Test Report No.50280657 001

Appendix D: Radiated and Mains Spurious Emission Data

(File: 50280657AppendixD)

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Spurious Emissions, TX Mode, 1-18G_LoRa_FHSS

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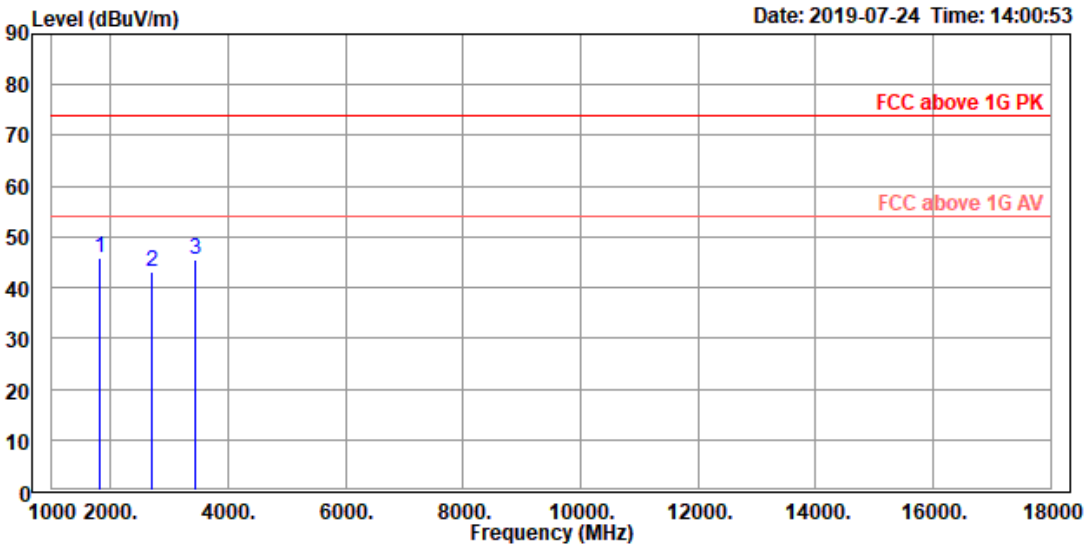

Site : 966A Chamber A
Condition : FCC above 1G PK 3m horizontal
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21℃ / 69%
Power Setting: 16
Mode : LoRa TX 125k 902.3
Memo : X(直立)

	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	1804.600	45.98	52.89	-6.91	74.00	-28.02	100	252	Peak	
2	2706.900	43.20	48.75	-5.55	74.00	-30.80	100	66	Peak	
3	3431.000	45.39	49.56	-4.17	74.00	-28.61	100	148	Peak	

Spurious Emissions, TX Mode, 1-18G

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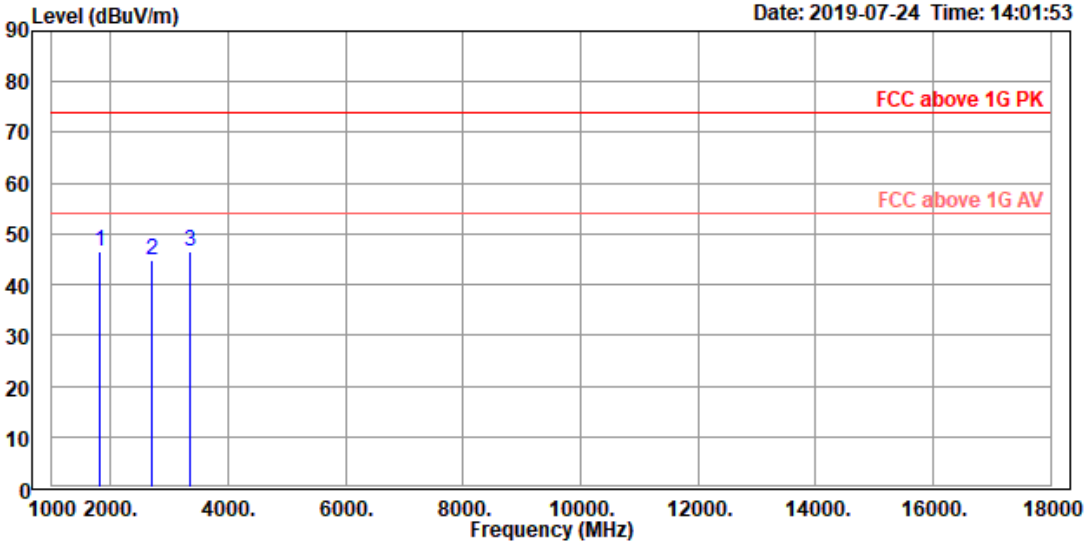

Site : 966A Chamber A
Condition : FCC above 1G PK 3m vertical
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21℃ / 69%
Power Setting: 16
Mode : LoRa TX 125k 902.3
Memo : X(直立)

	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	1804.600	46.46	53.37	-6.91	74.00	-27.54	100	317	Peak	
2	2706.900	44.87	50.42	-5.55	74.00	-29.13	100	127	Peak	
3	3346.000	46.47	50.78	-4.31	74.00	-27.53	100	10	Peak	

Spurious Emissions, TX Mode, 1-18G

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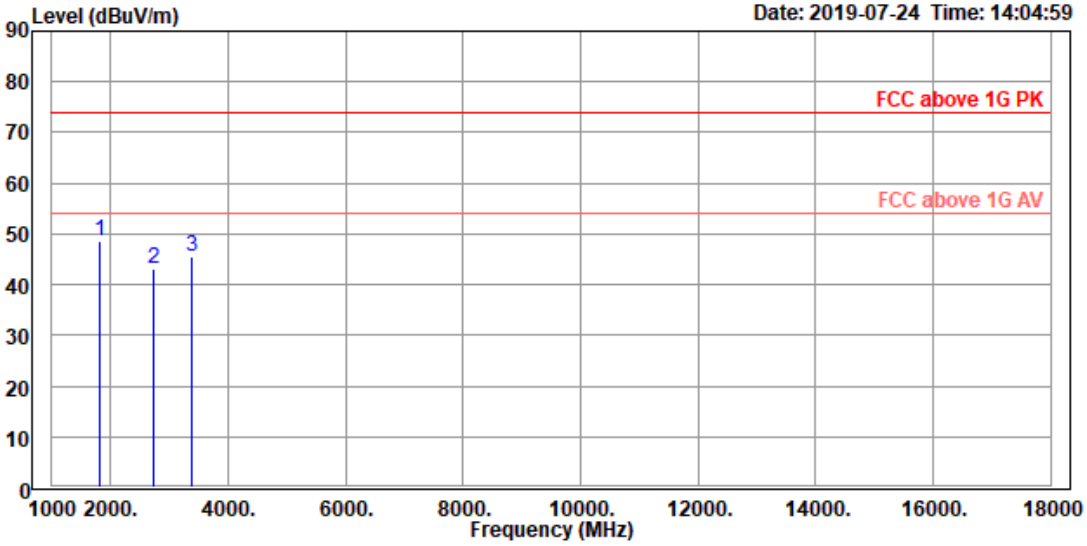
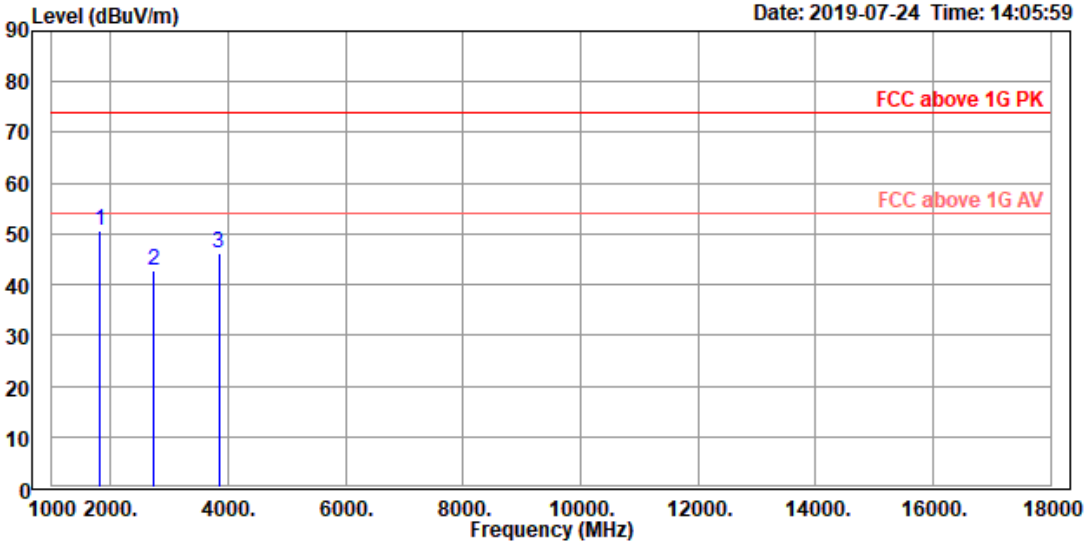


Site : 966A Chamber A
Condition : FCC above 1G PK 3m horizontal
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21℃ / 69%
Power Setting: 16
Mode : LoRa TX 125k 908.5
Memo : X(直立)

	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	1817.000	48.43	55.36	-6.93	74.00	-25.57	100	178	Peak	
2	2725.500	43.26	48.77	-5.51	74.00	-30.74	100	38	Peak	
3	3380.000	45.40	49.62	-4.22	74.00	-28.60	100	0	Peak	

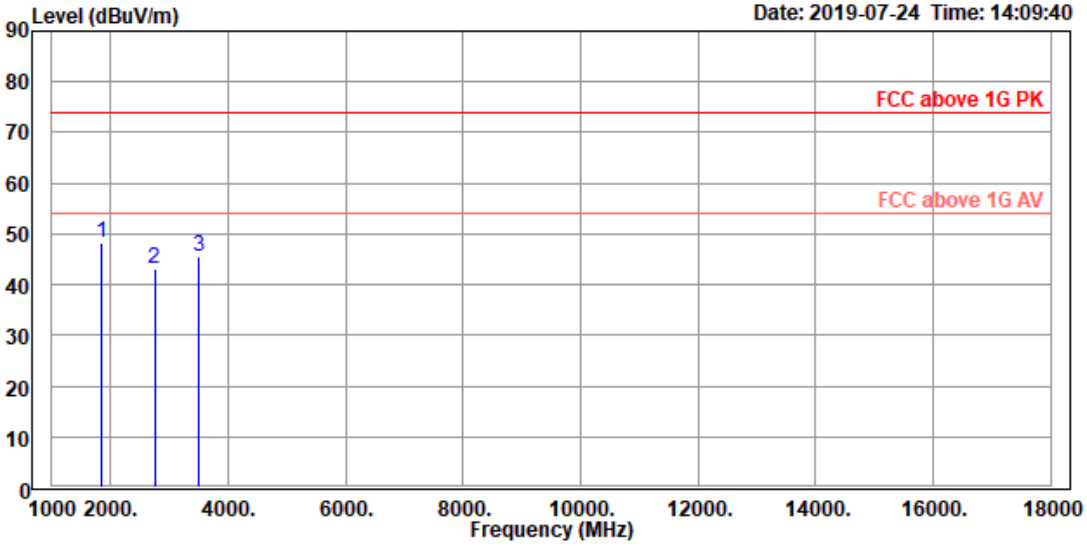
Spurious Emissions, TX Mode, 1-18G



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℃ / 69%
Power Setting: 16
Mode : LoRa TX 125k 908.5
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	1817.000	50.71	57.64	-6.93	74.00	-23.29	100	348	Peak	
2	2725.500	42.84	48.35	-5.51	74.00	-31.16	100	131	Peak	
3	3839.000	46.28	49.54	-3.26	74.00	-27.72	100	200	Peak	

Spurious Emissions, TX Mode, 1-18G



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℃ / 69%
Power Setting: 16
Mode : LoRa TX 125k 914.9
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	1829.800	48.17	55.13	-6.96	74.00	-25.83	100	168	Peak	
2	2744.700	43.22	48.68	-5.46	74.00	-30.78	100	241	Peak	
3	3499.000	45.63	49.66	-4.03	74.00	-28.37	100	344	Peak	

Spurious Emissions, TX Mode, 1-18G

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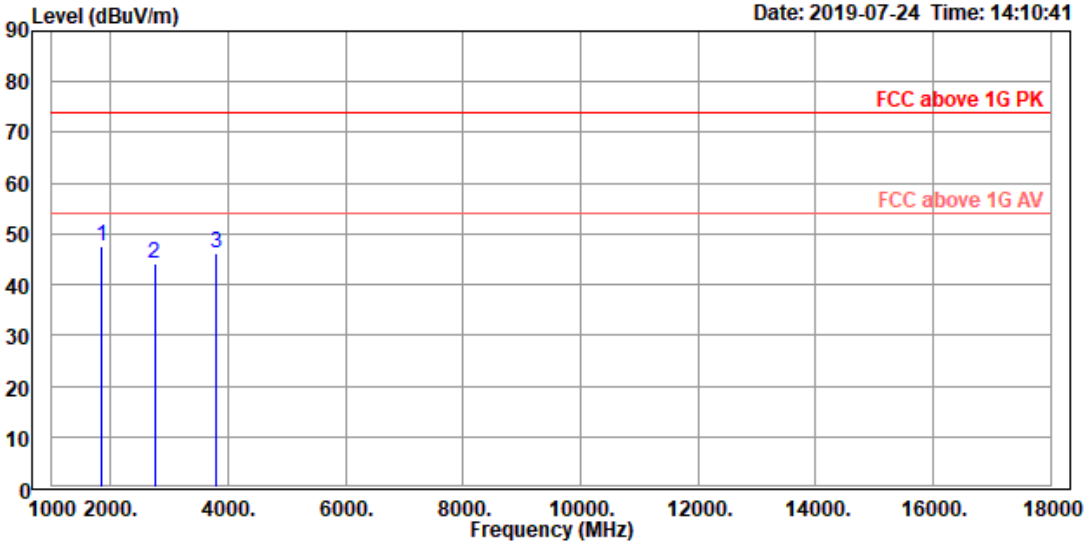

Site : 966A Chamber A
Condition : FCC above 1G PK 3m vertical
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21℃ / 69%
Power Setting: 16
Mode : LoRa TX 125k 914.9
Memo : X(直立)

	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	1829.800	47.64	54.60	-6.96	74.00	-26.36	100	310	Peak	
2	2744.700	44.05	49.51	-5.46	74.00	-29.95	100	17	Peak	
3	3788.000	46.05	49.45	-3.40	74.00	-27.95	100	13	Peak	

Spurious Emissions, TX Mode, 1-18G

Spurious Emissions, TX Mode, 30M-1G_ LoRa_FHSS

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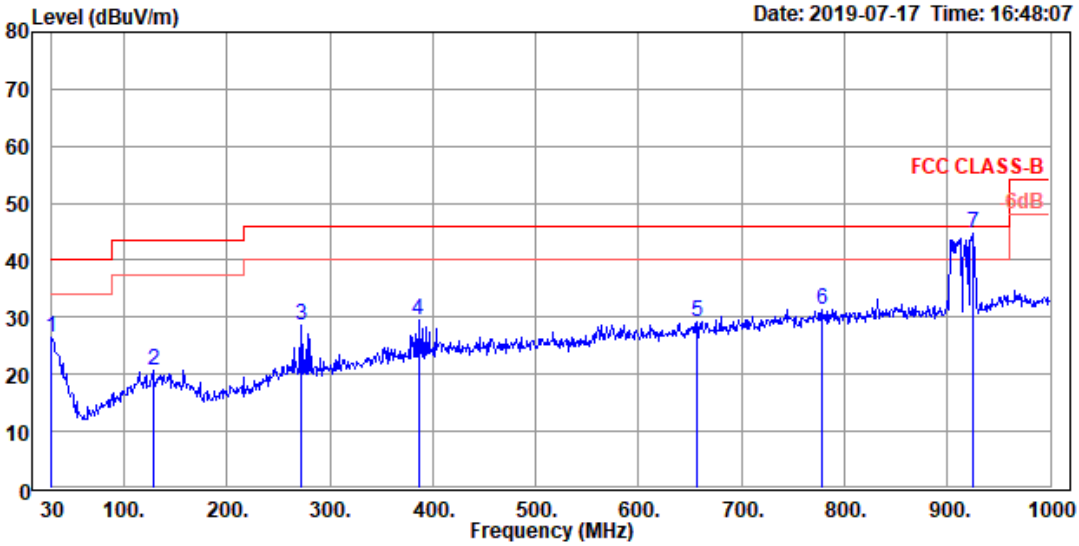

Site : 966A Chamber A
Condition : FCC CLASS-B 3m horizontal
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21℃ / 69%
Power Setting: 16
Mode : LoRa TX 125k 908.5
Memo : X(直立)

	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	26.56	26.54	0.02	40.00	-13.44	100	356	QP	
2	127.970	20.78	27.82	-7.04	43.50	-22.72	100	55	QP	
3	271.530	28.66	33.96	-5.30	46.00	-17.34	100	264	QP	
4	385.990	29.41	32.27	-2.86	46.00	-16.59	100	218	QP	
5	656.620	29.09	28.48	0.61	46.00	-16.91	100	141	QP	
6	778.840	31.36	28.75	2.61	46.00	-14.64	100	101	QP	
7 !	924.340	44.72	40.12	4.60	46.00	-1.28	100	327	QP	TX

Spurious Emissions, TX Mode, 30M-1G

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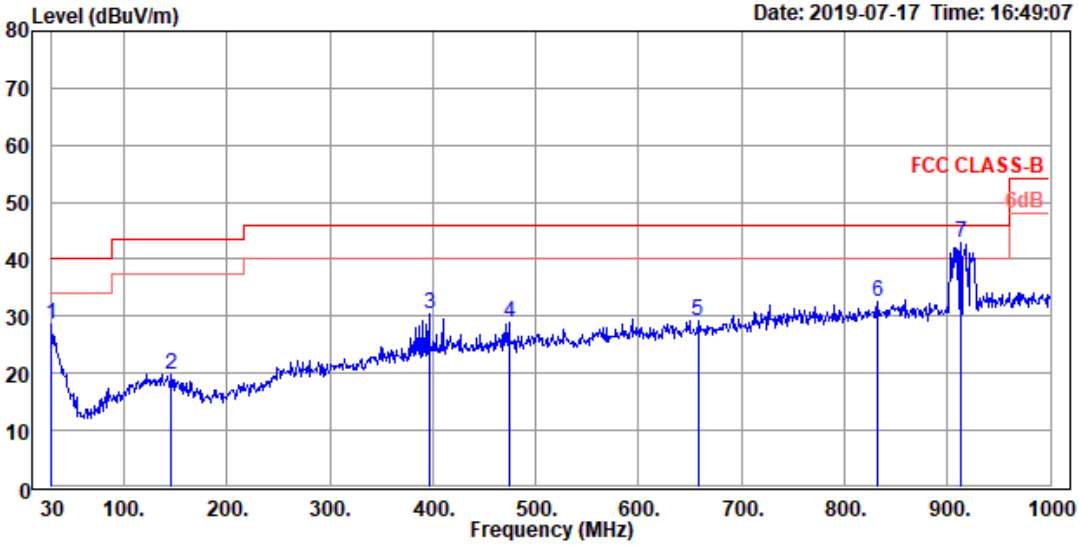

Site : 966A Chamber A
Condition : FCC CLASS-B 3m vertical
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21℃ / 69%
Power Setting: 16
Mode : LoRa TX 125k 908.5
Memo : X(直立)

	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	28.45	28.43	0.02	40.00	-11.55	100	208	QP	
2	146.400	19.91	27.02	-7.11	43.50	-23.59	100	42	QP	
3	396.660	30.48	33.02	-2.54	46.00	-15.52	100	45	QP	
4	474.260	28.79	30.49	-1.70	46.00	-17.21	100	347	QP	
5	657.590	29.28	28.66	0.62	46.00	-16.72	100	143	QP	
6	832.190	32.42	29.14	3.28	46.00	-13.58	100	22	QP	
7 !	913.670	42.90	38.56	4.34	46.00	-3.10	100	257	QP	TX

Spurious Emissions, TX Mode, 30M-1G

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

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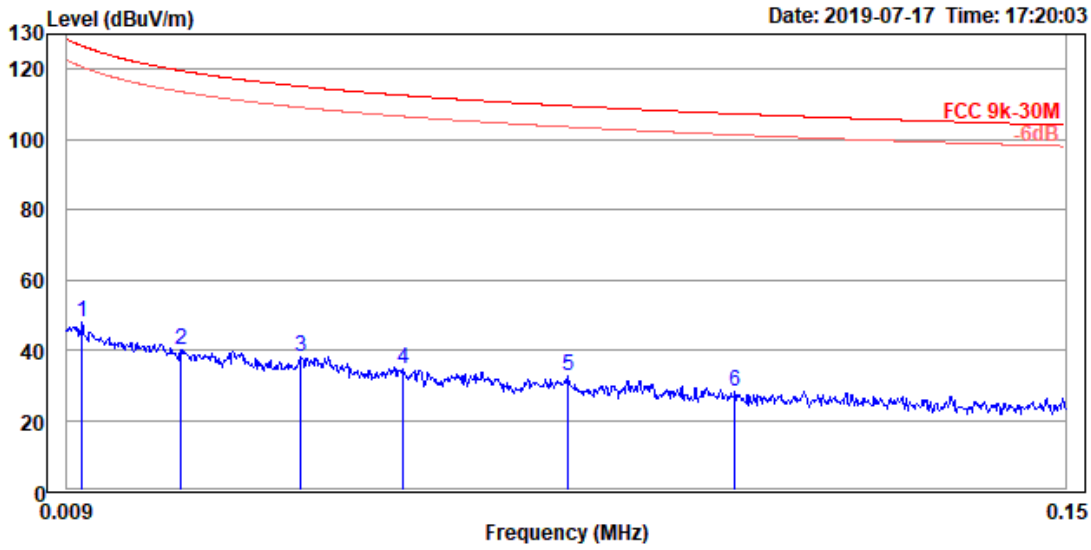

Site : 966A Chamber A
Condition : FCC 9k-30M 3m Horizontal
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21℃ / 69%
Power Setting: 16
Mode : LoRa TX 125k 908.5
Memo : X(直立)

	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	0.011	47.78	29.66	18.12	126.67	-78.89	100	325	QP	
2	0.025	40.02	21.26	18.76	119.61	-79.59	100	266	QP	
3	0.042	38.09	19.17	18.92	115.13	-77.04	100	300	QP	
4	0.057	34.42	15.70	18.72	112.55	-78.13	100	201	QP	
5	0.080	32.57	14.39	18.18	109.57	-77.00	100	208	QP	
6	0.103	28.17	10.46	17.71	107.31	-79.14	100	66	QP	

Spurious Emissions, TX Mode, 9 kHz-30M

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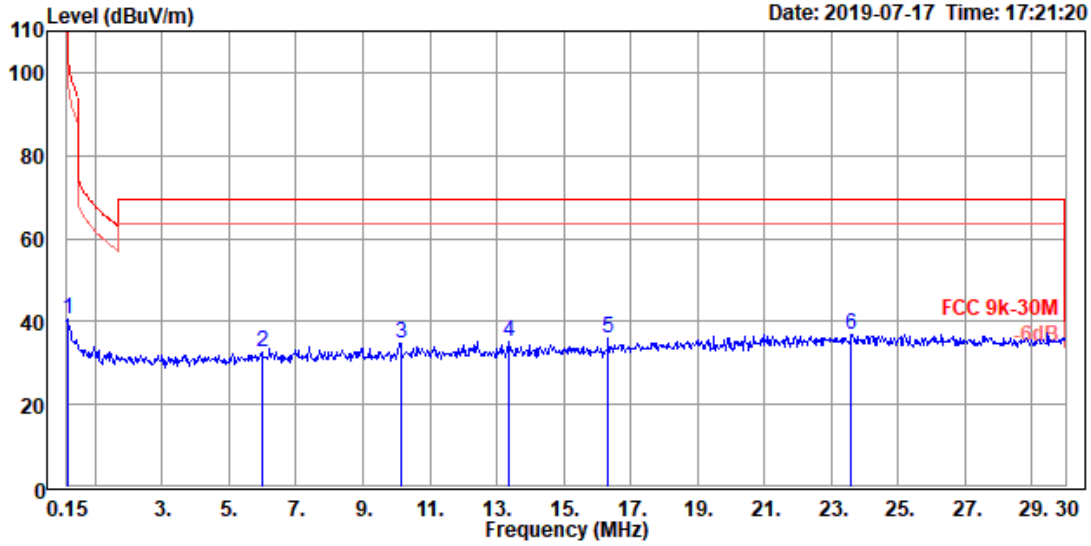

Site : 966A Chamber A
Condition : FCC 9k-30M 3m Horizontal
Test Engineer: Curry Chen
Product : LoRa RF Transceiver Module
Model No. : AKCP_LORA_RADIO_MODULE(-915B/-868)
Test Rating : DC 3.3V
Tmp/Hum : 21℃ / 69%
Power Setting: 16
Mode : LoRa TX 125k 908.5
Memo : X(直立)

	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	0.180	40.53	22.49	18.04	102.50	-61.97	100	78	QP	
2	5.971	32.61	13.07	19.54	69.50	-36.89	100	169	QP	
3	10.120	34.65	14.24	20.41	69.50	-34.85	100	18	QP	
4	13.374	35.13	14.40	20.73	69.50	-34.37	100	352	QP	
5	16.329	35.83	14.80	21.03	69.50	-33.67	100	178	QP	
6	23.612	36.78	15.22	21.56	69.50	-32.72	100	111	QP	

Spurious Emissions, TX Mode, 9 kHz-30M

Mains Spurious Emissions

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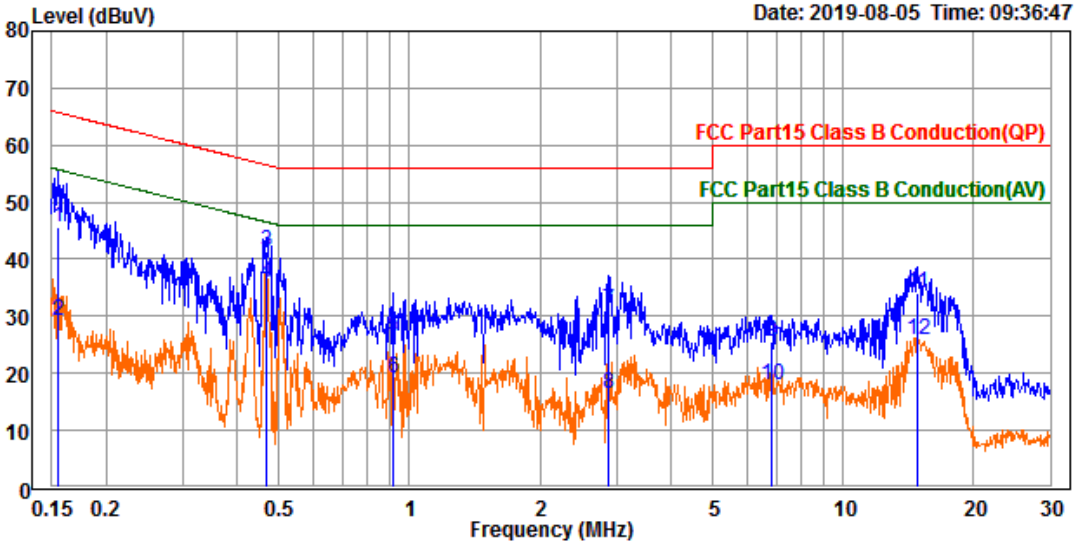

Trace: 1

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℃ / 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

Spurious Emissions, Mains, 150kHz - 30MHz

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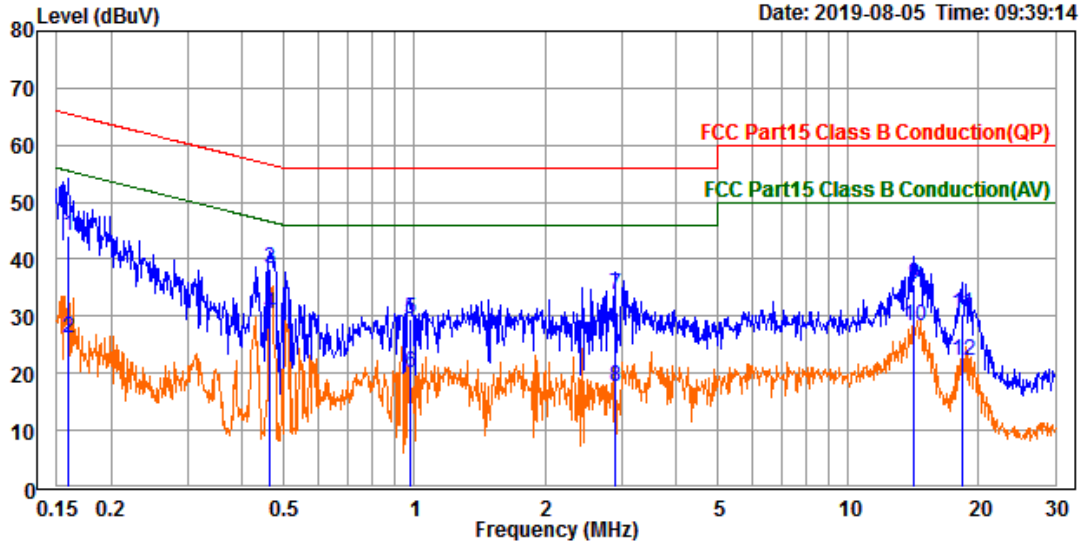

Trace: 1

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℃ / 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

Spurious Emissions, Mains, 150kHz - 30MHz