

Test Report No.50280656 001

Appendix D: Radiated and Mains Spurious Emission Data

(File: 50280656AppendixD)

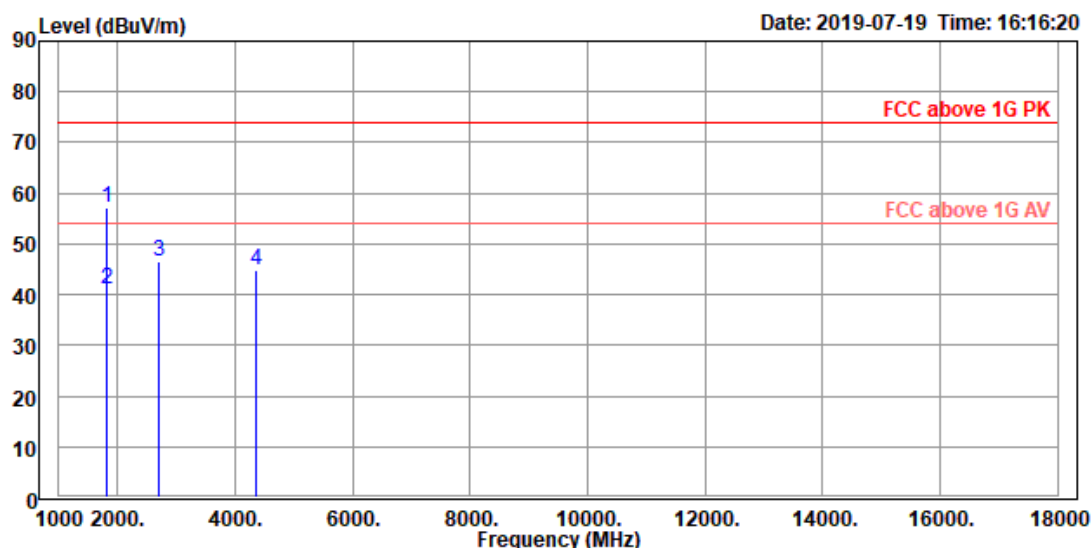
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Spurious Emissions, TX Mode, 1-18G_LoRa_DTS

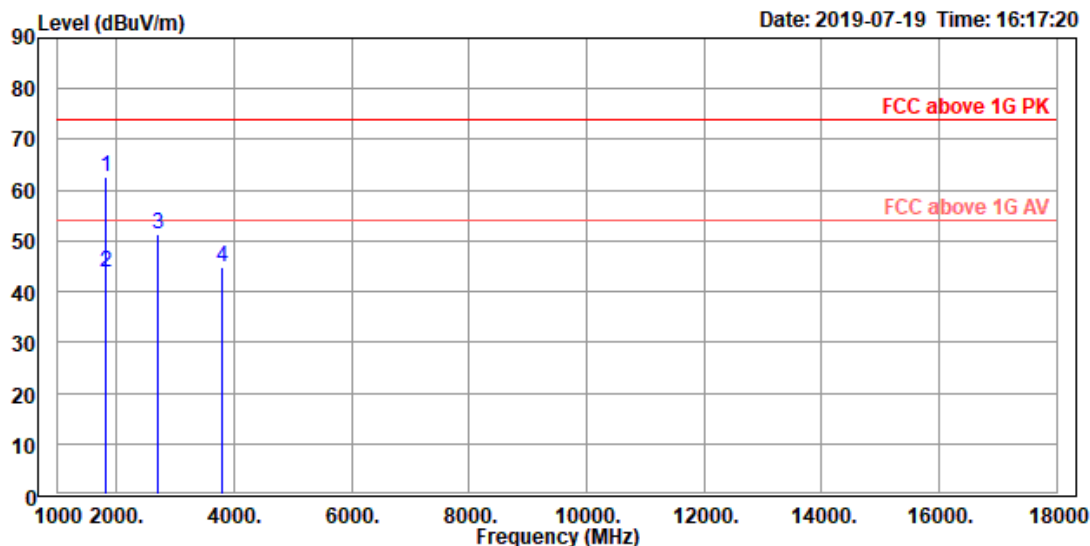


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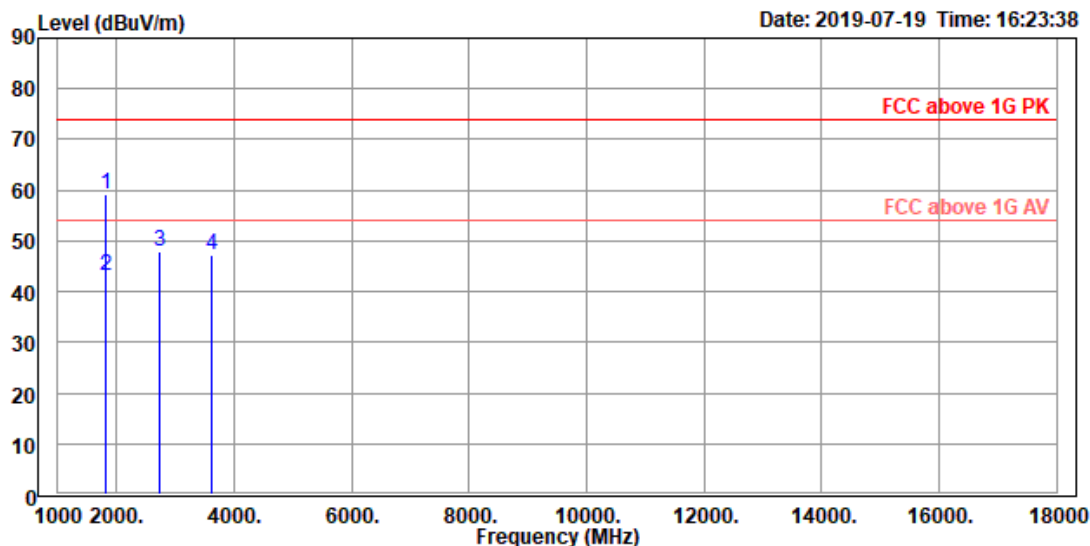
Site : 966A Chamber A
Condition : FCC above 1G PK 3m horizontal
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21.3°C / 55%
Power Setting: 16
Mode : LoRa TX 500k 903
Memo : X(直立)

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1806.000	57.22	66.64	-9.42	74.00	-16.78	100	198	Peak	
2	1806.000	41.07	50.49	-9.42	54.00	-12.93	100	198	Average	
3	2709.000	46.60	54.64	-8.04	74.00	-27.40	100	94	Peak	
4	4349.000	44.86	49.53	-4.67	74.00	-29.14	100	74	Peak	



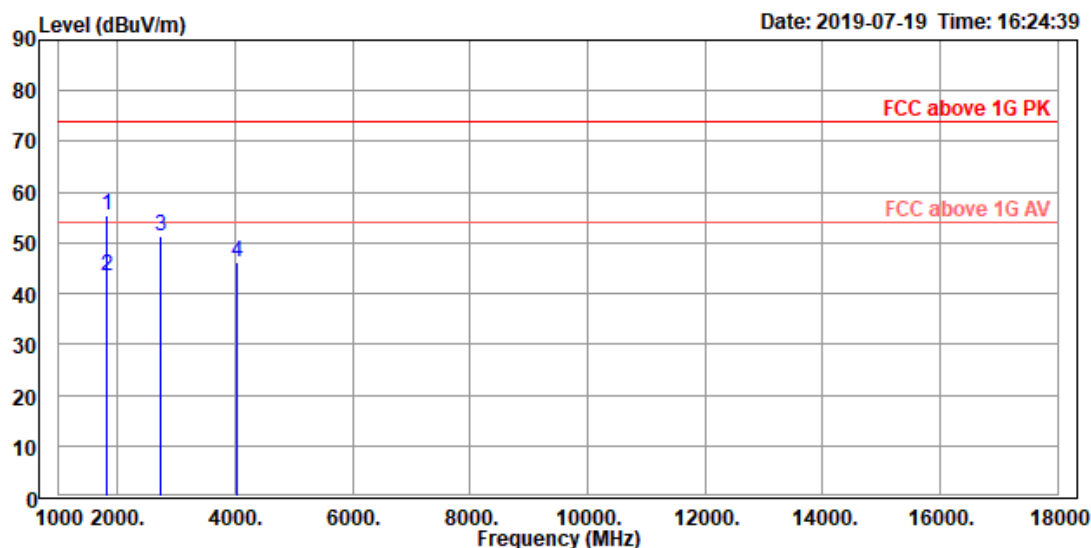
Site : 966A Chamber A
Condition : FCC above 1G PK 3m vertical
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21.3°C / 55%
Power Setting: 16
Mode : LoRa TX 500k 903
Memo : X(直立)

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1806.000	62.69	72.11	-9.42	74.00	-11.31	100	264	Peak	
2	1806.000	43.94	53.36	-9.42	54.00	-10.06	100	264	Average	
3	2709.000	51.26	59.30	-8.04	74.00	-22.74	100	130	Peak	
4	3788.000	44.66	50.56	-5.90	74.00	-29.34	100	179	Peak	



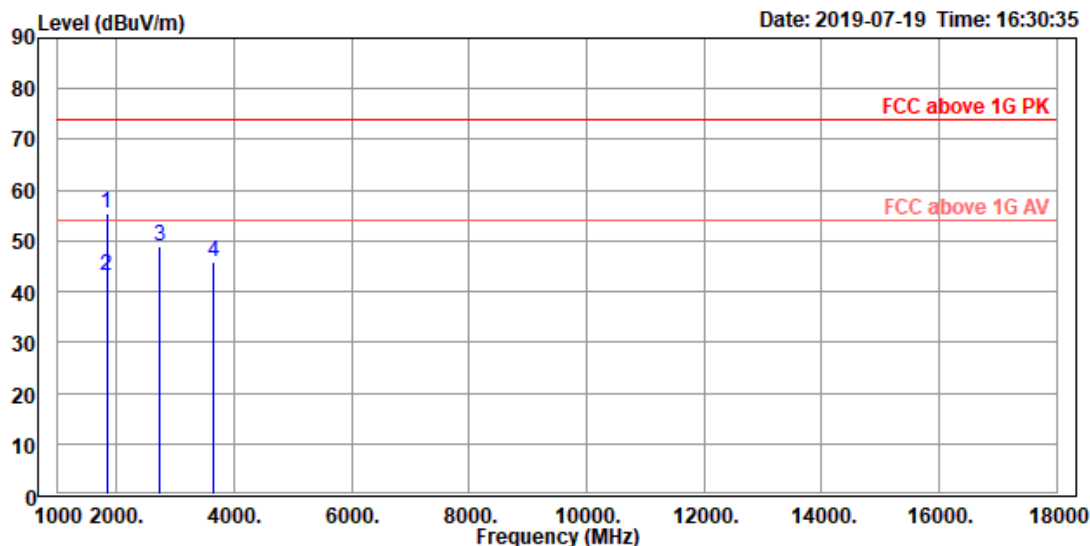
Site : 966A Chamber A
Condition : FCC above 1G PK 3m horizontal
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21.3°C / 55%
Power Setting: 16
Mode : LoRa TX 500k 907.8
Memo : X(直立)

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1815.600	59.12	68.55	-9.43	74.00	-14.88	100	193	Peak	
2	1815.600	43.10	52.53	-9.43	54.00	-10.90	100	193	Average	
3	2723.400	47.84	55.85	-8.01	74.00	-26.16	100	305	Peak	
4	3631.200	47.20	53.55	-6.35	74.00	-26.80	100	354	Peak	



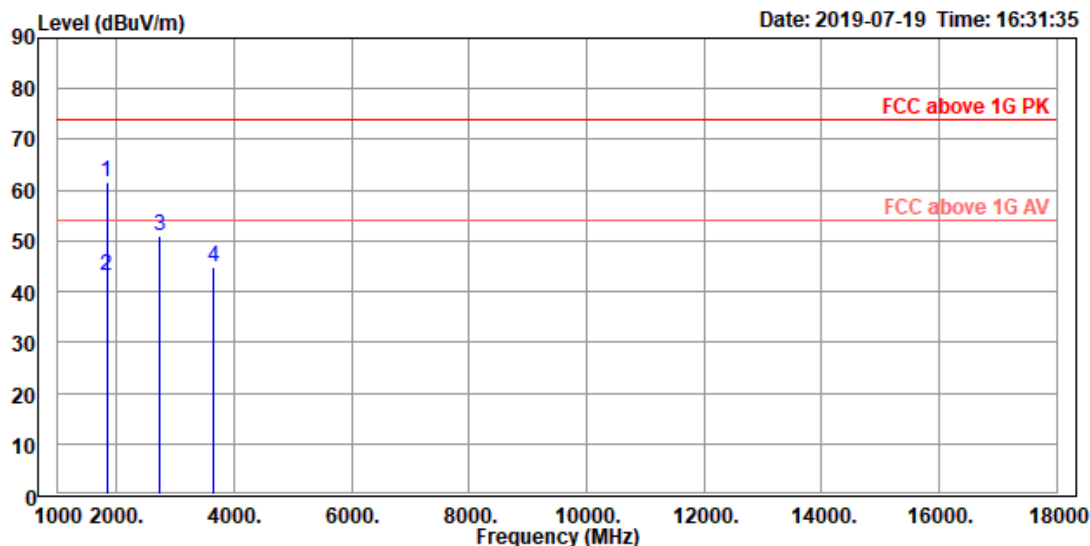
Site : 966A Chamber A
Condition : FCC above 1G PK 3m vertical
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21.3°C / 55%
Power Setting: 16
Mode : LoRa TX 500k 907.8
Memo : X(直立)

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1815.600	55.28	64.71	-9.43	74.00	-18.72	100	110	Peak	
2	1815.600	43.52	52.95	-9.43	54.00	-10.48	100	110	Average	
3	2723.400	51.20	59.21	-8.01	74.00	-22.80	100	166	Peak	
4	4043.000	46.13	51.53	-5.40	74.00	-27.87	100	224	Peak	



Site : 966A Chamber A
Condition : FCC above 1G PK 3m horizontal
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21.3°C / 55%
Power Setting: 16
Mode : LoRa TX 500k 914.2
Memo : X(直立)

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1828.400	55.50	64.95	-9.45	74.00	-18.50	100	11	Peak	
2	1828.400	43.10	52.55	-9.45	54.00	-10.90	100	11	Average	
3	2742.600	48.96	56.92	-7.96	74.00	-25.04	100	1	Peak	
4	3656.800	45.73	52.02	-6.29	74.00	-28.27	100	350	Peak	



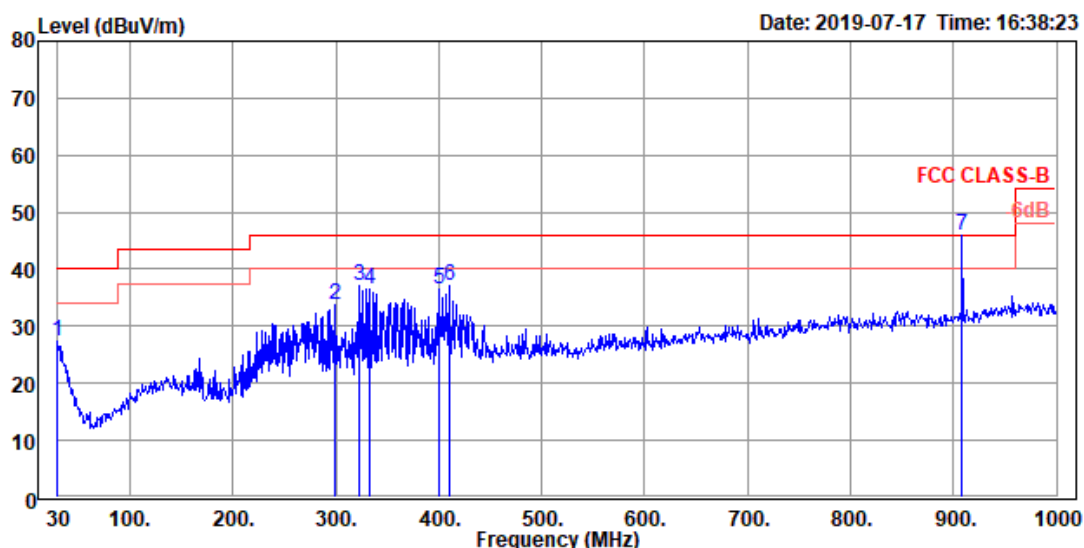
Site : 966A Chamber A
Condition : FCC above 1G PK 3m vertical
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21.3°C / 55%
Power Setting: 16
Mode : LoRa TX 500k 914.2
Memo : X(直立)

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1828.400	61.55	71.00	-9.45	74.00	-12.45	100	85	Peak	
2	1828.400	43.12	52.57	-9.45	54.00	-10.88	100	85	Average	
3	2742.600	50.93	58.89	-7.96	74.00	-23.07	100	178	Peak	
4	3656.800	44.71	51.00	-6.29	74.00	-29.29	100	129	Peak	

Spurious Emissions, TX Mode, 30M-1G_LoRa_DTS

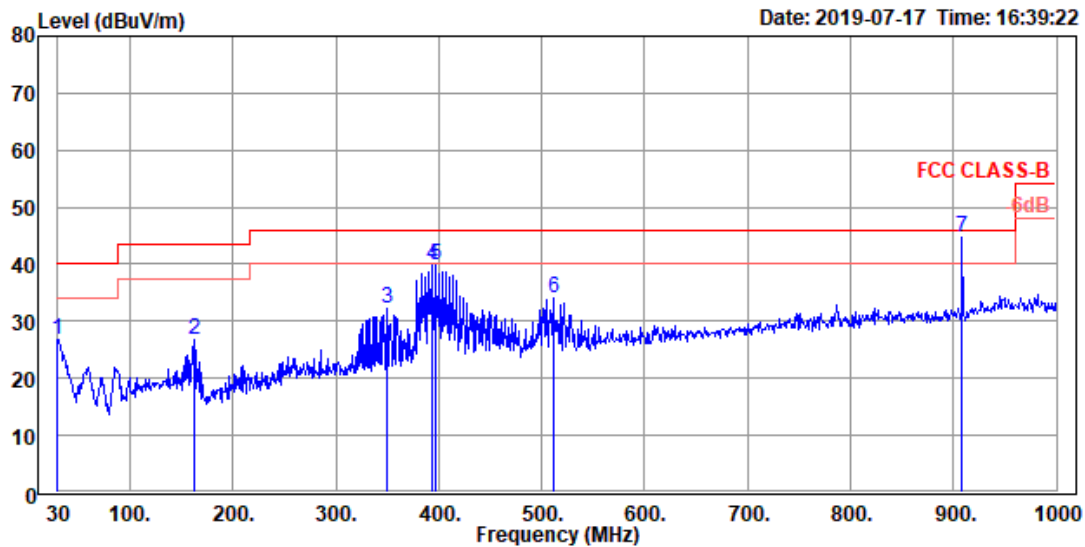


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Site : 966A Chamber A
Condition : FCC CLASS-B 3m horizontal
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 20°C / 62%
Power Setting: 9
Mode : LoRa TX 500k 907.8
Memo : X(直立)

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	30.000	27.29	27.27	0.02	40.00	-12.71	100	290	QP	
2	298.690	33.71	38.31	-4.60	46.00	-12.29	100	187	QP	
3	321.970	37.12	41.44	-4.32	46.00	-8.88	100	240	QP	
4	332.640	36.50	40.35	-3.85	46.00	-9.50	100	240	QP	
5	399.570	36.43	38.82	-2.39	46.00	-9.57	100	319	QP	
6	410.240	37.00	39.12	-2.12	46.00	-9.00	100	194	QP	
7 *	907.800	46.06	41.81	4.25	46.00	0.06	100	0	QP	TX



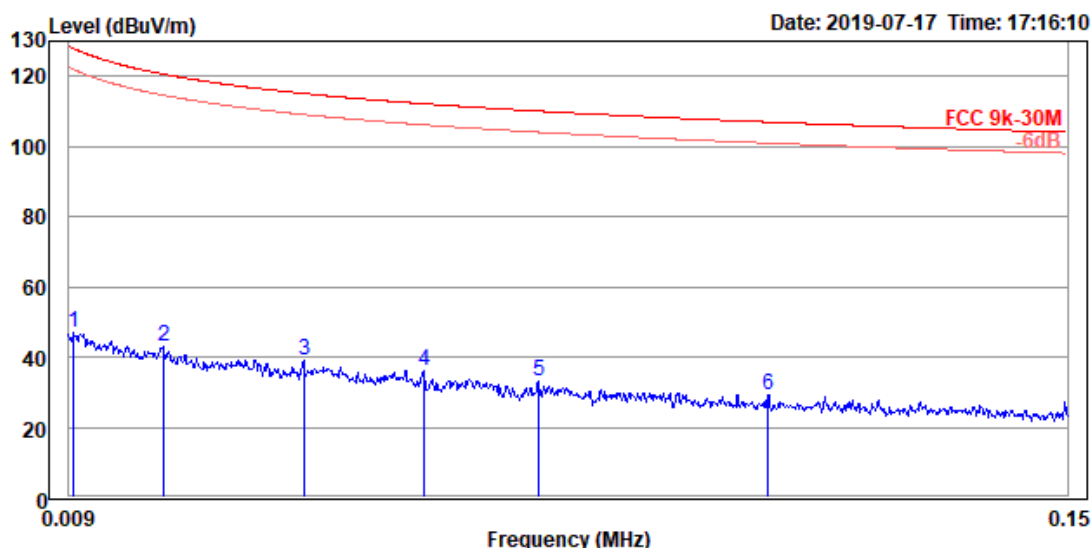
Site : 966A Chamber A
Condition : FCC CLASS-B 3m vertical
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 20°C / 62%
Power Setting: 9
Mode : LoRa TX 500k 907.8
Memo : X(直立)

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	30.000	26.90	26.88	0.02	40.00	-13.10	100	74	QP	
2	162.890	26.83	35.02	-8.19	43.50	-16.67	100	113	QP	
3	349.130	32.11	35.50	-3.39	46.00	-13.89	100	214	QP	
4	392.780	39.91	42.61	-2.70	46.00	-6.09	100	43	QP	
5	396.660	39.98	42.52	-2.54	46.00	-6.02	100	43	QP	
6	511.120	33.94	35.07	-1.13	46.00	-12.06	100	1	QP	
7 !	907.800	44.76	40.51	4.25	46.00	-1.24	100	261	QP	TX

Spurious Emissions, TX Mode, 9 kHz-30M_ LoRa_DTS

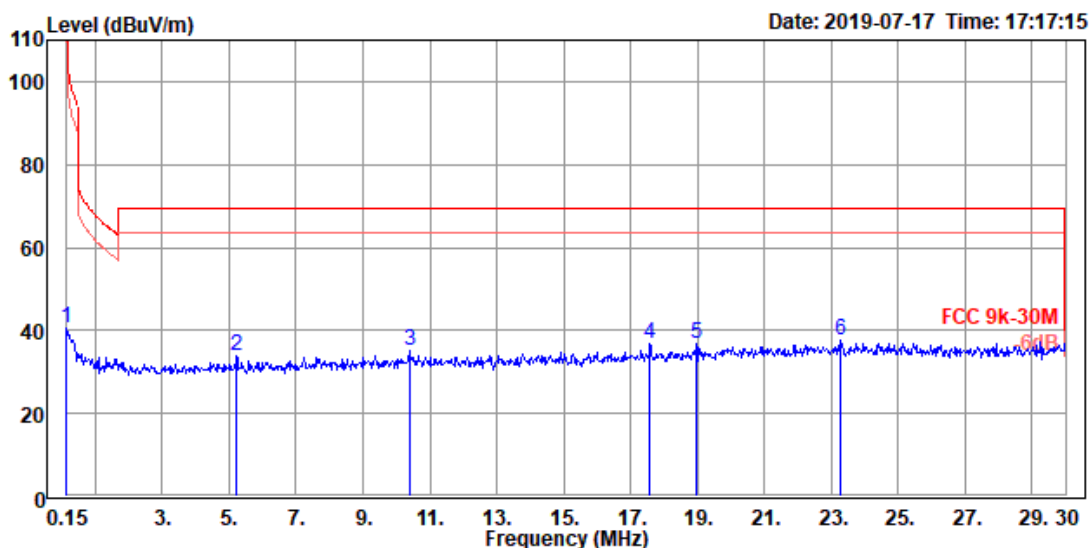


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Site : 966A Chamber A
Condition : FCC 9k-30M 3m Horizontal
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 20°C / 62%
Power Setting: 9
Mode : LoRa TX 500k 907.8
Memo : X(直立)

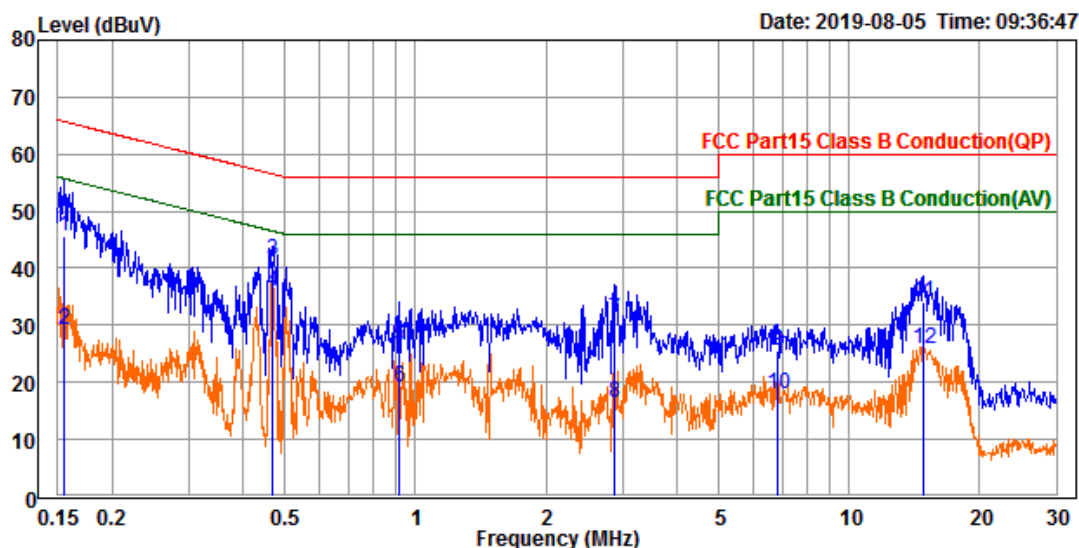
	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	0.010	47.00	28.96	18.04	127.85	-80.85	100	2	QP	
2	0.022	43.11	24.48	18.63	120.64	-77.53	100	163	QP	
3	0.042	39.09	20.17	18.92	115.10	-76.01	100	342	QP	
4	0.059	36.00	17.34	18.66	112.17	-76.17	100	264	QP	
5	0.075	33.12	14.84	18.28	110.06	-76.94	100	234	QP	
6	0.108	29.36	11.63	17.73	106.95	-77.59	100	18	QP	



Site : 966A Chamber A
Condition : FCC 9k-30M 3m Horizontal
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 20°C / 62%
Power Setting: 9
Mode : LoRa TX 500k 907.8
Memo : X(直立)

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	0.150	40.62	22.71	17.91	104.08	-63.46	100	99	QP	
2	5.225	33.84	14.46	19.38	69.50	-35.66	100	163	QP	
3	10.389	35.02	14.59	20.43	69.50	-34.48	100	54	QP	
4	17.582	36.71	15.55	21.16	69.50	-32.79	100	187	QP	
5	18.985	36.93	15.63	21.30	69.50	-32.57	100	165	QP	
6	23.254	37.50	15.95	21.55	69.50	-32.00	100	78	QP	

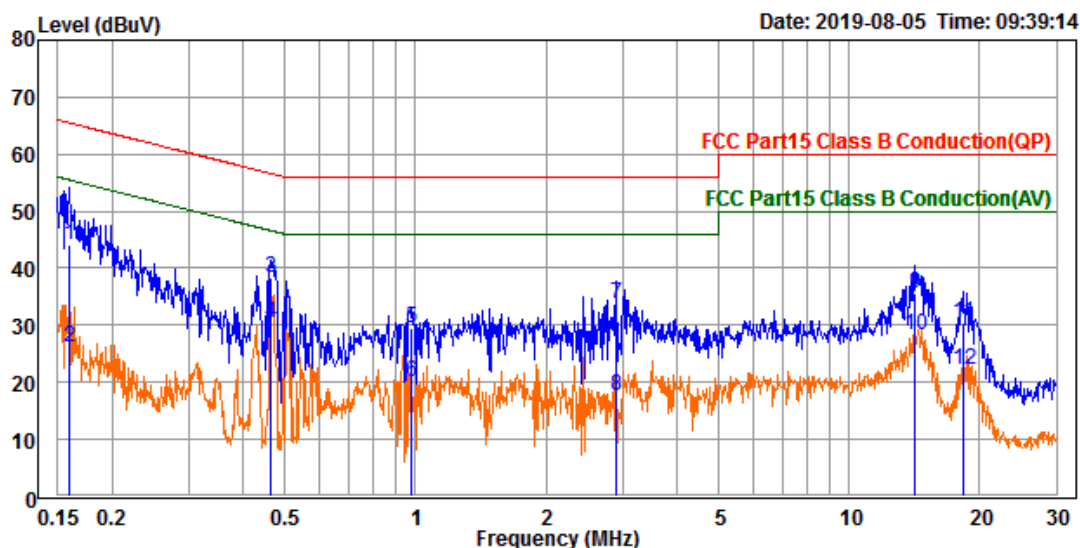
Mains Spurious Emissions



Trace: 1

Site : Conduction room
Condition : FCC Part15 Class B Conduction(QP) line1
Test Engineer: Amy Hsu
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : 120Vac/60Hz
Tmp/Hum : 23.1°C / 35%
Power Setting: 16
Mode : FSK Tx 125k 902.3
Memo : X(直立)

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.155	36.00	9.61	45.61	65.75	-20.14	QP
2	0.155	19.59	9.61	29.20	55.75	-26.55	Average
3	0.467	31.66	9.62	41.28	56.56	-15.28	QP
4	0.467	26.39	9.62	36.01	46.56	-10.55	Average
5	0.916	16.74	9.62	26.36	56.00	-29.64	QP
6	0.916	9.44	9.62	19.06	46.00	-26.94	Average
7	2.882	21.41	9.65	31.06	56.00	-24.94	QP
8	2.882	6.92	9.65	16.57	46.00	-29.43	Average
9	6.827	15.86	9.70	25.56	60.00	-34.44	QP
10	6.827	8.38	9.70	18.08	50.00	-31.92	Average
11	14.782	24.40	9.76	34.16	60.00	-25.84	QP
12	14.782	16.22	9.76	25.98	50.00	-24.02	Average



Trace: 1

Site : Conduction room
Condition : FCC Part15 Class B Conduction(QP) neutral
Test Engineer: Amy Hsu
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : 120Vac/60Hz
Tmp/Hum : 23.1°C / 35%
Power Setting: 16
Mode : FSK Tx 125k 902.3
Memo : X(直立)

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.159	34.36	9.62	43.98	65.50	-21.52	QP
2	0.159	16.52	9.62	26.14	55.50	-29.36	Average
3	0.463	28.81	9.63	38.44	56.64	-18.20	QP
4	0.463	20.82	9.63	30.45	46.64	-16.19	Average
5	0.977	19.73	9.63	29.36	56.00	-26.64	QP
6	0.977	10.39	9.63	20.02	46.00	-25.98	Average
7	2.911	23.98	9.66	33.64	56.00	-22.36	QP
8	2.911	7.96	9.66	17.62	46.00	-28.38	Average
9	14.204	25.76	9.78	35.54	60.00	-24.46	QP
10	14.204	18.40	9.78	28.18	50.00	-21.82	Average
11	18.316	20.69	9.81	30.50	60.00	-29.50	QP
12	18.316	12.49	9.81	22.30	50.00	-27.70	Average