

Test Report No.60392919 001

Appendix D: Radiated Spurious Emission Data

(File: 60392919 001 Appendix D)

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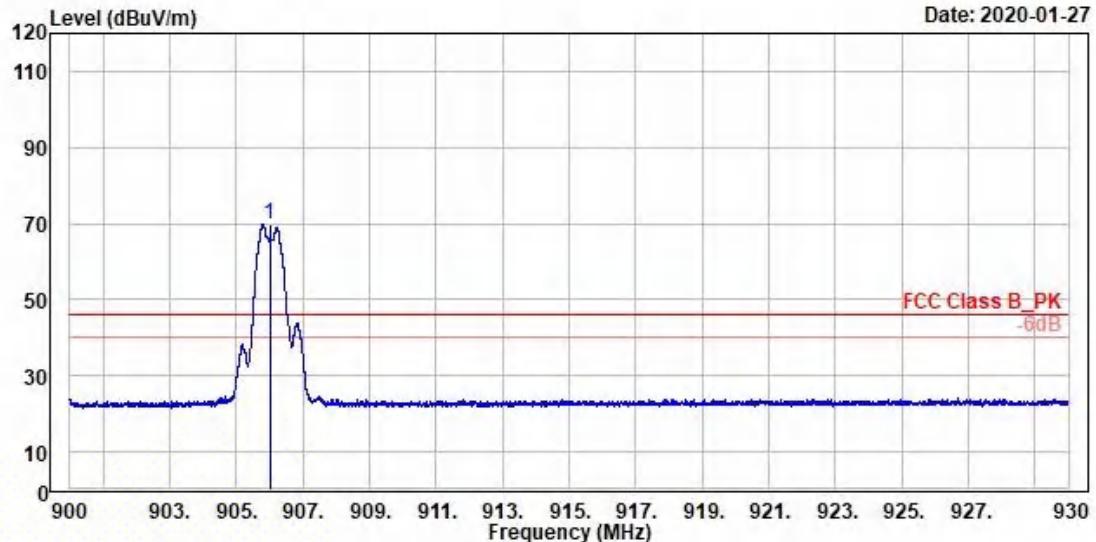
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## 2nd Source BOM Module with ATSAMR30M Sensor Board (PCB Antenna)

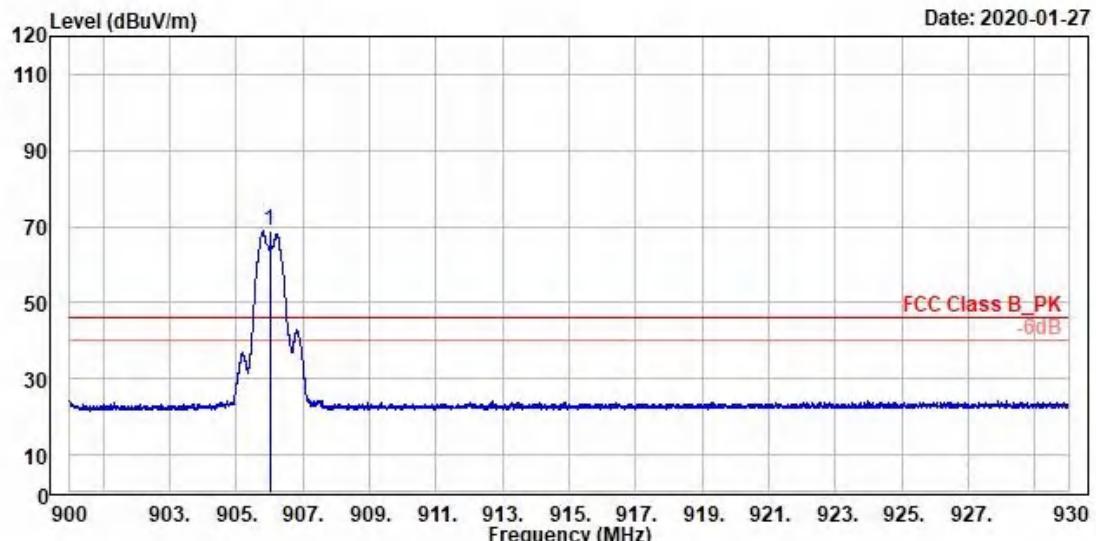
### Spurious Emissions, Bandedge, 40kbps, BPSK



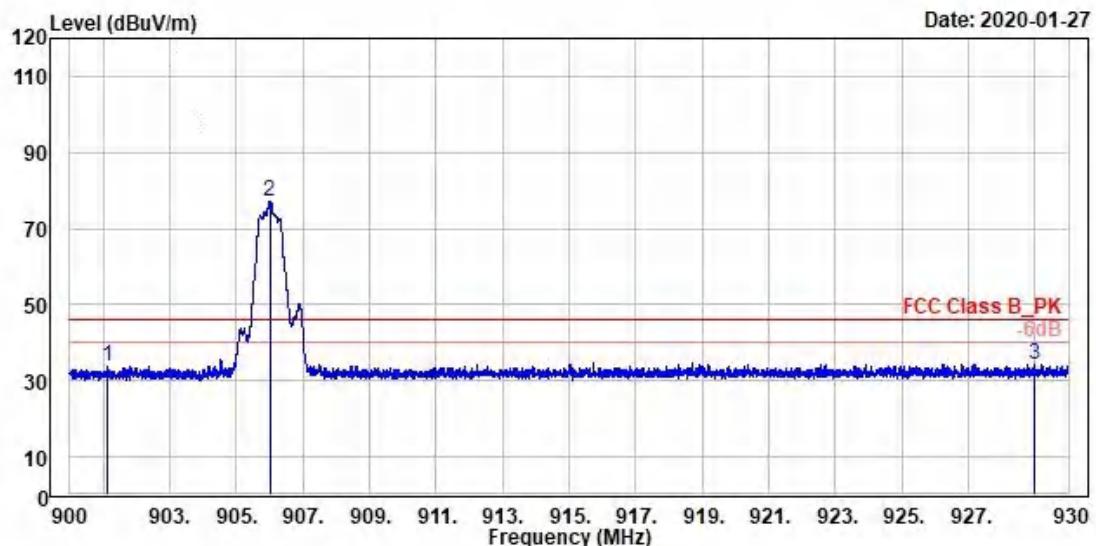
TUV Rheinland Taiwan Ltd.  
No. 458-18, Sec 2, Fenliao, Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)  
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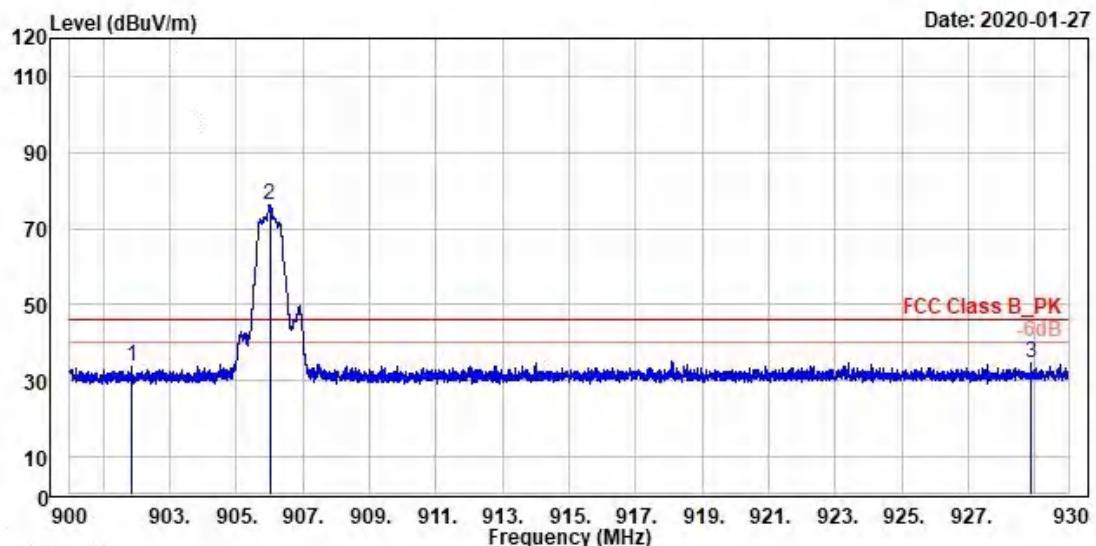
1 \* 906.000 69.83 65.61 4.22 46.00 23.83 100 183 Average Horizontal



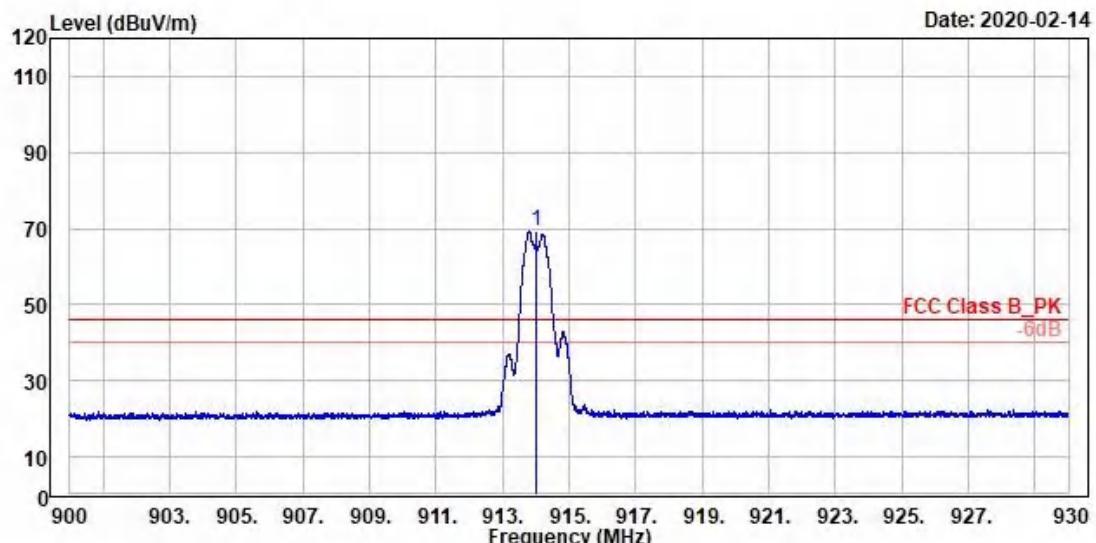
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MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1 * 906.000	68.73	64.51	4.22	46.00	22.73	100	153 Average	Vertical



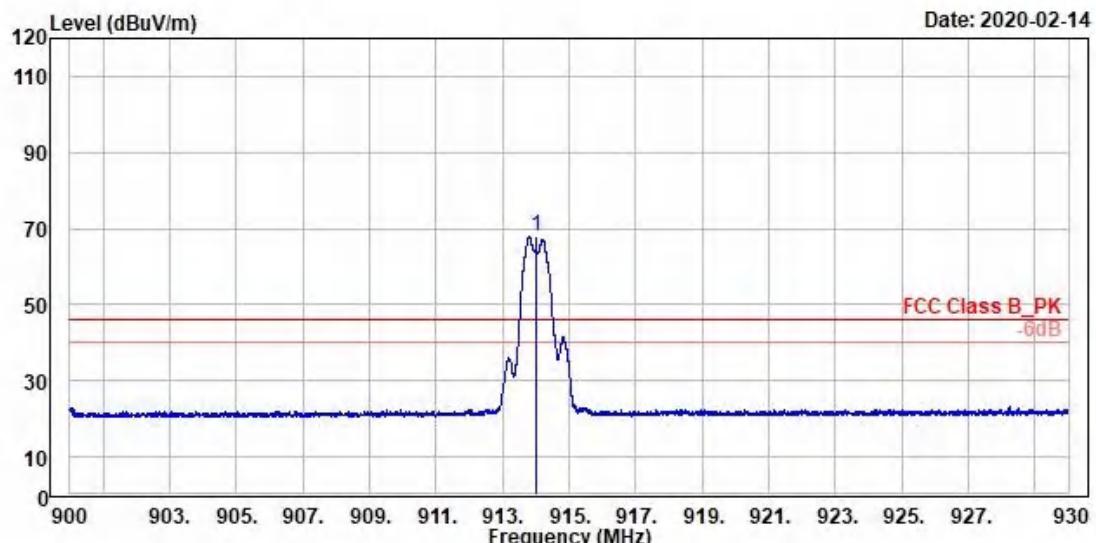
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1	901.113	33.87	29.79	4.08	46.00	-12.13	100	183 QP
2 *	906.000	77.32	73.10	4.22	46.00	31.32	100	183 Peak
3	928.968	34.36	29.66	4.70	46.00	-11.64	100	183 QP



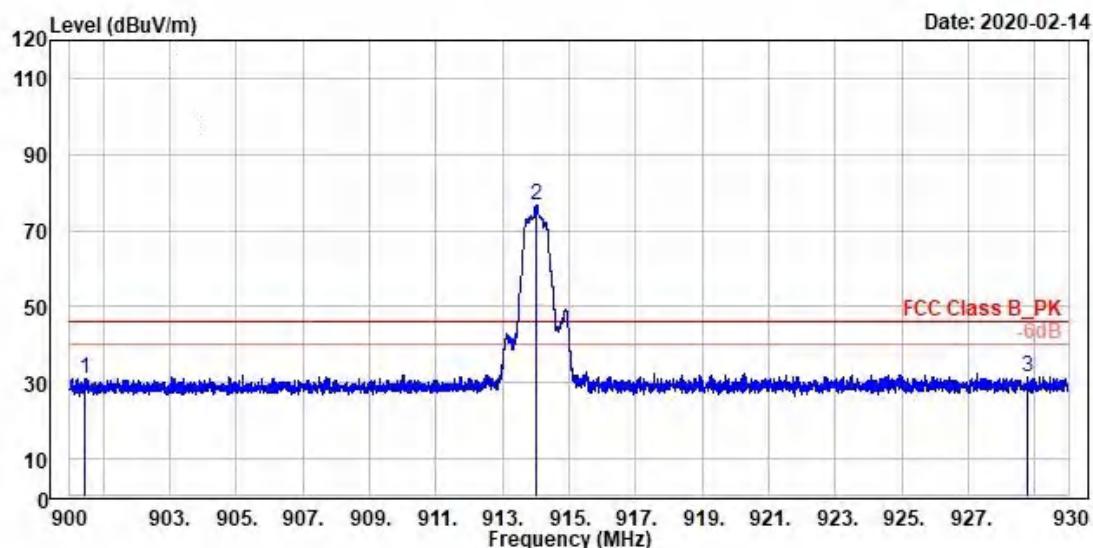
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1	901.866	33.94	29.83	4.11	46.00	-12.06	100	153 QP Vertical
2 *	906.000	76.19	71.97	4.22	46.00	30.19	100	153 Peak Vertical
3	928.878	34.87	30.17	4.70	46.00	-11.13	100	153 QP Vertical



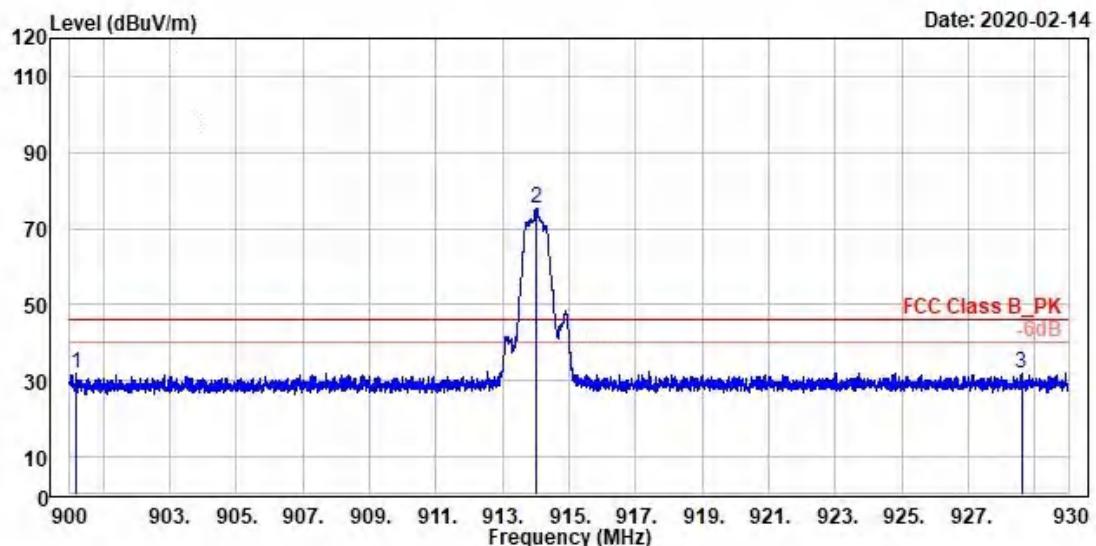
Freq MHz	Level dBuV/m	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
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1 * 914.00	69.29	65.71	3.58	46.00	23.29	100	303 Average	Horizontal



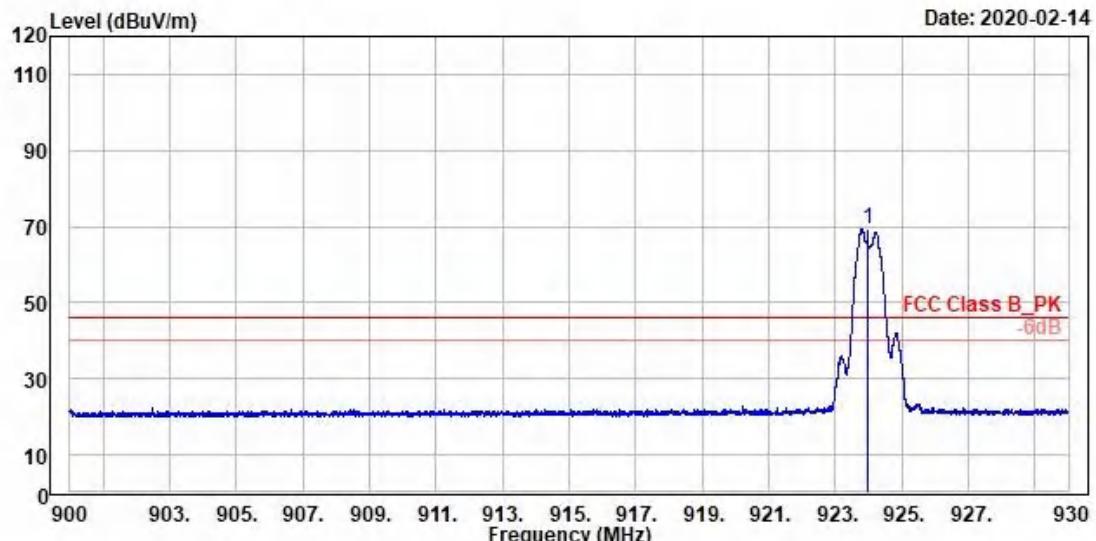
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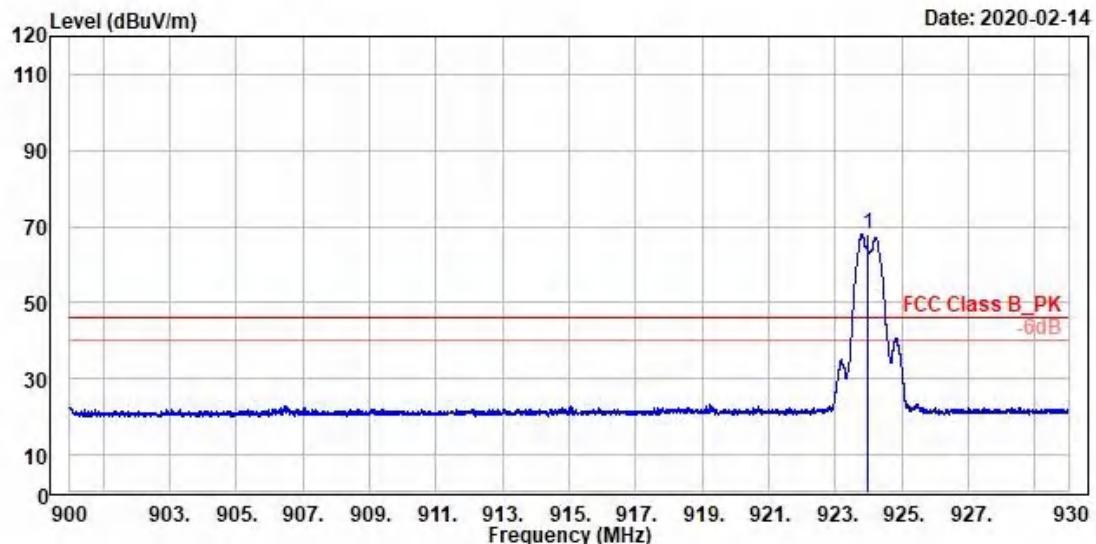
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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1	900.45	31.24	27.98	3.26	46.00	-14.76	100	303 QP	Horizontal
2 *	914.00	76.83	73.25	3.58	46.00	30.83	100	303 Peak	Horizontal
3	928.79	31.69	27.77	3.92	46.00	-14.31	100	303 QP	Horizontal



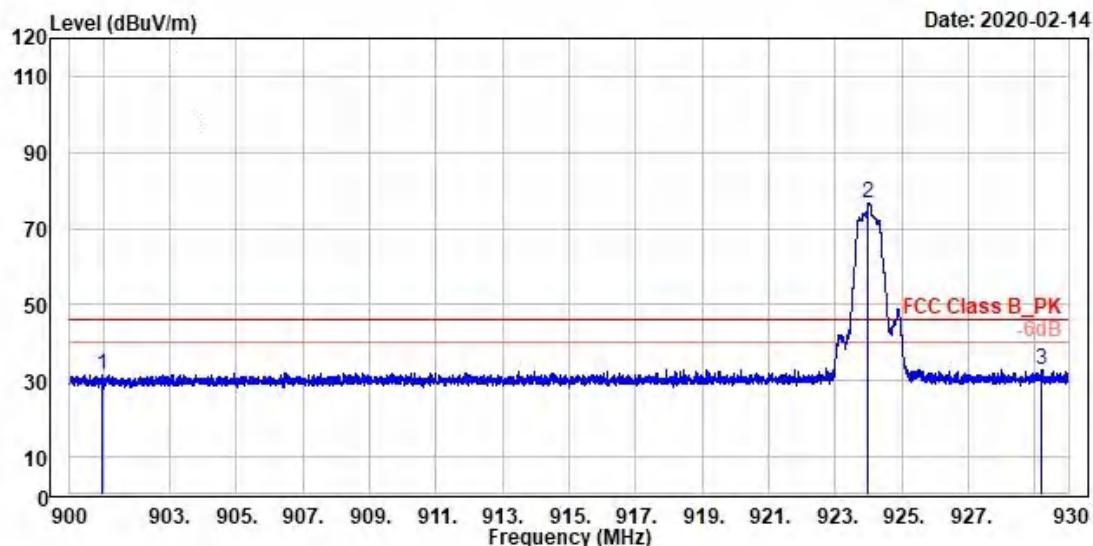
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Freq	Level	Factor	dB/m	dBuV/m	dB	cm	deg	
MHz	dBuV/m		dBuV					
1	900.17	31.89	28.64	3.25	46.00	-14.11	100	196 QP Vertical
2 *	914.00	75.49	71.91	3.58	46.00	29.49	100	196 Peak Vertical
3	928.59	32.02	28.11	3.91	46.00	-13.98	100	196 QP Vertical



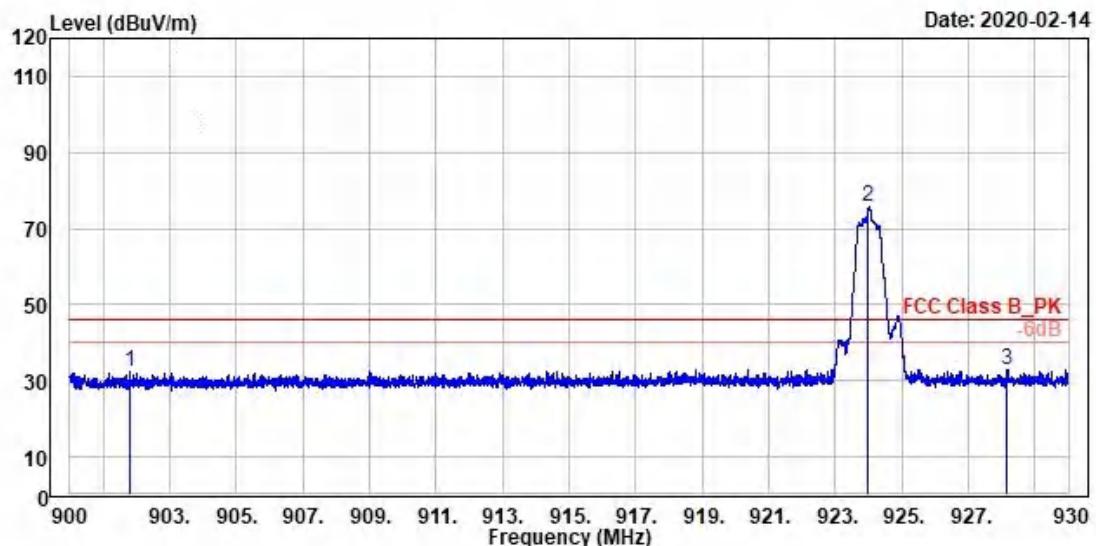
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		Level Factor	Line	Limit	cm	deg		
1 * 924.00	69.41	65.58	3.83	46.00	23.41	100	302 Average	Horizontal



Freq MHz	Level dBuV/m	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit	dB	cm		
1 *    924.00	67.97	64.14	3.83	46.00	21.97	100	201 Average	Vertical



Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	900.96	31.71	28.44	3.27	46.00	-14.29	100	302 QP	Horizontal
2 *	924.00	76.87	73.04	3.83	46.00	30.87	100	302 Peak	Horizontal
3	929.22	32.79	28.86	3.93	46.00	-13.21	100	302 QP	Horizontal

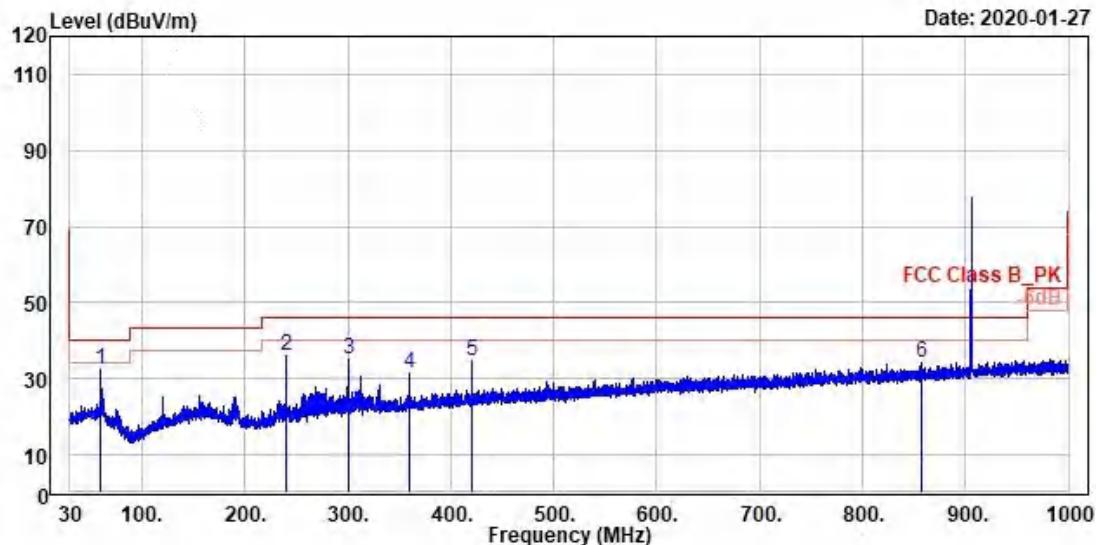


Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	901.81	32.20	28.91	3.29	46.00	-13.80	100	201 QP	Vertical
2 *	924.00	75.52	71.69	3.83	46.00	29.52	100	201 Peak	Vertical
3	928.17	33.06	29.15	3.91	46.00	-12.94	100	201 QP	Vertical

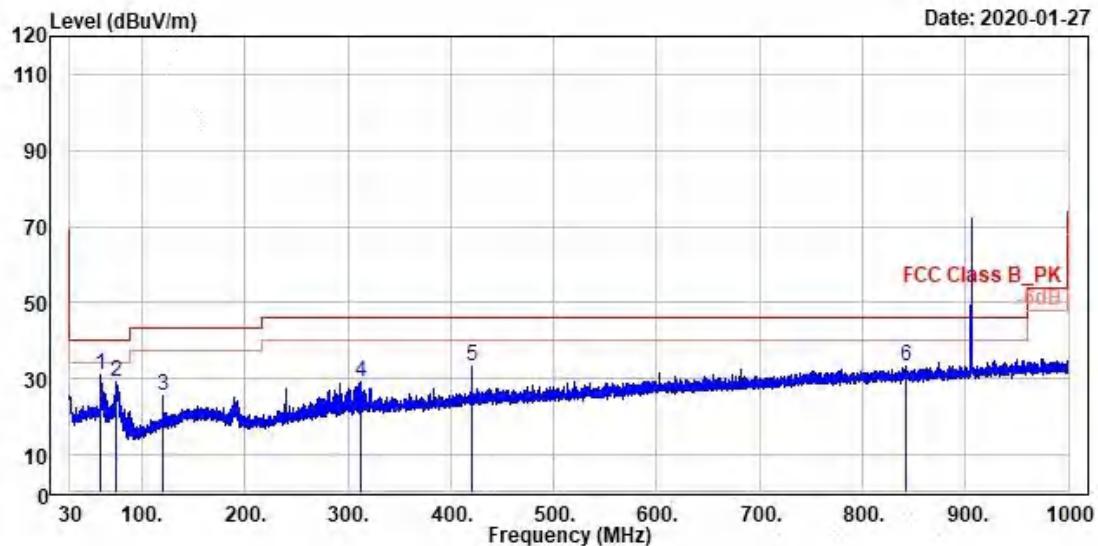
## **Spurious Emissions, TX Mode, 30M-1G, 40kbps, BPSK**



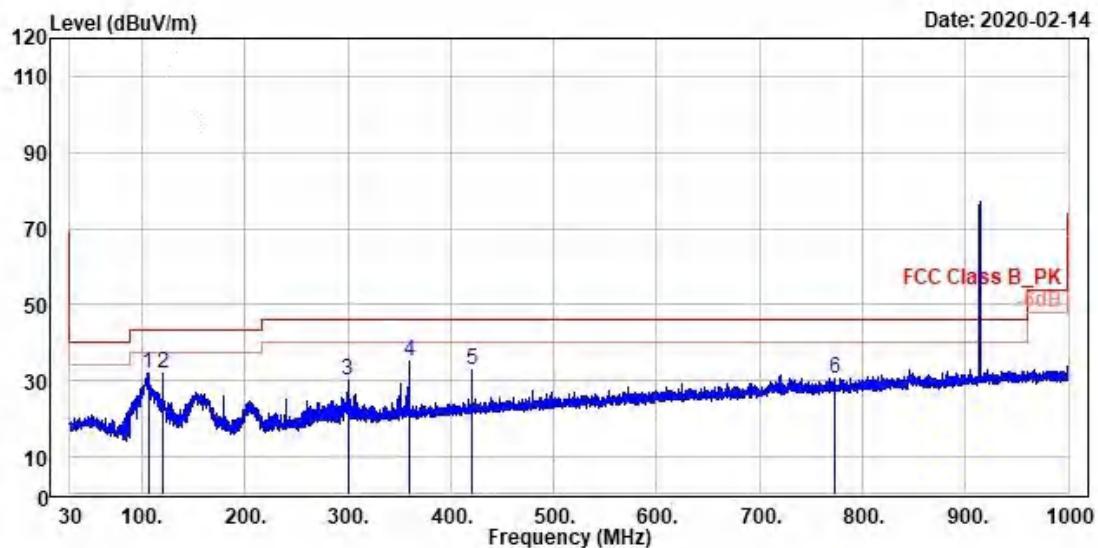
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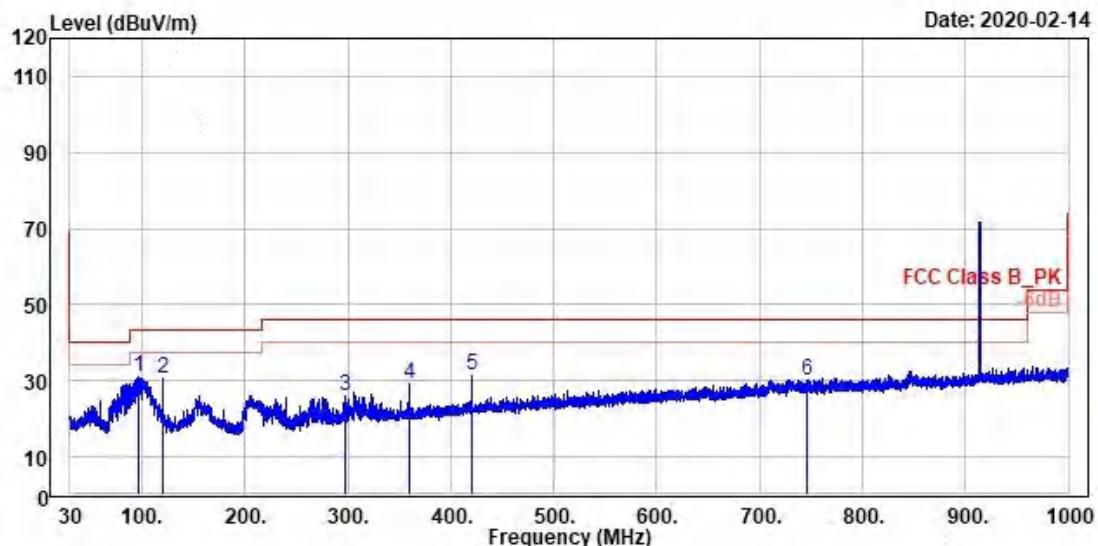
Freq	Level	Read		Limit	Over	APos	TPos	Remark	Pol/Phase
		Level	Factor						
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	59.973	32.19	38.94	-6.75	40.00	-7.81	400	28 QP	horizontal
2	240.005	36.18	43.04	-6.86	46.00	-9.82	100	93 QP	horizontal
3	300.048	35.17	40.02	-4.85	46.00	-10.83	100	100 QP	horizontal
4	359.994	31.28	35.22	-3.94	46.00	-14.72	100	110 QP	horizontal
5	420.037	34.54	37.32	-2.78	46.00	-11.46	100	66 QP	horizontal
6	856.925	34.32	30.80	3.52	46.00	-11.68	400	361 QP	horizontal



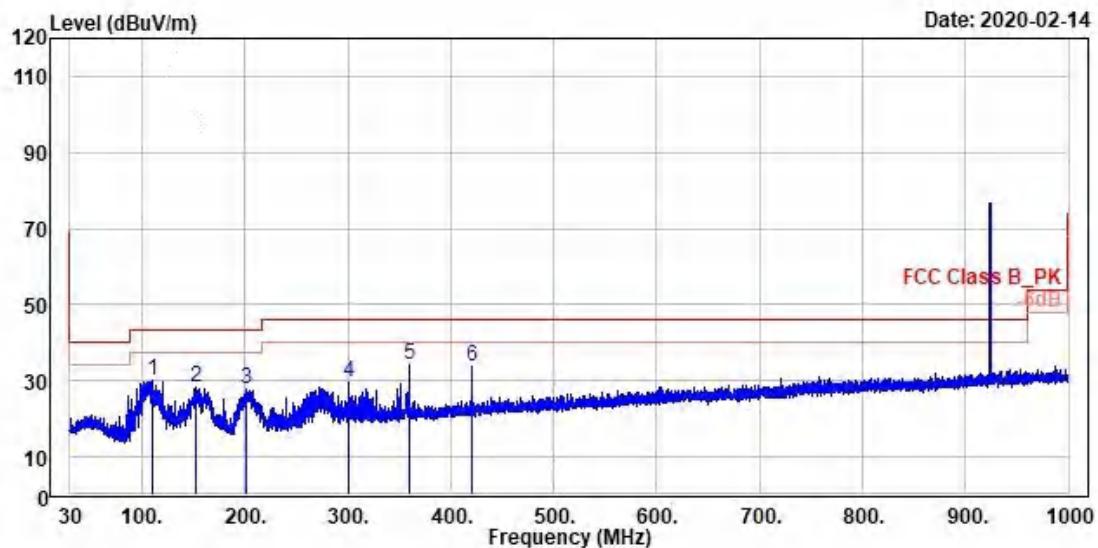
Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m				
1	59.973	31.07	37.82	-6.75	40.00	-8.93	100	66 QP	vertical
2	75.396	29.28	39.12	-9.84	40.00	-10.72	100	131 QP	vertical
3	120.016	25.57	34.40	-8.83	43.50	-17.93	100	169 QP	vertical
4	312.076	29.30	33.94	-4.64	46.00	-16.70	200	158 QP	vertical
5	420.037	33.17	35.95	-2.78	46.00	-12.83	100	147 QP	vertical
6	841.793	33.10	29.72	3.38	46.00	-12.90	300	145 QP	vertical



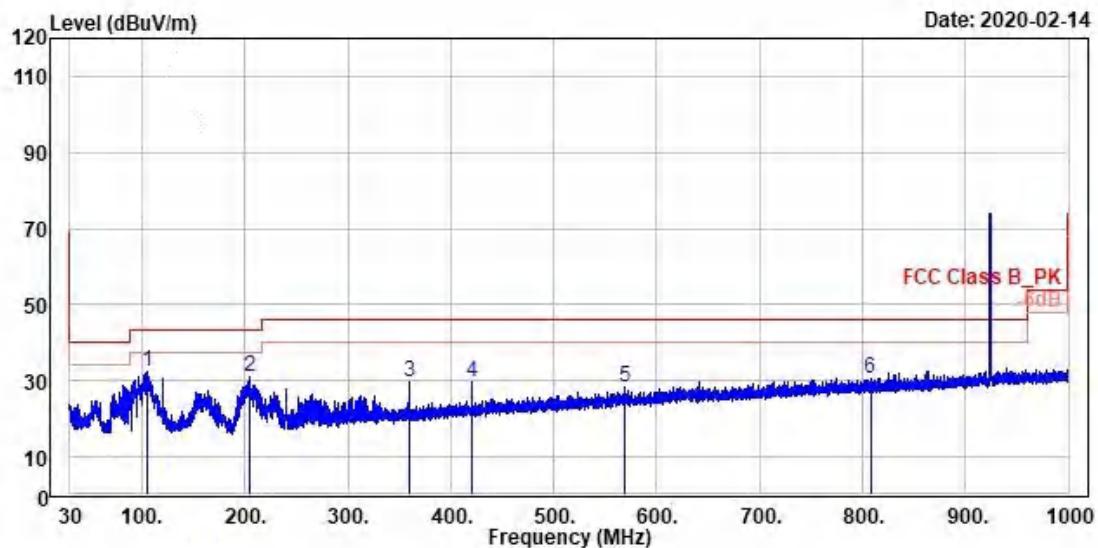
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		MHz	dBuV/m	Level	Factor	Line	Limit		
1	105.95	31.84	43.48	-11.64	43.50	-11.66	200	179 QP	horizontal
2	120.02	32.13	42.32	-10.19	43.50	-11.37	300	133 QP	horizontal
3	299.95	30.01	36.44	-6.43	46.00	-15.99	100	207 QP	horizontal
4	359.99	35.03	40.56	-5.53	46.00	-10.97	100	312 QP	horizontal
5	420.04	32.71	36.98	-4.27	46.00	-13.29	100	233 QP	horizontal
6	772.44	30.75	29.29	1.46	46.00	-15.25	400	337 QP	horizontal



Freq	Level	Read		Limit	Over	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	Level	Factor	Line	Limit		
1	96.35	31.20	44.53	-13.33	43.50	-12.30	100	346 QP	vertical
2	119.92	30.59	40.79	-10.20	43.50	-12.91	100	123 QP	vertical
3	297.53	26.02	32.53	-6.51	46.00	-19.98	179	360 QP	vertical
4	359.99	29.09	34.62	-5.53	46.00	-16.91	200	308 QP	vertical
5	420.04	31.30	35.57	-4.27	46.00	-14.70	100	225 QP	vertical
6	746.93	30.30	29.25	1.05	46.00	-15.70	200	0 QP	vertical



Freq MHz	Level dBuV/m	Read Level Factor		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		dBuV	dB/m	dBuV/m	dB	cm	deg		
1 110.03	30.09	41.19	-11.10	43.50	-13.41	200	190 QP		horizontal
2 151.54	28.36	36.03	-7.67	43.50	-15.14	200	360 QP		horizontal
3 201.88	28.02	37.86	-9.84	43.50	-15.48	200	4 QP		horizontal
4 300.05	29.52	35.95	-6.43	46.00	-16.48	100	201 QP		horizontal
5 359.99	34.31	39.84	-5.53	46.00	-11.69	100	306 QP		horizontal
6 420.04	33.72	37.99	-4.27	46.00	-12.28	100	234 QP		horizontal

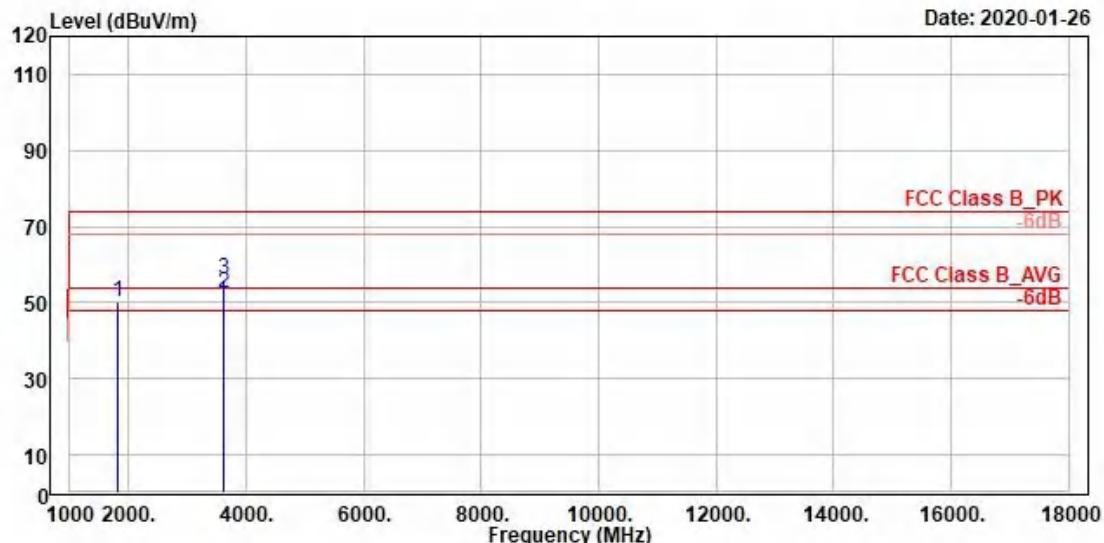


Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit				
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1	104.69	32.60	44.45	-11.85	43.50	-10.90	100	228 QP
2	204.21	30.94	40.78	-9.84	43.50	-12.56	100	251 QP
3	359.99	29.63	35.16	-5.53	46.00	-16.37	200	323 QP
4	420.04	29.86	34.13	-4.27	46.00	-16.14	100	217 QP
5	569.42	28.15	30.00	-1.85	46.00	-17.85	128	360 QP
6	807.75	30.55	28.71	1.84	46.00	-15.45	100	272 QP

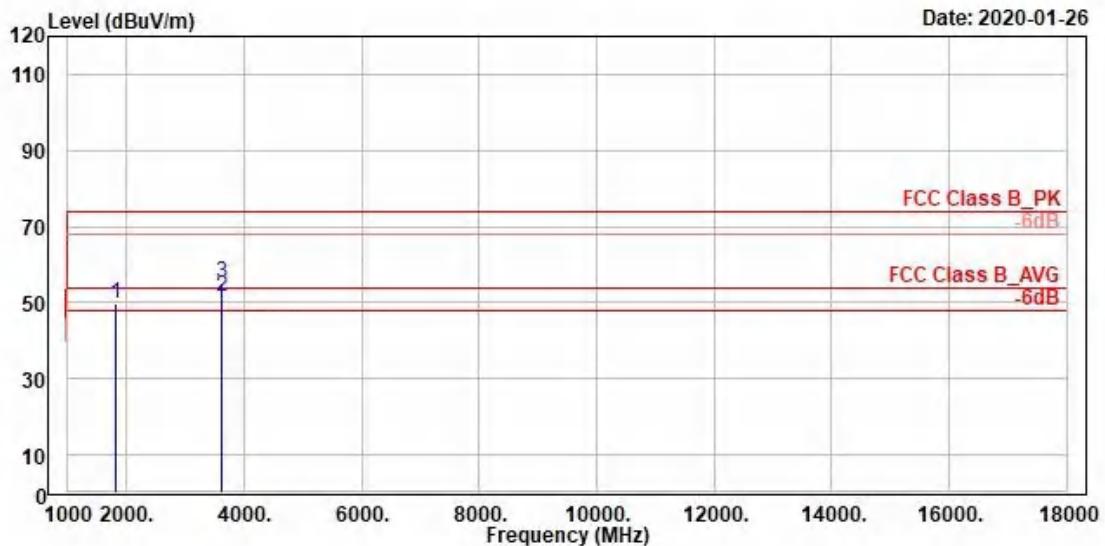
## **Spurious Emissions, TX Mode, 1-18G, 40kbps, BPSK**



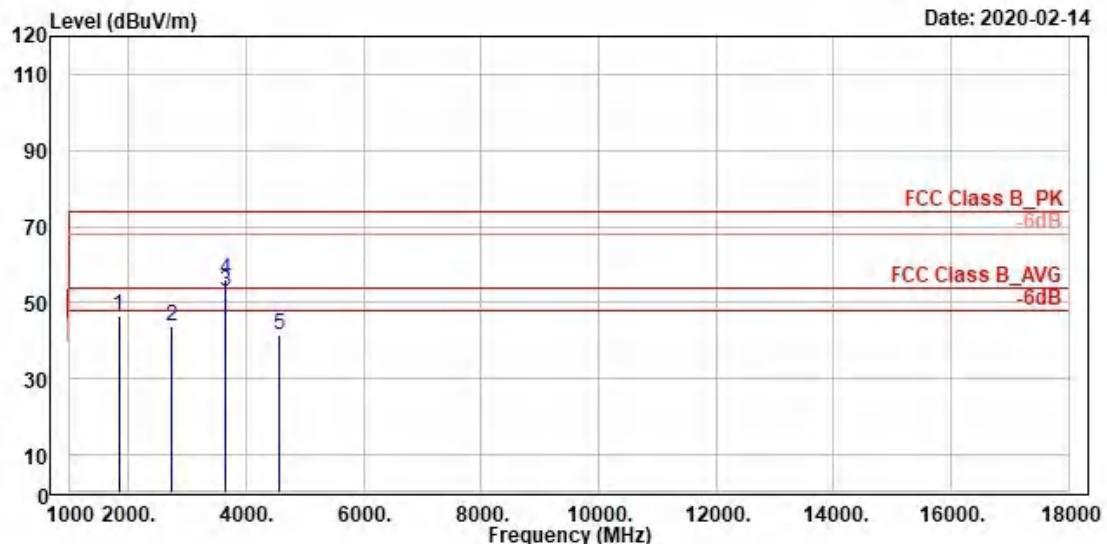
TUV Rheinland Taiwan Ltd.  
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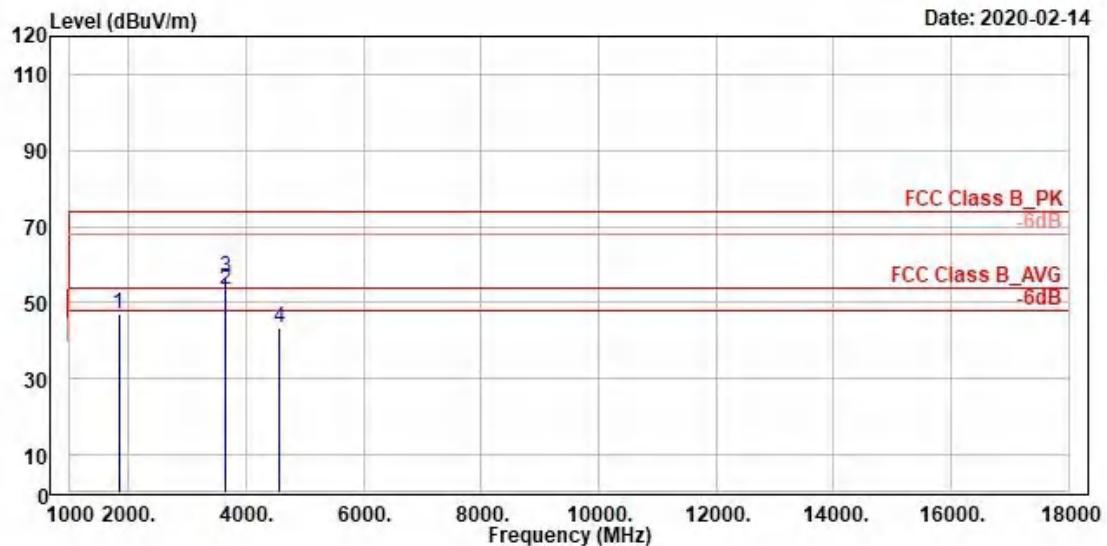
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		Level	Factor						
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1812.000	50.29	15.57	34.72	74.00	-23.71	200	140 Peak	horizontal
2 !	3624.000	52.61	63.89	-11.28	54.00	-1.39	276	88 Average	horizontal
3	3624.000	56.29	67.57	-11.28	74.00	-17.71	276	88 Peak	horizontal



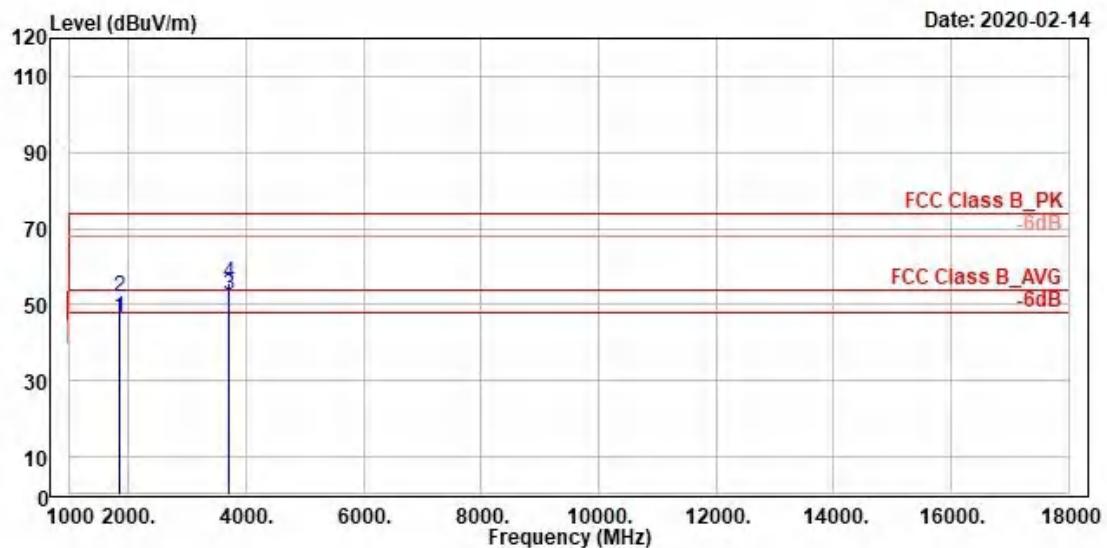
	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV		dBuV/m	dB	cm	deg		
1	1812.000	49.72	15.00	34.72	74.00	-24.28	100	189	Peak	vertical
2 !	3624.000	51.76	63.04	-11.28	54.00	-2.24	129	101	Average	vertical
3	3624.000	55.36	66.64	-11.28	74.00	-18.64	129	101	Peak	vertical



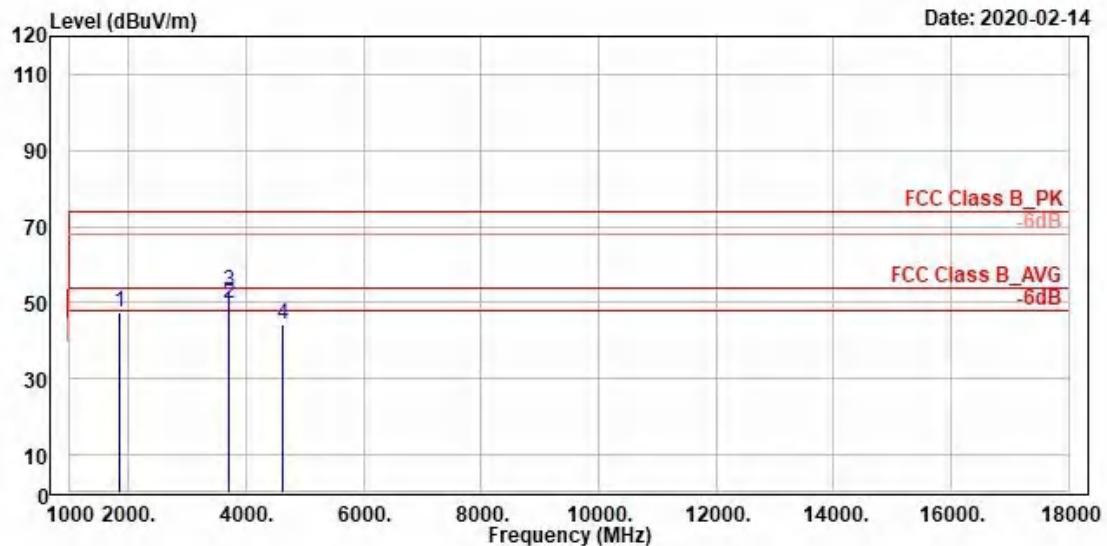
Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	1828.00	46.48	63.26	-16.78	74.00	-27.52	200	184	Peak horizontal
2	2742.00	43.70	57.55	-13.85	74.00	-30.30	300	223	Peak horizontal
3 !	3656.00	53.14	64.88	-11.74	54.00	-0.86	134	66	Average horizontal
4	3656.00	56.28	68.02	-11.74	74.00	-17.72	134	66	Peak horizontal
5	4570.00	41.59	52.10	-10.51	74.00	-32.41	300	232	Peak horizontal



Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	1828.00	47.13	63.91	-16.78	74.00	-26.87	100	167	Peak vertical
2 !	3656.00	53.26	65.00	-11.74	54.00	-0.74	117	121	Average vertical
3	3656.00	56.48	68.22	-11.74	74.00	-17.52	117	121	Peak vertical
4	4570.00	43.26	53.77	-10.51	74.00	-30.74	100	0	Peak vertical



Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	1848.00	46.68	63.23	-16.55	54.00	-7.32	259	258	Average horizontal
2	1848.00	52.12	68.67	-16.55	74.00	-21.88	259	258	Peak horizontal
3 !	3696.00	52.63	64.35	-11.72	54.00	-1.37	282	67	Average horizontal
4	3696.00	55.67	67.39	-11.72	74.00	-18.33	282	67	Peak horizontal



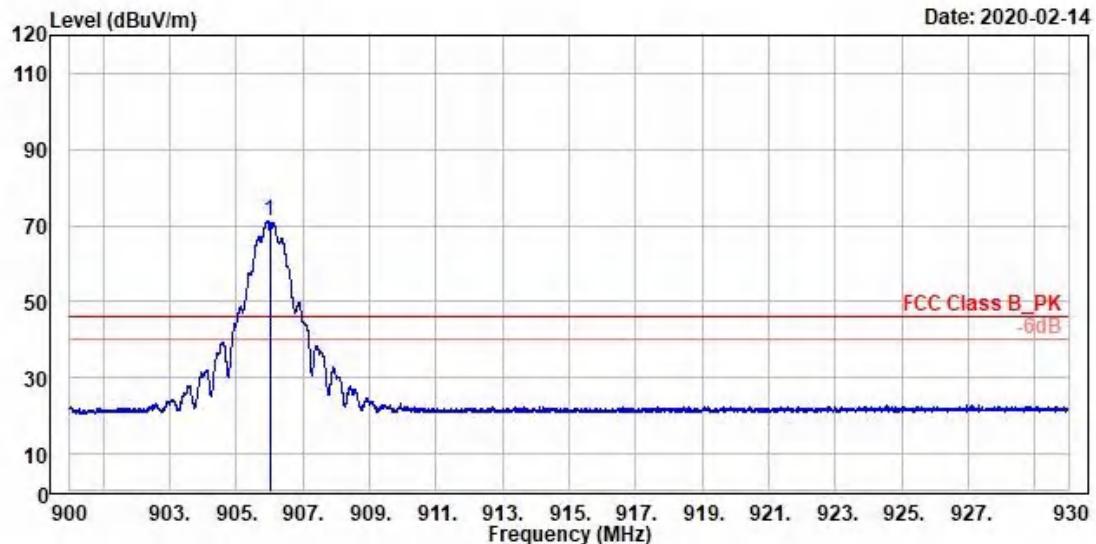
Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	1848.00	47.62	64.17	-16.55	74.00	-26.38	100	175	Peak vertical
2 !	3696.00	49.55	61.27	-11.72	54.00	-4.45	300	327	Average vertical
3	3696.00	52.97	64.69	-11.72	74.00	-21.03	300	327	Peak vertical
4	4620.00	44.11	54.56	-10.45	74.00	-29.89	100	336	Peak vertical

## 2nd Source BOM Module with ATSAMR30M Sensor Board (PCB Antenna)

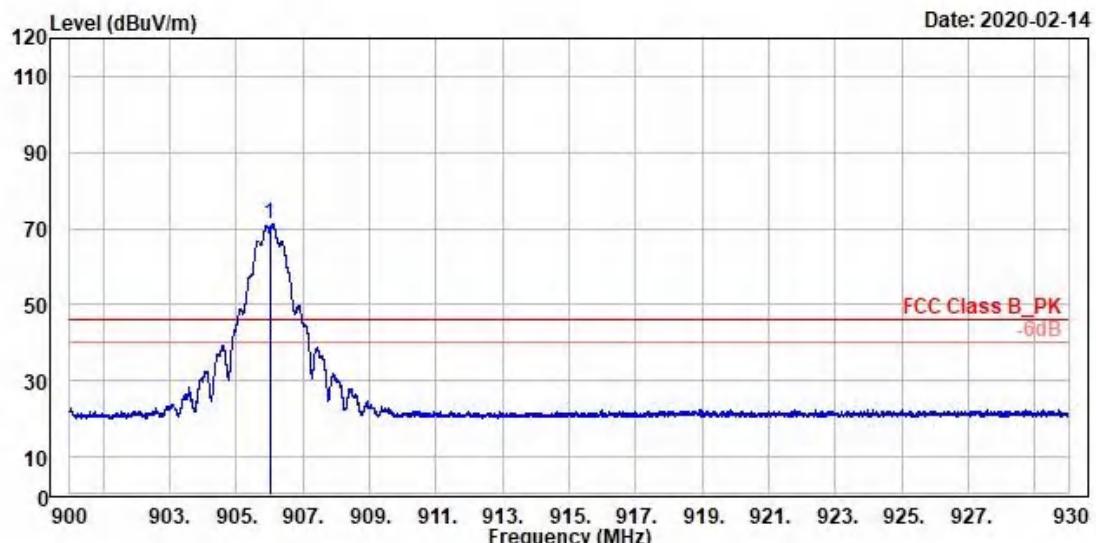
### Spurious Emissions, Bandedge, 250kbps, O-QPSK



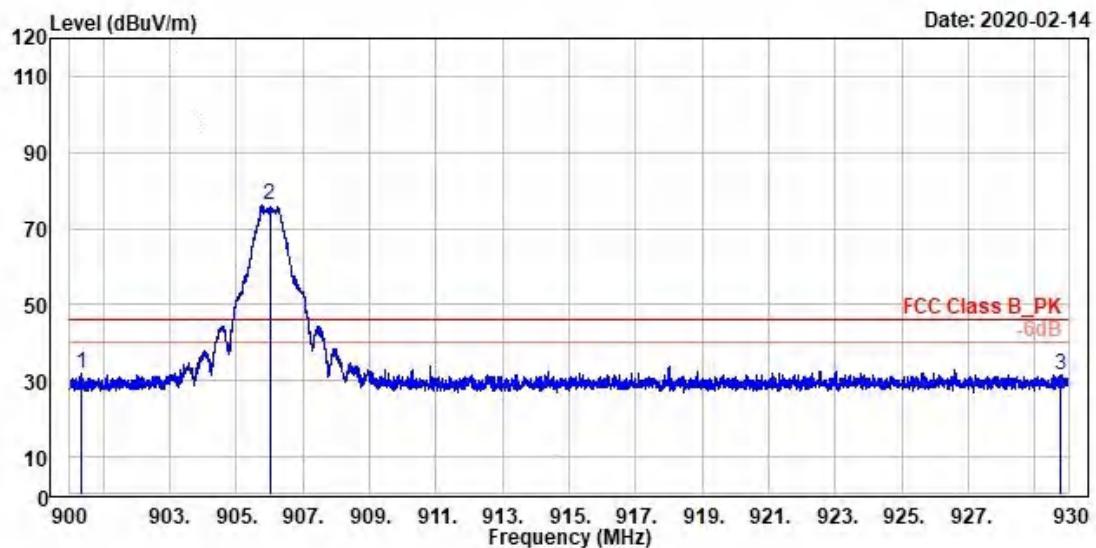
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Tel: +886-2172-1000 Fax: +886-2172-1322



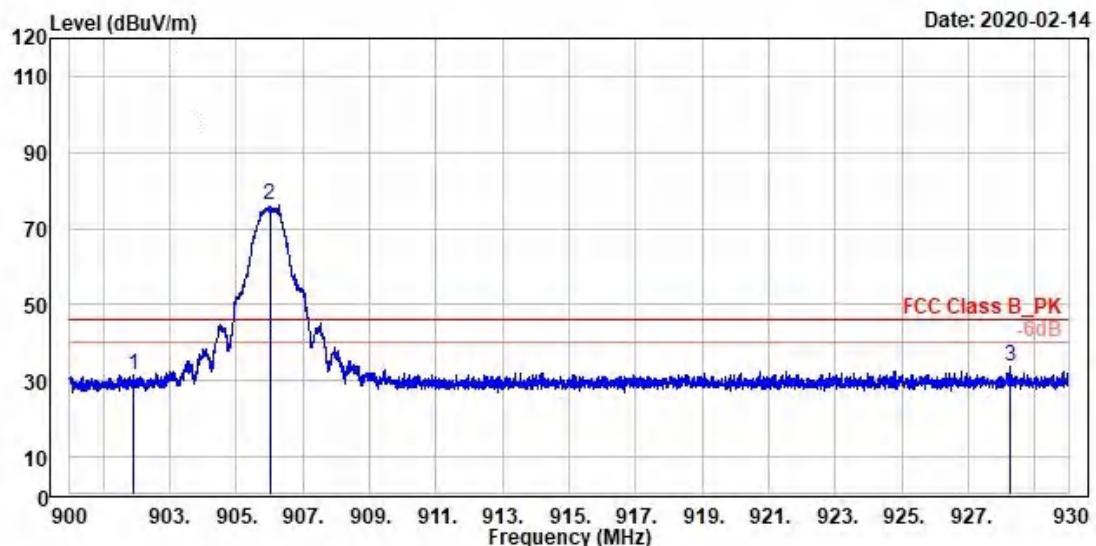
Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level						
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1 * 906.00	71.11	67.71	3.40	46.00	25.11	100	198	Average Horizontal



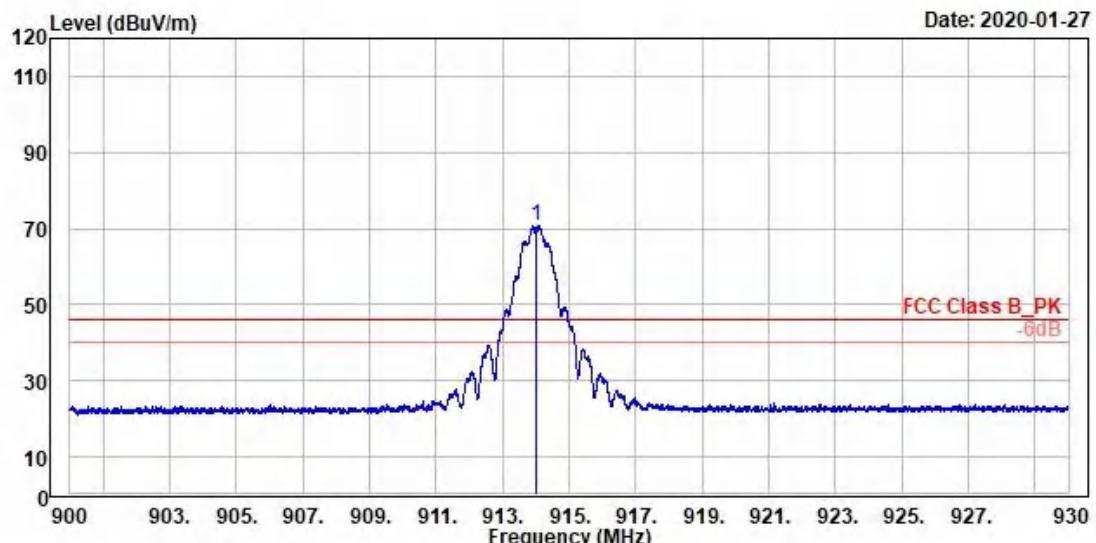
Freq MHz	Level dBuV/m	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit	cm	deg		
1 * 906.00	71.13	67.73	3.40	46.00	25.13	100	200 Average	Vertical



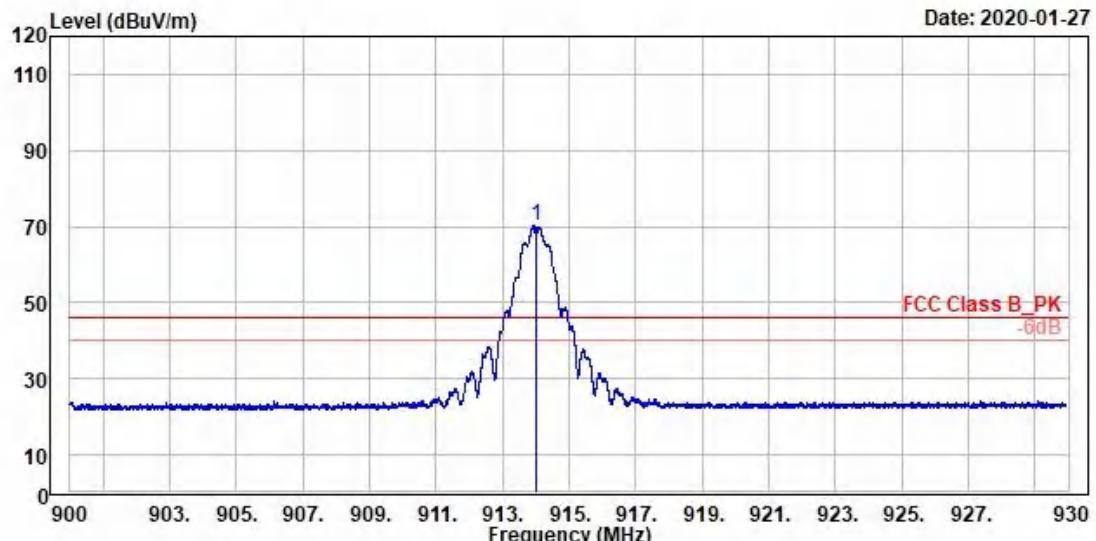
Freq	Level	Read Level Factor		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB		
1	900.33	31.97	28.71	3.26	46.00	-14.03	100	198 QP	Horizontal
2 *	906.00	76.00	72.60	3.40	46.00	30.00	100	198 Peak	Horizontal
3	929.77	31.68	27.73	3.95	46.00	-14.32	100	198 QP	Horizontal



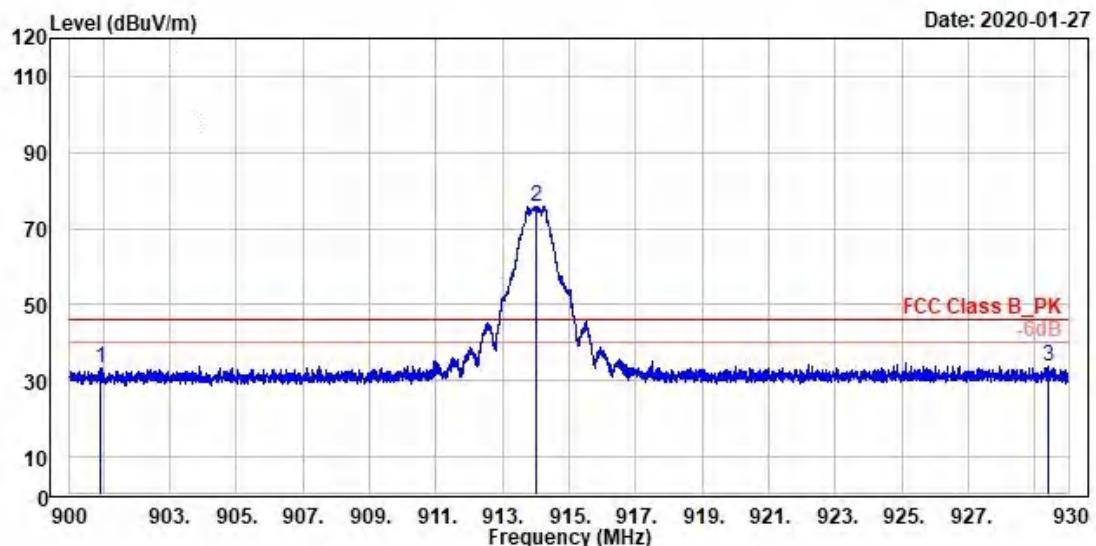
Freq	Level	Read Level Factor		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	901.91	31.52	28.23	3.29	46.00	-14.48	100	200 QP	Vertical
2 *	906.00	76.00	72.60	3.40	46.00	30.00	100	200 Peak	Vertical
3	928.23	33.72	29.81	3.91	46.00	-12.28	100	200 QP	Vertical



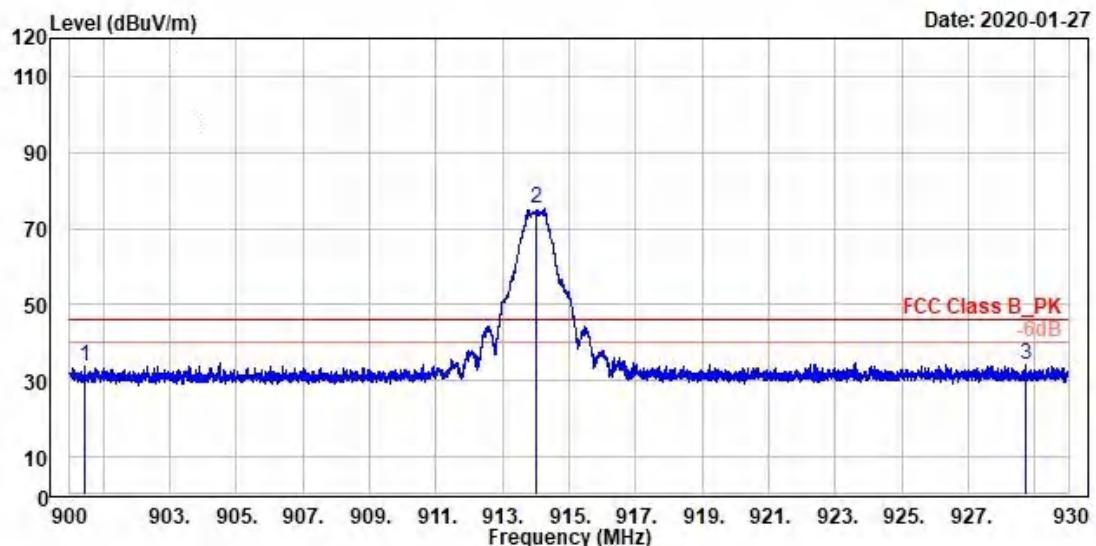
Freq MHz	Level dBuV/m	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit	dB	cm		
1 * 914.000	70.77	66.36	4.41	46.00	24.77	100	180 Average	Horizontal



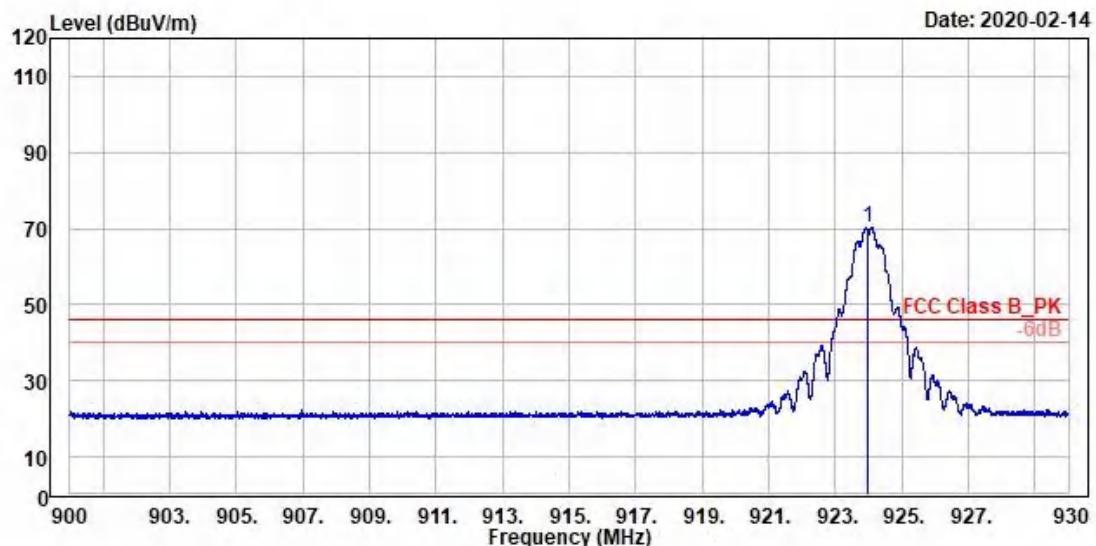
Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit	cm	deg		
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1 * 914.000	70.16	65.75	4.41	46.00	24.16	100	152 Average	Vertical



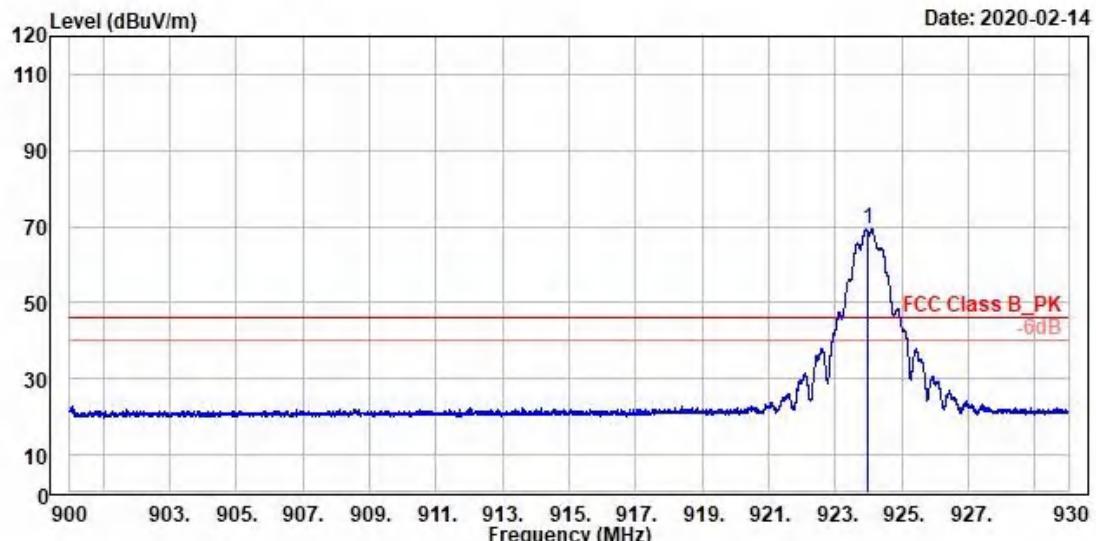
	Freq	Read Level	Read Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1	900.918	33.40	29.32	4.08	46.00	-12.60	100	180 QP	Horizontal
2 *	914.000	75.95	71.54	4.41	46.00	29.95	100	180 Peak	Horizontal
3	929.385	33.69	28.99	4.70	46.00	-12.31	100	180 QP	Horizontal



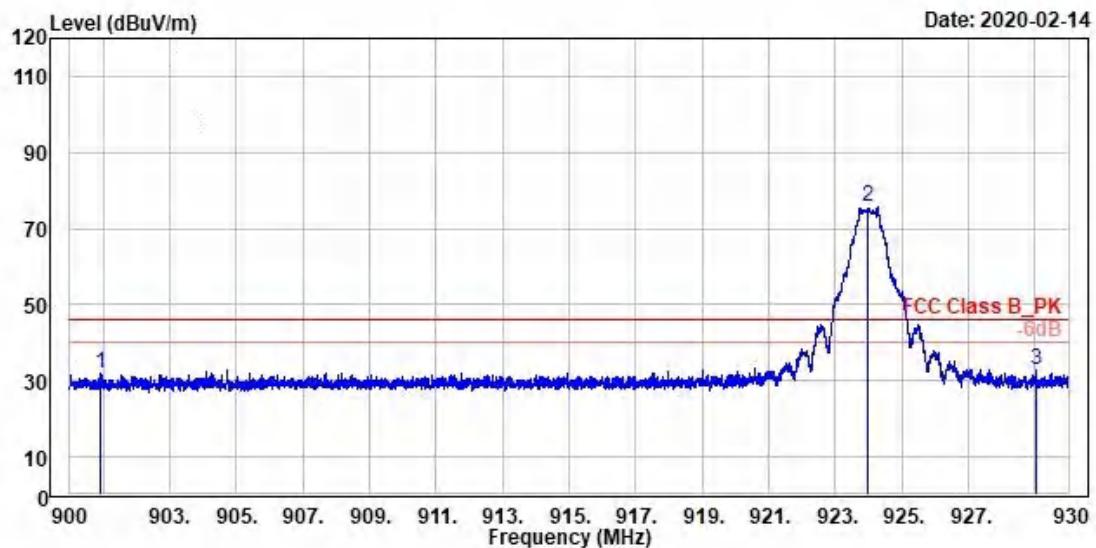
	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV		dB/m	dBuV/m	dB	cm	deg	
1	900.441	33.80	29.73	4.07	46.00	-12.20	100	152	QP	Vertical
2 *	914.000	75.09	70.68	4.41	46.00	29.09	100	152	Peak	Vertical
3	928.725	34.27	29.57	4.70	46.00	-11.73	100	152	QP	Vertical



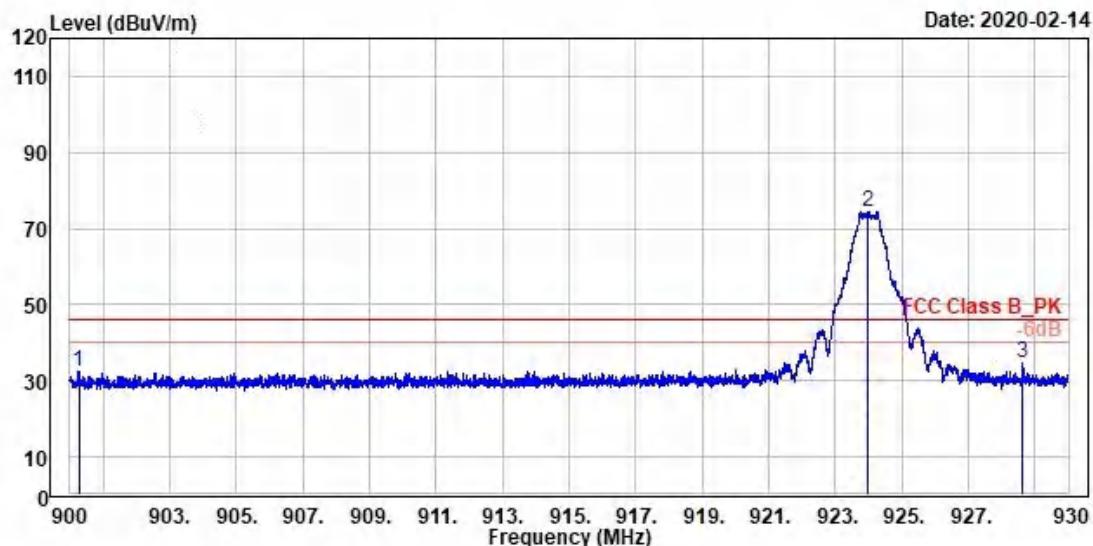
Freq MHz	Level dBuV/m	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit	cm	deg		
1 * 924.00	70.48	66.65	3.83	46.00	24.48	100	302 Average	Horizontal



Freq MHz	Level dBuV/m	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit	cm	deg		
1 * 924.00	69.39	65.56	3.83	46.00	23.39	100	201 Average	Vertical



Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	900.93	31.71	28.44	3.27	46.00	-14.29	100	302 QP	Horizontal
2 *	924.00	75.52	71.69	3.83	46.00	29.52	100	302 Peak	Horizontal
3	929.05	32.71	28.79	3.92	46.00	-13.29	100	302 QP	Horizontal

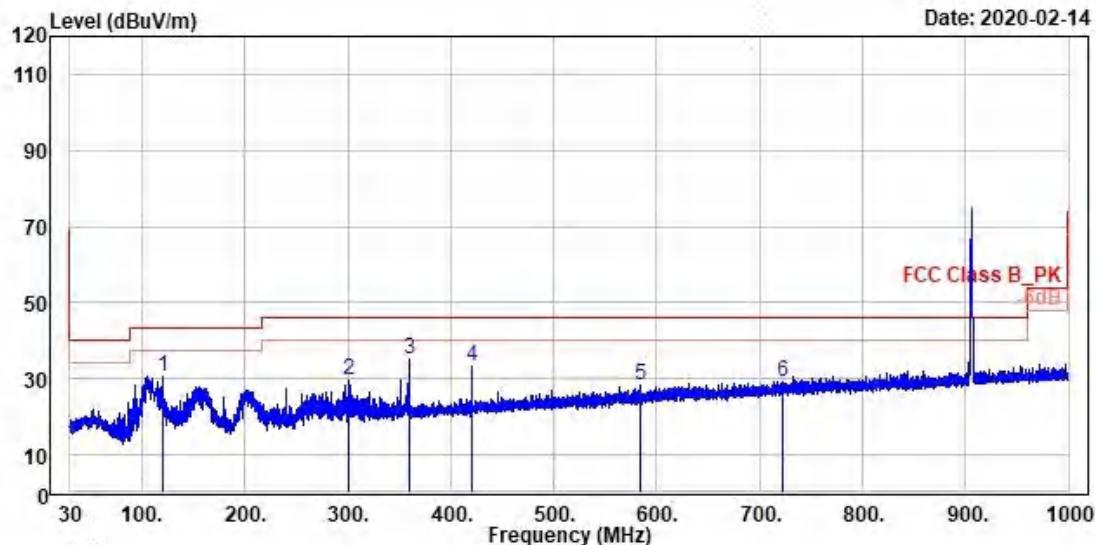


Freq	Level	Read Level Factor		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB		
1	900.26	32.20	28.95	3.25	46.00	-13.80	100	201 QP	Vertical
2 *	924.00	74.54	70.71	3.83	46.00	28.54	100	201 Peak	Vertical
3	928.64	34.72	30.81	3.91	46.00	-11.28	100	201 QP	Vertical

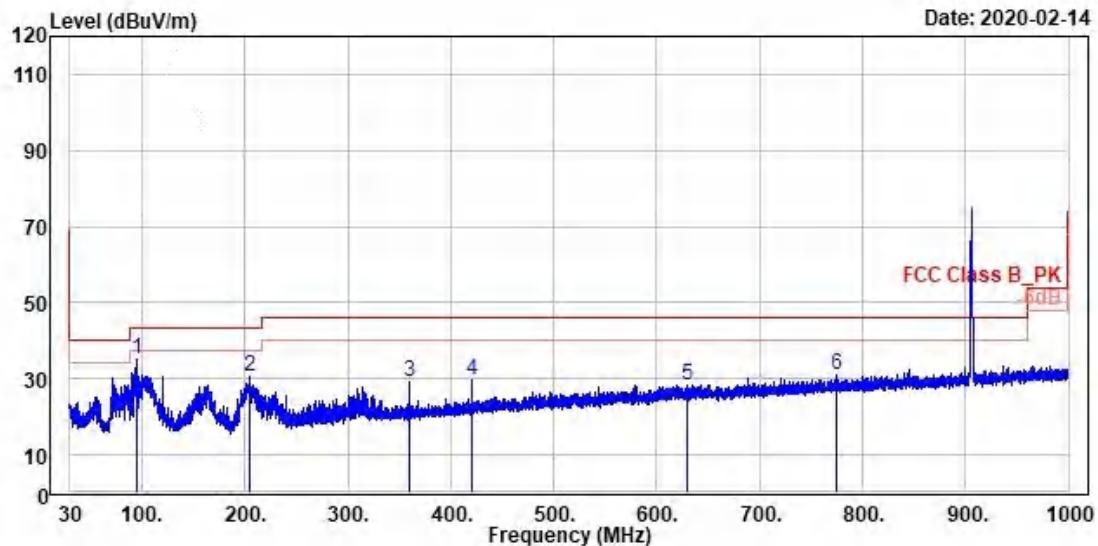
# **Spurious Emissions, TX Mode, 30M-1G, 250kbps, O-QPSK**



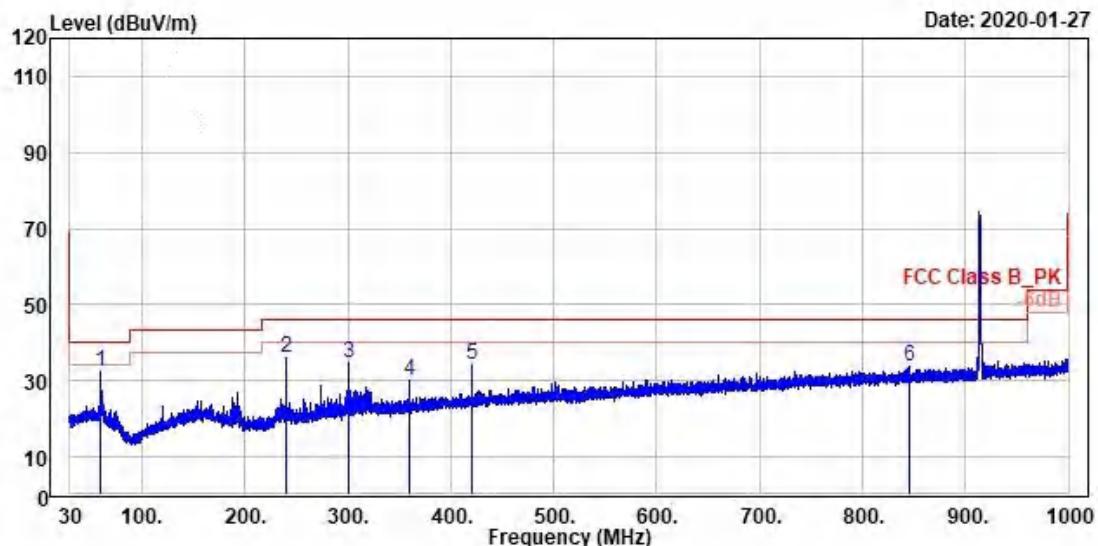
TÜV Rheinland Taiwan Ltd.  
No. 458-18, Sec 2, Fenliao, Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)  
Tel:-886-2172-1000 Fax:-886-2172-1322



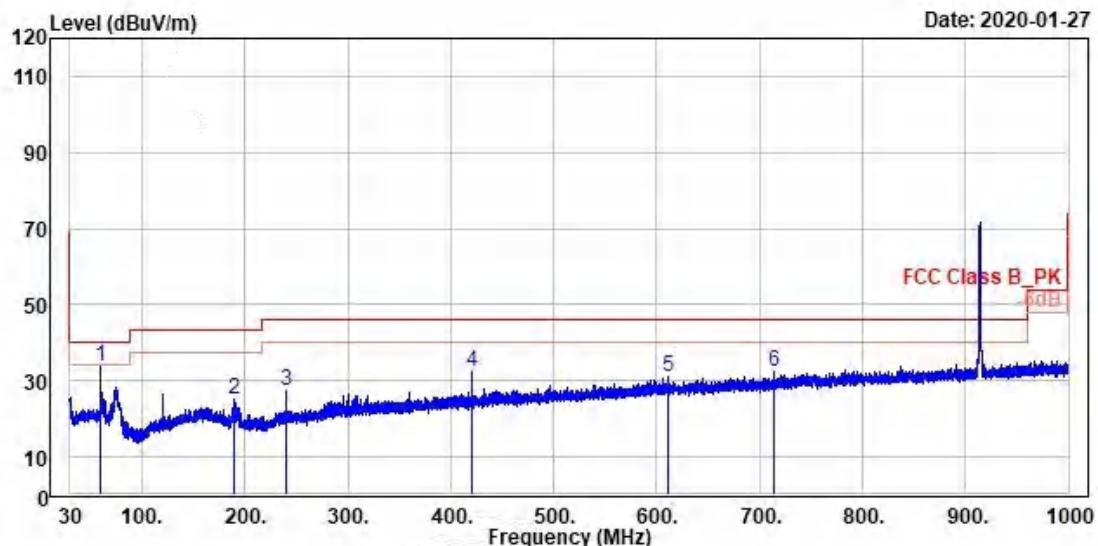
Freq	Level	Read		Limit	Over	APos	TPos	Remark	Pol/Phase
		Level	Factor						
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	120.02	30.44	40.63	-10.19	43.50	-13.06	200	131 QP	horizontal
2	300.05	29.67	36.10	-6.43	46.00	-16.33	100	118 QP	horizontal
3	359.99	34.93	40.46	-5.53	46.00	-11.07	100	234 QP	horizontal
4	420.04	33.45	37.72	-4.27	46.00	-12.55	100	236 QP	horizontal
5	583.58	28.09	29.79	-1.70	46.00	-17.91	200	284 QP	horizontal
6	723.07	29.33	28.76	0.57	46.00	-16.67	100	213 QP	horizontal



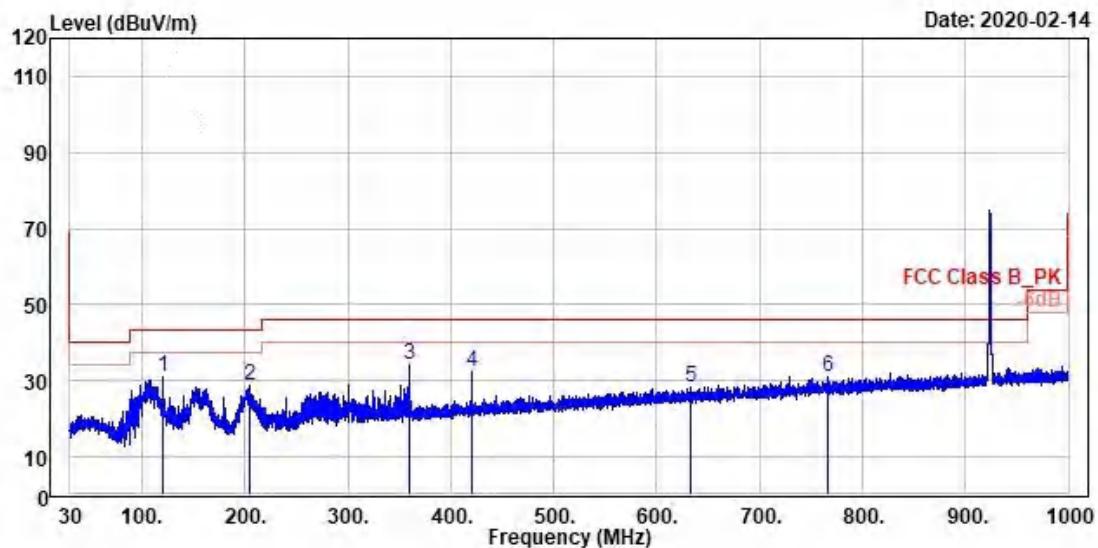
Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit				
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1	94.70	35.22	48.73	-13.51	43.50	-8.28	100	234 QP
2	205.09	30.38	40.23	-9.85	43.50	-13.12	100	243 QP
3	359.99	29.32	34.85	-5.53	46.00	-16.68	200	317 QP
4	420.04	29.55	33.82	-4.27	46.00	-16.45	100	219 QP
5	630.24	28.32	29.08	-0.76	46.00	-17.68	200	73 QP
6	774.86	30.86	29.38	1.48	46.00	-15.14	100	105 QP



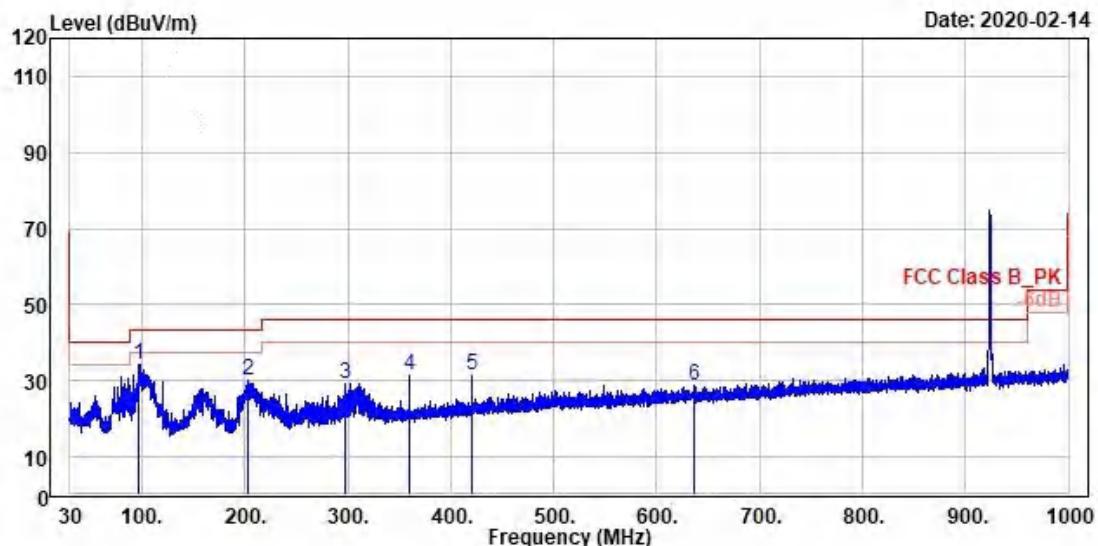
Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dB	cm	deg	
1	59.973	32.43	39.18	-6.75	40.00	-7.57	300	191 QP	horizontal
2	240.005	35.93	42.79	-6.86	46.00	-10.07	100	102 QP	horizontal
3	300.048	34.47	39.32	-4.85	46.00	-11.53	100	105 QP	horizontal
4	359.994	29.98	33.92	-3.94	46.00	-16.02	100	88 QP	horizontal
5	420.037	34.27	37.05	-2.78	46.00	-11.73	100	62 QP	horizontal
6	844.897	33.65	30.22	3.43	46.00	-12.35	336	360 QP	horizontal



Freq	Level	Read Level Factor		Limit	Over	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB		
1	59.973	33.77	40.52	-6.75	40.00	-6.23	100	94 QP	vertical
2	188.983	25.03	33.11	-8.08	43.50	-18.47	100	110 QP	vertical
3	240.005	27.31	34.17	-6.86	46.00	-18.69	100	136 QP	vertical
4	420.037	32.48	35.26	-2.78	46.00	-13.52	100	152 QP	vertical
5	610.739	31.20	30.87	0.33	46.00	-14.80	399	360 QP	vertical
6	714.723	32.40	30.90	1.50	46.00	-13.60	100	333 QP	vertical



Freq	Level	Read		Limit	Over	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	Level	Factor				
1	120.02	31.19	41.38	-10.19	43.50	-12.31	200	152 QP	horizontal
2	205.18	28.81	38.66	-9.85	43.50	-14.69	200	11 QP	horizontal
3	359.99	34.33	39.86	-5.53	46.00	-11.67	100	144 QP	horizontal
4	420.04	32.17	36.44	-4.27	46.00	-13.83	100	242 QP	horizontal
5	633.44	28.10	28.83	-0.73	46.00	-17.90	200	6 QP	horizontal
6	765.65	30.87	29.48	1.39	46.00	-15.13	200	240 QP	horizontal

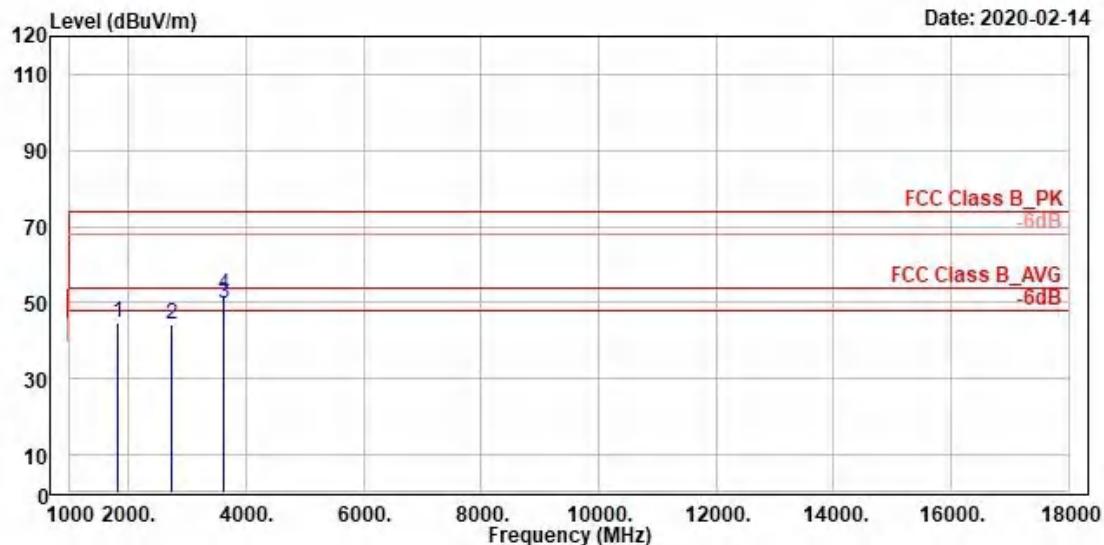


Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	
		Level Factor	Line	Limit					
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	97.42	34.23	47.40	-13.17	43.50	-9.27	100	331 QP	vertical
2	202.56	30.24	40.07	-9.83	43.50	-13.26	100	252 QP	vertical
3	298.11	29.38	35.86	-6.48	46.00	-16.62	200	336 QP	vertical
4	359.99	31.48	37.01	-5.53	46.00	-14.52	100	214 QP	vertical
5	420.04	31.35	35.62	-4.27	46.00	-14.65	100	218 QP	vertical
6	636.54	28.88	29.58	-0.70	46.00	-17.12	130	360 QP	vertical

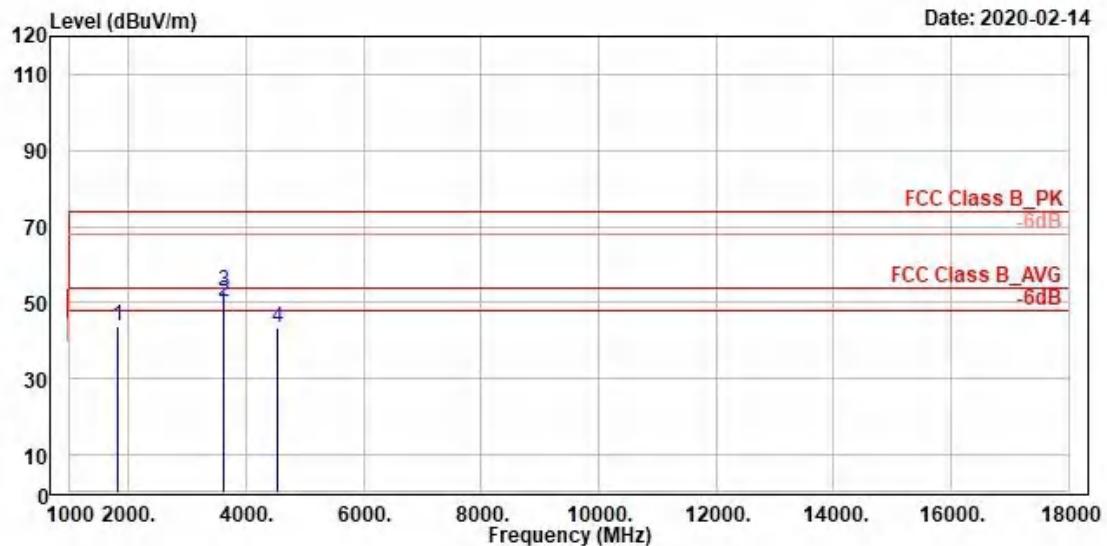
# **Spurious Emissions, TX Mode, 1-18G, 250kbps, O-QPSK**



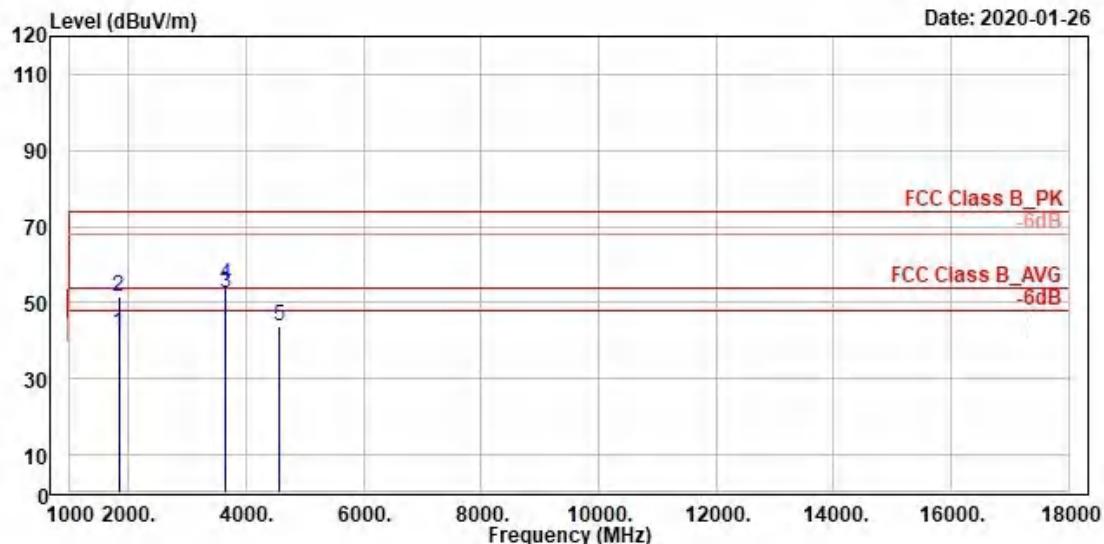
TUV Rheinland Taiwan Ltd.  
No. 458-18, Sec 2, Fenliao, Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)  
Tel: +886-2172-1000 Fax: +886-2172-1322



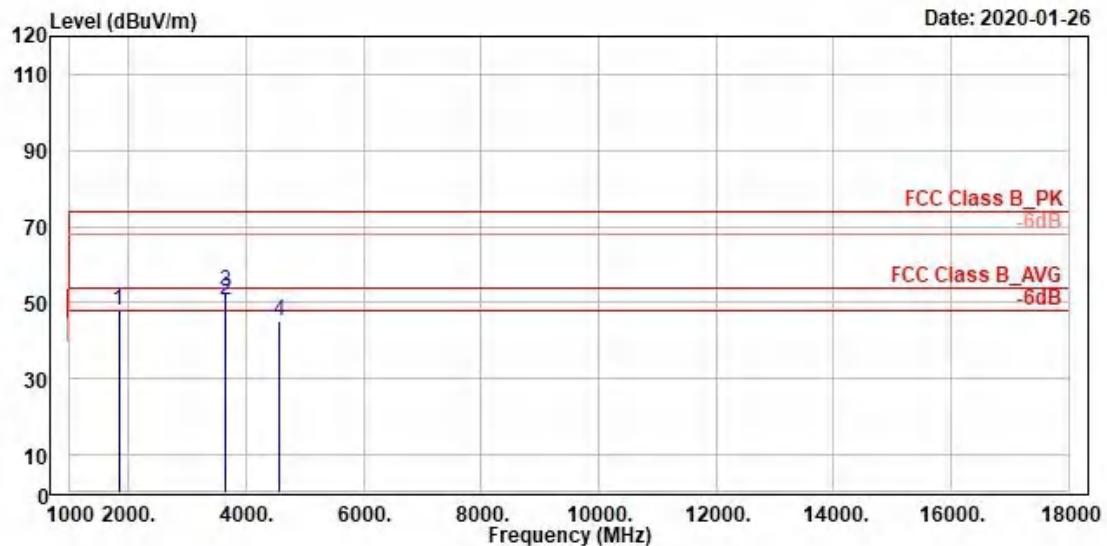
Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		Freq	Level						
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1812.00	44.51	61.47	-16.96	74.00	-29.49	100	222 Peak	horizontal
2	2718.00	44.06	57.93	-13.87	74.00	-29.94	100	177 Peak	horizontal
3 !	3624.00	49.55	61.47	-11.92	54.00	-4.45	304	360 Average	horizontal
4	3624.00	52.10	64.02	-11.92	74.00	-21.90	304	360 Peak	horizontal



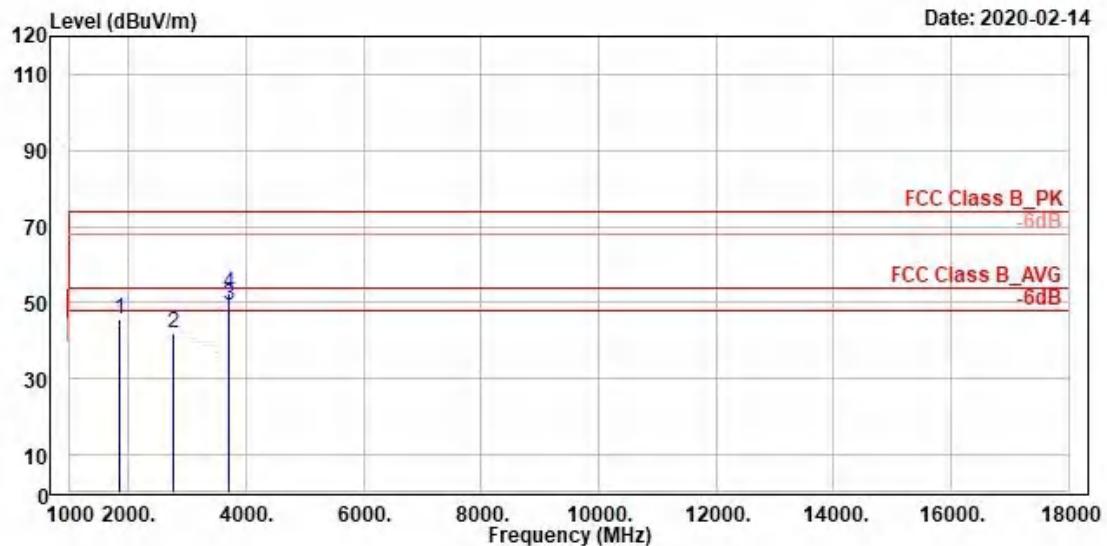
Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	1812.00	43.76	60.72	-16.96	74.00	-30.24	100	213	Peak vertical
2 !	3624.00	50.19	62.11	-11.92	54.00	-3.81	100	121	Average vertical
3	3624.00	52.74	64.66	-11.92	74.00	-21.26	100	121	Peak vertical
4	4530.00	43.48	54.06	-10.58	74.00	-30.52	400	360	Peak vertical



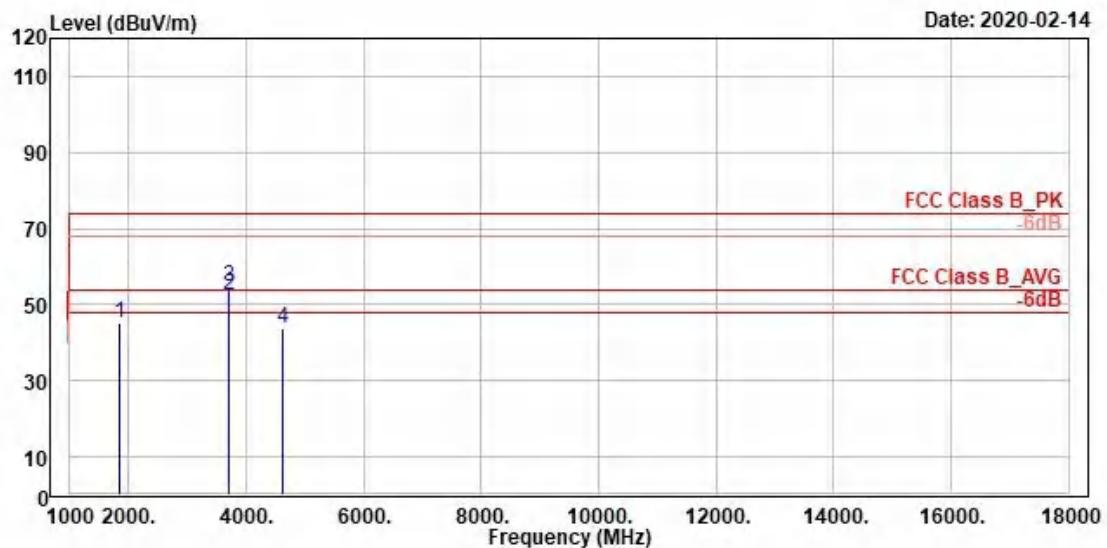
Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dB	cm	deg	
1	1828.000	42.08	7.18	34.90	54.00	-11.92	100	144	Average horizontal
2	1828.000	51.44	16.54	34.90	74.00	-22.56	100	144	Peak horizontal
3 !	3656.000	52.25	63.45	-11.20	54.00	-1.75	158	82	Average horizontal
4	3656.000	54.71	65.91	-11.20	74.00	-19.29	158	82	Peak horizontal
5	4570.000	43.95	53.67	-9.72	74.00	-30.05	300	136	Peak horizontal



Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	1828.000	47.84	12.94	34.90	74.00	-26.16	100	348	Peak vertical
2 !	3656.000	50.83	62.03	-11.20	54.00	-3.17	242	82	Average vertical
3	3656.000	52.85	64.05	-11.20	74.00	-21.15	242	82	Peak vertical
4	4570.000	45.20	54.92	-9.72	74.00	-28.80	300	354	Peak vertical



Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level	Factor	Line	Limit			
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1	1848.00	45.84	62.39	-16.55	74.00	-28.16	200	180 Peak horizontal
2	2772.00	41.98	55.79	-13.81	74.00	-32.02	200	152 Peak horizontal
3 !	3696.00	49.49	61.21	-11.72	54.00	-4.51	100	69 Average horizontal
4	3696.00	52.28	64.00	-11.72	74.00	-21.72	100	69 Peak horizontal



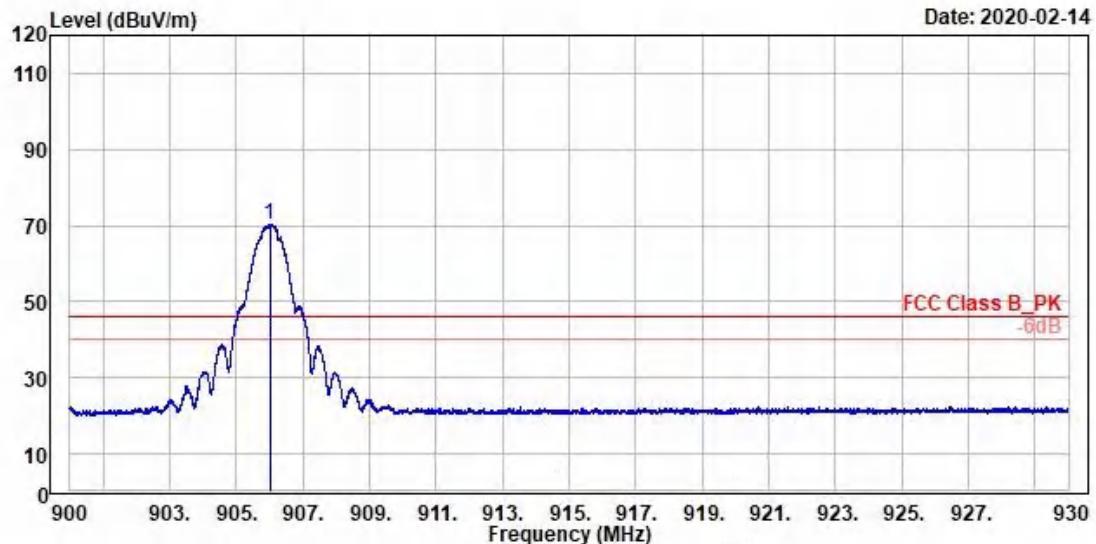
Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	1848.00	45.25	61.80	-16.55	74.00	-28.75	100	210	Peak vertical
2 !	3696.00	52.41	64.13	-11.72	54.00	-1.59	294	144	Average vertical
3	3696.00	54.64	66.36	-11.72	74.00	-19.36	294	144	Peak vertical
4	4620.00	43.76	54.21	-10.45	74.00	-30.24	207	0	Peak vertical

## 2nd Source BOM Module with ATSAMR30M Sensor Board (PCB Antenna)

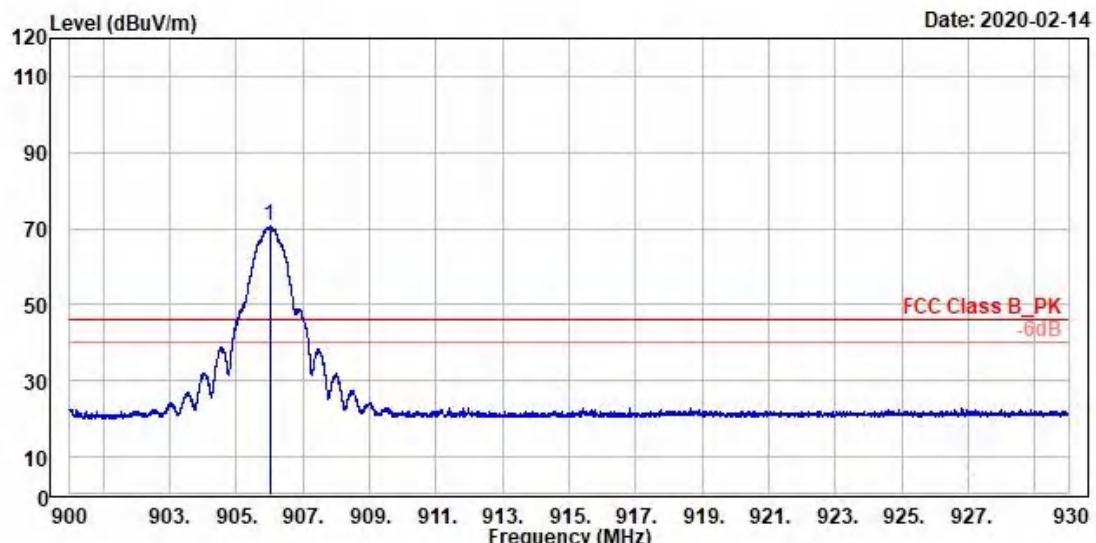
### Spurious Emissions, Bandedge, 1Mbps, O-QPSK



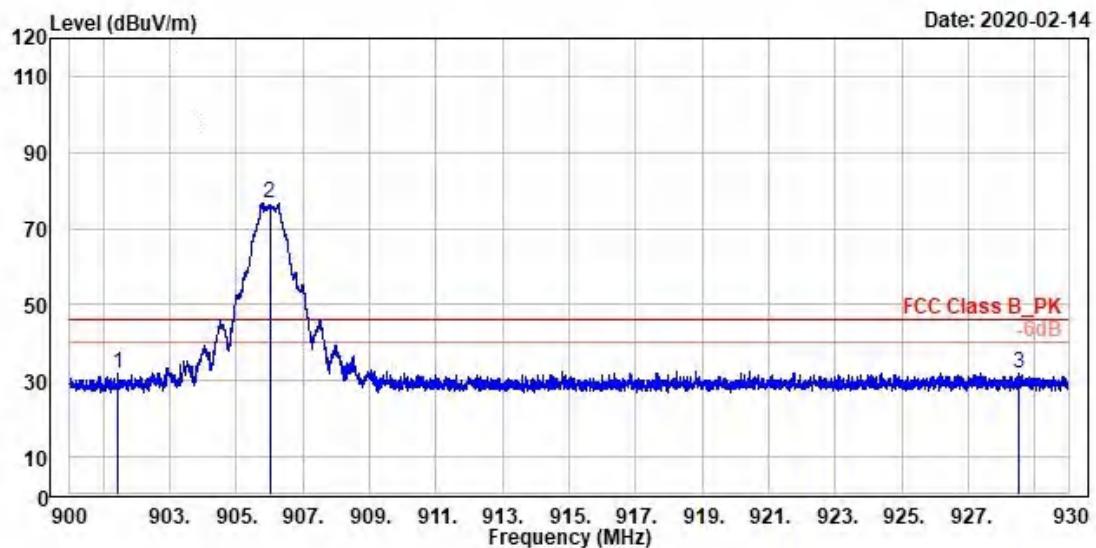
TUV Rheinland Taiwan Ltd.  
No. 458-18, Sec 2, Fenliao, Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)  
Tel: +886-2172-1000 Fax: +886-2172-1322



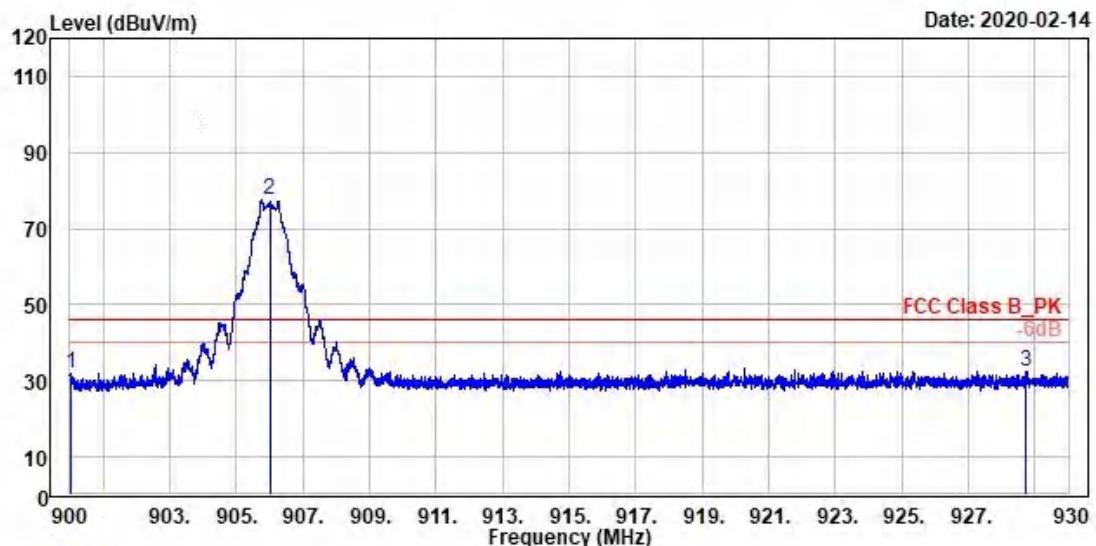
Freq	Level	Read		Limit	Over	APos	TPos	Remark	Pol/Phase
		Level	Factor						
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1 * 906.00	70.23	66.83	3.40	46.00	24.23	100	198	Average	Horizontal



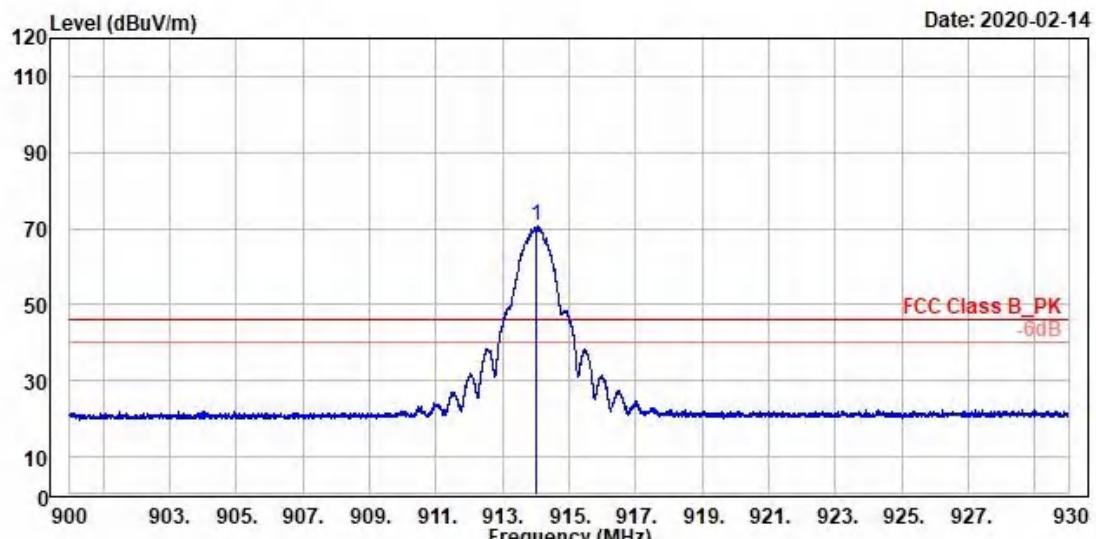
Freq MHz	Level dBuV/m	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit	cm	deg		
1 * 906.00	70.65	67.25	3.40	46.00	24.65	100	200 Average	Vertical



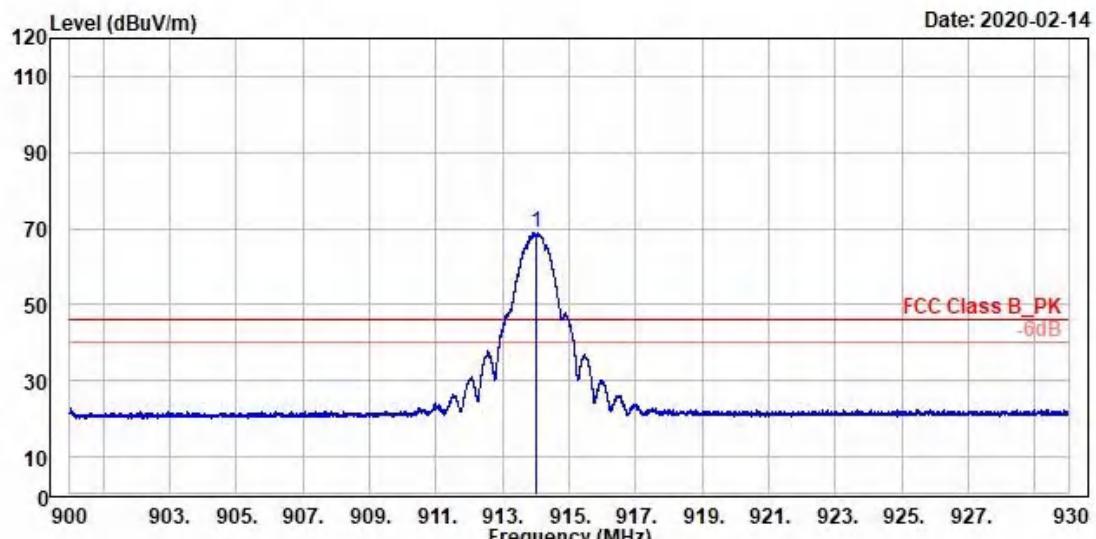
Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit				
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1	901.43	31.86	28.57	3.29	46.00	-14.14	100	198 QP
2 *	906.00	76.72	73.32	3.40	46.00	30.72	100	198 Peak
3	928.52	31.84	27.93	3.91	46.00	-14.16	100	198 QP



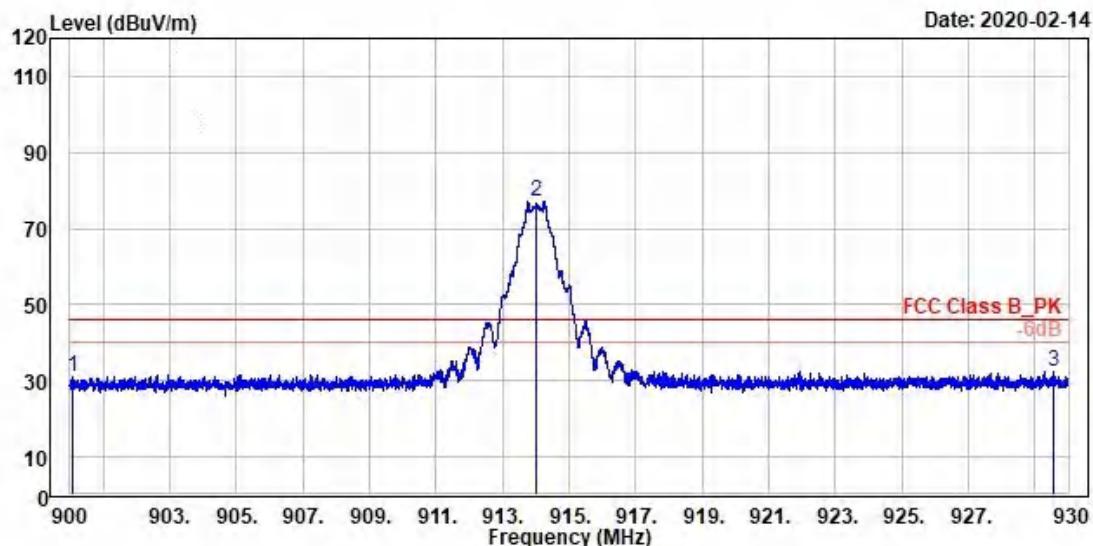
Freq	Level	Read Level Factor		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB		
1	900.05	32.02	28.77	3.25	46.00	-13.98	100	200 QP	Vertical
2 *	906.00	77.51	74.11	3.40	46.00	31.51	100	200 Peak	Vertical
3	928.75	32.54	28.63	3.91	46.00	-13.46	100	200 QP	Vertical



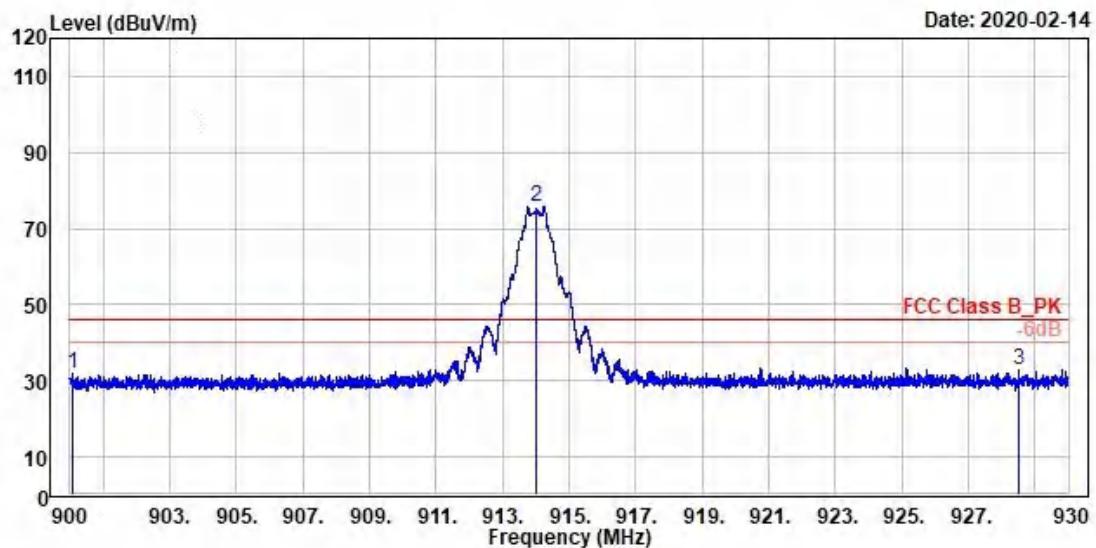
Freq MHz	Level dBuV/m	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit	dB	cm		
914.00	70.59	67.01	3.58	46.00	24.59	100	303 Average	Horizontal



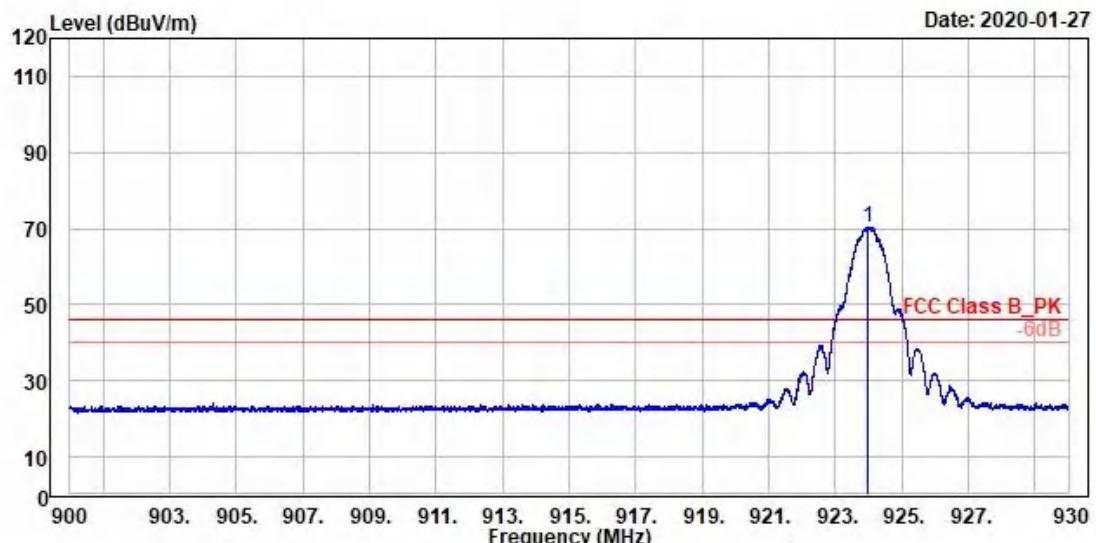
Freq MHz	Level dBuV/m	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit	dB	cm		
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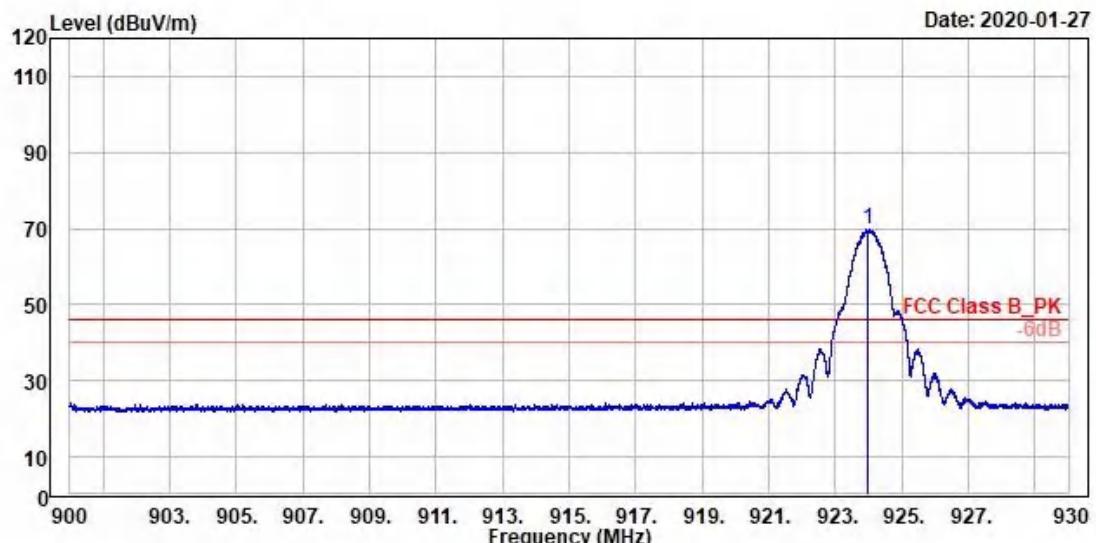
Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit				
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1	900.09	31.12	27.87	3.25	46.00	-14.88	100	303 QP
2 *	914.00	77.18	73.60	3.58	46.00	31.18	100	303 Peak
3	929.58	32.22	28.28	3.94	46.00	-13.78	100	303 QP



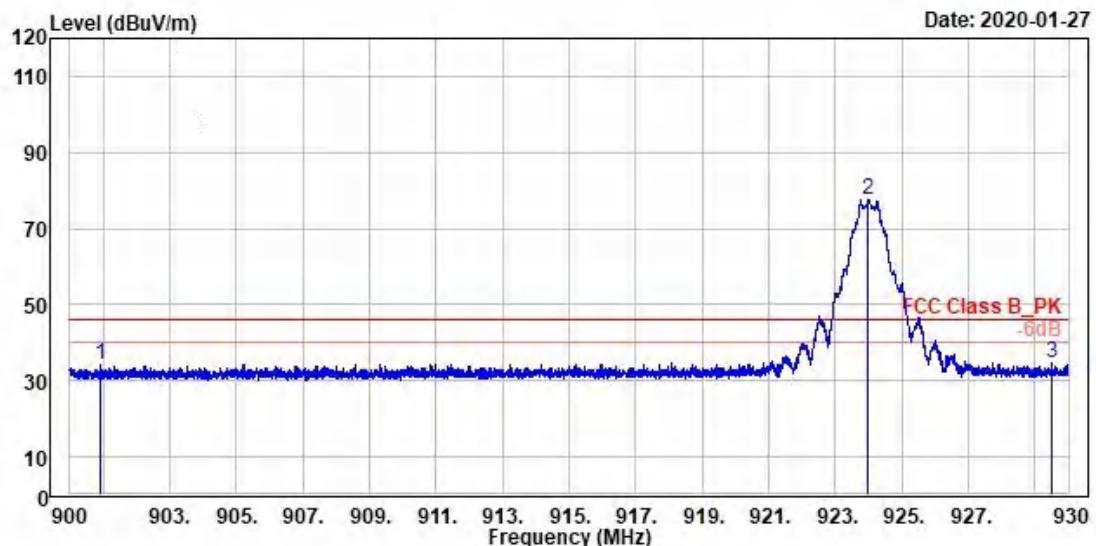
	Read Level	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase		
Freq	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1	900.08	31.83	28.58	3.25	46.00	-14.17	100	196 QP	Vertical
2 *	914.00	75.74	72.16	3.58	46.00	29.74	100	196 Peak	Vertical
3	928.50	32.74	28.83	3.91	46.00	-13.26	100	196 QP	Vertical



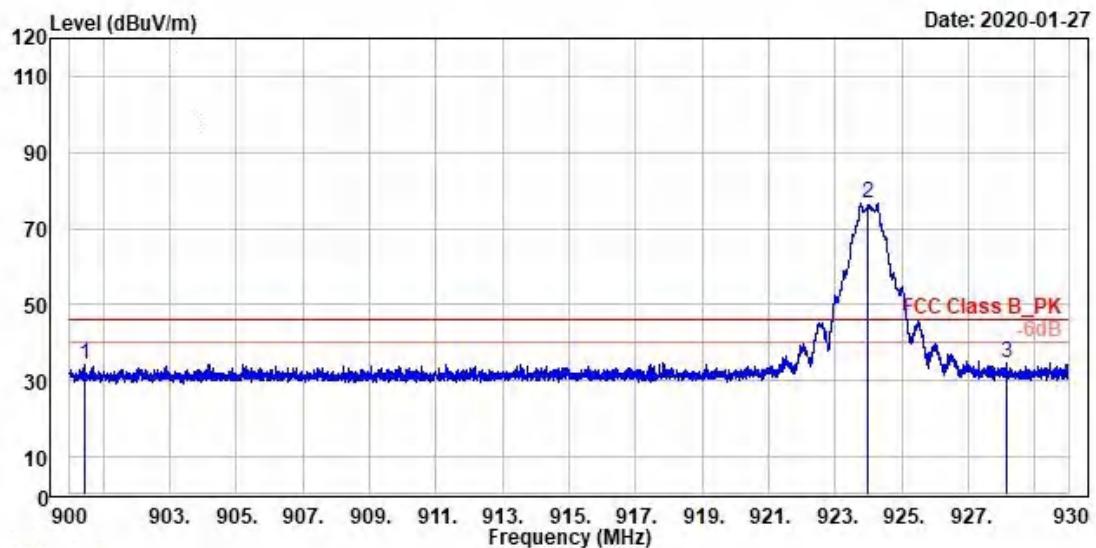
Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
MHz	dBuV/m	dBuV		dB/m	dBuV/m	dB	cm	deg	
1 * 924.000	70.39	65.76	4.63	46.00	24.39	100	180	Average	Horizontal



Freq MHz	Level dBuV/m	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit	cm	deg		
1 * 924.000	69.71	65.08	4.63	46.00	23.71	100	155 Average	Vertical



Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	900.933	34.21	30.13	4.08	46.00	-11.79	100	180 QP	Horizontal
2 *	924.000	77.50	72.87	4.63	46.00	31.50	100	180 Peak	Horizontal
3	929.490	34.48	29.78	4.70	46.00	-11.52	100	180 QP	Horizontal

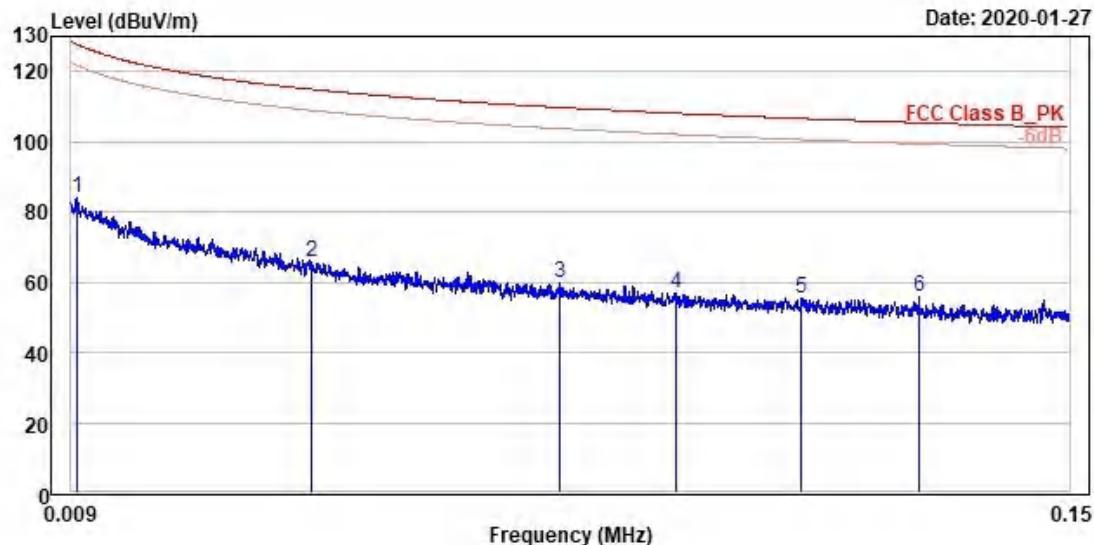


Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit				
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1	900.423	34.04	29.97	4.07	46.00 -11.96	100	155 QP	Vertical
2 *	924.000	76.84	72.21	4.63	46.00 30.84	100	155 Peak	Vertical
3	928.131	34.69	30.00	4.69	46.00 -11.31	100	155 QP	Vertical

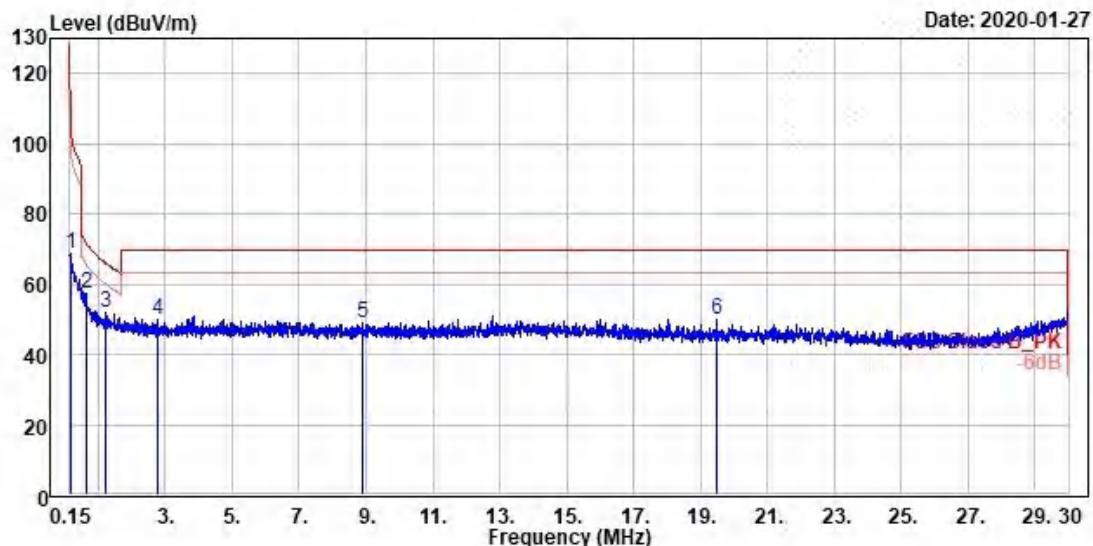
## **Spurious Emissions, TX Mode, 9k-30M, 1Mbps, O-QPSK**



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Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		Freq	Level	Factor	dB/m	dBuV/m	cm	deg	
1	0.010	83.85	4.75	79.10	127.79	-43.94	100	214 QP	vertical
2	0.043	65.69	-1.14	66.83	114.95	-49.26	100	226 QP	vertical
3	0.078	59.81	-1.66	61.47	109.75	-49.94	100	294 QP	vertical
4	0.094	56.80	-3.13	59.93	108.10	-51.30	100	220 QP	vertical
5	0.112	55.53	-3.01	58.54	106.60	-51.07	100	226 QP	vertical
6	0.129	55.79	-1.79	57.58	105.40	-49.61	100	345 QP	vertical

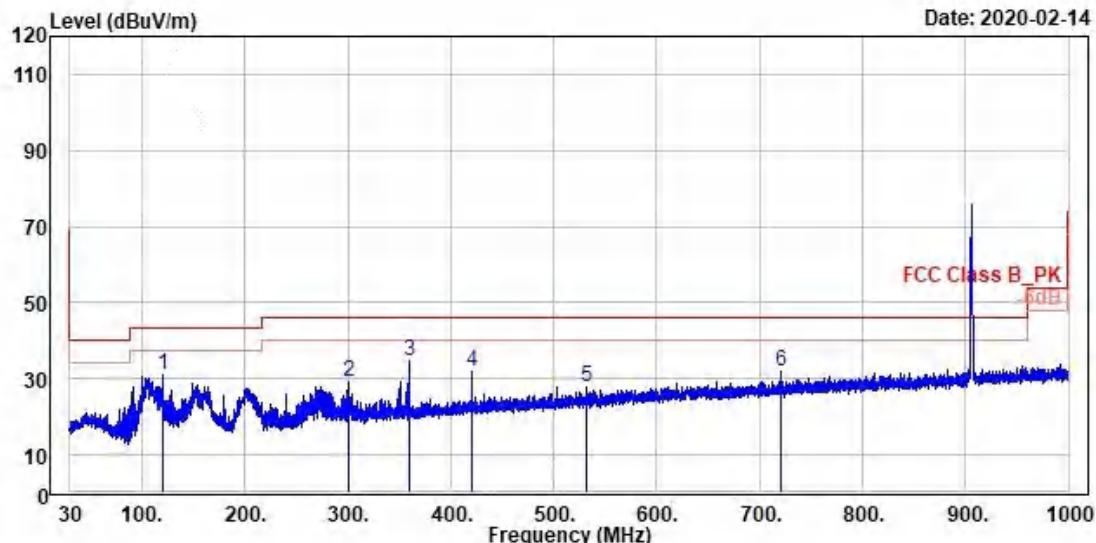


Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m				
1	0.168	68.72	13.41	55.31	103.10	-34.38	100	185 QP	vertical
2	0.651	57.19	13.05	44.14	71.33	-14.14	100	262 QP	vertical
3	1.219	51.69	11.99	39.70	65.89	-14.20	100	214 QP	vertical
4	2.789	50.03	11.71	38.32	69.50	-19.47	100	0 QP	vertical
5	8.908	49.05	11.24	37.81	69.50	-20.45	100	360 QP	vertical
6	19.505	49.71	13.36	36.35	69.50	-19.79	100	239 QP	vertical

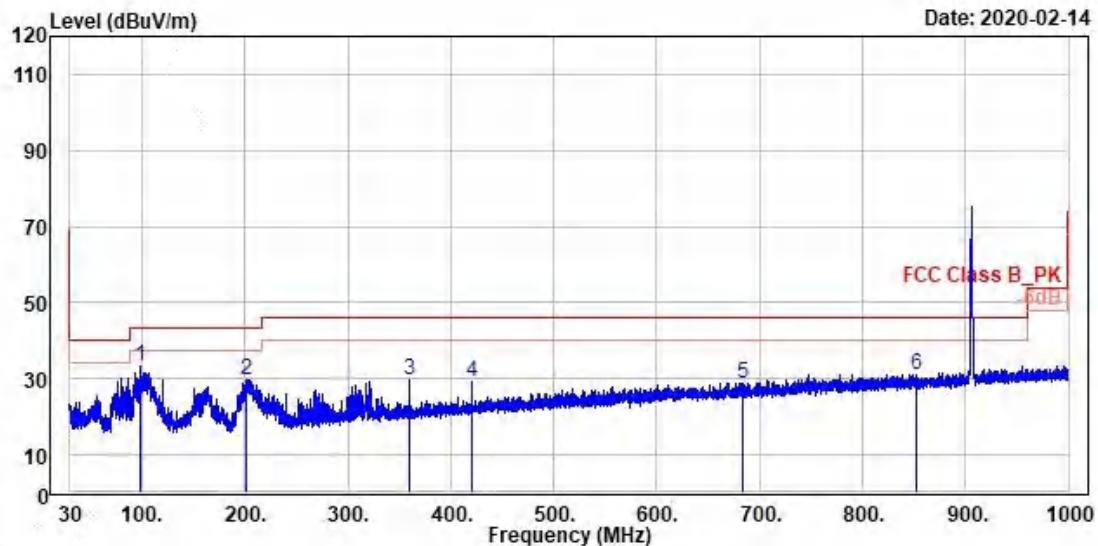
## **Spurious Emissions, TX Mode, 30M-1G, 1Mbps, O-QPSK**



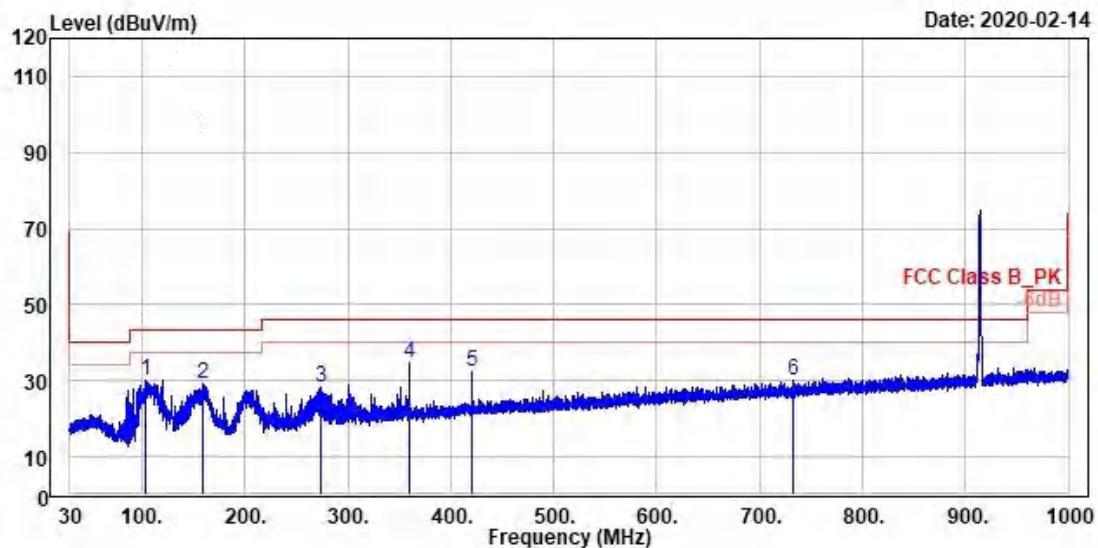
TÜV Rheinland Taiwan Ltd.  
No. 458-18, Sec 2, Fenliao, Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)  
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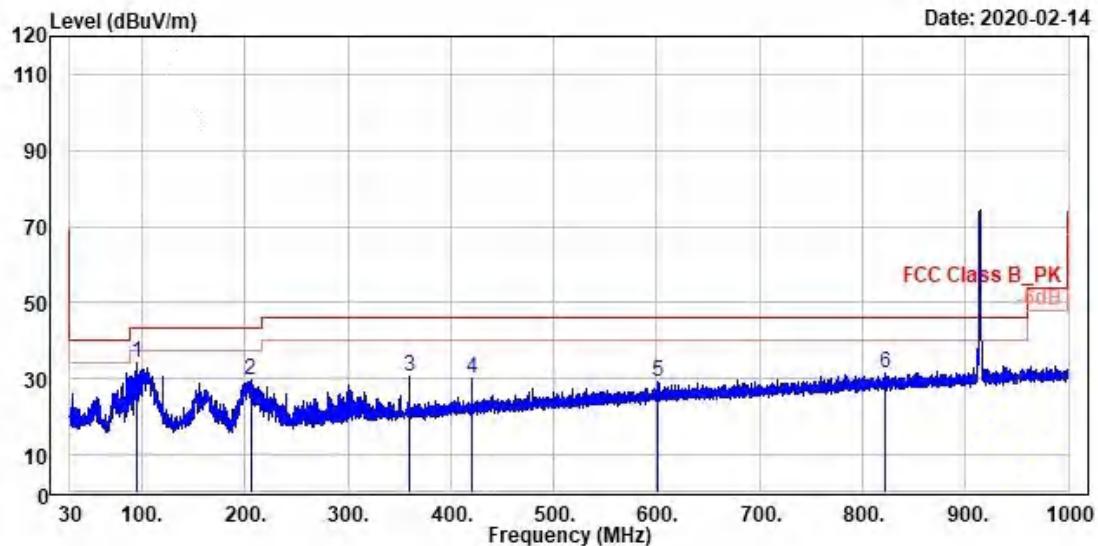
Freq	Level	Read		Limit	Over	APos	TPos	Remark	Pol/Phase
		Level	Factor						
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	120.02	30.84	41.03	-10.19	43.50	-12.66	200	144 QP	horizontal
2	300.05	29.33	35.76	-6.43	46.00	-16.67	100	251 QP	horizontal
3	359.99	34.78	40.31	-5.53	46.00	-11.22	100	138 QP	horizontal
4	420.04	32.09	36.36	-4.27	46.00	-13.91	100	238 QP	horizontal
5	532.27	27.65	30.30	-2.65	46.00	-18.35	100	0 QP	horizontal
6	720.06	32.02	31.52	0.50	46.00	-13.98	100	217 QP	horizontal



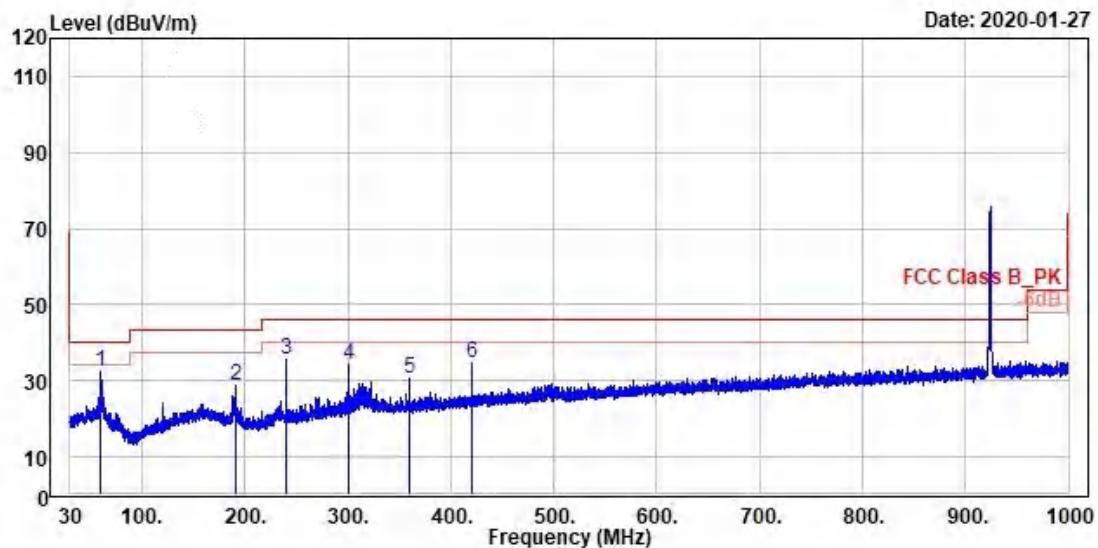
Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	
		Level Factor	Line	Limit					
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	98.77	33.12	46.05	-12.93	43.50	-10.38	100	254 QP	vertical
2	201.30	29.82	39.66	-9.84	43.50	-13.68	100	231 QP	vertical
3	359.99	29.67	35.20	-5.53	46.00	-16.33	100	163 QP	vertical
4	420.04	29.41	33.68	-4.27	46.00	-16.59	100	220 QP	vertical
5	683.10	28.96	29.09	-0.13	46.00	-17.04	100	132 QP	vertical
6	852.46	31.18	28.78	2.40	46.00	-14.82	100	61 QP	vertical



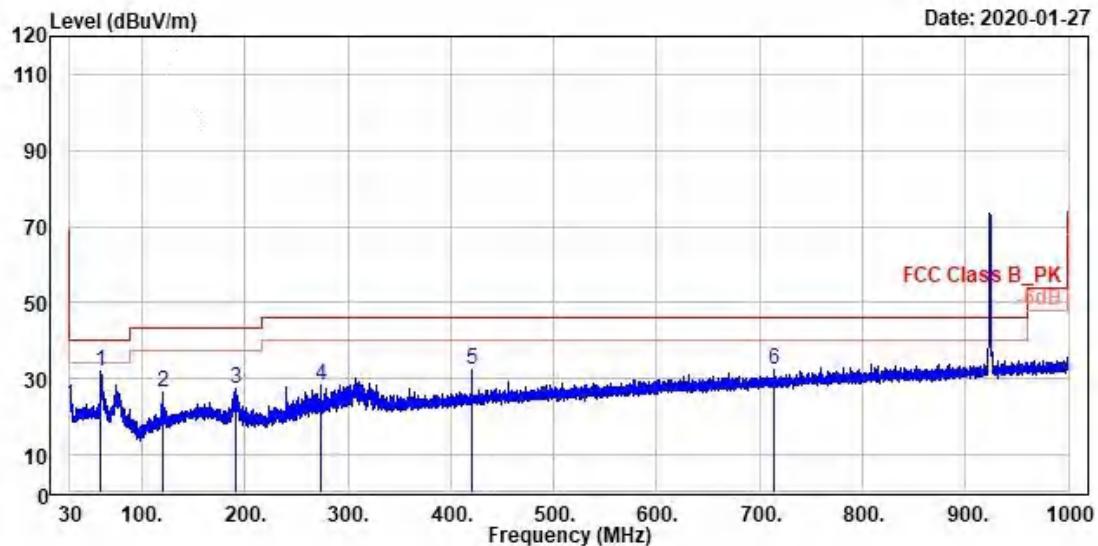
Freq	Level	Read Level		Limit	Over	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB		
1	104.21	29.93	41.86	-11.93	43.50	-13.57	200	326 QP	horizontal
2	159.50	29.31	36.79	-7.48	43.50	-14.19	200	355 QP	horizontal
3	273.47	28.36	35.63	-7.27	46.00	-17.64	100	270 QP	horizontal
4	359.99	34.54	40.07	-5.53	46.00	-11.46	100	308 QP	horizontal
5	420.04	32.51	36.78	-4.27	46.00	-13.49	100	236 QP	horizontal
6	732.09	30.01	29.26	0.75	46.00	-15.99	100	174 QP	horizontal



Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase
		Level Factor	Line	Limit				
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1	94.70	34.32	47.83	-13.51	43.50	-9.18	100	264 QP
2	205.47	29.62	39.47	-9.85	43.50	-13.88	100	234 QP
3	359.99	30.53	36.06	-5.53	46.00	-15.47	100	208 QP
4	420.04	29.96	34.23	-4.27	46.00	-16.04	100	228 QP
5	601.43	29.00	30.29	-1.29	46.00	-17.00	200	108 QP
6	822.39	31.59	29.45	2.14	46.00	-14.41	200	354 QP



Freq	Level	Read		Limit	Over	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	Level	Factor	Line	Limit		
1	59.779	32.46	39.18	-6.72	40.00	-7.54	300	179 QP	horizontal
2	191.020	28.55	36.73	-8.18	43.50	-14.95	100	134 QP	horizontal
3	240.005	35.68	42.54	-6.86	46.00	-10.32	100	95 QP	horizontal
4	300.048	34.12	38.97	-4.85	46.00	-11.88	100	102 QP	horizontal
5	359.994	30.77	34.71	-3.94	46.00	-15.23	100	98 QP	horizontal
6	420.037	34.90	37.68	-2.78	46.00	-11.10	100	61 QP	horizontal

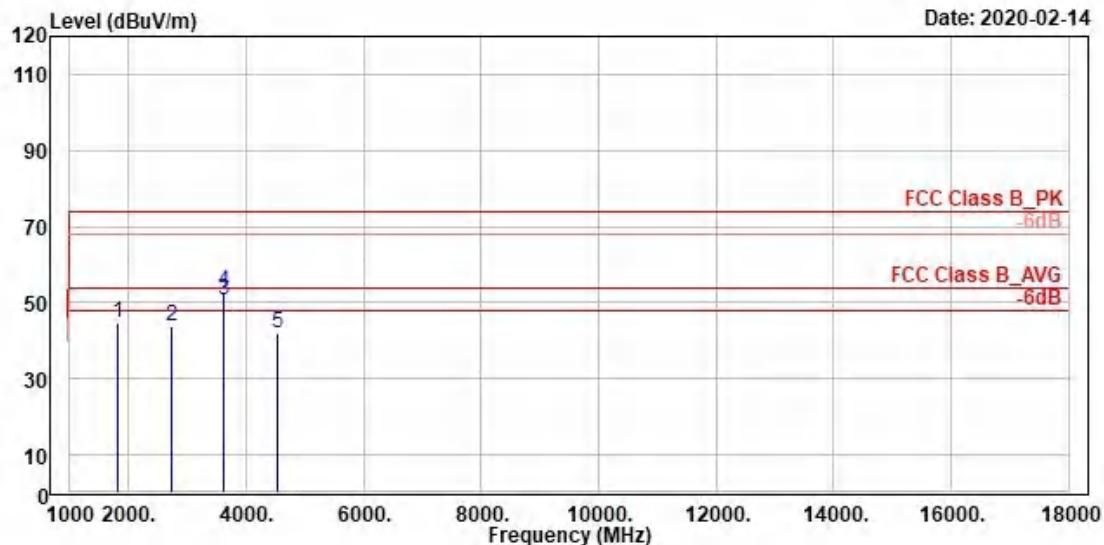


Freq	Level	Read Level Factor		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB		
1	59.973	31.98	38.73	-6.75	40.00	-8.02	100	81 QP	vertical
2	120.016	26.35	35.18	-8.83	43.50	-17.15	100	142 QP	vertical
3	191.020	27.48	35.66	-8.18	43.50	-16.02	100	155 QP	vertical
4	274.343	28.51	34.13	-5.62	46.00	-17.49	200	164 QP	vertical
5	420.037	32.52	35.30	-2.78	46.00	-13.48	100	162 QP	vertical
6	713.559	32.18	30.69	1.49	46.00	-13.82	100	3 QP	vertical

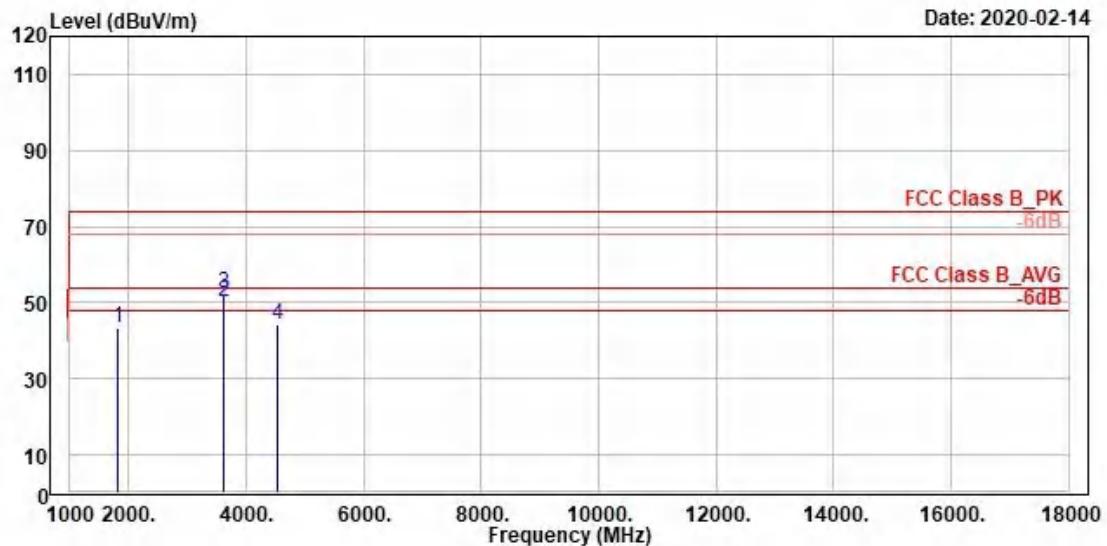
# **Spurious Emissions, TX Mode, 1G-18G, 1Mbps, O-QPSK**



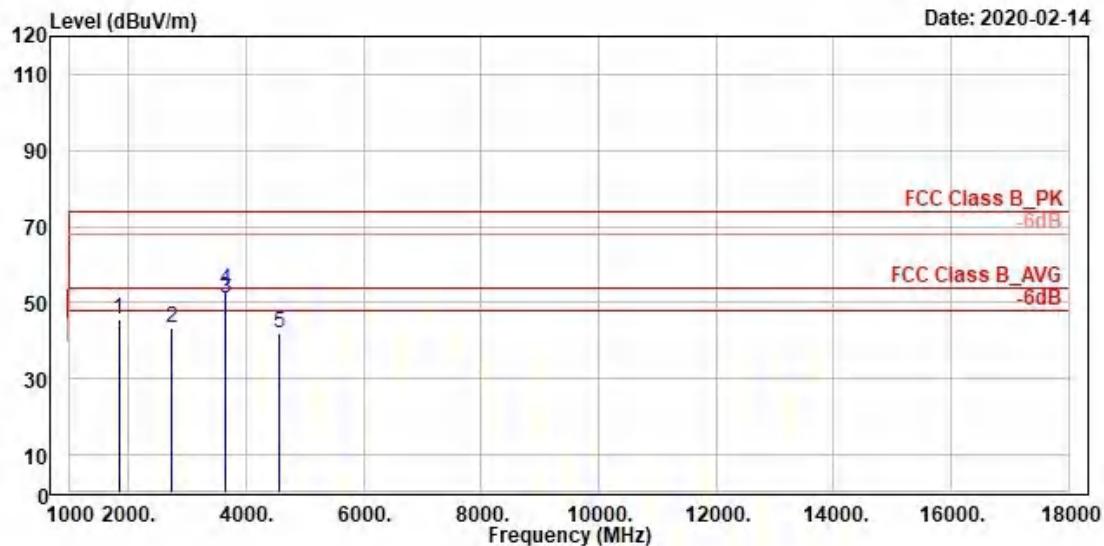
TUV Rheinland Taiwan Ltd.  
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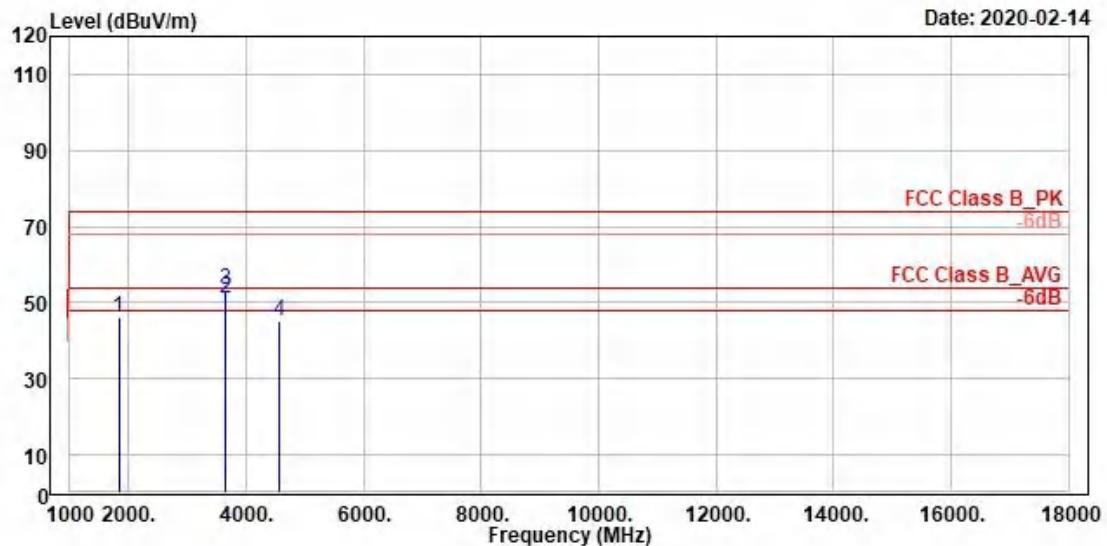
Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		Freq	Level						
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1 1812.00	44.80	61.76	-16.96	74.00	-29.20	100	194	Peak	horizontal
2 2718.00	43.67	57.54	-13.87	74.00	-30.33	300	222	Peak	horizontal
3 ! 3624.00	50.52	62.44	-11.92	54.00	-3.48	296	66	Average	horizontal
4 3624.00	53.02	64.94	-11.92	74.00	-20.98	296	66	Peak	horizontal
5 4530.00	41.95	52.53	-10.58	74.00	-32.05	300	112	Peak	horizontal



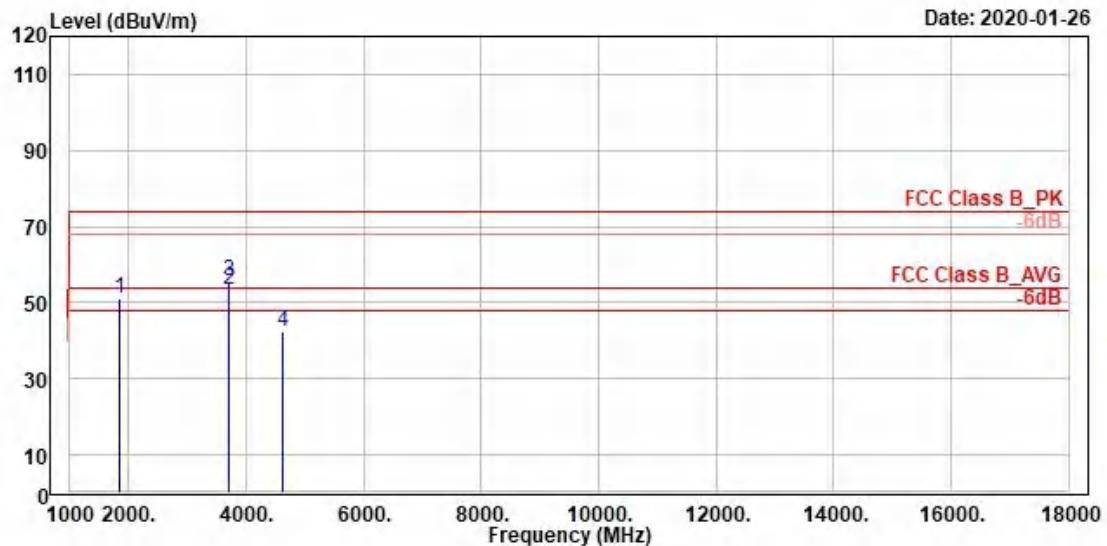
Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m				
1	1812.00	43.27	60.23	-16.96	74.00	-30.73	100	216 Peak	vertical
2 !	3624.00	50.06	61.98	-11.92	54.00	-3.94	100	123 Average	vertical
3	3624.00	52.52	64.44	-11.92	74.00	-21.48	100	123 Peak	vertical
4	4530.00	44.47	55.05	-10.58	74.00	-29.53	345	360 Peak	vertical



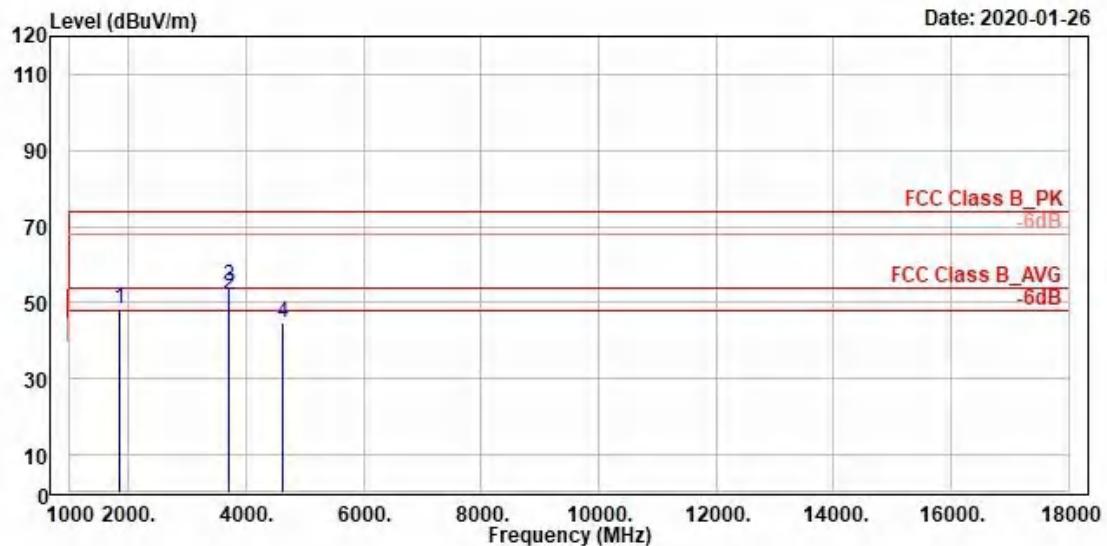
Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	1828.00	45.43	62.21	-16.78	74.00	-28.57	200	181	Peak horizontal
2	2742.00	43.56	57.41	-13.85	74.00	-30.44	300	178	Peak horizontal
3 !	3656.00	51.17	62.91	-11.74	54.00	-2.83	103	65	Average horizontal
4	3656.00	53.49	65.23	-11.74	74.00	-20.51	103	65	Peak horizontal
5	4570.00	42.14	52.65	-10.51	74.00	-31.86	400	110	Peak horizontal



Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m				
1	1828.00	46.11	62.89	-16.78	74.00	-27.89	100	211 Peak	vertical
2 !	3656.00	51.08	62.82	-11.74	54.00	-2.92	118	121 Average	vertical
3	3656.00	53.47	65.21	-11.74	74.00	-20.53	118	121 Peak	vertical
4	4570.00	45.02	55.53	-10.51	74.00	-28.98	300	4 Peak	vertical



Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	1848.000	51.06	15.94	35.12	74.00	-22.94	100	149	Peak horizontal
2 !	3696.000	53.40	64.49	-11.09	54.00	-0.60	103	64	Average horizontal
3	3696.000	55.85	66.94	-11.09	74.00	-18.15	103	64	Peak horizontal
4	4620.000	42.46	52.13	-9.67	74.00	-31.54	400	128	Peak horizontal

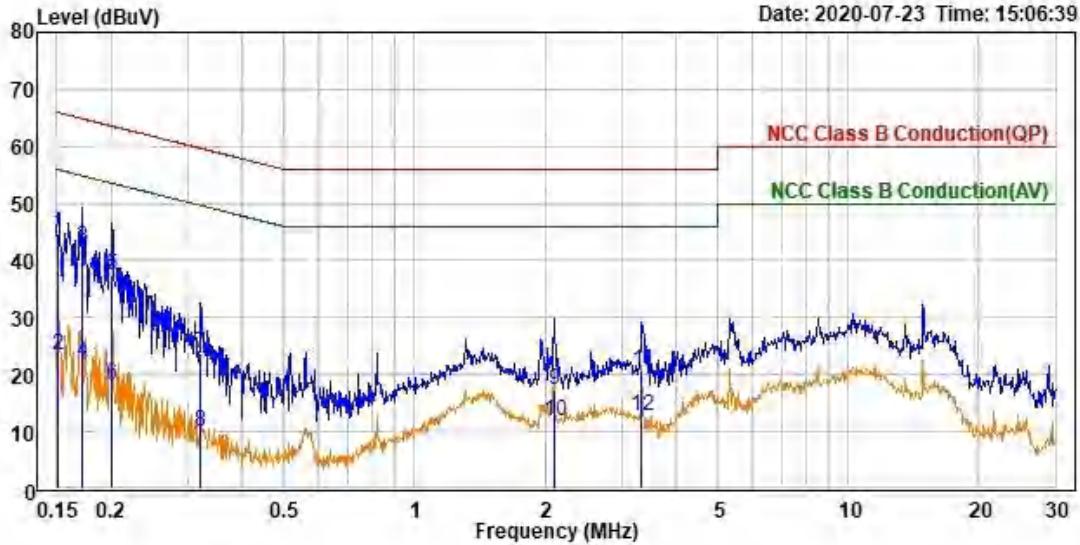


Freq	Level	Read		Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	1848.000	48.53	13.41	35.12	74.00	-25.47	100	60	Peak vertical
2!	3696.000	52.20	63.29	-11.09	54.00	-1.80	274	156	Average vertical
3	3696.000	54.23	65.32	-11.09	74.00	-19.77	274	156	Peak vertical
4	4620.000	44.54	54.21	-9.67	74.00	-29.46	200	360	Peak vertical

## AC Mains

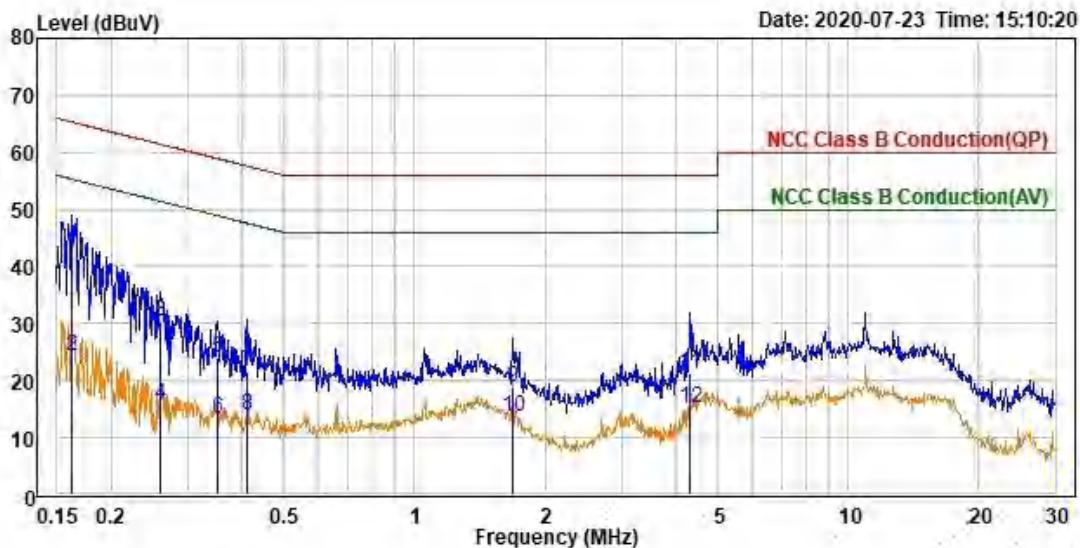


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Freq	Read		Limit	Over	Remark	Pol/Phase
	Freq	Level	Factor	Level	Line	Limit
	MHz	dBuV	dB	dBuV	dBuV	dB
1	0.151	34.73	10.11	44.84	65.96	-21.12 QP
2	0.151	13.43	10.11	23.54	55.96	-32.42 Average
3	0.172	32.22	10.11	42.33	64.88	-22.55 QP
4	0.172	12.07	10.11	22.18	54.88	-32.70 Average
5	0.201	27.38	10.11	37.49	63.56	-26.07 QP
6	0.201	8.11	10.11	18.22	53.56	-35.34 Average
7	0.322	13.64	10.11	23.75	59.67	-35.92 QP
8	0.322	-0.22	10.11	9.89	49.67	-39.78 Average
9	2.095	7.25	10.17	17.42	56.00	-38.58 QP
10	2.095	1.83	10.17	12.00	46.00	-34.00 Average
11	3.347	10.41	10.20	20.61	56.00	-35.39 QP
12	3.347	2.49	10.20	12.69	46.00	-33.31 Average





Freq	Read		Limit	Over		Remark	Pol/Phase
	Level	Factor		Level	Line		
	MHz	dBuV	dB	dBuV	dB		
1	0.162	32.56	10.11	42.67	65.34	-22.67	QP neutral
2	0.162	14.23	10.11	24.34	55.34	-31.00	Average neutral
3	0.260	20.38	10.11	30.49	61.45	-30.96	QP neutral
4	0.260	5.77	10.11	15.88	51.45	-35.57	Average neutral
5	0.352	13.96	10.11	24.07	58.92	-34.85	QP neutral
6	0.352	3.37	10.11	13.48	48.92	-35.44	Average neutral
7	0.413	11.58	10.11	21.69	57.60	-35.91	QP neutral
8	0.413	4.03	10.11	14.14	47.60	-33.46	Average neutral
9	1.682	8.83	10.16	18.99	56.00	-37.01	QP neutral
10	1.682	3.54	10.16	13.70	46.00	-32.30	Average neutral
11	4.316	10.96	10.22	21.18	56.00	-34.82	QP neutral
12	4.316	5.09	10.22	15.31	46.00	-30.69	Average neutral