

Appendix D: Test Results of Radiated Spurious Emissions for PCB

Antenna

ANT 14, Main Source, ECC, PIC32WM-BZ6204UC
Band Edges, 2.31GHz ~ 2.5GHz

IEEE® 802.15.4_2M

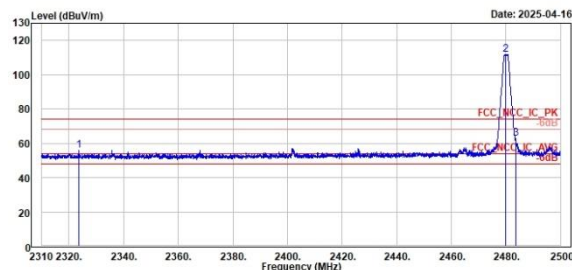
High Channel (Horizontal) Peak



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Date: 2025-04-16



	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2323.68	55.73	17.97	37.76	74.00	-18.27	212	150	Peak	Horizontal		
2 *	2480.00	111.70	73.10	38.60	74.00	37.70	212	150	Peak	Horizontal		
3	2483.50	62.85	24.25	38.60	74.00	-11.15	212	150	Peak	Horizontal		

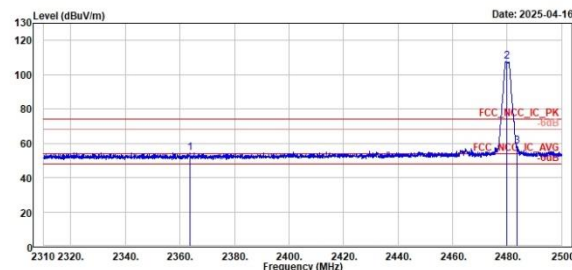
High Channel (Vertical) Peak



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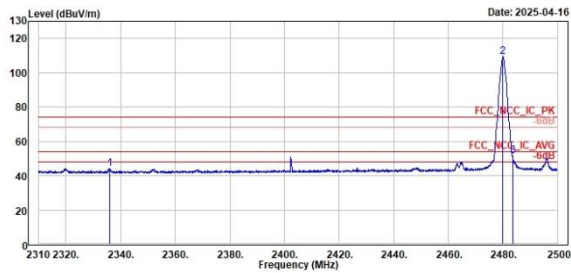
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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2363.68	54.47	16.50	37.97	74.00	-19.53	319	304	Peak	Vertical		
2 *	2480.00	107.51	68.91	38.60	74.00	33.51	319	304	Peak	Vertical		
3	2483.50	58.14	19.54	38.60	74.00	-15.86	319	304	Peak	Vertical		

IEEE® 802.15.4_2M

High Channel (Horizontal) Average



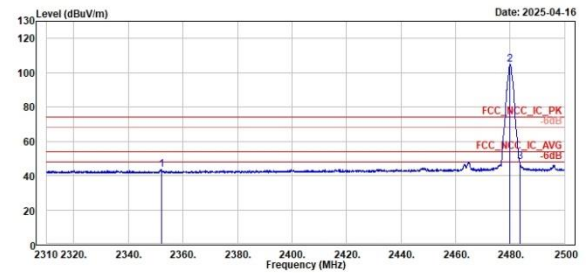
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2335.89	44.03	6.24	37.79	54.00	-9.97	212	150	Average	Horizontal		
2 *	2480.00	109.19	70.59	38.60	54.00	55.19	212	150	Average	Horizontal		
3 †	2483.50	51.18	12.58	38.60	54.00	-2.82	212	150	Average	Horizontal		



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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2352.23	43.52	5.66	37.86	54.00	-10.48	319	304	Average	Vertical		
2 *	2480.00	104.92	66.32	38.60	54.00	50.92	319	304	Average	Vertical		
3	2483.50	47.70	9.10	38.60	54.00	-6.30	319	304	Average	Vertical		

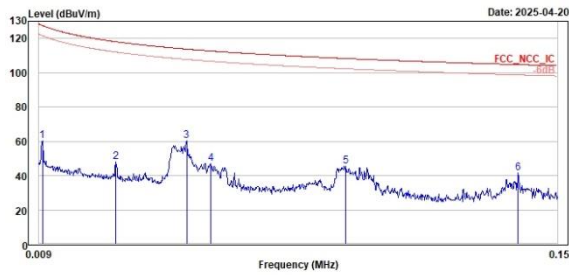
Spurious Emissions, Tx Mode, 9kHz ~ 30MHz

IEEE® 802.15.4_250k

Low Channel (Open) 9kHz~150kHz



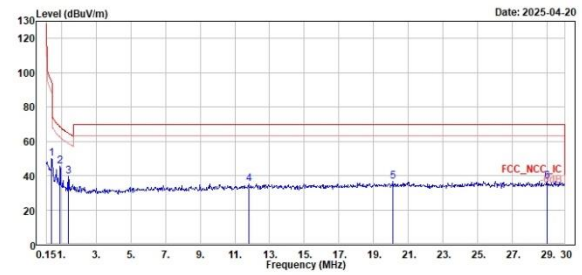
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	cm	deg			
1	0.01	60.24	42.13	18.11	127.60	-67.36	100		73	Peak	Open	
2	0.03	47.73	27.72	20.01	118.05	-70.32	100		18	Peak	Open	
3	0.05	60.16	41.14	19.02	113.76	-53.60	100		284	Peak	Open	
4	0.06	47.05	28.65	18.40	112.68	-65.63	100		276	Peak	Open	
5	0.09	45.60	27.58	18.02	108.29	-62.69	100		239	Peak	Open	
6	0.14	41.28	23.01	18.27	104.72	-63.44	100		233	Peak	Open	



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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	cm	deg			
1	0.45	49.78	31.08	18.70	94.57	-44.79	100		180	Peak	Open	
2	0.93	45.53	26.68	18.85	68.27	-22.74	100		180	Peak	Open	
3	1.40	39.58	20.77	18.81	64.66	-25.08	100		288	Peak	Open	
4	11.79	35.01	13.30	21.71	69.50	-34.49	100		218	Peak	Open	
5	20.09	36.58	13.74	22.84	69.50	-32.92	100		205	Peak	Open	
6	28.99	36.78	13.54	23.24	69.50	-32.72	100		27	Peak	Open	

Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

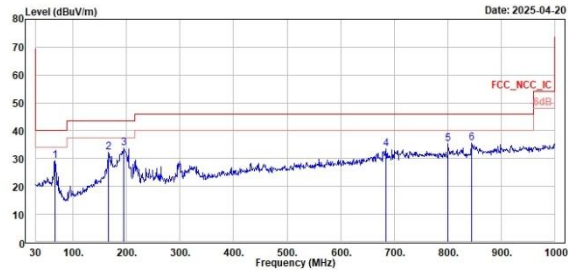
IEEE® 802.15.4_250k

Low Channel (Horizontal)

Low Channel (Vertical)



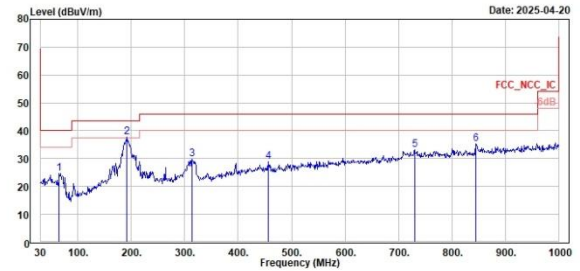
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	65.89	29.35	36.92	-7.57	40.00	-10.65		272	0	Peak	Horizontal	
2	166.77	32.34	38.17	-5.83	43.50	-11.16		200	202	Peak	Horizontal	
3	194.90	33.77	41.88	-8.11	43.50	-9.73		200	126	Peak	Horizontal	
4	684.75	33.48	31.51	1.97	46.00	-12.52		100	223	Peak	Horizontal	
5	801.15	35.20	31.52	3.68	46.00	-10.80		100	80	Peak	Horizontal	
6	844.80	35.56	31.49	4.07	46.00	-10.44		200	105	Peak	Horizontal	



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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	64.92	24.78	31.08	-7.20	40.00	-15.22		300	82	Peak	Vertical	
2	191.99	37.63	45.66	-8.03	43.50	-5.87		100	297	Peak	Vertical	
3	314.21	29.70	34.63	-4.93	46.00	-16.30		100	220	Peak	Vertical	
4	455.83	28.91	30.93	-2.02	46.00	-17.09		100	144	Peak	Vertical	
5	730.34	33.01	30.22	2.79	46.00	-12.99		200	262	Peak	Vertical	
6	844.80	35.33	31.26	4.07	46.00	-10.67		200	360	Peak	Vertical	

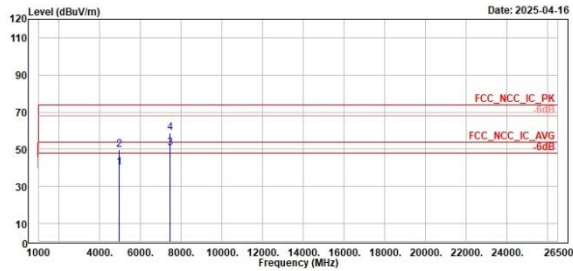
Spurious Emissions, Tx Mode, 1GHz ~ 26.5GHz

IEEE® 802.15.4_2M

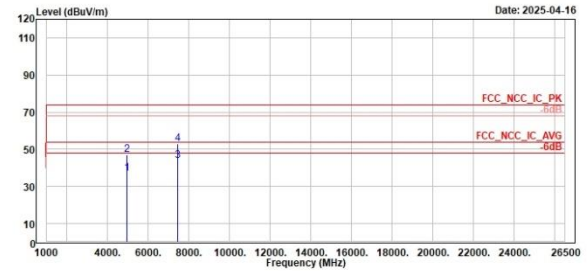
High Channel (Horizontal)



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ANT 15, Main Source, ECC, PIC32WM-BZ6204UC
Band Edges, 2.31GHz ~ 2.5GHz

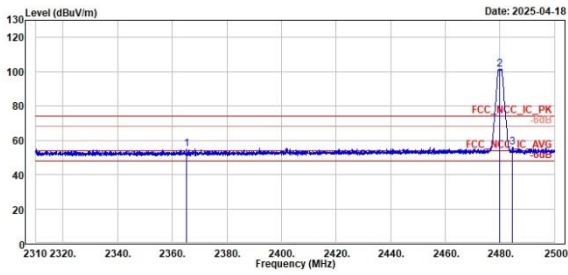
IEEE® 802.15.4_2M

High Channel (Horizontal) Peak

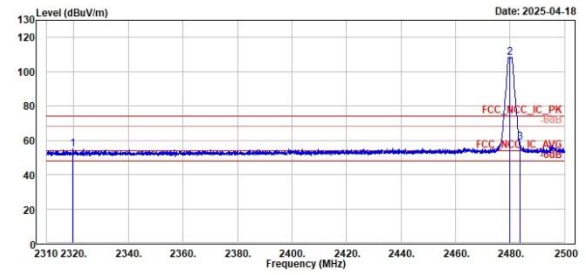
High Channel (Vertical) Peak



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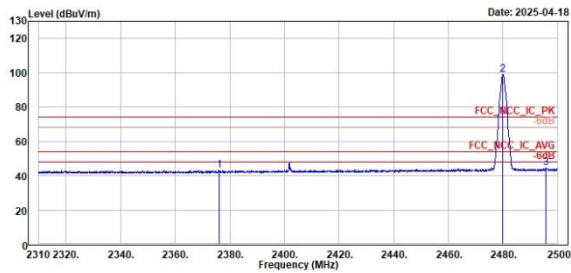


IEEE® 802.15.4_2M

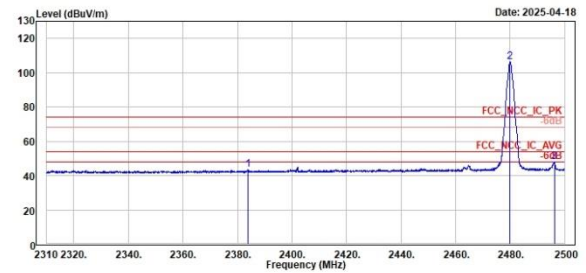
High Channel (Horizontal) Average



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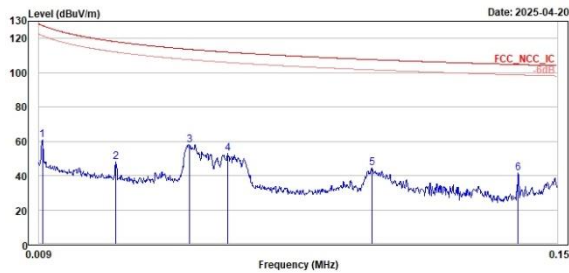
Spurious Emissions, Tx Mode, 9kHz ~ 30MHz

IEEE® 802.15.4_250k

Low Channel (Open) 9kHz~150kHz



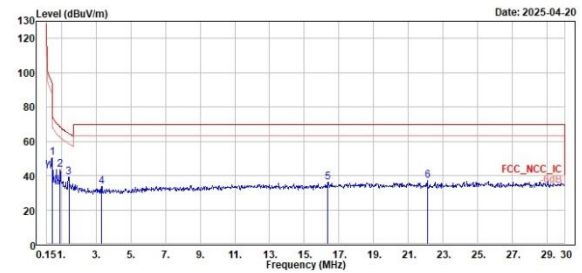
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Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	cm	deg			
1	0.01	60.67	42.56	18.11	127.60	-66.93	100	234	Peak	Open	
2	0.03	48.14	28.13	20.01	118.05	-69.91	100	234	Peak	Open	
3	0.05	57.96	38.94	19.02	113.63	-55.67	100	265	Peak	Open	
4	0.06	52.86	34.92	17.94	111.98	-59.12	100	269	Peak	Open	
5	0.10	44.26	26.23	18.03	107.64	-63.38	100	246	Peak	Open	
6	0.14	41.49	23.22	18.27	104.72	-63.23	100	237	Peak	Open	



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Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	cm	deg			
1	0.48	50.27	31.53	18.74	94.01	-43.74	100	177	Peak	Open	
2	0.93	43.33	24.48	18.85	68.27	-24.94	100	300	Peak	Open	
3	1.43	39.25	20.44	18.81	64.48	-25.23	100	177	Peak	Open	
4	3.31	33.63	14.51	19.12	69.50	-35.87	100	194	Peak	Open	
5	16.36	35.91	13.86	22.05	69.50	-33.59	100	327	Peak	Open	
6	22.09	36.98	14.63	22.35	69.50	-32.52	100	100	Peak	Open	

Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

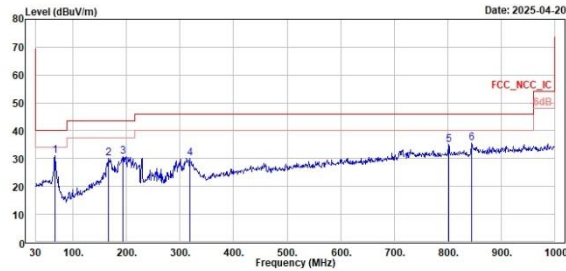
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Low Channel (Horizontal)

Low Channel (Vertical)



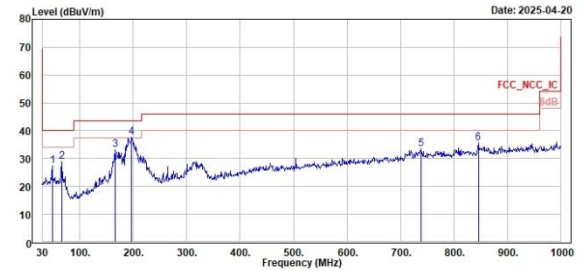
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	65.89	31.05	38.62	-7.57	40.00	-8.95	300	345	Peak	Horizontal		
2	166.77	30.23	36.06	-5.83	43.50	-13.27	300	204	Peak	Horizontal		
3	192.96	30.85	38.88	-8.03	43.50	-12.65	102	360	Peak	Horizontal		
4	318.09	30.22	34.99	-4.77	46.00	-15.78	100	111	Peak	Horizontal		
5	802.12	34.96	31.26	3.70	46.00	-11.04	100	279	Peak	Horizontal		
6	844.00	35.51	31.44	4.07	46.00	-10.49	106	360	Peak	Horizontal		



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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	48.43	27.27	33.04	-5.77	40.00	-12.73	200	360	Peak	Vertical		
2	66.86	28.98	36.76	-7.78	40.00	-11.02	300	69	Peak	Vertical		
3	165.80	33.14	38.86	-5.72	43.50	-10.36	106	360	Peak	Vertical		
4	196.84	37.78	45.97	-8.19	43.50	-5.72	100	225	Peak	Vertical		
5	738.10	33.42	30.61	2.81	46.00	-12.58	100	215	Peak	Vertical		
6	845.77	35.68	31.59	4.09	46.00	-10.32	300	84	Peak	Vertical		

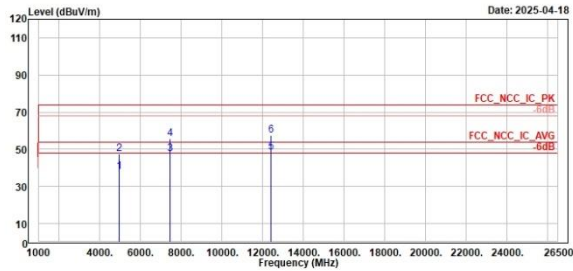
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High Channel (Horizontal)



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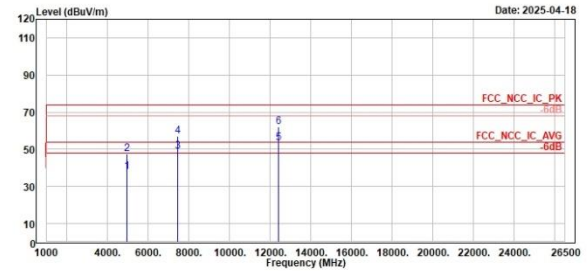


Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	4960.00	37.77	46.46	-8.69	54.00	-16.23	343	159	Average	Horizontal	
2	4960.00	47.33	56.02	-8.69	74.00	-26.67	343	159	Peak	Horizontal	
3	7440.00	47.29	54.03	-6.74	54.00	-6.71	100	301	Average	Horizontal	
4	7440.00	55.69	62.43	-6.74	74.00	-18.31	100	301	Peak	Horizontal	
5	12400.00	48.47	47.39	1.08	54.00	-5.53	116	360	Average	Horizontal	
6	12400.00	57.41	56.33	1.08	74.00	-16.59	116	360	Peak	Horizontal	

High Channel (Vertical)



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Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	4960.00	37.94	46.63	-8.69	54.00	-16.06	100	218	Average	Vertical	
2	4960.00	47.44	56.13	-8.69	74.00	-26.56	100	218	Peak	Vertical	
3	7440.00	48.65	55.39	-6.74	54.00	-5.35	101	7	Average	Vertical	
4	7440.00	56.85	63.59	-6.74	74.00	-17.15	101	7	Peak	Vertical	
5	12400.00	53.27	52.19	1.08	54.00	-0.73	104	285	Average	Vertical	
6	12400.00	62.20	61.12	1.08	74.00	-11.88	104	285	Peak	Vertical	