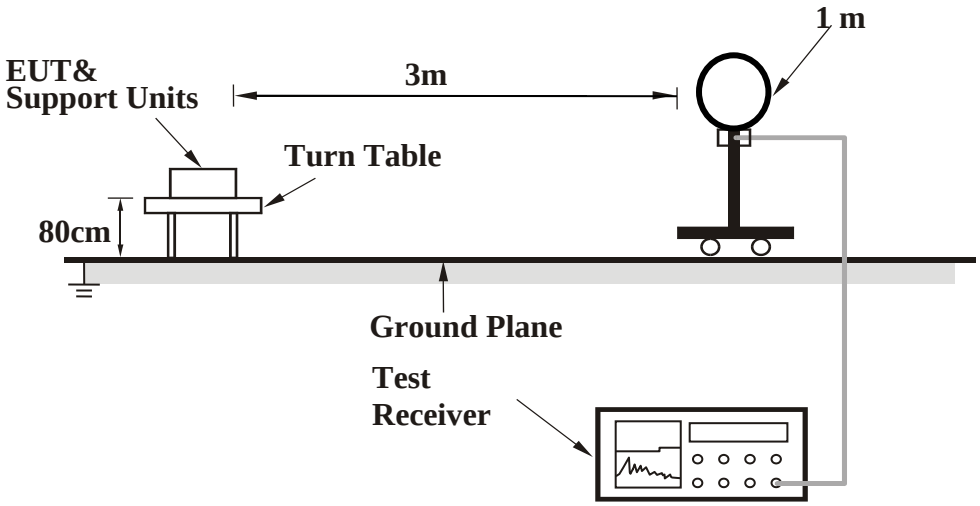
a. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
b. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
c. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.

Configuration	Average	
	RBW	VBW
802.11b	1MHz	Refer to section 6.6 for duty cycle.
802.11g		
802.11n (HT20)		
802.11n (HT40)		

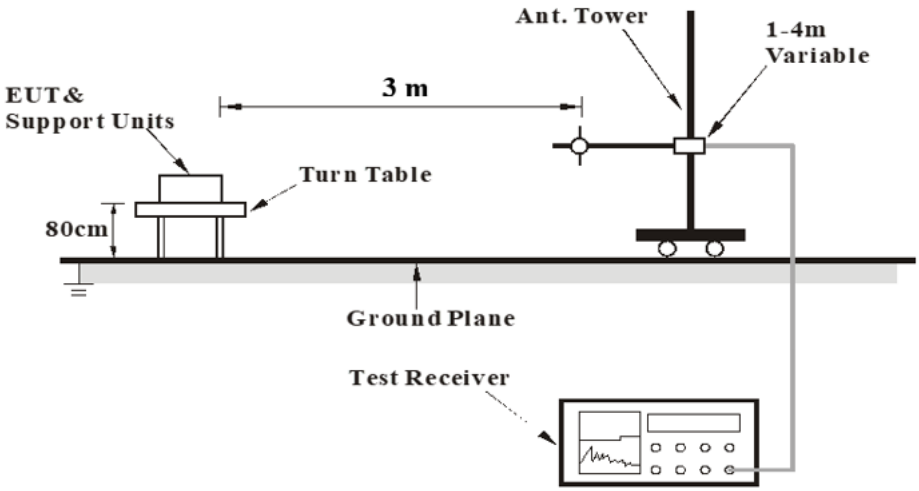
d. All modes of operation were investigated (includes all external accessories) and the worst-case emissions are reported, the other emission levels were low against the limit.
e. Test data of Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
f. Test data of Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
g. Test data of Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - Preamp Factor (dB).
h. Test data of Notation "@" = Fundamental Frequency
i. Test data of Notation " * " = The peak result under 20 dB above and complies with AVG limit, AVG result is deemed to comply with AVG limit.

Test Setup

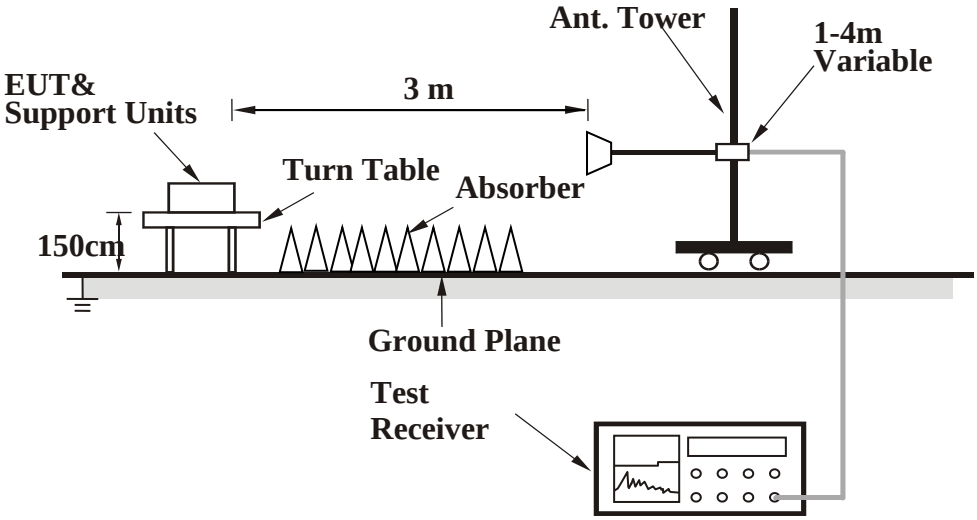
<Frequency Range 9 kHz ~ 30 MHz>



<Frequency Range 30 MHz ~ 1 GHz >



<Frequency Range above 1 GHz>



For the actual test configuration, please refer to the Setup Configurations.

Test Data

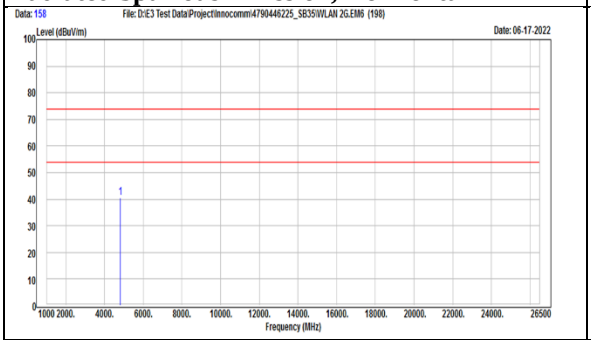
Dipole Antenna

Above 1 GHz

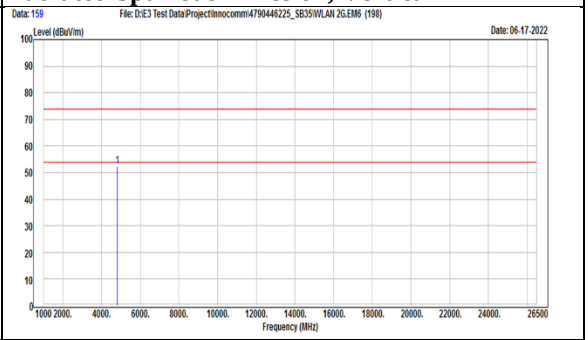
Mode	802.11b	Channel	1

Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		2327.29	41.18	15.87	57.05	74	-16.95	PK
		2389.61	29.37	15.82	45.19	54	-8.81	AVG
	@	2412	90.03	15.83	105.86	N/A	N/A	PK
	@	2412	86.35	15.83	102.18	N/A	N/A	AVG
	*	4824	38.3	2.35	40.65	74	-33.35	PK
Vertical		2385.62	44.56	15.83	60.39	74	-13.61	PK
		2386	37.57	15.83	53.4	54	-0.6	AVG
	@	2412	97.25	15.83	113.08	N/A	N/A	PK
	@	2412	93.83	15.83	109.66	N/A	N/A	AVG
	*	4824	49.98	2.35	52.33	74	-21.67	PK

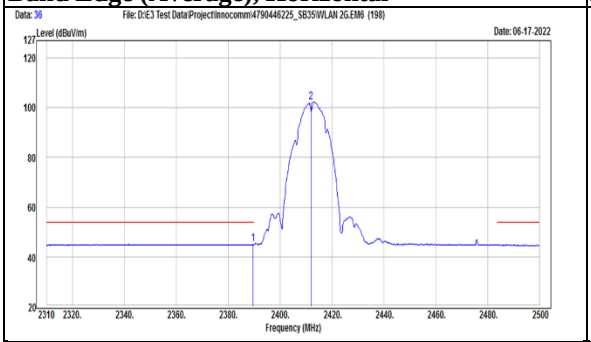
TX, 802.11b (Ch 1)
Radiated Spurious Emission, Horizontal



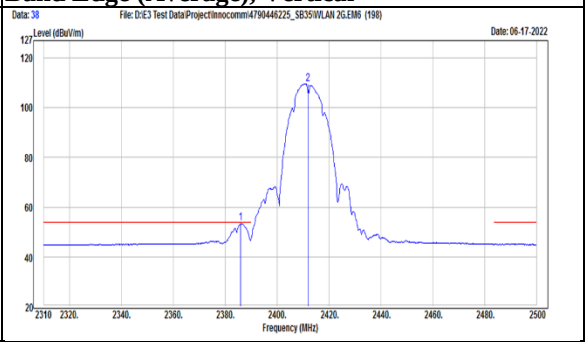
TX, 802.11b (Ch 1)
Radiated Spurious Emission, Vertical



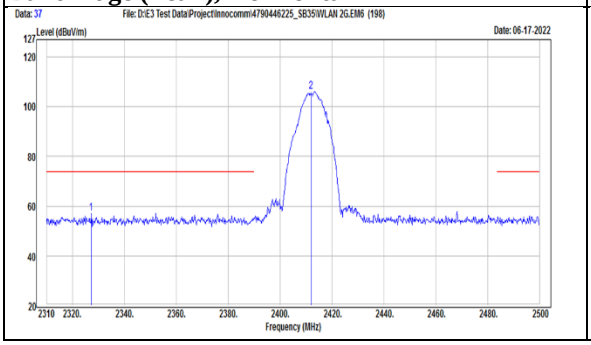
TX, 802.11b (Ch 1)
Band Edge (Average), Horizontal



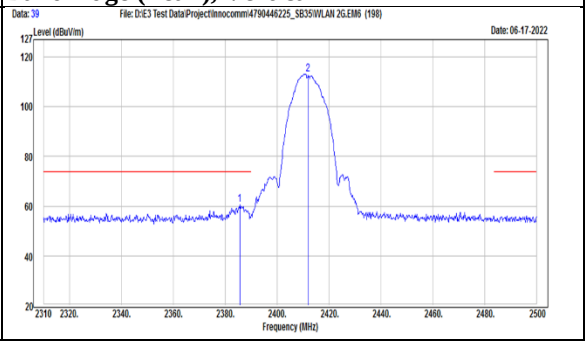
TX, 802.11b (Ch 1)
Band Edge (Average), Vertical



TX, 802.11b (Ch 1)
Band Edge (Peak), Horizontal



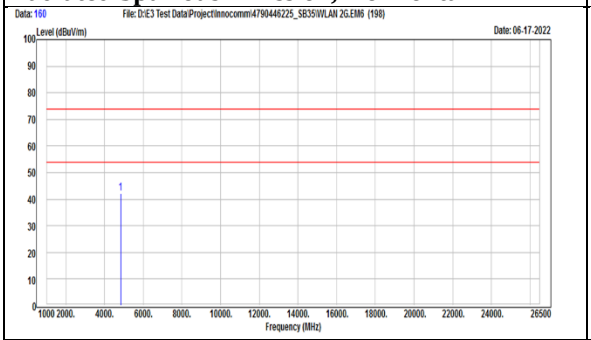
TX, 802.11b (Ch 1)
Band Edge (Peak), Vertical



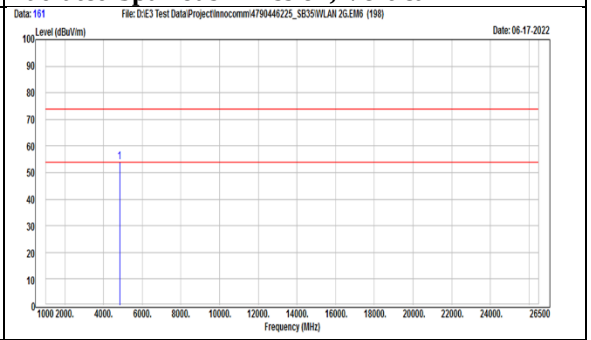
Mode	802.11b	Channel	2

Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		2389.8	41.34	15.82	57.16	74	-16.84	PK
		2389.99	32.91	15.82	48.73	54	-5.27	AVG
	@	2417	92.32	15.84	108.16	N/A	N/A	PK
	@	2417	88.43	15.84	104.27	N/A	N/A	AVG
	*	4834	39.9	2.36	42.26	74	-31.74	PK
Vertical		2388.28	42.86	15.82	58.68	74	-15.32	PK
		2389.99	36.09	15.82	51.91	54	-2.09	AVG
	@	2417	101.28	15.84	117.12	N/A	N/A	PK
	@	2417	97.44	15.84	113.28	N/A	N/A	AVG
	*	4834	51.71	2.36	54.07	74	-19.93	PK

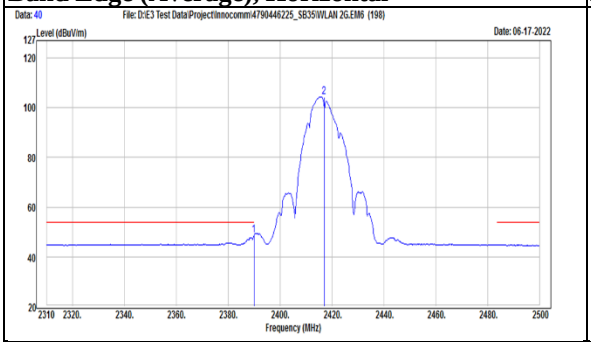
TX, 802.11b (Ch 2)
Radiated Spurious Emission, Horizontal



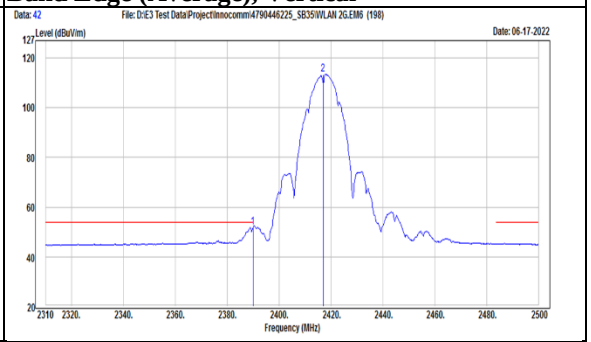
TX, 802.11b (Ch 2)
Radiated Spurious Emission, Vertical



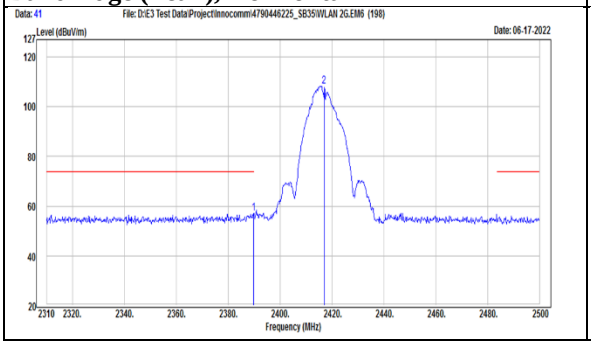
TX, 802.11b (Ch 2)
Band Edge (Average), Horizontal



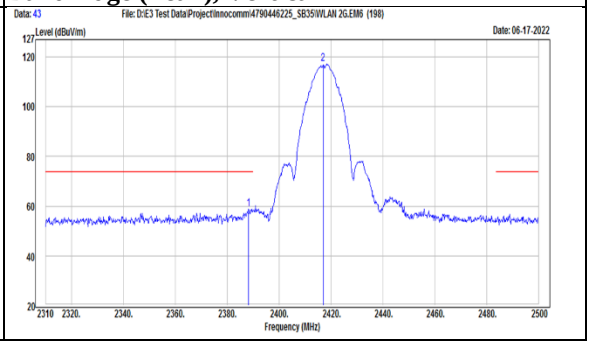
TX, 802.11b (Ch 2)
Band Edge (Average), Vertical



TX, 802.11b (Ch 2)
Band Edge (Peak), Horizontal



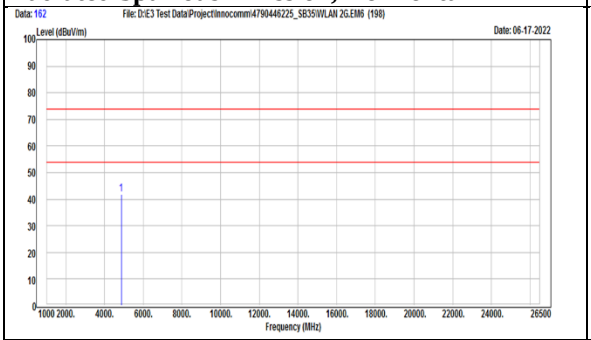
TX, 802.11b (Ch 2)
Band Edge (Peak), Vertical



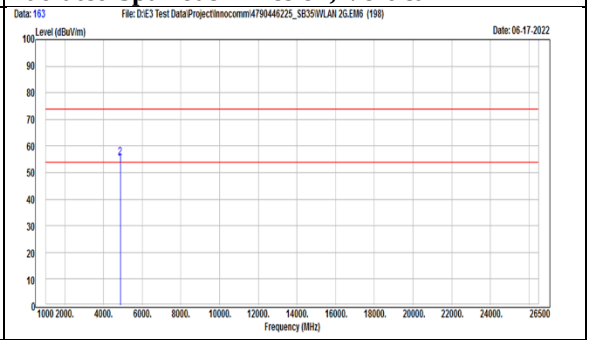
Mode	802.11b	Channel	6

Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		2316.27	40.86	15.85	56.71	74	-17.29	PK
		2344.96	29.3	15.89	45.19	54	-8.81	AVG
	@	2437	91.78	15.92	107.7	N/A	N/A	PK
	@	2437	88.22	15.92	104.14	N/A	N/A	AVG
		2485.18	29.36	15.67	45.03	54	-8.97	AVG
		2485.94	40.43	15.67	56.1	74	-17.9	PK
	*	4874	39.28	2.4	41.68	74	-32.32	PK
Vertical		2383.72	41.72	15.84	57.56	74	-16.44	PK
		2386.95	30.32	15.82	46.14	54	-7.86	AVG
	@	2437	101.64	15.92	117.56	N/A	N/A	PK
	@	2437	97.86	15.92	113.78	N/A	N/A	AVG
		2485.37	33.42	15.67	49.09	54	-4.91	AVG
		2495.25	41.82	15.59	57.41	74	-16.59	PK
		4874	53.06	2.4	55.46	74	-18.54	PK
		4874	50.9	2.4	53.3	54	-0.7	AVG

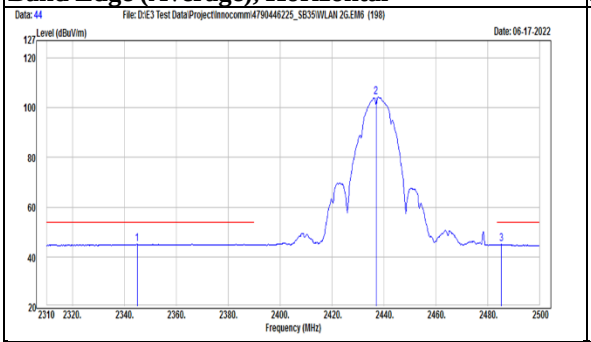
TX, 802.11b (Ch 6)
Radiated Spurious Emission, Horizontal



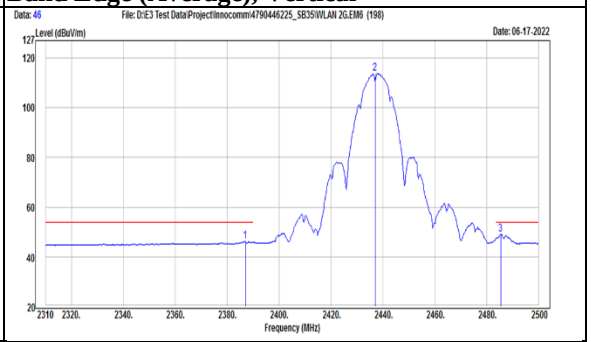
TX, 802.11b (Ch 6)
Radiated Spurious Emission, Vertical



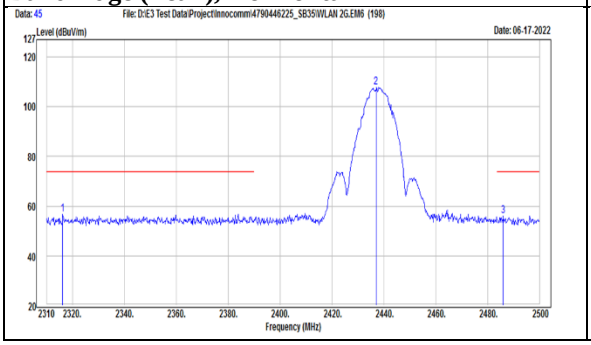
TX, 802.11b (Ch 6)
Band Edge (Average), Horizontal



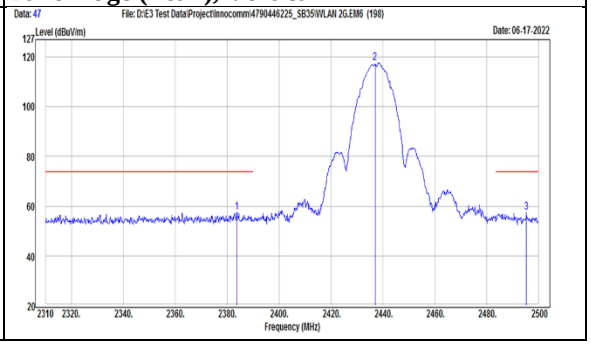
TX, 802.11b (Ch 6)
Band Edge (Average), Vertical



TX, 802.11b (Ch 6)
Band Edge (Peak), Horizontal



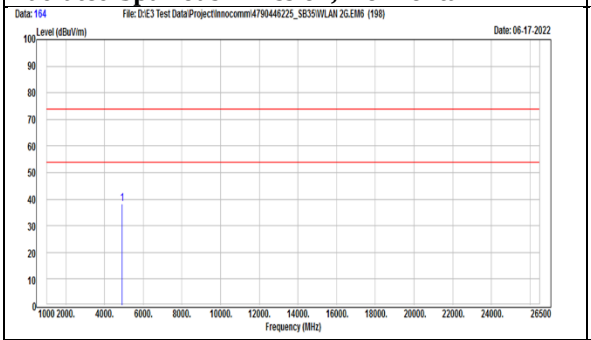
TX, 802.11b (Ch 6)
Band Edge (Peak), Vertical



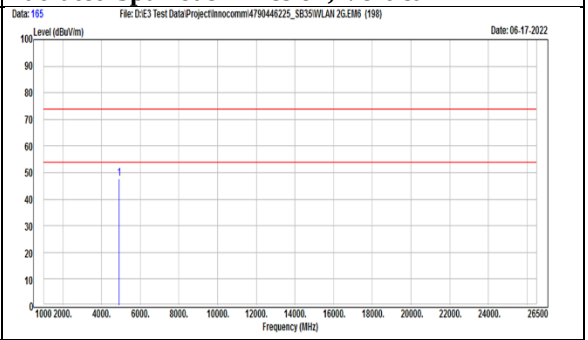
Mode	802.11b	Channel	10

Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal	@	2457	87.04	15.92	102.96	N/A	N/A	PK
	@	2457	83.36	15.92	99.28	N/A	N/A	AVG
		2483.66	30.36	15.68	46.04	54	-7.96	AVG
		2488.6	40.54	15.64	56.18	74	-17.82	PK
	*	4914	35.93	2.42	38.35	74	-35.65	PK
Vertical	@	2457	97.71	15.92	113.63	N/A	N/A	PK
	@	2457	94.07	15.92	109.99	N/A	N/A	AVG
		2483.66	36.24	15.68	51.92	54	-2.08	AVG
		2485.18	42.14	15.67	57.81	74	-16.19	PK
	*	4914	45.21	2.42	47.63	74	-26.37	PK

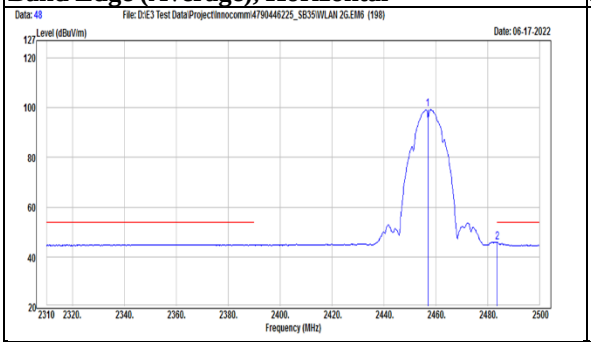
TX, 802.11b (Ch 10)
Radiated Spurious Emission, Horizontal



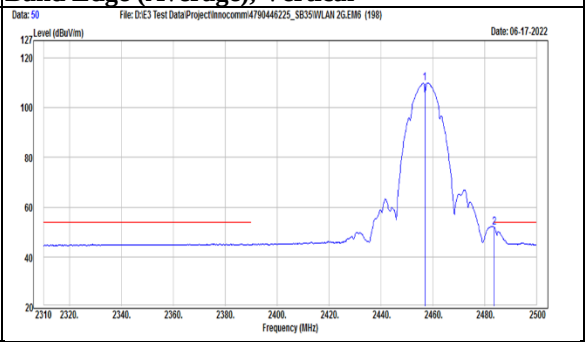
TX, 802.11b (Ch 10)
Radiated Spurious Emission, Vertical



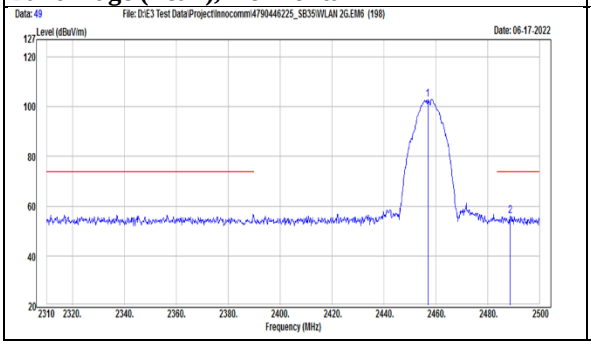
TX, 802.11b (Ch 10)
Band Edge (Average), Horizontal



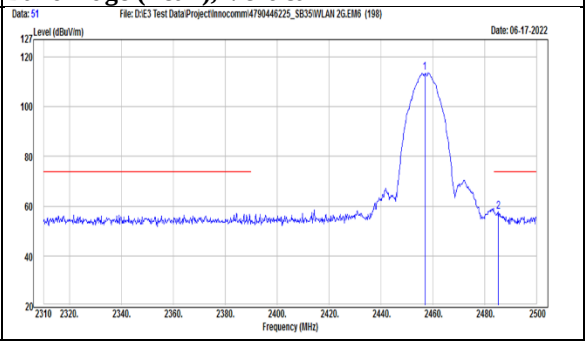
TX, 802.11b (Ch 10)
Band Edge (Average), Vertical



TX, 802.11b (Ch 10)
Band Edge (Peak), Horizontal



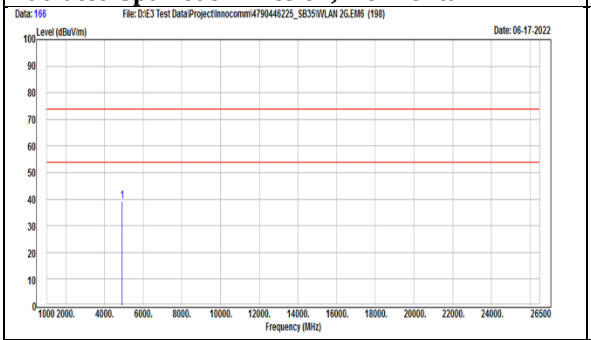
TX, 802.11b (Ch 10)
Band Edge (Peak), Vertical



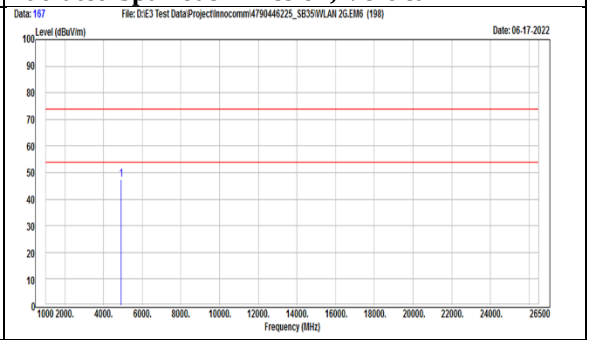
Mode	802.11b	Channel	11

Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal	@	2462	85.79	15.87	101.66	N/A	N/A	PK
	@	2462	82.24	15.87	98.11	N/A	N/A	AVG
		2487.46	29.69	15.66	45.35	54	-8.65	AVG
		2497.15	40.27	15.58	55.85	74	-18.15	PK
	*	4924	36.66	2.4	39.06	74	-34.94	PK
Vertical	@	2462	96.84	15.87	112.71	N/A	N/A	PK
	@	2462	93.16	15.87	109.03	N/A	N/A	AVG
		2487.27	43.88	15.66	59.54	74	-14.46	PK
		2487.65	36.92	15.65	52.57	54	-1.43	AVG
	*	4924	45.08	2.4	47.48	74	-26.52	PK

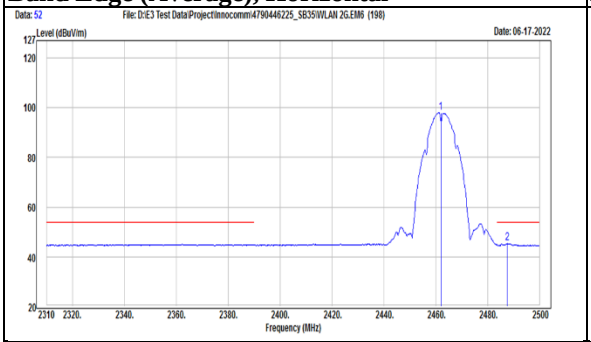
TX, 802.11b (Ch 11)
Radiated Spurious Emission, Horizontal



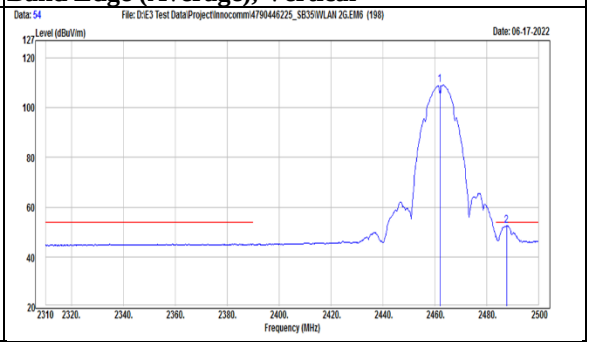
TX, 802.11b (Ch 11)
Radiated Spurious Emission, Vertical



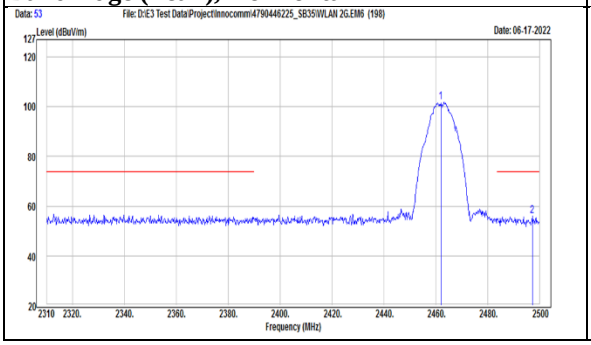
TX, 802.11b (Ch 11)
Band Edge (Average), Horizontal



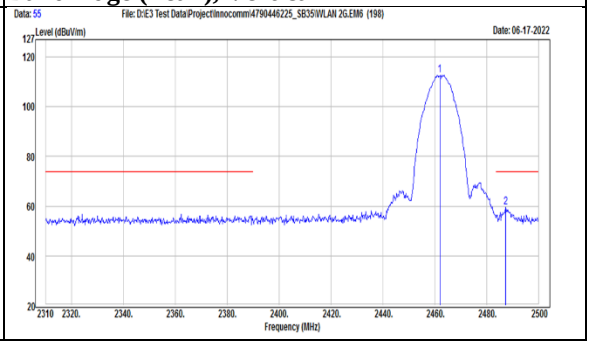
TX, 802.11b (Ch 11)
Band Edge (Average), Vertical



TX, 802.11b (Ch 11)
Band Edge (Peak), Horizontal



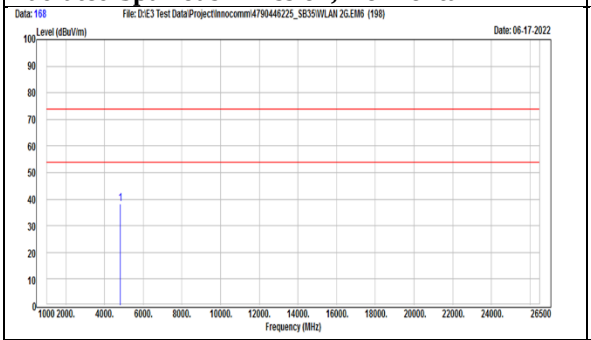
TX, 802.11b (Ch 11)
Band Edge (Peak), Vertical



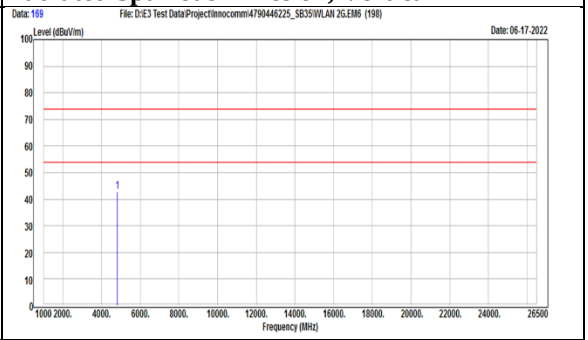
Mode	802.11g	Channel	1

Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		2389.8	41.07	15.82	56.89	74	-17.11	PK
		2389.99	30.57	15.82	46.39	54	-7.61	AVG
	@	2412	87.01	15.83	102.84	N/A	N/A	PK
	@	2412	81.17	15.83	97	N/A	N/A	AVG
	*	4824	35.96	2.35	38.31	74	-35.69	PK
Vertical		2387.33	47.41	15.82	63.23	74	-10.77	PK
		2389.99	37.64	15.82	53.46	54	-0.54	AVG
	@	2412	97.09	15.83	112.92	N/A	N/A	PK
	@	2412	89.16	15.83	104.99	N/A	N/A	AVG
	*	4824	40.36	2.35	42.71	74	-31.29	PK

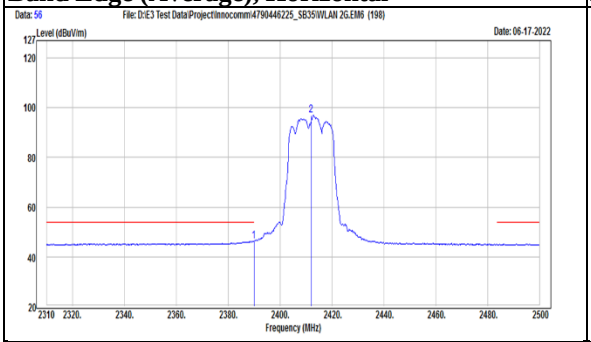
TX, 802.11g (Ch 1)
Radiated Spurious Emission, Horizontal



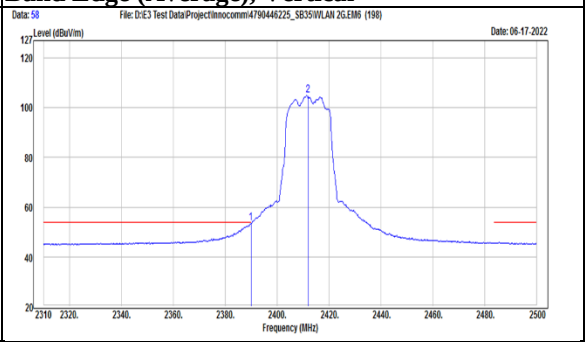
TX, 802.11g (Ch 1)
Radiated Spurious Emission, Vertical



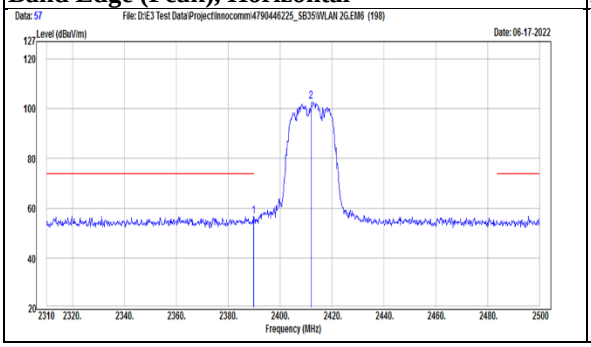
TX, 802.11g (Ch 1)
Band Edge (Average), Horizontal



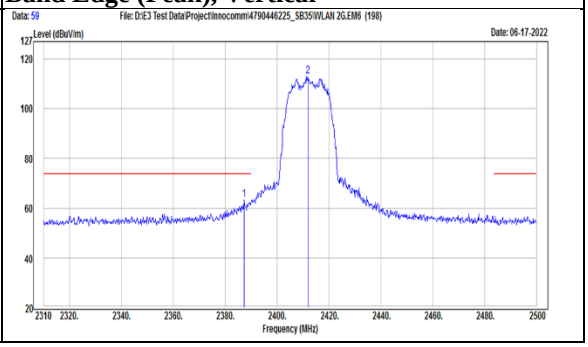
TX, 802.11g (Ch 1)
Band Edge (Average), Vertical



TX, 802.11g (Ch 1)
Band Edge (Peak), Horizontal



TX, 802.11g (Ch 1)
Band Edge (Peak), Vertical



Mode	802.11g	Channel	2

Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		2389.04	31.78	15.81	47.59	54	-6.41	AVG
		2389.99	42.92	15.82	58.74	74	-15.26	PK
	@	2417	89.6	15.84	105.44	N/A	N/A	PK
	@	2417	83.29	15.84	99.13	N/A	N/A	AVG
	*	4834	36.66	2.36	39.02	74	-34.98	PK
Vertical		2387.33	47.78	15.82	63.6	74	-10.4	PK
		2389.99	37.94	15.82	53.76	54	-0.24	AVG
	@	2417	99.71	15.84	115.55	N/A	N/A	PK
	@	2417	91.9	15.84	107.74	N/A	N/A	AVG
	*	4834	43.98	2.36	46.34	74	-27.66	PK