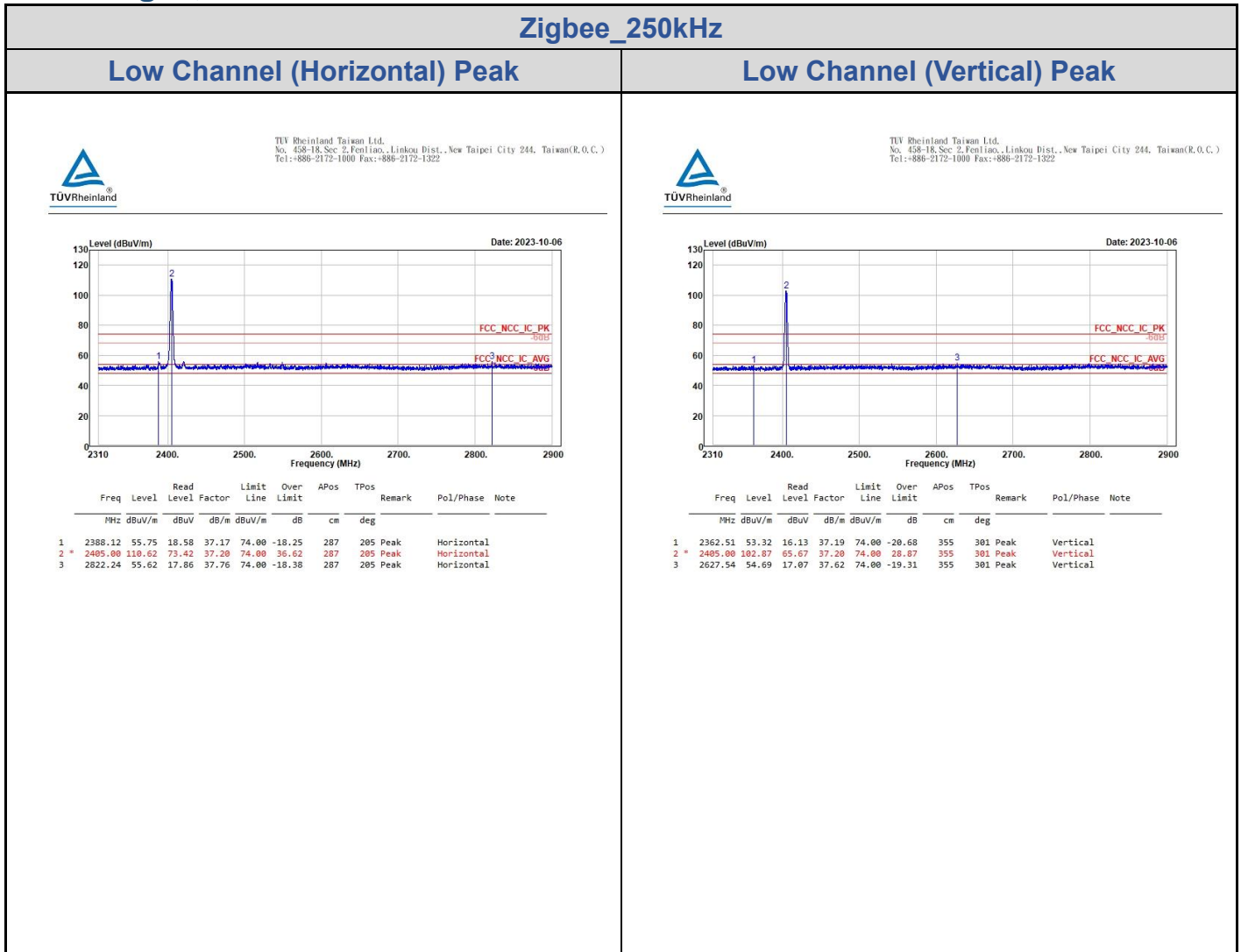


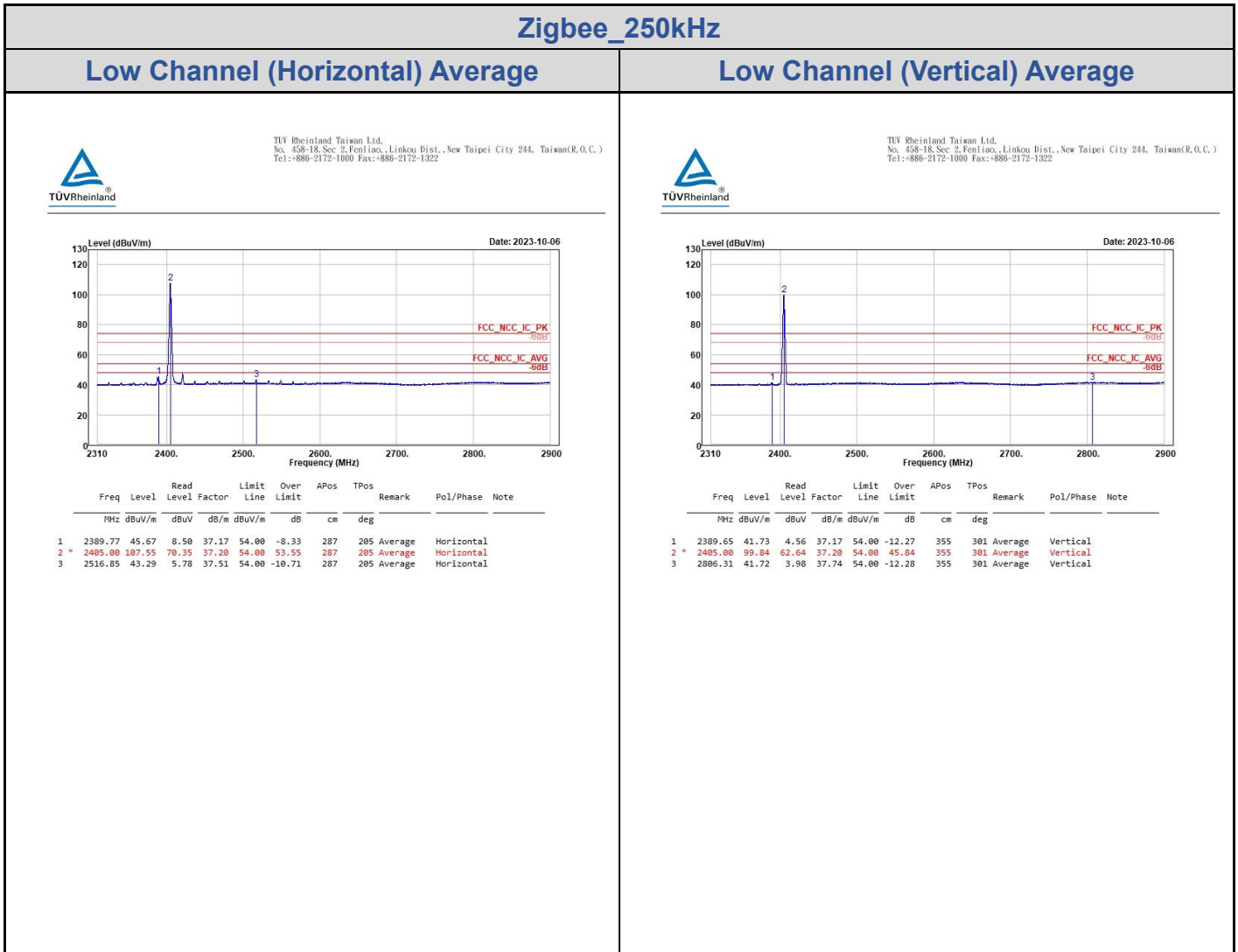
Appendix D: Test Results of Radiated Spurious Emissions & Mains

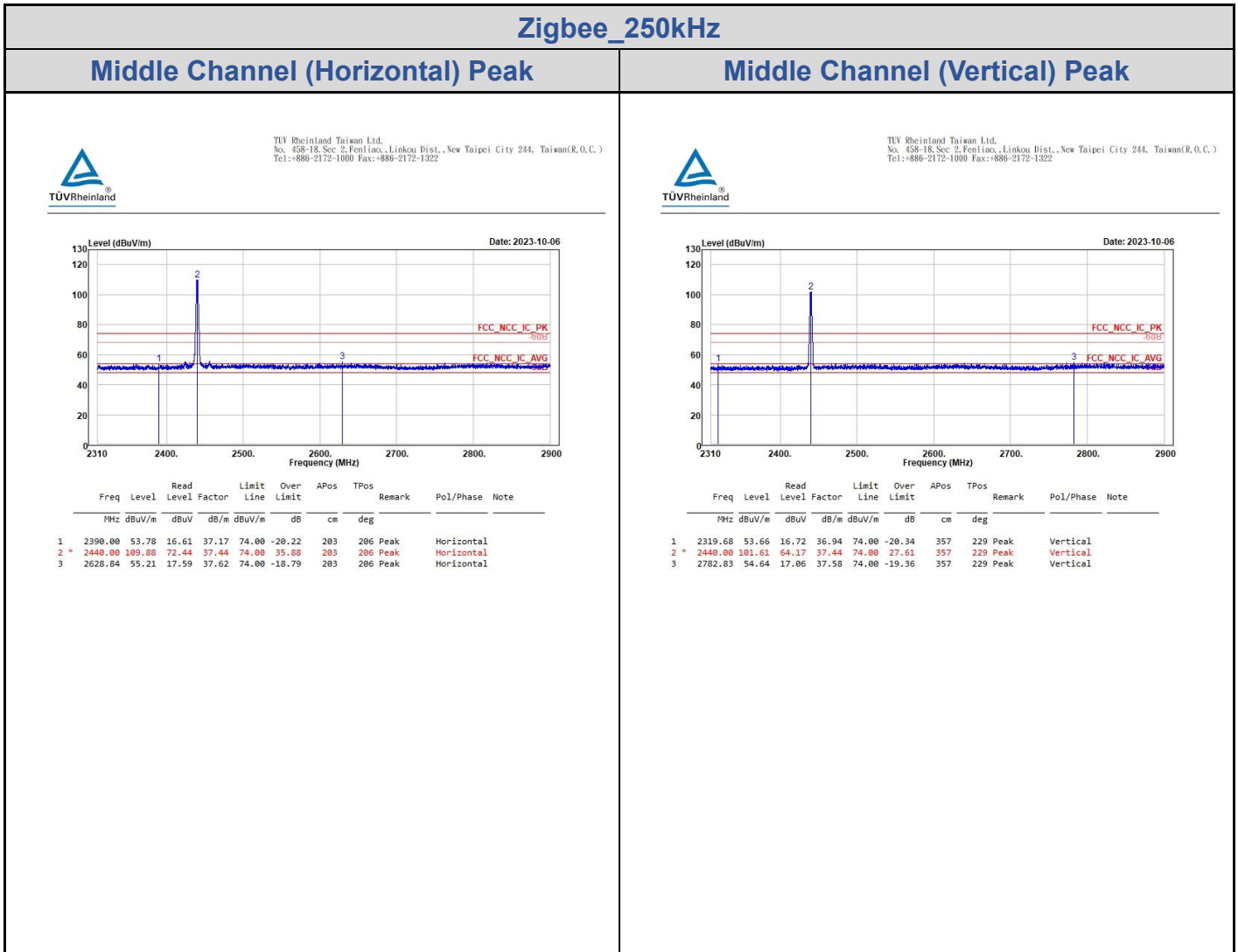
Conducted Emission Test for PIFA Antenna

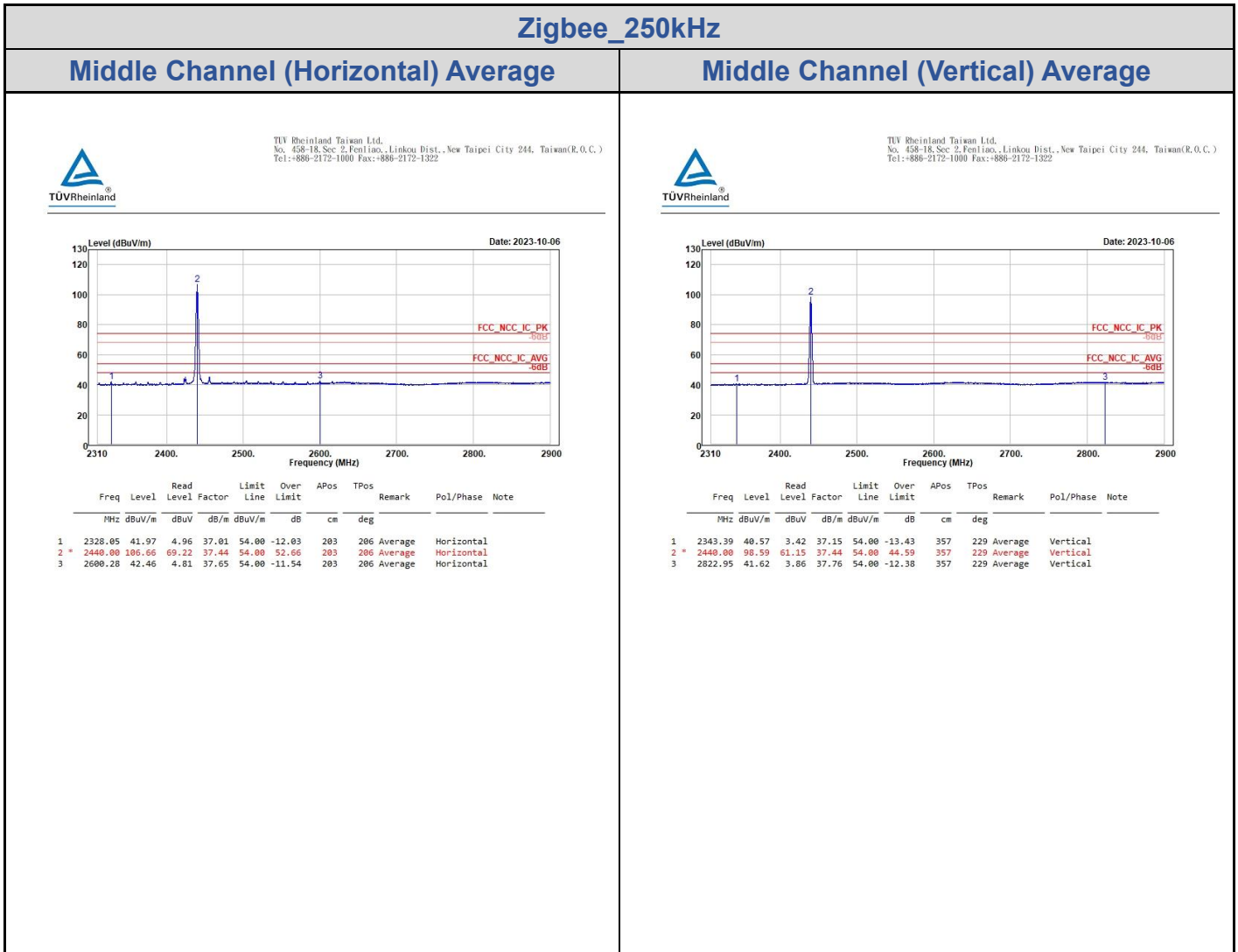
Main Source, ECC Mode

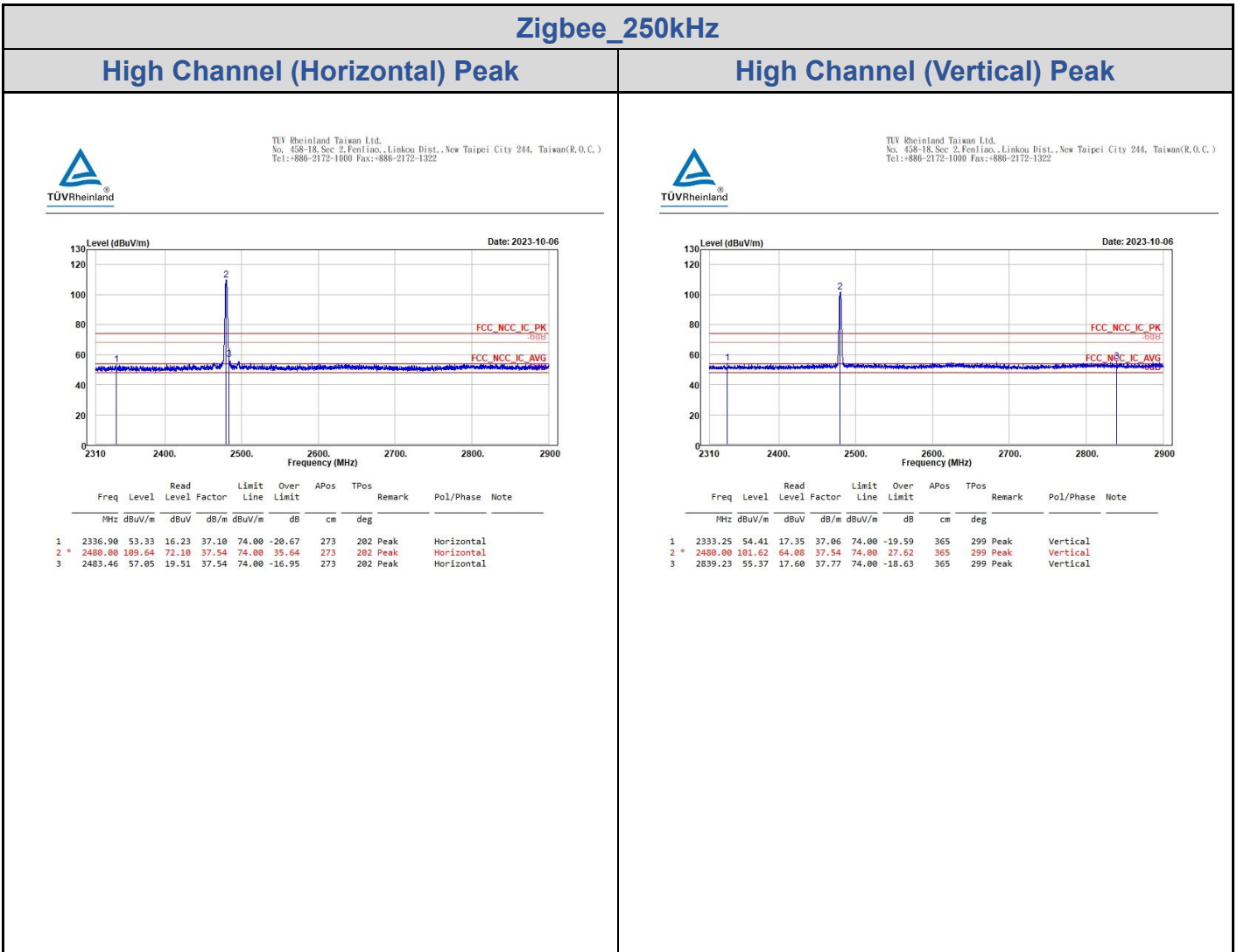
Band Edges, 2.31GHz ~ 2.9GHz

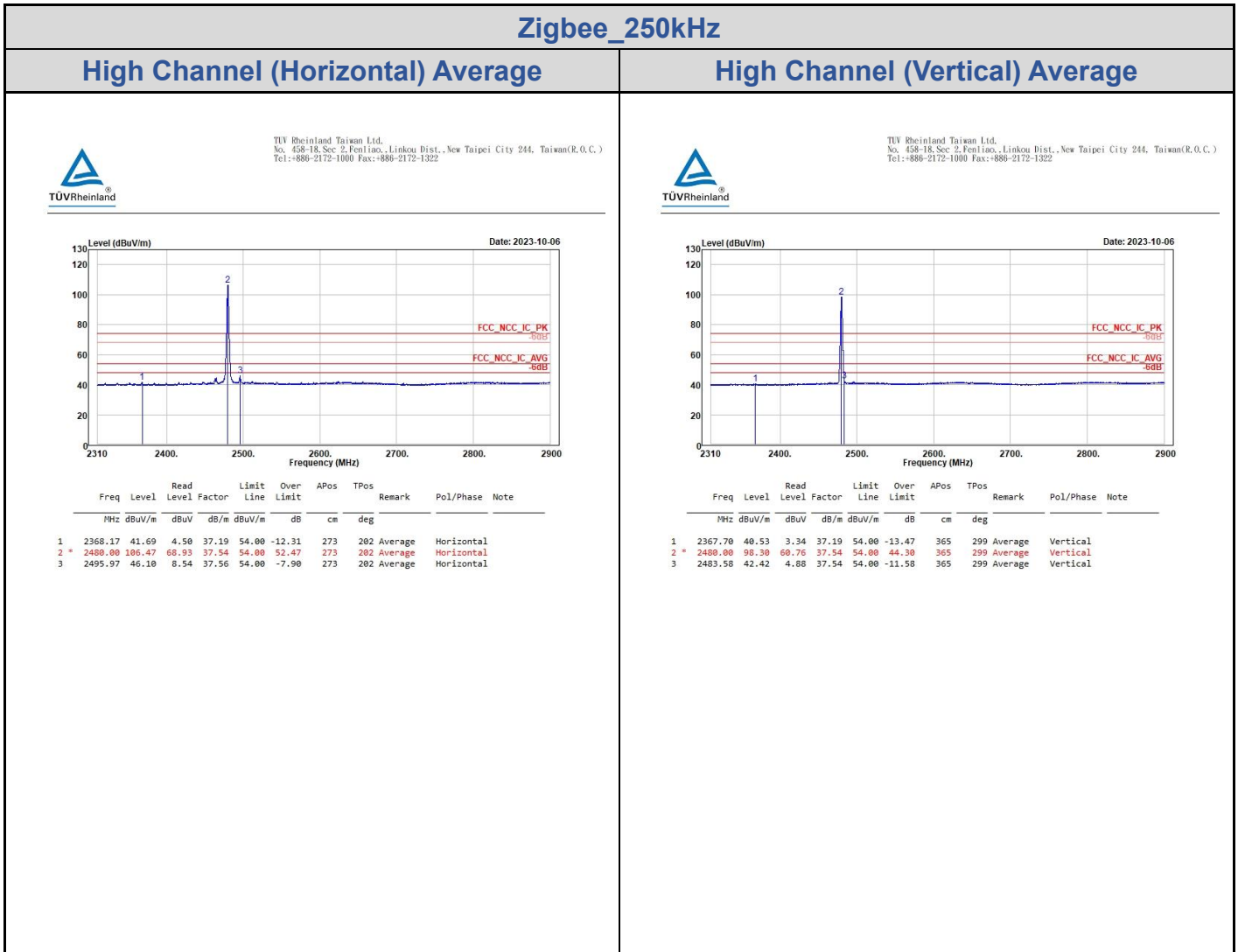


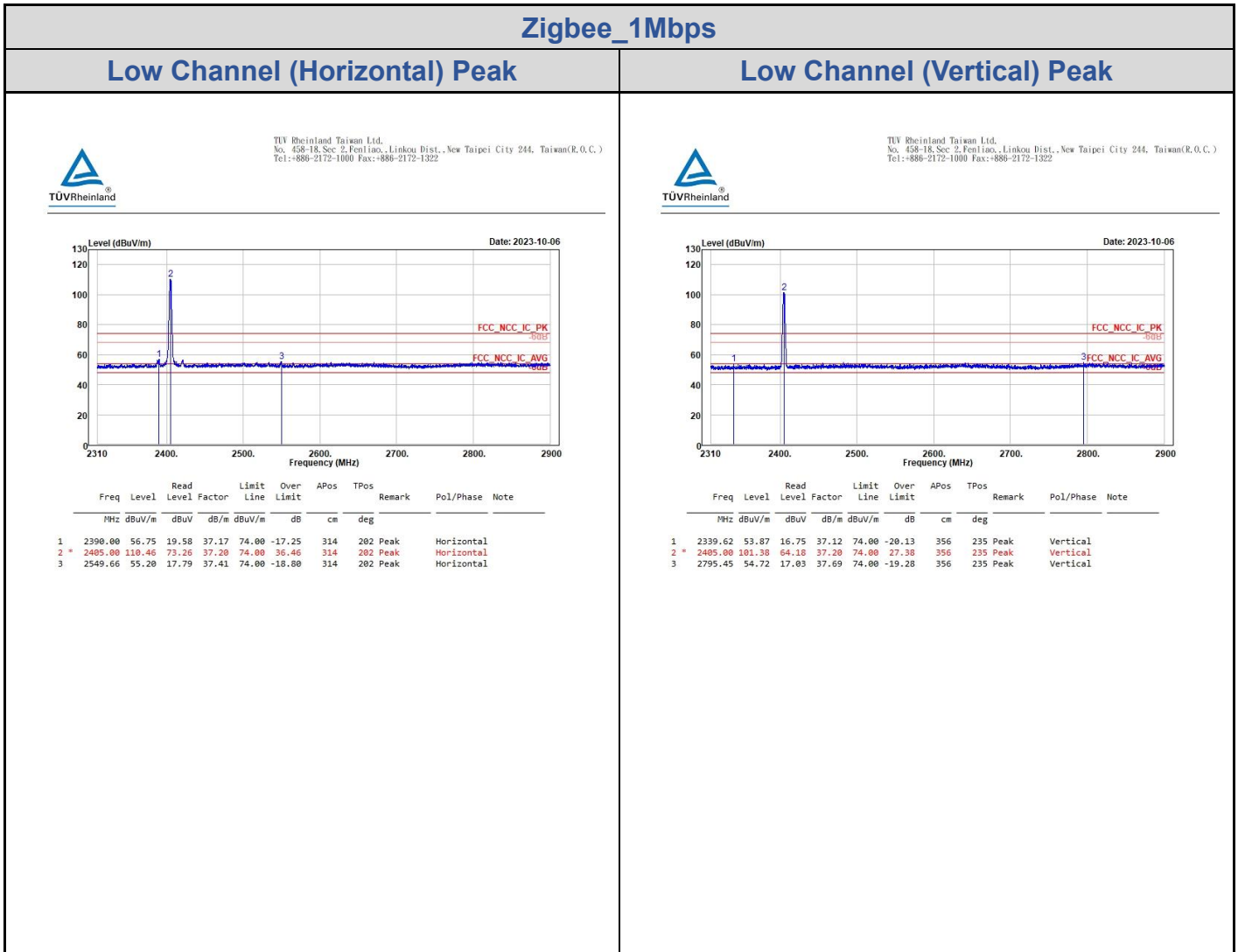












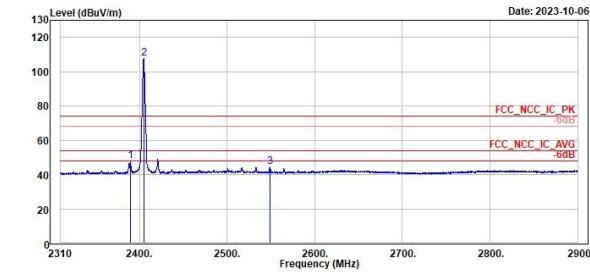
Zigbee_1Mbps

Low Channel (Horizontal) Average

Low Channel (Vertical) Average



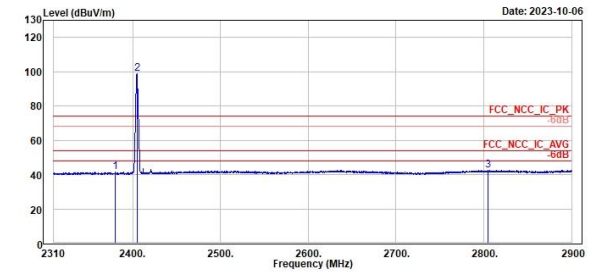
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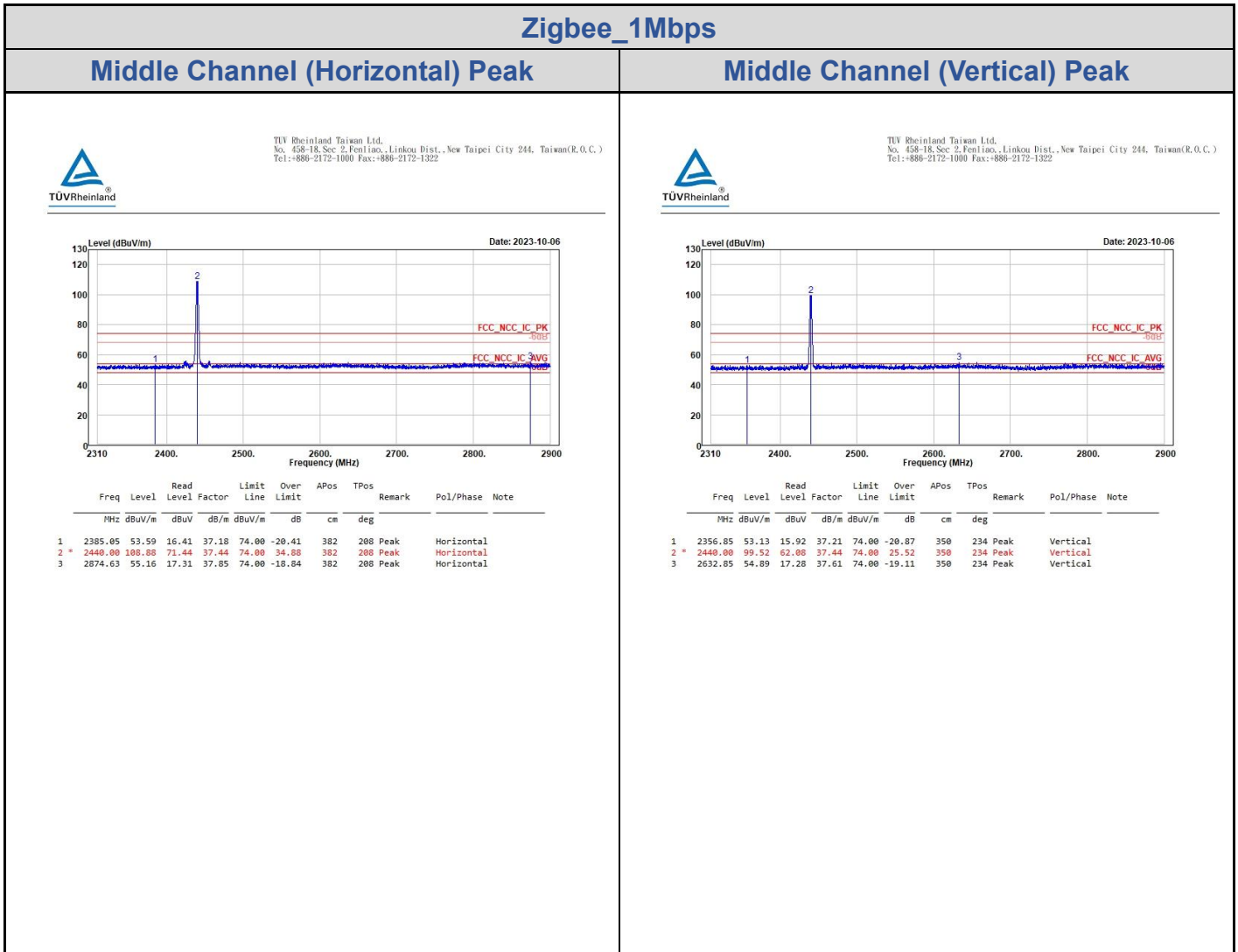
Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note	
Level	Line	Limit	cm	deg				
Factor	dB/m	dB						
dBuV	dB/m	dBuV/m	cm	deg				
1	2389.77	47.79	10.62	37.17	54.00	-6.21	314	202 Average Horizontal
2 *	2405.00	107.93	70.73	37.20	54.00	53.03	314	202 Average Horizontal
3	2549.07	44.26	6.85	37.41	54.00	-9.74	314	202 Average Horizontal



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Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note	
Level	Line	Limit	cm	deg				
Factor	dB/m	dB						
dBuV	dB/m	dBuV/m	cm	deg				
1	2380.33	41.36	4.18	37.18	54.00	-12.64	356	235 Average Vertical
2 *	2405.00	98.81	61.61	37.20	54.00	44.81	356	235 Average Vertical
3	2805.01	42.70	4.96	37.74	54.00	-11.30	356	235 Average Vertical



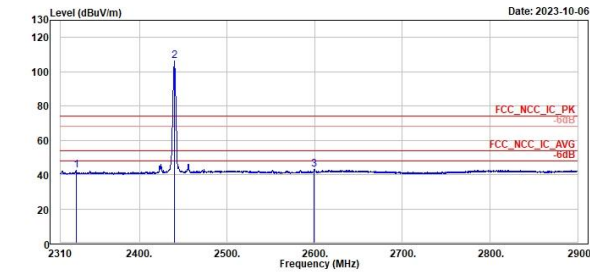
Zigbee_1Mbps

Middle Channel (Horizontal) Average

Middle Channel (Vertical) Average



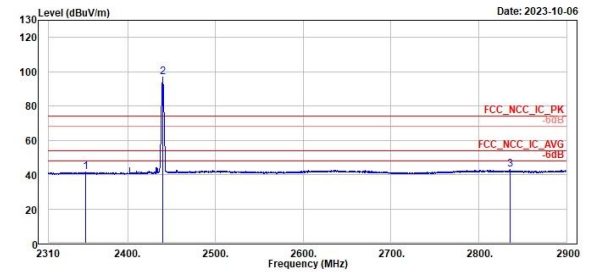
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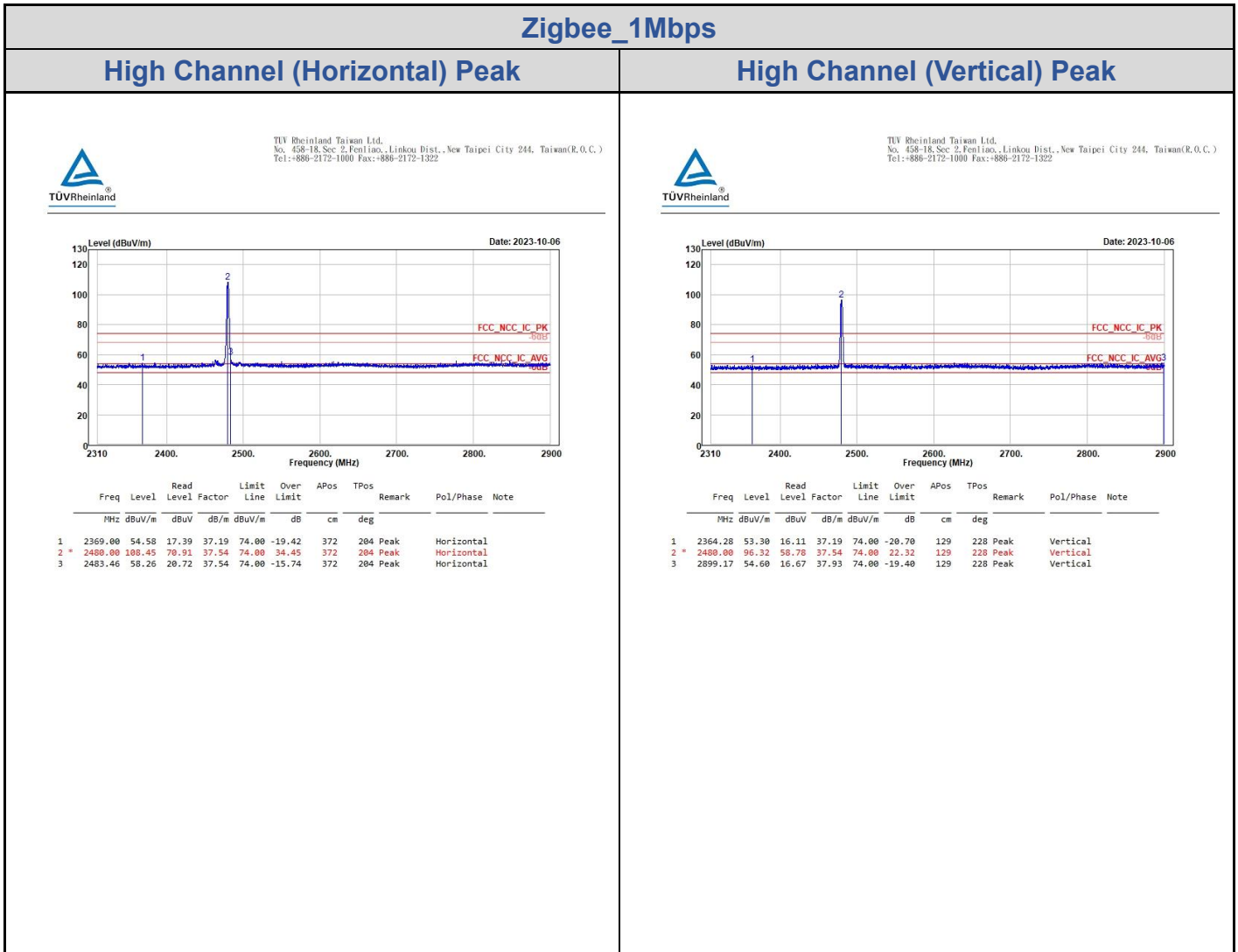
1	2	3	Read Level	Level Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2327.94	42.71	5.70	37.01	54.00	-11.29	382	208	Average	Horizontal	
2	2440.00	106.33	66.69	37.44	54.00	52.33	382	208	Average	Horizontal	
3	2599.57	43.10	5.45	37.65	54.00	-10.90	382	208	Average	Horizontal	

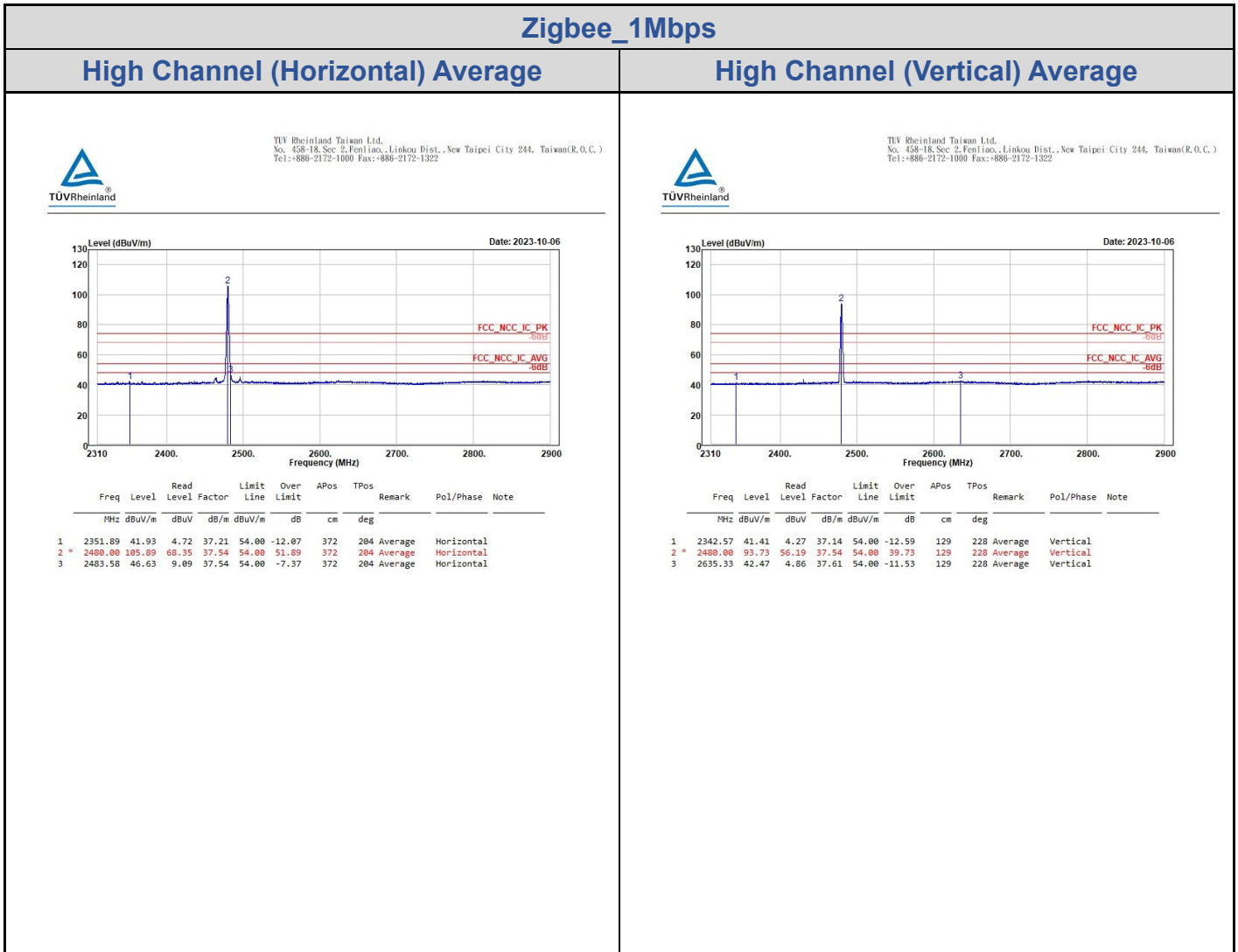


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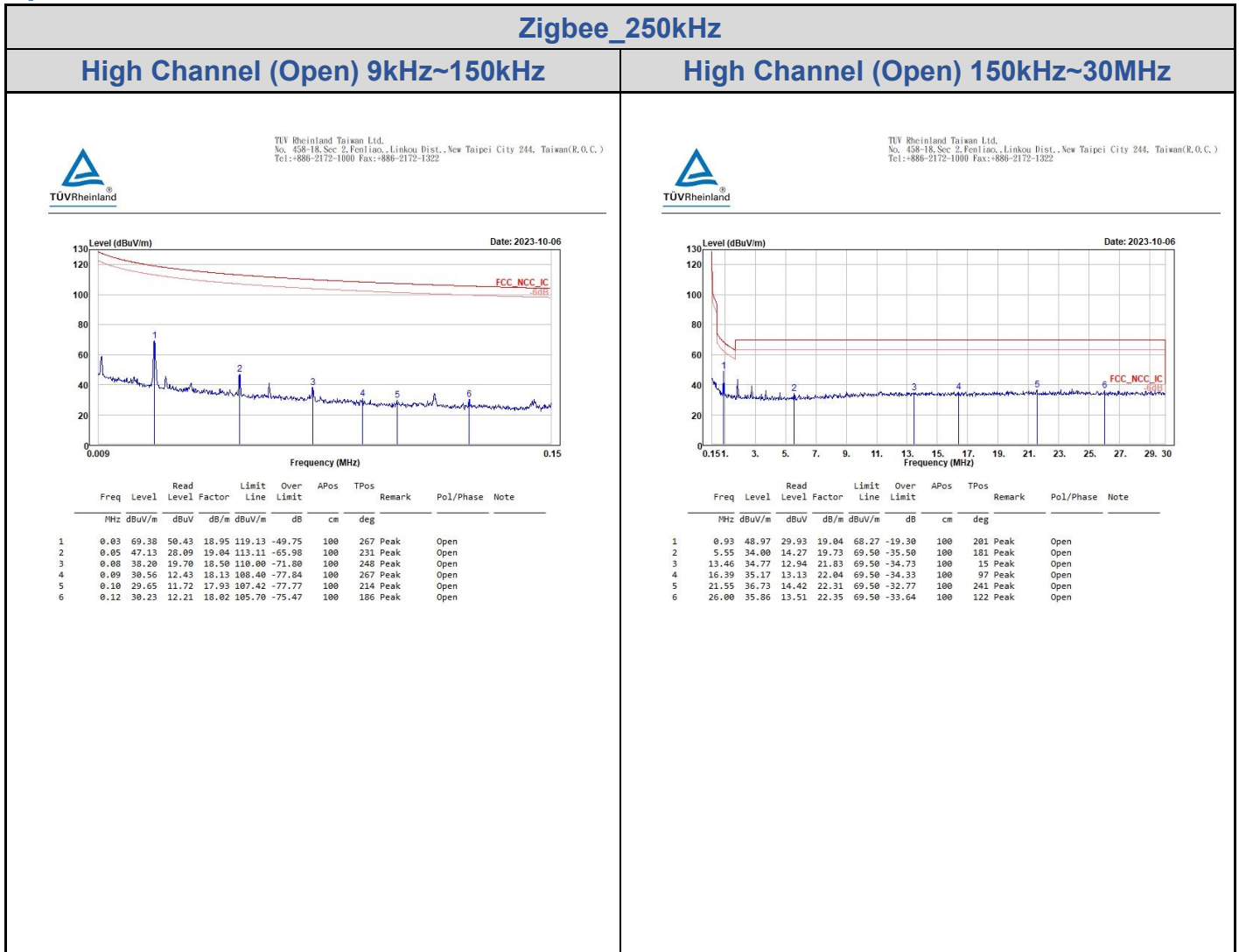


1	2	3	Read Level	Level Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2352.36	41.47	4.26	37.21	54.00	-12.53	350	234	Average	Vertical	
2	2440.00	96.96	59.52	37.44	54.00	42.96	350	234	Average	Vertical	
3	2835.57	42.79	5.02	37.77	54.00	-11.21	350	234	Average	Vertical	





Spurious Emissions, Tx Mode, 9kHz ~ 30MHz



Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

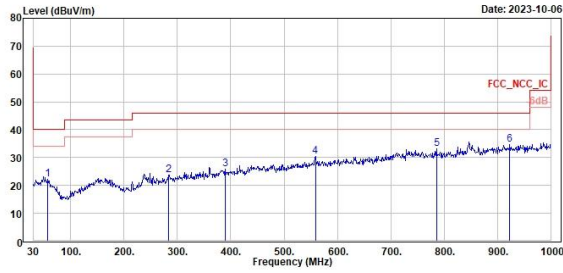
Zigbee_250kHz

High Channel (Horizontal)

High Channel (Vertical)



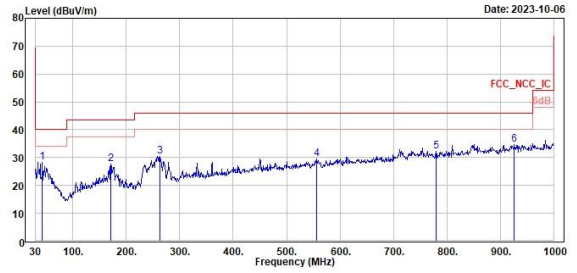
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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	57.16	22.14	28.12	-5.98	46.00	-17.86	100	248 Peak	Horizontal	
2	284.14	23.64	28.70	-5.06	46.00	-22.36	100	248 Peak	Horizontal	
3	389.87	25.90	28.81	-2.91	46.00	-20.10	100	90 Peak	Horizontal	
4	558.65	30.29	30.39	-0.10	46.00	-15.71	100	258 Peak	Horizontal	
5	785.63	33.08	29.80	3.28	46.00	-12.92	100	184 Peak	Horizontal	
6	923.37	34.80	29.55	5.25	46.00	-11.20	100	311 Peak	Horizontal	



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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	42.61	28.34	34.67	-6.33	46.00	-11.66	100	369 Peak	Vertical	
2	176.65	27.57	33.50	-5.93	43.50	-15.93	100	74 Peak	Vertical	
3	262.80	30.48	36.51	-6.03	46.00	-15.52	100	100 Peak	Vertical	
4	556.71	29.43	29.49	-0.06	46.00	-16.57	100	211 Peak	Vertical	
5	779.81	32.20	29.28	2.92	46.00	-13.80	100	194 Peak	Vertical	
6	926.28	34.75	29.43	5.32	46.00	-11.25	100	316 Peak	Vertical	

Spurious Emissions, Tx Mode, 1GHz ~ 26.5GHz

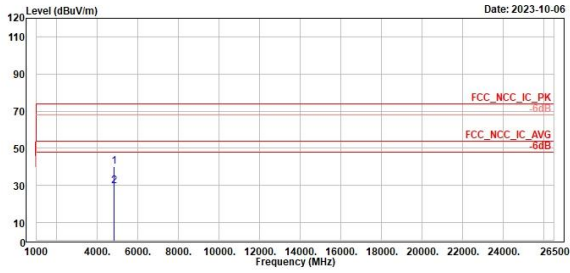
Zigbee_250kHz

Low Channel (Horizontal)

Low Channel (Vertical)



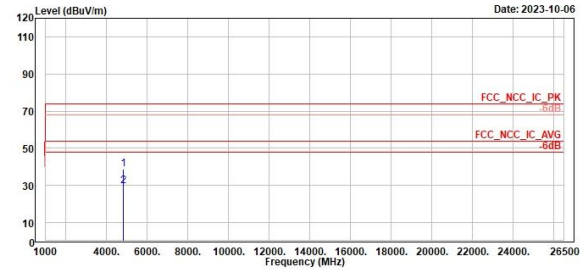
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Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	4818.00	48.22	49.24	-9.02	74.00	-33.78	300	20 Peak	Horizontal	
2	4818.00	29.47	38.49	-9.02	54.00	-24.53	300	20 Average	Horizontal	



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Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	4818.00	38.65	47.67	-9.02	74.00	-35.35	200	310 Peak	Vertical	
2	4818.00	29.63	38.65	-9.02	54.00	-24.37	200	310 Average	Vertical	



Zigbee_250kHz

High Channel (Horizontal)

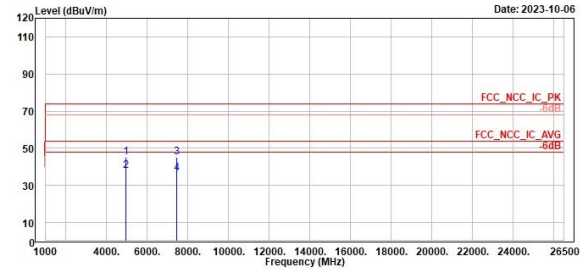
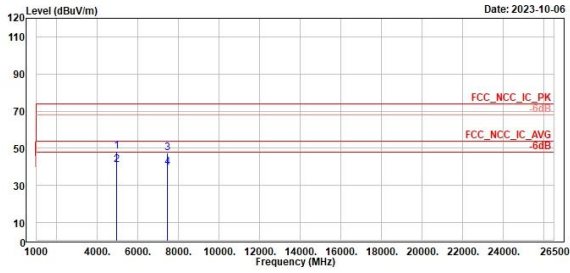
High Channel (Vertical)



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Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
Level	Line	Limit					
Factor							
dB/m	dB/m	dB	cm	deg			
4969.00	48.27	57.11	-8.84	74.00	-25.73	100	48 Peak Horizontal
4969.00	40.88	49.72	-8.84	54.00	-13.12	100	48 Average Horizontal
7448.00	47.33	54.51	-7.18	74.00	-26.67	100	316 Peak Horizontal
7448.00	39.52	46.70	-7.18	54.00	-14.48	100	316 Average Horizontal

Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
Level	Line	Limit					
Factor							
dB/m	dB/m	dB	cm	deg			
4969.00	45.21	54.05	-8.84	74.00	-28.79	200	177 Peak Vertical
4969.00	37.80	46.64	-8.84	54.00	-16.20	200	177 Average Vertical
7448.00	45.02	52.20	-7.18	74.00	-28.98	100	169 Peak Vertical
7448.00	36.33	43.51	-7.18	54.00	-17.67	100	169 Average Vertical



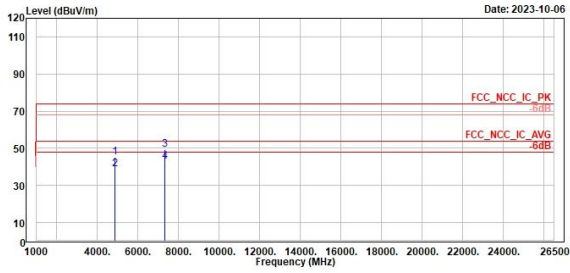
Zigbee_1Mbps

Middle Channel (Horizontal)

Middle Channel (Vertical)



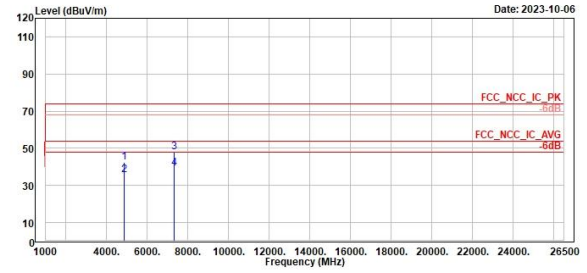
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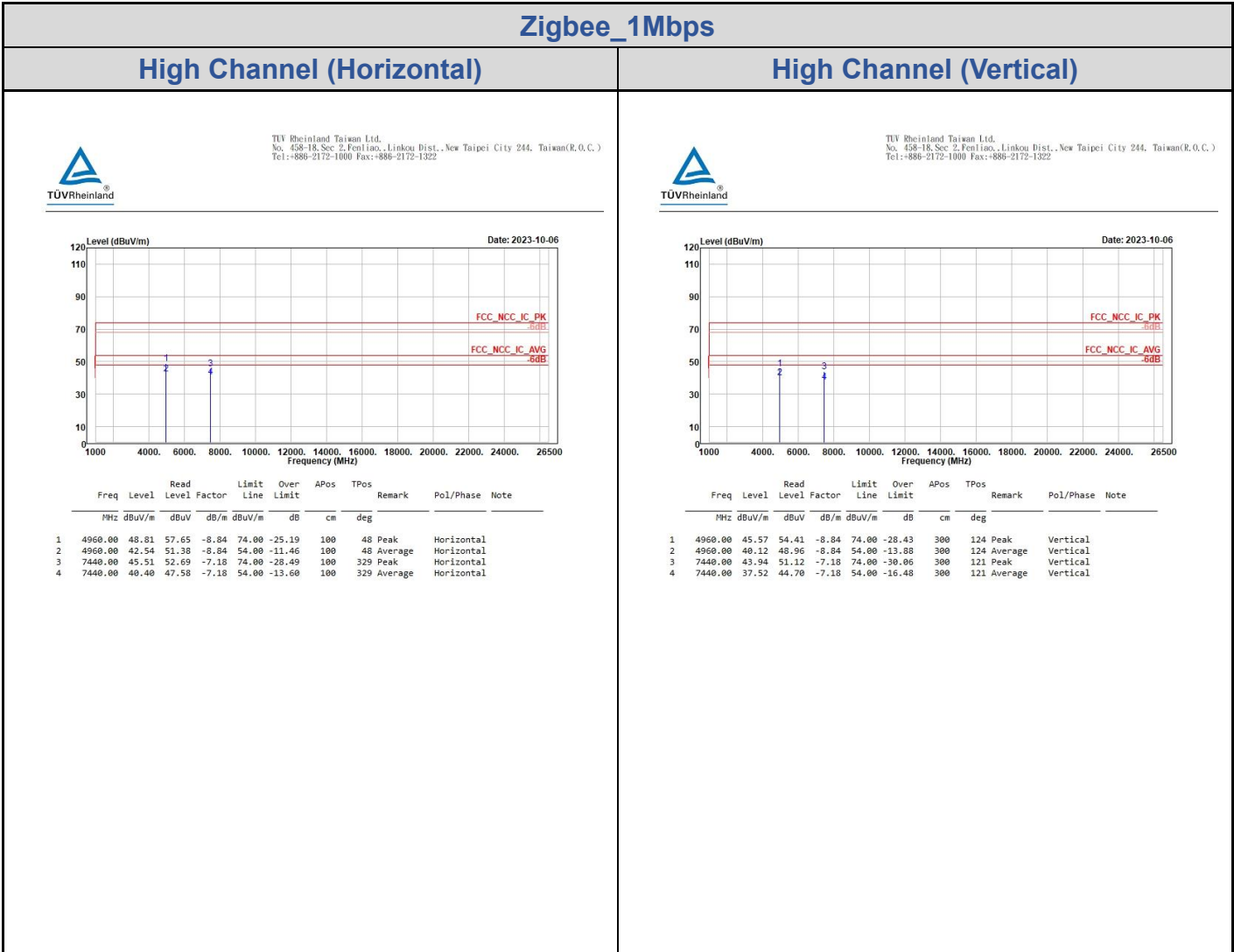
1	2	3	4
4880.00	45.19	54.23	-9.04
4880.00	38.66	47.70	-9.04
7320.00	49.30	56.38	-7.08
7320.00	42.99	50.07	-7.08



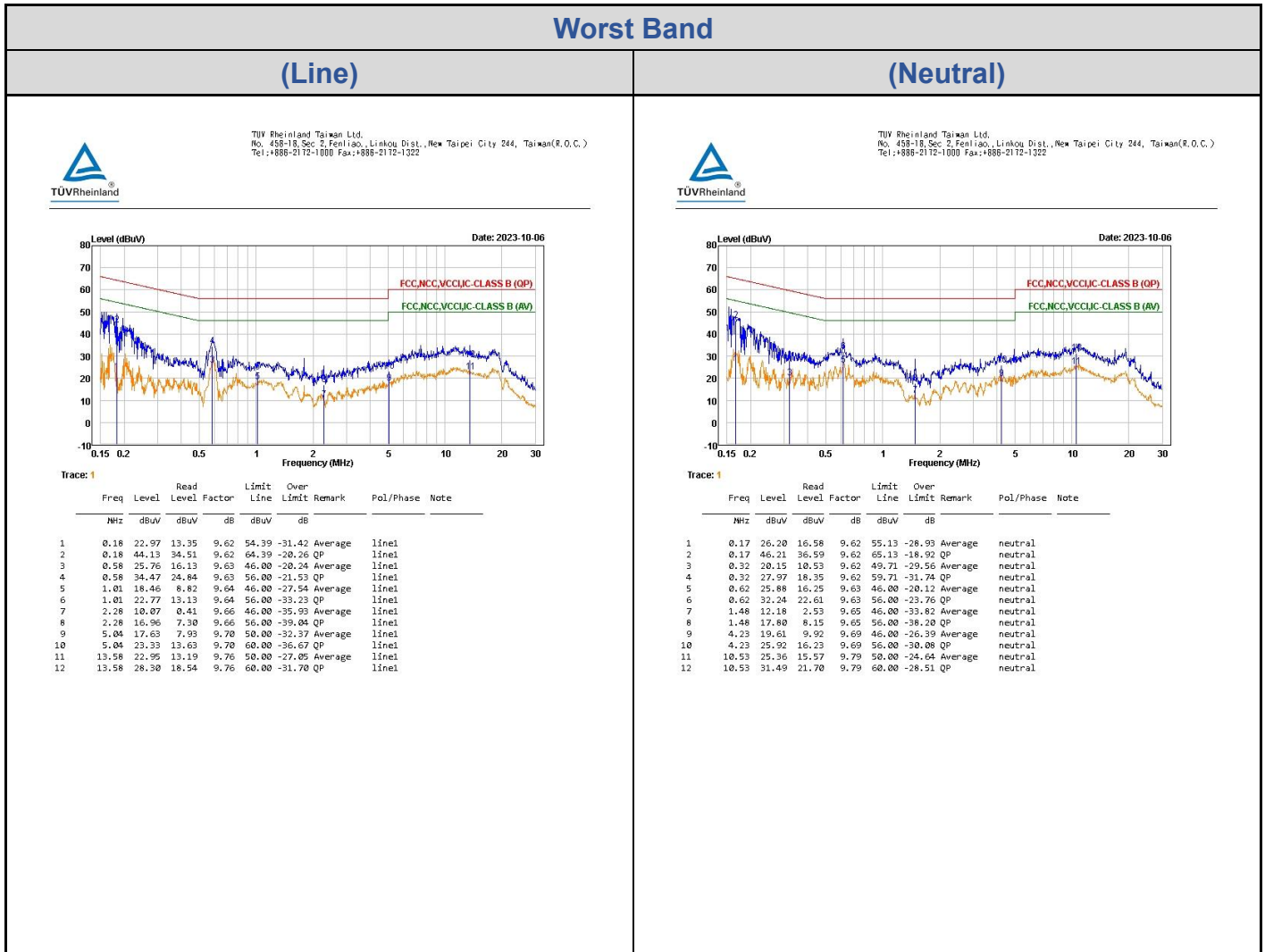
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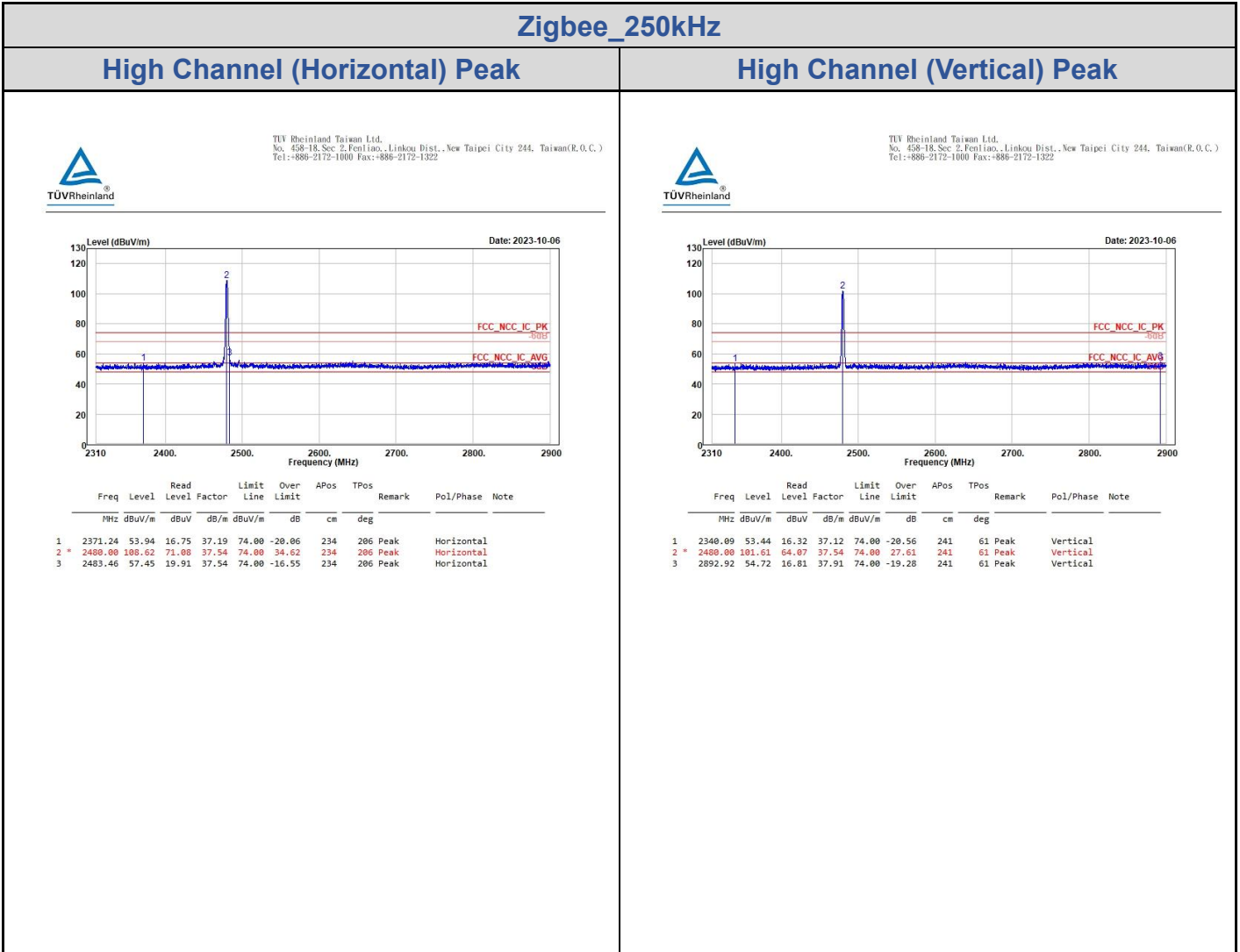
1	2	3	4
4880.00	42.33	51.37	-9.04
4880.00	35.75	44.79	-9.04
7320.00	47.75	54.83	-7.08
7320.00	39.02	46.10	-7.08

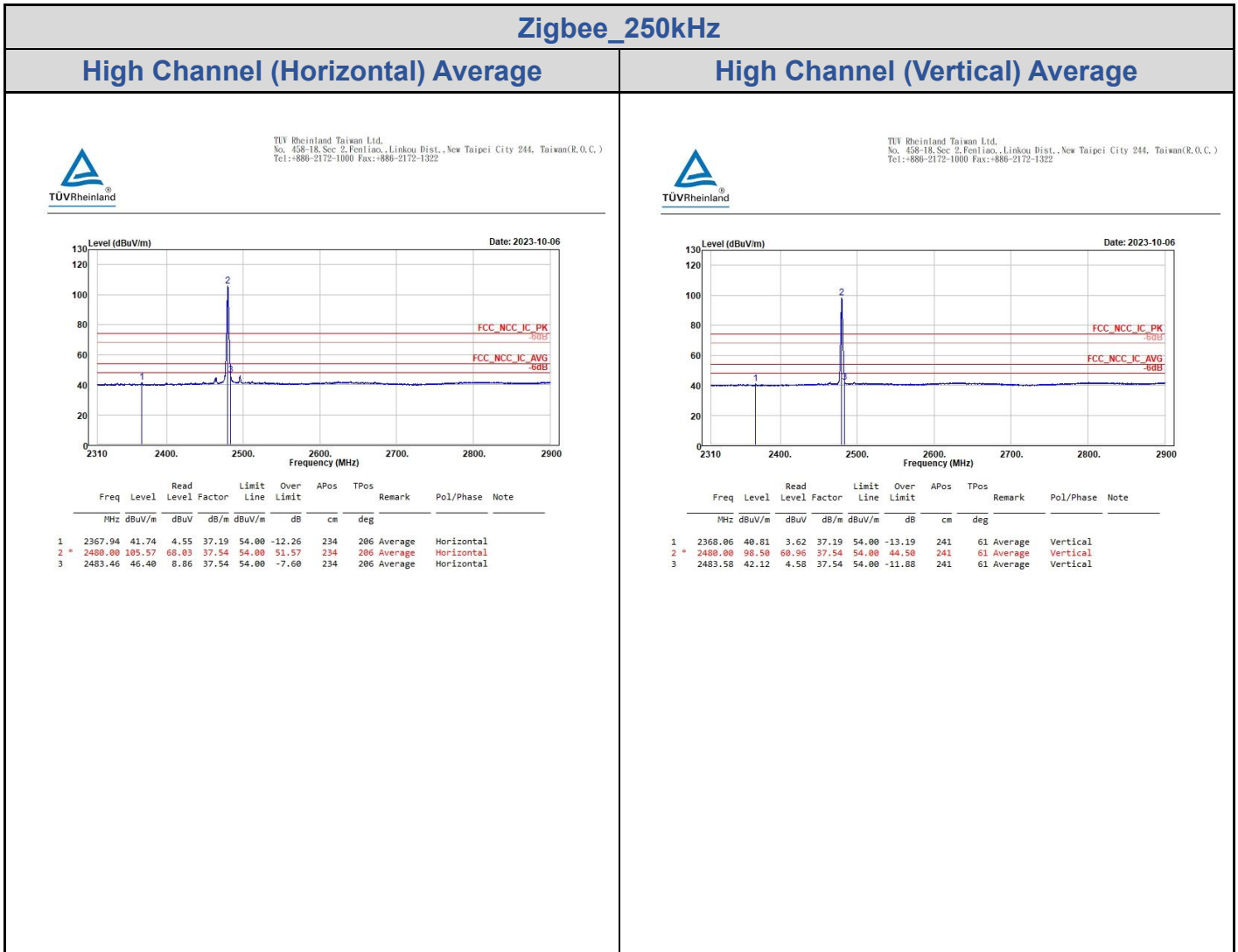


Mains Conducted Emission, 150kHz ~ 30MHz

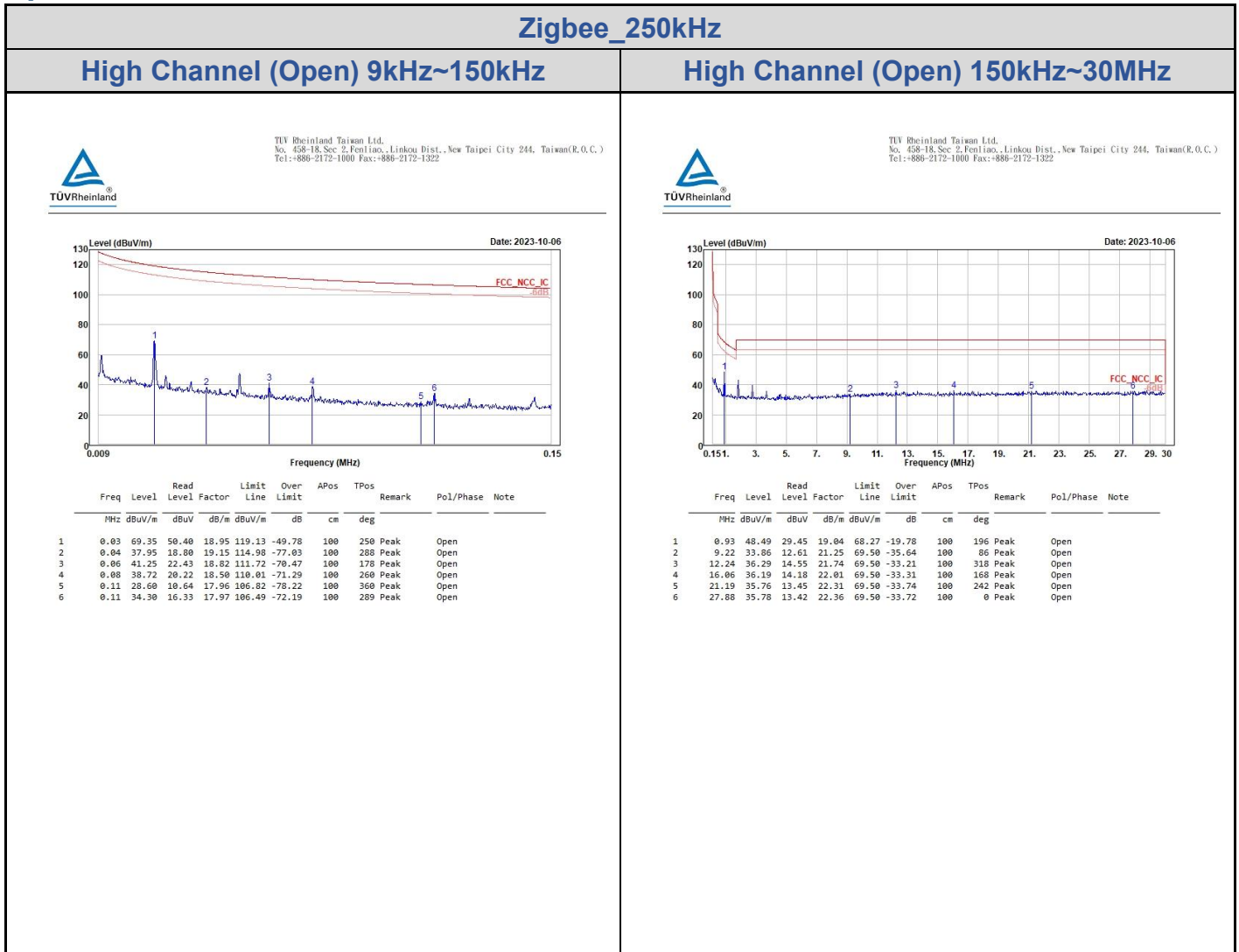


2nd Source, ECC Mode
Band Edges, 2.31GHz ~ 2.9GHz





Spurious Emissions, Tx Mode, 9kHz ~ 30MHz



Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

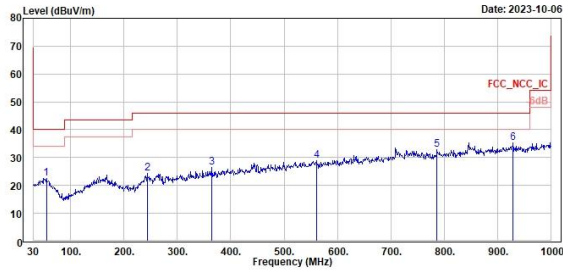
Zigbee_250kHz

High Channel (Horizontal)

High Channel (Vertical)



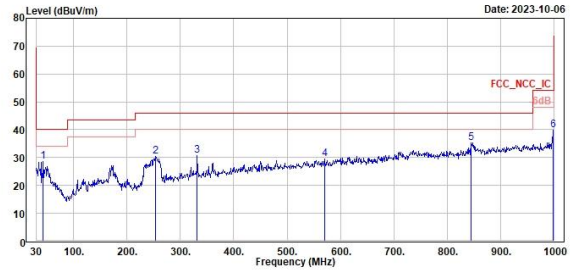
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	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
1	2	3	4	5	6			
MHz	Level	Level	Line	Line	Line			
	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
54.25	22.56	20.30	-5.74	40.00	-17.44	100	355 Peak	Horizontal
243.40	24.39	30.94	-6.55	46.00	-21.61	100	241 Peak	Horizontal
363.68	26.49	29.98	-3.49	46.00	-19.51	100	265 Peak	Horizontal
568.59	28.95	29.12	-0.17	46.00	-17.05	100	306 Peak	Horizontal
786.60	32.71	29.37	3.34	46.00	-13.29	100	135 Peak	Horizontal
929.19	35.17	29.79	5.38	46.00	-10.83	100	91 Peak	Horizontal



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	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
1	2	3	4	5	6			
MHz	Level	Level	Line	Line	Line			
	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
42.61	20.70	35.03	-6.33	40.00	-11.30	100	66 Peak	Vertical
253.10	30.34	36.68	-6.34	46.00	-15.66	100	103 Peak	Vertical
331.67	30.71	34.54	-3.83	46.00	-15.29	100	135 Peak	Vertical
570.29	29.48	30.01	-0.53	46.00	-16.52	100	131 Peak	Vertical
844.80	35.26	31.14	4.12	46.00	-10.74	100	237 Peak	Vertical
990.06	39.78	33.54	6.24	54.00	-14.22	100	22 Peak	Vertical

Spurious Emissions, Tx Mode, 1GHz ~ 26.5GHz

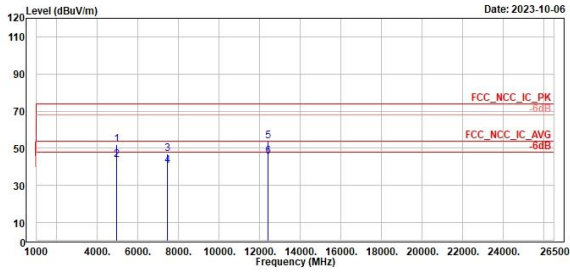
Zigbee_250kHz

High Channel (Horizontal)

High Channel (Vertical)



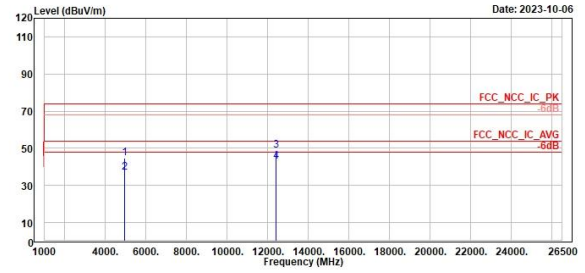
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Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
Level	Line	Limit	cm	deg			
Factor	dB/m	dB					
dB/m	dB/m	dB					
1 4960.00	52.22	61.06	-8.84	74.00	-21.78	100	41 Peak Horizontal
2 4960.00	43.78	52.62	-8.84	54.00	-19.22	100	41 Average Horizontal
3 7440.00	47.17	54.35	-7.18	74.00	-26.83	100	353 Peak Horizontal
4 7440.00	40.72	47.90	-7.18	54.00	-13.28	100	353 Average Horizontal
5 12400.00	53.69	53.48	0.21	74.00	-20.31	100	4 Peak Horizontal
6 12400.00	45.81	45.60	0.21	54.00	-8.19	100	4 Average Horizontal



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Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
Level	Line	Limit	cm	deg			
Factor	dB/m	dB					
dB/m	dB/m	dB					
1 4960.00	44.79	53.63	-8.84	74.00	-29.21	100	76 Peak Vertical
2 4960.00	36.89	45.73	-8.84	54.00	-17.11	100	76 Average Vertical
3 12400.00	49.03	48.82	0.21	74.00	-24.97	100	111 Peak Vertical
4 12400.00	42.91	42.70	0.21	54.00	-11.09	100	111 Average Vertical

Main Source, Non-ECC Mode
Spurious Emissions, Tx Mode, 9kHz ~ 30MHz

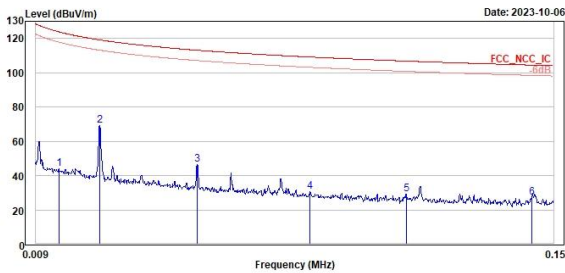
Zigbee_250kHz

High Channel (Open) 9kHz~150kHz

High Channel (Open) 150kHz~30MHz



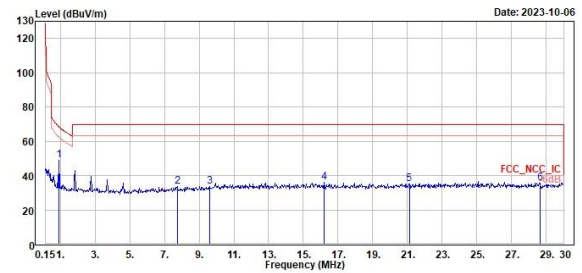
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Peak	Freq (MHz)	Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit Line (dBuV/m)	Over Limit (dB)	APos (cm)	TPos (deg)	Remark	Pol/Phase	Note
1	0.02	44.00	25.97	18.11	123.07	-79.79	100	360	Peak	Open	
2	0.03	69.04	50.09	18.95	119.13	-50.09	100	314	Peak	Open	
3	0.05	46.42	27.38	19.04	113.11	-66.69	100	266	Peak	Open	
4	0.08	30.49	12.18	18.31	109.14	-78.65	100	221	Peak	Open	
5	0.11	29.31	11.35	17.96	106.77	-77.46	100	235	Peak	Open	
6	0.14	27.41	9.31	18.10	104.43	-77.02	100	103	Peak	Open	



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Peak	Freq (MHz)	Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit Line (dBuV/m)	Over Limit (dB)	APos (cm)	TPos (deg)	Remark	Pol/Phase	Note
1	0.93	49.07	30.03	19.04	68.27	-19.20	100	141	Peak	Open	
2	7.73	33.45	12.21	20.64	69.50	-36.05	100	201	Peak	Open	
3	9.61	33.63	12.22	21.41	69.50	-35.87	100	308	Peak	Open	
4	16.18	35.93	13.91	22.02	69.50	-33.57	100	302	Peak	Open	
5	21.10	35.26	12.95	22.31	69.50	-34.24	100	30	Peak	Open	
6	28.63	35.02	13.25	22.37	69.50	-33.80	100	85	Peak	Open	

Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

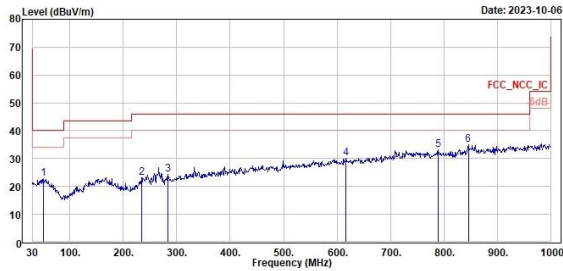
Zigbee_250kHz

High Channel (Horizontal)

High Channel (Vertical)



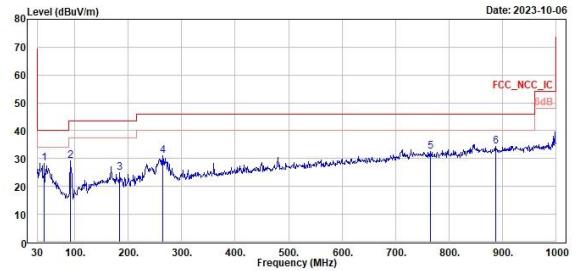
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Peak	Freq (MHz)	Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit Line (dBuV/m)	Over Limit (dB)	APos (cm)	TPos (deg)	Remark	Pol/Phase	Note
1	50.37	22.74	28.39	-5.65	46.00	-17.26	100	230	Peak	Horizontal	
2	233.70	23.13	30.12	-6.99	46.00	-22.87	200	244	Peak	Horizontal	
3	283.17	24.22	29.32	-5.10	46.00	-21.78	194	0	Peak	Horizontal	
4	616.85	30.06	29.42	0.64	46.00	-15.94	100	294	Peak	Horizontal	
5	789.51	33.28	29.77	3.51	46.00	-12.72	200	28	Peak	Horizontal	
6	845.77	34.89	30.79	4.10	46.00	-11.11	100	0	Peak	Horizontal	



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Peak	Freq (MHz)	Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit Line (dBuV/m)	Over Limit (dB)	APos (cm)	TPos (deg)	Remark	Pol/Phase	Note
1	42.61	28.38	34.71	-6.33	46.00	-11.62	100	106	Peak	Vertical	
2	91.11	29.21	41.27	-12.06	43.50	-14.29	100	38	Peak	Vertical	
3	184.23	24.97	32.31	-7.34	43.50	-18.53	151	0	Peak	Vertical	
4	263.77	31.08	37.07	-5.99	46.00	-14.92	150	0	Peak	Vertical	
5	765.26	32.42	29.36	3.06	46.00	-13.58	200	280	Peak	Vertical	
6	886.45	34.38	29.78	4.60	46.00	-11.62	100	252	Peak	Vertical	