DEKRA Testing and Certification (Suzhou) Co., Ltd.
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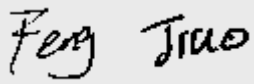
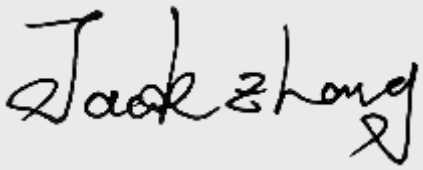
Test report No:
23B0020R-RF-US-P06V01

FCC&ISED TEST REPORT

Product Name	LoRa Module
Trademark	Murata
Model and /or type reference	LBAA0XV2GT
FCC ID	VPYLB2GT
IC	772C-LB2GT
Applicant´s name / address	Murata Manufacturing Co., Ltd. 10-1, Higashikotari 1-chome, Nagaokakyo-shi, Kyoto 617-8555, Japan
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10: 2013 RSS-Gen Issue 5 / RSS-247 Issue 3
Verdict Summary	IN COMPLIANCE
Tested by (name / position & signature)	Feng Jiao/ Project Engineer 
Approved by (name / position & signature)	Jack Zhang/ Manager 
Date of issue	2024-03-20
Report Version	V1.1
Report template No	Template_FCC 15.247-RF-V1.0

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COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.
In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Nov. 02, 2023
Date (start test)	Nov. 03, 2023
Date (finish test)	Jan. 26, 2024

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 ˚C – 35 ˚C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	:	Equipment Under Test
QP	:	Quasi-Peak
CAV	:	CISPR Average
AV	:	Average
CDN	:	Coupling Decoupling Network
SAC	:	Semi-Anechoic Chamber
OATS	:	Open Area Test Site
BW	:	Bandwidth
AM	:	Amplitude Modulation
PM	:	Pulse Modulation
HCP	:	Horizontal Coupling Plane
VCP	:	Vertical Coupling Plane
U_N	:	Nominal voltage
*T*x	:	Transmitter
*R*x	:	Receiver
N/A	:	Not Applicable
N/M	:	Not Measured

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
23B0020R-RF-US-P06V01	V1.0	Initial issue of report.	2024-03-19
23B0020R-RF-US-P06V01	V1.1	Update Regulation RSS-247 Issue 2 to RSS-247 Issue 3. (The test report No.: 23B0020R-RF-US-P06V01 V1.1 is to replace the test report No.: 23B0020R-RF-US-P06V01 V1.0, and test report 23B0020R-RF-US-P06V01 V1.0 is obsoleted.)	2024-03-20

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with FCC 15.247.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result, unless the specification, standard or customer have special requirements.
4. The test results presented in this report relate only to the object tested.
5. The test results relate only to the samples tested.
6. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
7. This report will not be used for social proof function in China market.
8. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
   - Chapter 1.1 General Description of the Item(s);
   - Chapter 1.2 Antenna Informaion;
   - Chapter 1.3 Data Rate;
   - Chapter 1.4 Channel List;
   - Chapter 1.5 Power Setting

USED EQUIPMENT

AC Power Line Conducted Emission / TR1(Chamber details)

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100906	2023.08.26	2024.08.25
Two-Line V-Network	R&S	ENV216	101044	2023.01.07	2024.01.06
Current Probe	R&S	EZ-17	100678	2023.01.13	2024.01.12
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2023.05.14	2024.05.13
50ohm Termination	Xinghu	N/A	N/A	2023.02.10	2024.02.09
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2023.07.06	2024.07.06
Coaxial Cable	Suhner	RG 223	TR1-C1	2023.05.14	2024.05.13
Dekra test software	Dekra	N/A	N/A	N/A	N/A

Conducted Test / TR8

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Wireless Connectivity Tester	R&S	CMW 270	102593	2023.05.20	2024.05.19
Coaxial Cable	N/A	N/A	2477	2023.06.08	2024.06.07
Coaxial Cable	N/A	N/A	2478	2023.06.08	2024.06.07
High and low temperature and fast temperature change test box	ASTUOD	ASTD-FBT-225K	N/A	2023.05.20	2024.05.19
Temperature/Humidity Meter	RTS	RTS-8S	RF08	2023.08.25	2024.08.24
Test system					
MAX Signal Analyzer	Keysight	N9010A	MY48030494	2023.11.08	2024.11.07
RF Control Unit	Tonscend	JS0806-2	22G8060594	2023.02.04	2024.02.03
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY61252529	2023.05.20	2024.05.19
Frequency extender for EXG or MXG	Keysight	N5182BX07	MY59362500	2023.05.20	2024.05.19
EXG-B MW Analog Signal Generator	Keysight	N5173B	MY61252566	2023.08.26	2024.08.25
Test Software	Tonscend	TS1120	JS1120-3	N/A	N/A

Radiated Emission(30MHz-1GHz) / AC2(Chamber details)

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2023.09.17	2024.09.16
Loop Antenna	R&S	HFH2-Z2E	101149	2023.04.25	2024.04.24
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2023.02.20	2024.02.19
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2023.05.19	2024.05.18
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2023.05.21	2024.05.20
Dekra test software	Dekra	N/A	N/A	N/A	N/A

Radiated Emission (1GHz-40GHz) / AC5

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EXA Spectrum Analyzer	Keysight	N9020B	MY60112218	2023.11.08	2024.11.07
Pre-Amplifier	SKET	LNPA_0118G-45	SK2021090101	2023.05.14	2024.05.13
Preamplifier	CHENGYI	EMC184045SE	980263	2023.07.09	2024.07.08
DRG Horn	ETS-Lindgren	3117	00123988	2023.11.07	2024.11.06
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2023.05.31	2024.05.30
Filter Switch Box	MVE	MSW-F196	C070001S	2023.05.21	2024.05.20
Temperature/Humidity Meter	RTS	RTS-8S	AC5-TH	2023.05.19	2024.05.18
Coaxial Cable	TIMES	HF290A-NMNM-5.00M	651945-0001	2023.10.19	2024.10.18
Coaxial Cable	TIMES	HF290A-NMNM-6.00M	651946-0001	2023.10.19	2024.10.18
Coaxial Cable	TIMES	HF290A-NMNM-0.50M	651944-0001	2023.10.19	2024.10.18
Dekra test software	Dekra	N/A	N/A	N/A	N/A

UNCERTAINTY

Uncertainties have been calculated according to the DEKRA internal document. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. Uncertainties is complice with standard required as below.

Test item	Uncertainty
AC Power Line Conducted Emission	± 2.92 dB
Peak Power Output	± 1.13 dB
Radiated Emission(30MHz~1GHz)	Horizontal: 30MHz~200MHz: 4.60 dB 200MHz~1GHz: 4.10 dB Vertical: 30MHz~200MHz: 4.80 dB 200MHz~1GHz: 4.10 dB
Radiated Emission(1GHz~26.5GHz)	Horizontal: 1GHz~18GHz: 5.00 dB Vertical: 1GHz~18GHz: 4.80 dB Horizontal: 18GHz~40GHz: 4.70 dB Vertical: 18GHz~40GHz: 4.60 dB
RF antenna conducted test	± 1.13 dB
Radiated Emission Band Edge	± 5.00 dB
DTS Bandwidth	± 279 Hz
Occupied Bandwidth	± 279 Hz
Power Density	± 1.13 dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name..... :	LoRa Module
Model No. ..... :	LBAA0XV2GT
FCC ID..... :	VPYLB2GT
IC..... :	772C-LB2GT
Hardware Version ..... :	1.0
Software Version..... :	0x0102
Manufacturter..... :	Murata Manufacturing Co., Ltd.
Manufacturer Address..... :	10-1, Higashikotari 1-chome, Nagaokakyo-shi, Kyoto 617-8555, Japan
Factory ..... :	Murata Manufacturing Co., Ltd.
Factory Address..... :	10-1, Higashikotari 1-chome, Nagaokakyo-shi, Kyoto 617-8555, Japan

Wireless specifiction..... :	LoRa(DTS/FHSS/Hybird)/LR-FHSS/FSK	
Operating frequency range(s) :	LoRa(DTS) 500kHz bandwidth: 903MHz~914.2MHz LoRa(FHSS) 125kHz bandwidth: 902.3MHz~914.9MHz LR-FHSS 1.523MHz bandwidth: 903MHz~914.2MHz 2.4GHz FSK 2400MHz~2483.5MHz 812kHz LoRa 2400MHz~2483.5MHz SubG CSS 500kHz bandwidth: 902.5MHz~926.5MHz SubG FSK 902.2MHz~927.8MHz	
Modulation ..... :	LoRa/LR-FHSS/FSK	
Number of channel..... :	LoRa(DTS): 8 LoRa(FHSS): 64 LR -FHSS:8X60 2.4GHz FSK:79 812kHz LoRa:77 SubG CSS: 31 SubG FSK:129	
Data Rate ..... :	125kHz bandwidth LoRa: DR0~3 500kHz bandwidth LoRa: DR4 LR-FHSS: DR5~6 2.4GHz FSK: 250kbps 812KHz LoRa: DRO~7 SubG CSS: 2kbps SubG FSK: 50kbps	
Device category ..... :	☐	Fixed point-to-point
	☐	Emit multiple directional beams, simultaneously or sequentially
	☒	Other cases

Note: LR-FHSS: Each of the eight channels contains 60 sub-channels, and the frequency hopping function is actually implemented between sub-channels. The RF performance of the eight channels is completely consistent, so the test data of only one typical channel is presented in the report.

Rated power supply .....:	Voltage and Frequency	
	☐	AC: 220 - 240 V, 50/60 Hz
	☐	AC: 100 - 240 V, 50/60 Hz
	☒	DC: 1.8 – 3.6V, Typical 3.3V
	☐	Battery:
	☐	USB
Mounting position.....:	☐	Table top equipment
	☐	Wall/Ceiling mounted equipment
	☐	Floor standing equipment
	☐	Hand-held equipment
	☒	Other: Module

1.2 Antenna Information

2.4GHz ISM band:

Antenna model / type number.....:	ANT-DB1-RAF-RPS			
Antenna serial number .....:	N/A			
Antenna Delivery .....:	☒	1TX + 1RX		
	☐	2TX + 2RX		
	☐	Others:·····		
Antenna technology.....:	☒	SISO		
	☐	MIMO	☐	Basic
			☐	CDD
			☐	Sectorized
			☐	Beam-forming
Antenna Type.....:	☒	External	☒	Dipole
			☐	chip antenna
			☐	Sectorized
	☐	Internal	☐	PIFA
			☐	PCB
			☐	Metal Antenna
Antenna Gain.....:	2.5dBi			

900MHz band:

Antenna model / type number.....:	001-0002			
Antenna serial number .....:	N/A			
Antenna Delivery .....:	☒	1TX + 1RX		
	☐	2TX + 2RX		
	☐	Others:·····		
Antenna technology.....:	☒	SISO		
	☐	MIMO	☐	Basic
			☐	CDD
			☐	Sectorized
			☐	Beam-forming
Antenna Type.....:	☒	External	☒	Dipole
			☐	chip antenna
			☐	Sectorized
	☐	Internal	☐	PIFA
			☐	PCB
			☐	Metal Antenna
Antenna Gain.....:	2.0dBi			

1.3 Channel List

LoRa(FHSS) 125kHz Bandwidth

Channel NO.	Frequency (MHz)	Channel NO.	Frequency (MHz)	Channel NO.	Frequency (MHz)	Channel NO.	Frequency (MHz)
0	902.3	1	902.5	2	902.7	3	902.9
4	903.1	5	903.3	6	903.5	7	903.7
8	903.9	9	904.1	10	904.3	11	904.5
12	904.7	13	904.9	14	905.1	15	905.3
16	905.5	17	905.7	18	905.9	19	906.1
20	906.3	21	906.5	22	906.7	23	906.9
24	907.1	25	907.3	26	907.5	27	907.7
28	907.9	29	908.1	39	908.3	31	908.5
32	908.7	33	908.9	34	909.1	35	909.3
36	909.5	37	909.7	38	909.9	39	910.1
40	910.3	41	910.5	42	910.7	43	910.9
44	911.1	45	911.3	46	911.5	47	911.7
48	911.9	49	912.1	50	912.3	51	912.5
52	912.7	53	912.9	54	913.1	55	913.3
56	913.5	57	913.7	58	913.9	59	914.1
60	914.3	61	914.5	62	914.7	63	914.9

LoRa(DTS) 500kHz Bandwidth

Channel NO.	Frequency (MHz)	Channel NO.	Frequency (MHz)	Channel NO.	Frequency (MHz)	Channel NO.	Frequency (MHz)
64	903	65	904.6	66	906.2	67	907.8
68	909.4	69	911	70	912.6	71	914.2

LR-FHSS 1.523MHz Bandwidth

Channel NO.	Frequency (MHz)	Channel NO.	Frequency (MHz)	Channel NO.	Frequency (MHz)	Channel NO.	Frequency (MHz)
64	903	65	904.6	66	906.2	67	907.8
68	909.4	69	911	70	912.6	71	914.2

LoRa (FSK) 200kHz Bandwidth

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz	03	2405 MHz
04	2406 MHz	05	2407 MHz	06	2408 MHz	07	2409 MHz
08	2410 MHz	09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz	15	2417 MHz
16	2418 MHz	17	2419 MHz	18	2420 MHz	19	2421 MHz
20	2422 MHz	21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz	27	2429 MHz
28	2430 MHz	29	2431 MHz	30	2432 MHz	31	2433 MHz
32	2434 MHz	33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz	39	2441 MHz
40	2442 MHz	41	2443 MHz	42	2444 MHz	43	2445 MHz
44	2446 MHz	45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz	51	2453 MHz
52	2454 MHz	53	2455 MHz	54	2456 MHz	55	2457 MHz
56	2458 MHz	57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz	63	2465 MHz
64	2466 MHz	65	2467 MHz	66	2468 MHz	67	2469 MHz
68	2470 MHz	69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz	75	2477 MHz
76	2478 MHz	77	2479 MHz	78	2480 MHz	N/A	N/A

812kHz LoRa

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2403 MHz	01	2404 MHz	02	2405 MHz	03	2406 MHz
04	2407 MHz	05	2408 MHz	06	2409 MHz	07	2410 MHz
08	2411 MHz	09	2412 MHz	10	2413 MHz	11	2414 MHz
12	2415 MHz	13	2416 MHz	14	2417 MHz	15	2418 MHz
16	2419 MHz	17	2420 MHz	18	2421 MHz	19	2422 MHz
20	2423 MHz	21	2424 MHz	22	2425 MHz	23	2426 MHz
24	2427 MHz	25	2428 MHz	26	2429 MHz	27	2430 MHz
28	2431 MHz	29	2432 MHz	30	2433 MHz	31	2434 MHz
32	2435 MHz	33	2436 MHz	34	2437 MHz	35	2438 MHz
36	2439 MHz	37	2440 MHz	38	2441 MHz	39	2442 MHz
40	2443 MHz	41	2444 MHz	42	2445 MHz	43	2446 MHz
44	2447 MHz	45	2448 MHz	46	2449 MHz	47	2450 MHz
48	2451 MHz	49	2452 MHz	50	2453 MHz	51	2454 MHz
52	2455 MHz	53	2456 MHz	54	2457 MHz	55	2458 MHz
56	2459 MHz	57	2460 MHz	58	2461 MHz	59	2462 MHz
60	2463 MHz	61	2464 MHz	62	2465 MHz	63	2466 MHz
64	2467 MHz	65	2468 MHz	66	2469 MHz	67	2470 MHz
68	2471 MHz	69	2472 MHz	70	2473 MHz	71	2474 MHz
72	2475 MHz	73	2476 MHz	74	2477 MHz	75	2478 MHz
76	2479 MHz	77	N/A	78	N/A	N/A	N/A

LoRa(CSS) 500kHz Bandwidth

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	902.5 MHz	02	903.3 MHz	03	904.1 MHz	04	904.9 MHz
05	905.7 MHz	06	906.5 MHz	07	907.3 MHz	08	908.1 MHz
09	908.9 MHz	10	909.7 MHz	11	910.5 MHz	12	911.3 MHz
13	912.1 MHz	14	912.9 MHz	15	913.7 MHz	16	914.5 MHz
17	915.3 MHz	18	916.1 MHz	19	916.9 MHz	20	917.7 MHz
21	918.5 MHz	22	919.3 MHz	23	920.1 MHz	24	920.9 MHz
25	921.7 MHz	26	922.5 MHz	27	923.3 MHz	28	924.1 MHz
29	924.9 MHz	30	925.7 MHz	31	926.5 MHz		

LoRa (FSK)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	902.2 MHz	02	902.4 MHz	03	902.6 MHz	04	902.8 MHz
05	903 MHz	06	903.2 MHz	07	903.4 MHz	08	903.6 MHz
09	903.8 MHz	10	904 MHz	11	904.2 MHz	12	904.4 MHz
13	904.6 MHz	14	904.8 MHz	15	905 MHz	16	905.2 MHz
17	905.4 MHz	18	905.6 MHz	19	905.8 MHz	20	906 MHz
21	906.2 MHz	22	906.4 MHz	23	906.6 MHz	24	906.8 MHz
25	907 MHz	26	907.2 MHz	27	907.4 MHz	28	907.6 MHz
29	907.8 MHz	30	908 MHz	31	908.2 MHz	32	908.4 MHz
33	908.6 MHz	34	908.8 MHz	35	909 MHz	36	909.2 MHz
37	909.4 MHz	38	909.6 MHz	39	909.8 MHz	40	910 MHz
41	910.2 MHz	42	910.4 MHz	43	910.6 MHz	44	910.8 MHz
45	911 MHz	46	911.2 MHz	47	911.4 MHz	48	911.6 MHz
49	911.8 MHz	50	912 MHz	51	912.2 MHz	52	912.4 MHz
53	912.6 MHz	54	912.8 MHz	55	913 MHz	56	913.2 MHz
57	913.4 MHz	58	913.6 MHz	59	913.8 MHz	60	914 MHz
61	914.2 MHz	62	914.4 MHz	63	914.6 MHz	64	914.8 MHz
65	915 MHz	66	915.2 MHz	67	915.4 MHz	68	915.6 MHz
69	915.8 MHz	70	916 MHz	71	916.2 MHz	72	916.4 MHz
73	916.6 MHz	74	916.8 MHz	75	917 MHz	76	917.2 MHz
77	917.4 MHz	78	917.6 MHz	79	917.8 MHz	80	918 MHz
81	918.2 MHz	82	918.4 MHz	83	918.6 MHz	84	918.8 MHz
85	919 MHz	86	919.2 MHz	87	919.4 MHz	88	919.6 MHz
89	919.8 MHz	90	920 MHz	91	920.2 MHz	92	920.4 MHz
93	920.6 MHz	94	920.8 MHz	95	921 MHz	96	921.2 MHz
97	921.4 MHz	98	921.6 MHz	99	921.8 MHz	100	922 MHz
101	922.2 MHz	102	922.4 MHz	103	922.6 MHz	104	922.8 MHz
105	923 MHz	106	923.2 MHz	107	923.4 MHz	108	923.6 MHz
109	923.8 MHz	110	924 MHz	111	924.2 MHz	112	924.4 MHz
113	924.6 MHz	114	924.8 MHz	115	925 MHz	116	925.2 MHz
117	925.4 MHz	118	925.6 MHz	119	925.8 MHz	120	926 MHz
121	926.2 MHz	122	926.4 MHz	123	926.6 MHz	124	926.8 MHz
125	927 MHz	126	927.2 MHz	127	927.4 MHz	128	927.6 MHz
129	927.8 MHz						

Note: The LR-FHSS mode has 8 channels with 60 sub-channels each, and the channel spacing is 25.4KHz.

1.4 Power Setting

Mode	Frequency（MHz）	Power Setting
Mode 1 LoRa FHSS 125kHz bandwidth	902.3	22
	908.5	22
	914.9	22
Mode 2 LoRa DTS 500kHz bandwidth	903.0	22
	907.8	22
	914.2	22
Mode 3 LR-FHSS 1.523MHz bandwidth	903.0	22
	907.8	22
	914.2	22
Mode 4 2.4GHz FSK	2402	13
	2441	13
	2480	13
Mode 5 812kHz LoRa	2403	13
	2442	13
	2479	13
Mode 6 SubG CSS	902.5	22
	914.5	22
	926.5	22
Mode 7 SubG FSK	902.2	22
	915	22
	927.8	22

Note: The General Description of the Item, antenna information, Channel List and power setting in clause 1 are provided and confirmed by the client.

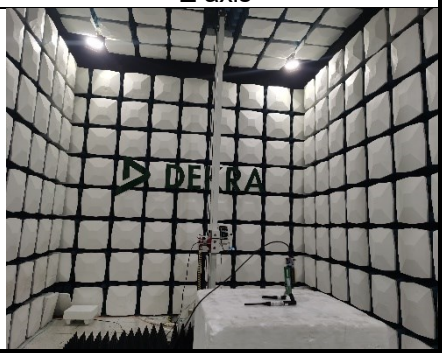
2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

Test Mode	Mode 1: Transmit by LoRa with FHSS 125kHz bandwidth(902.3-914MHz).
	Mode 2: Transmit by LoRa with DTS 500kHz bandwidth(903-914.2MHz)
	Mode 3: Transmit by LoRa with LR-FHSS 1.523MHz bandwidth(903-914.2MHz)
	Mode 4: Transmit by LoRa with 2.4GHz FSK(2400-2483.5MHz)
	Mode 5: Transmit by LoRa with 812kHz LoRa bandwidth(2400-2483.5MHz)
	Mode 6: Transmit by LoRa with SubG CSS(902.5-926.5MHz)
	Mode 7: Transmit by LoRa with SubG FSK(902.2-927.8MHz)

Note : For client device, radiated tests was verified over X, Y, Z axis, and shown the worst case X axis on this report.

X axis	Y axis	Z axis
		

2.2 Support / Auxiliary equipment / unit / Test software for the EUT

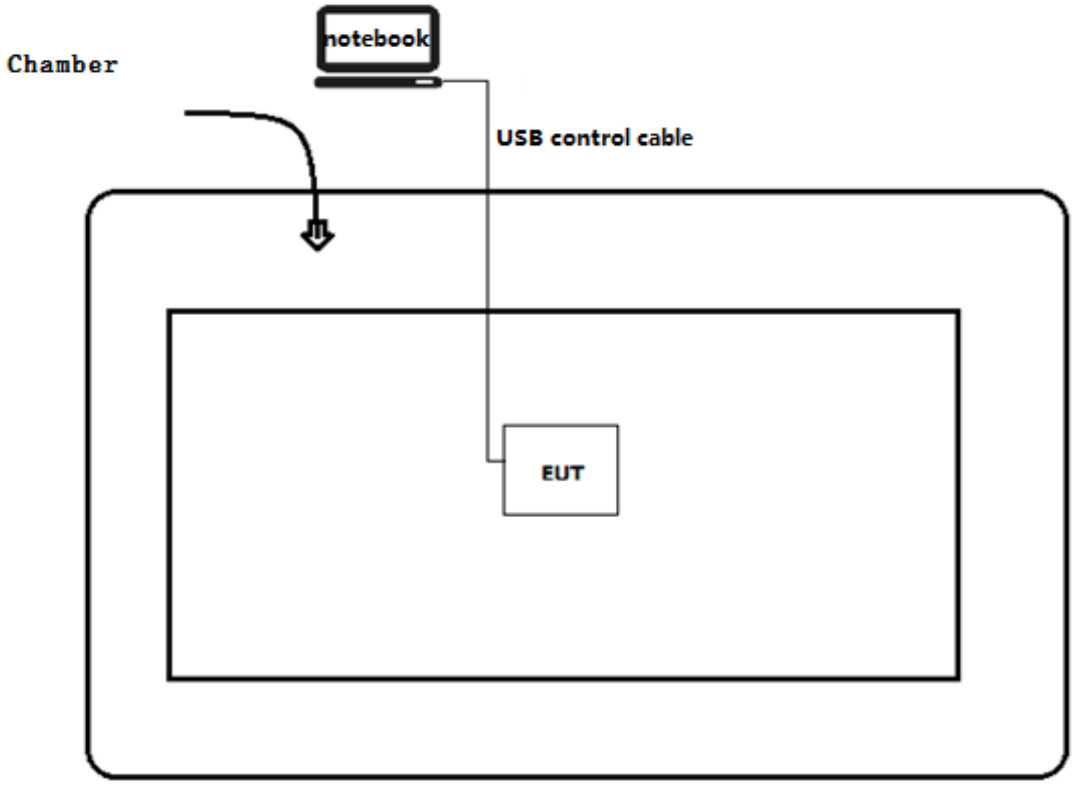
The EUT has been tested with the following auxiliary equipment / unit / software:

Auxiliary equipment	Type / Version	Manufacturer	Supplied by
Notebook	Think pad x280	Lenovo	Adapter
software	Type / Version	Manufacturer	Supplied by
SSCOM	5.13.1	N/A	N/A

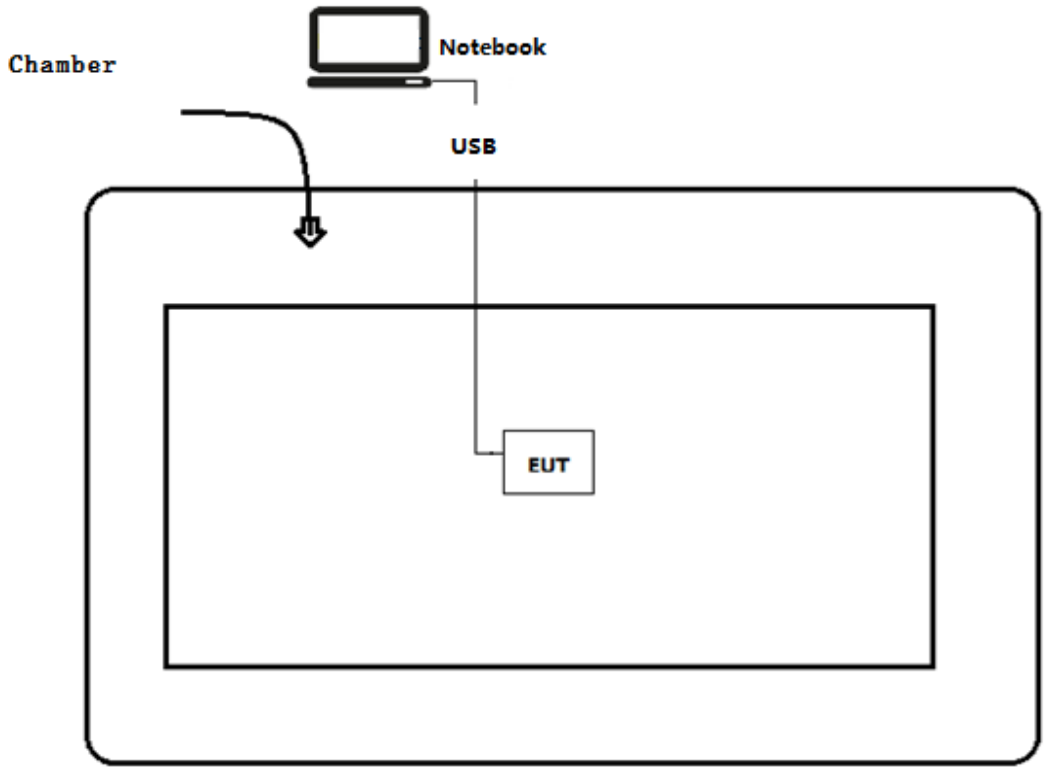
2.3 Test Configuration / Block diagram used for tests

The following test setup / configuration / block diagram has been used during the tests:

Test setup Diagram- Conducted test



Test setup Diagram- Radiated test



2.4 Testing process

1	Setup the EUT as shown in Section 2.4.
2	Run the software “SSCOM” on the notebook computer.
3	Open the serial port and enter the corresponding commands to configure the test mode, test channel, test power and data rate.
4	Verify that the EUT works properly.

3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
FCC CFR Title 47 Part 15 Subpart C Section 15.247	2020	Operation within the bands 902 – 928 MHz, 2400 – 2483.5 MHz, and 5725 – 5850 MHz.
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
RSS-Gen Issue 5 Amendment 1	2019	General Requirements for Compliance of Radio Apparatus
RSS-247 Issue 3	2023	Digital Transmission Systems (DTSs),Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

3.2 Overview of results

For FCC:

Requirement – Test case	Basic standard(s)	Verdict	Remark
AC Power Line Conducted Emission	FCC 15.207	N/A	---
Emissions in restricted frequency bands	FCC 15.247(d), 15.209	PASS	---
Emissions in non-restricted frequency bands	FCC 15.247(d)	PASS	---
Radiated Emission Band Edge	FCC 15.247(d), 15.209	PASS	---
Fundamental emission output power	FCC 15.247(b)(3)	PASS	---
DTS Bandwidth	FCC 15.247(a)(2)	PASS	---
20dB Bandwidth	FCC 15.247(a)(1)	PASS	---
Power Spectral Density	FCC 15.247(e)	PASS	---
Carrier Frequency Separation	FCC 15.247(a)(1)	PASS	---
Number of Hopping Frequencies	FCC 15.247(a)(1)(iii)	PASS	---
Time of Occupancy (Dwell Time)	FCC 15.247(a)(1)(iii)	PASS	---
Antenna Requirement	FCC 15.203	PASS	---

For ISED:

Requirement – Test case	Basic standard(s)	Verdict	Remark
AC Power Line Conducted Emission	RSS-Gen Issue 5 Section 8.8	N/A	---
Emissions in restricted frequency bands	RSS-Gen Issue 5 Section 8.9	PASS	---
Emissions in non-restricted frequency bands	RSS-247 Issue 3 Section A5.5	PASS	---
Radiated Emission Band Edge	RSS-247 Issue 3 Section A5.5	PASS	---
Fundamental emission output power	RSS-247 Issue 3 SectionA5.4(4)	PASS	---
DTS Bandwidth	RSS-Gen Issue 5 Section 6.6	PASS	---
20dB Bandwidth	RSS-247 Issue 3 Section A5.2(1)	PASS	---
Carrier Frequency Separation	RSS-247 Issue 3 Section 5.1	PASS	---
Number of Hopping Frequencies	RSS-247 Issue 3 Section 5.1	PASS	---
Time of Occupancy (Dwell Time)	RSS-247 Issue 3 Section 5.1	PASS	---
Power Spectral Density	RSS-247 Issue 3 Section A5.2(2)	PASS	---
Antenna Requirement	RSS-Gen Issue 5 Section 6.8	PASS	---

3.3 Test Facility

USA	**:**	**FCC Designation Number: CN1199**
Canada	**:**	**CAB identifier Number: CN0040**

4 TEST RESULTS

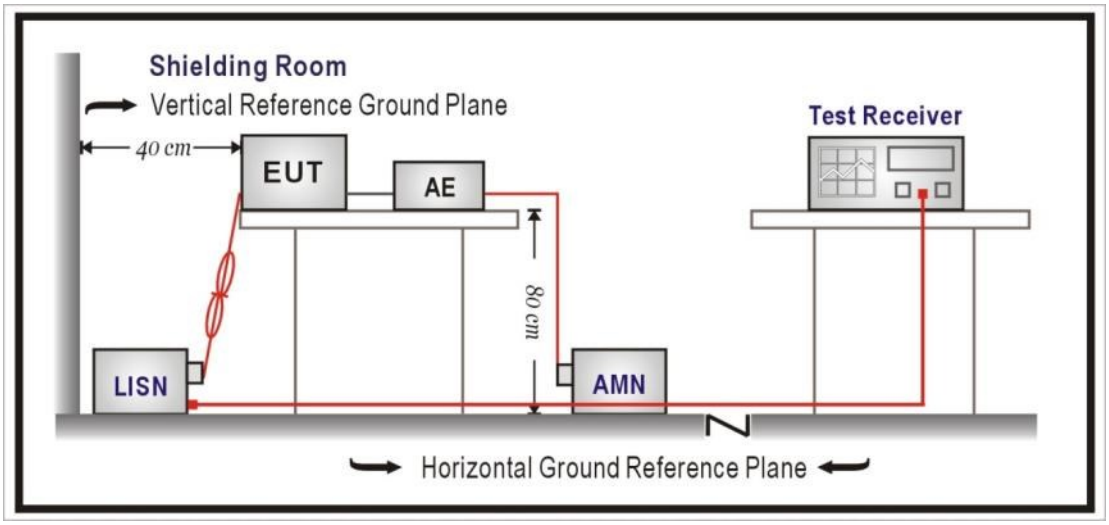
4.1 AC Power Line Conducted Emission	VERDICT: N/A

4.1.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.207	
Frequency range [MHz]	Limit: QP [dB(μV)[1)]]	Limit: AV [dB(μV) [1)]]
0,15 - 0,50	66 - 56 [2)]	56 - 46 [2)]
0,50 - 5,0	56	46
5,0 - 30	60	50

[1)] At the transition frequency, the lower limit applies.
[2)] The limit decreases linearly with the logarithm of the frequency.

4.1.2 Test Setup



4.1.3 Test Procedure

	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

4.1.4 Test Data

N/A: The device is powered by DC, so the test item is not applicable.

4.2 Emissions in restricted frequency bands — VERDICT: PASS

4.2.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.205; 15.209

Restricted Bands of operation for FCC

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	Above 38.6
13.36 – 13.41	--	--	--

Restricted Bands of operation for ISED

0.090 - 0.110	13.36 - 13.41	960 - 1427	9.0 - 9.2
0.495 - 0.505	16.42 - 16.423	1435 - 1626.5	9.3 - 9.5
2.1735 - 2.1905	16.69475 - 16.69525	1645.5 - 1646.5	10.6 - 12.7
3.020 - 3.026	16.80425 - 16.80475	1660 - 1710	13.25 - 13.4
4.125 - 4.128	25.5 - 25.67	1718.8 - 1722.2	14.47 - 14.5
4.17725 - 4.17775	37.5 - 38.25	2200 - 2300	15.35 - 16.2
4.20725 - 4.20775	73 - 74.6	2310 - 2390	17.7 - 21.4
5.677 - 5.683	74.8 - 75.2	2483.5 - 2500	22.01 - 23.12
6.215 - 6.218	108 - 138	2655 - 2900	23.6 - 24.0
6.26775 - 6.26825	149.9 - 150.05	3260 - 3267	31.2 - 31.8
6.31175 - 6.31225	156.52475 - 156.52525	3332 - 3339	36.43 - 36.5
8.291 - 8.294	156.7 - 156.9	3345.8 - 3358	Above 38.6
8.362 - 8.366	162.0125 - 167.17	3500 - 4400	--
8.37625 - 8.38675	167.72 - 173.2	4500 - 5150	--
8.41425 - 8.41475	240 - 285	5350 - 5460	--
12.29 - 12.293	322 - 335.4	7250 - 7750	--
12.51975 - 12.52025	399.9 - 410	8025 - 8500	--
12.57675 - 12.57725	608 - 614	--	--

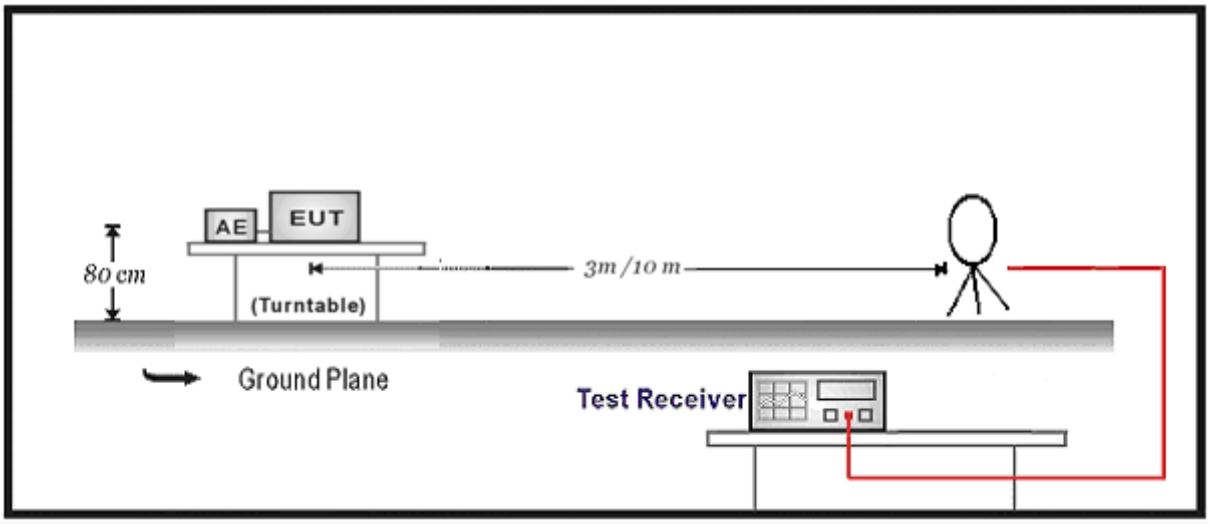
Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μV/m)	Field strength (dB μV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30(Note 1)
1.705 - 30	30	29.5	30(Note 1)
30 - 88	100	40	3(Note 2)
88 - 216	150	43.5	3(Note 2)
216 - 960	200	46	3(Note 2)
Above 960	500	54	3(Note 2)

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

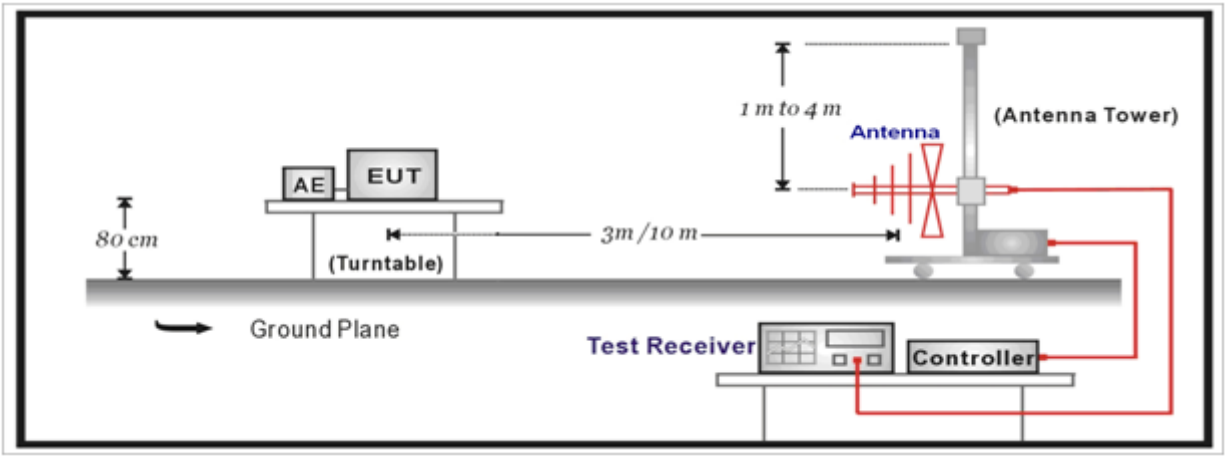
Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

4.2.2 Test Setup

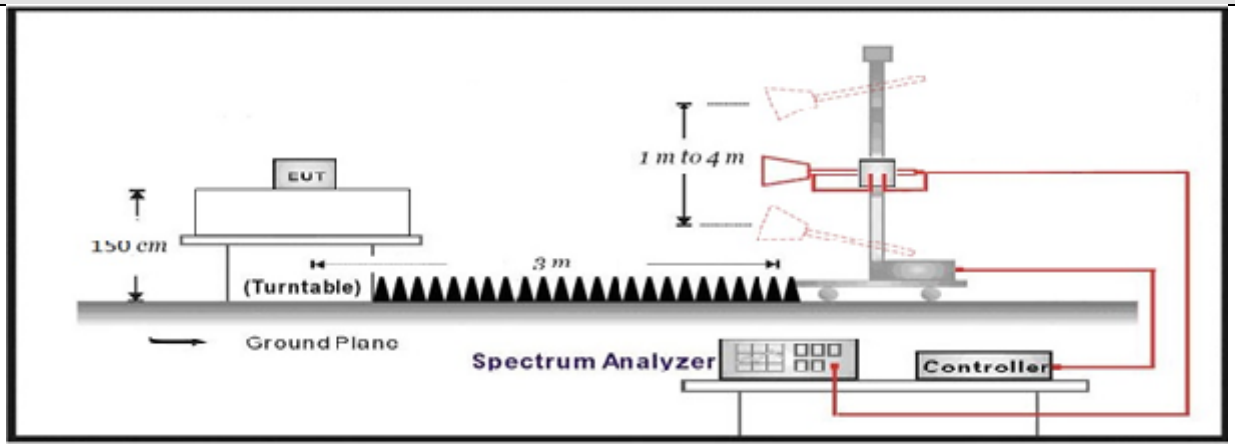
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:

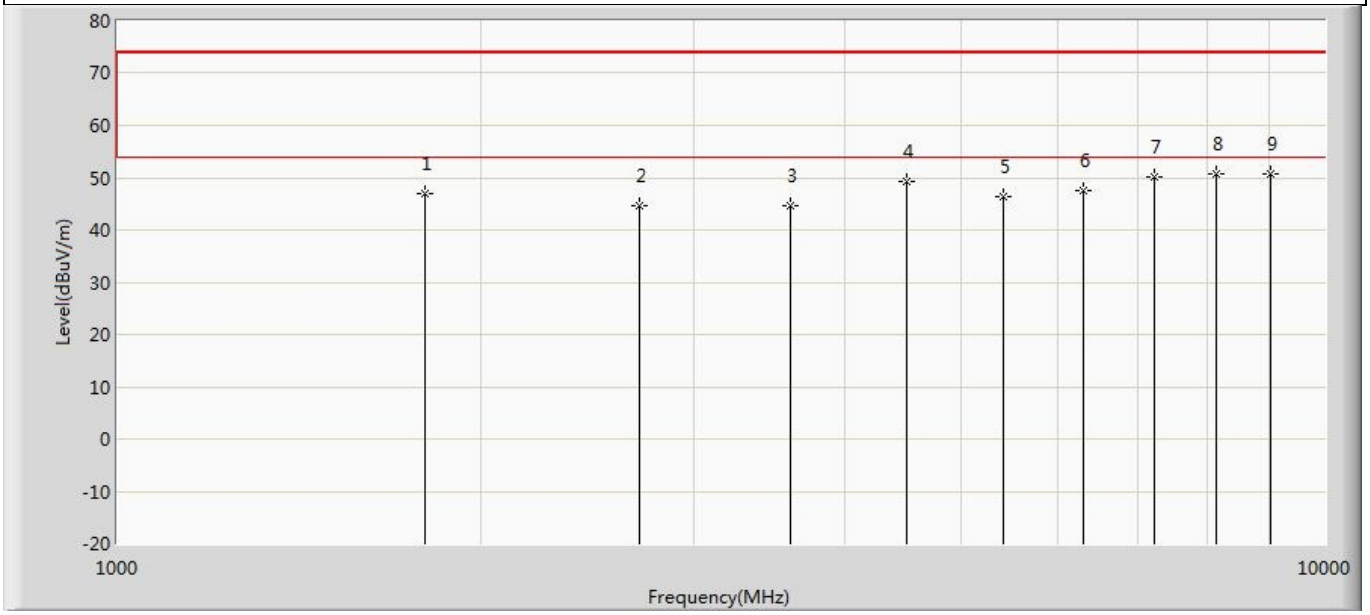


4.2.3 Test Procedure

	References Rule	Chapter	Description
☒	ANSI C63.10	11.12	Emissions in restricted frequency bands
	☒ ANSI C63.10	11.12.1	Radiated emission measurements
	☒ ANSI C63.10	6.3	Radiated spurious emission test
	☒ ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
	☒ ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	☒ ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz
	☐ ANSI C63.10	11.12.2	Antenna-port conducted measurements
	☐ ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
	☐ ANSI C63.10	11.12.2.4	Peak power measurement procedure
	☐ ANSI C63.10	11.12.2.5	Average power measurement procedures
	☐ ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
	☐ ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
	☐ ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

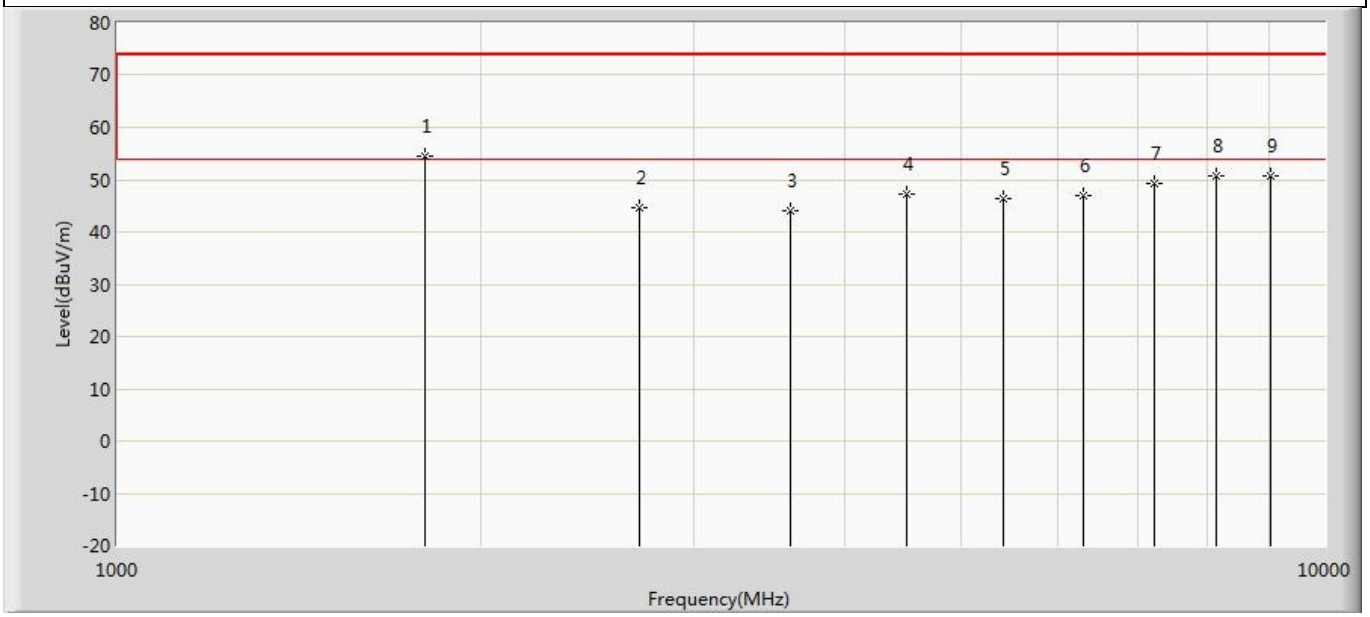
4.2.4 Test Data

Profile: RSE	Page No.: 47
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 1:Transmit at 902.3MHz by LoRa 125K	



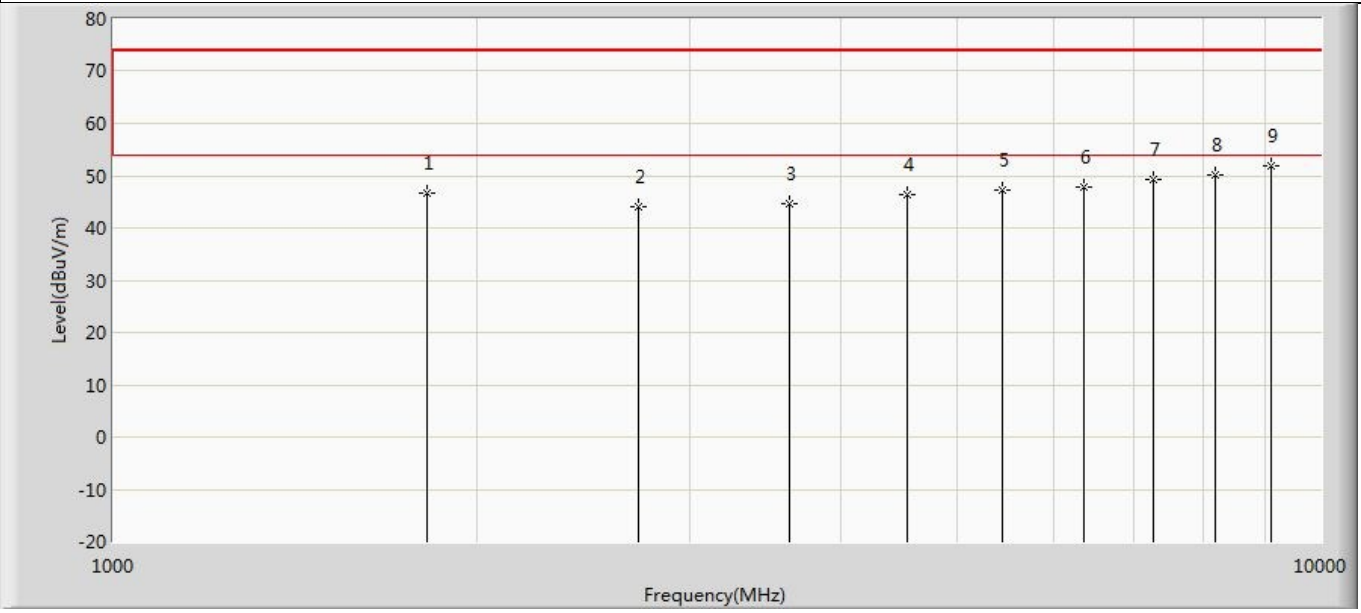
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1801.000	47.093	65.789	-26.907	74.000	-18.697	PK
2		2706.900	44.713	60.944	-29.287	74.000	-16.231	PK
3		3609.200	44.630	59.211	-29.370	74.000	-14.581	PK
4		4511.500	49.168	61.654	-24.832	74.000	-12.485	PK
5		5413.800	46.235	56.969	-27.765	74.000	-10.734	PK
6		6316.100	47.505	56.004	-26.495	74.000	-8.500	PK
7		7218.400	50.012	57.188	-23.988	74.000	-7.176	PK
8		8120.700	50.798	57.092	-23.202	74.000	-6.294	PK
9	*	9023.000	50.802	56.382	-23.198	74.000	-5.581	PK

Profile: RSE	Page No.: 48
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 1:Transmit at 902.3MHz by LoRa 125K	



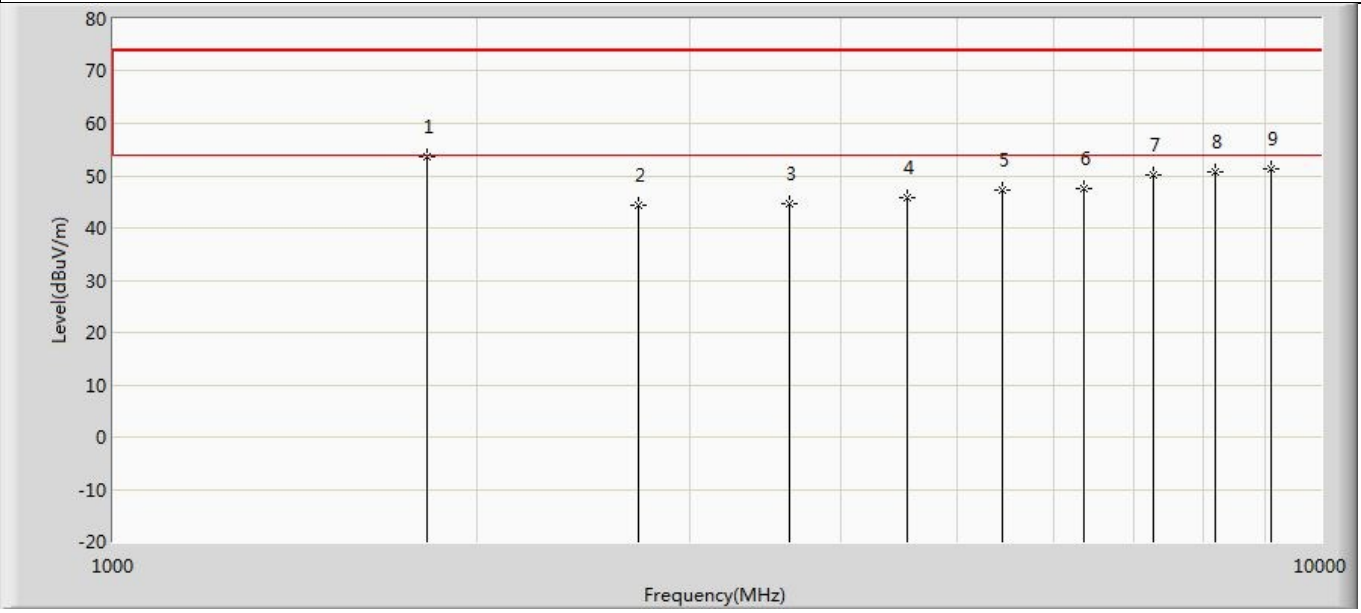
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1801.000	54.353	73.049	-19.647	74.000	-18.697	PK
2		2706.900	44.699	60.930	-29.301	74.000	-16.231	PK
3		3609.200	44.084	58.665	-29.916	74.000	-14.581	PK
4		4511.500	47.299	59.785	-26.701	74.000	-12.485	PK
5		5413.800	46.426	57.160	-27.574	74.000	-10.734	PK
6		6316.100	46.928	55.427	-27.072	74.000	-8.500	PK
7		7218.400	49.149	56.325	-24.851	74.000	-7.176	PK
8		8120.700	50.765	57.059	-23.235	74.000	-6.294	PK
9		9023.000	50.823	56.403	-23.177	74.000	-5.581	PK

Profile: RSE	Page No.: 49
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 1:Transmit at 908.5MHz by LoRa 125K	



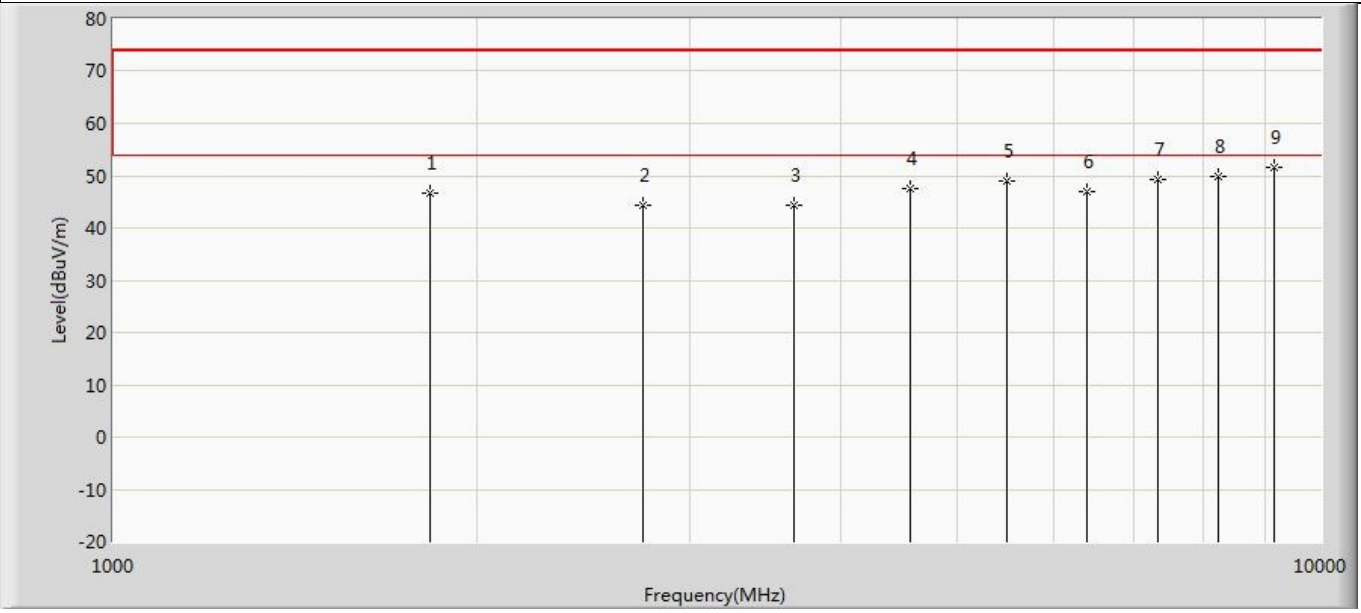
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1819.000	46.643	65.079	-27.357	74.000	-18.436	PK
2		2725.500	44.043	60.338	-29.957	74.000	-16.296	PK
3		3634.000	44.725	59.298	-29.275	74.000	-14.573	PK
4		4542.500	46.494	59.178	-27.506	74.000	-12.684	PK
5		5451.000	47.216	57.520	-26.784	74.000	-10.303	PK
6		6359.500	47.912	56.103	-26.088	74.000	-8.190	PK
7		7268.000	49.306	55.943	-24.694	74.000	-6.637	PK
8		8176.500	50.250	56.193	-23.750	74.000	-5.943	PK
9	*	9085.000	51.874	56.750	-22.126	74.000	-4.876	PK

Profile: RSE	Page No.: 50
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 1:Transmit at 908.5MHz by LoRa 125K	



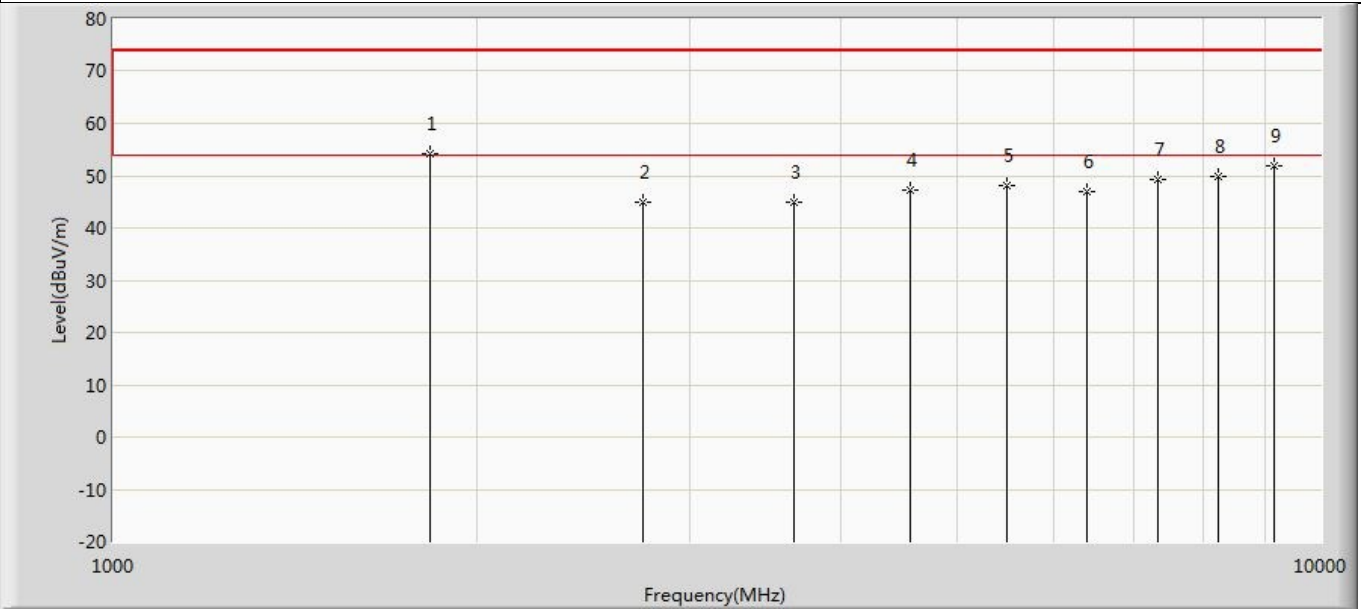
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1819.000	53.706	72.142	-20.294	74.000	-18.436	PK
2		2725.500	44.449	60.744	-29.551	74.000	-16.296	PK
3		3634.000	44.745	59.318	-29.255	74.000	-14.573	PK
4		4542.500	45.800	58.484	-28.200	74.000	-12.684	PK
5		5451.000	47.198	57.502	-26.802	74.000	-10.303	PK
6		6359.500	47.530	55.721	-26.470	74.000	-8.190	PK
7		7268.000	50.027	56.664	-23.973	74.000	-6.637	PK
8		8176.500	50.769	56.712	-23.231	74.000	-5.943	PK
9		9085.000	51.341	56.217	-22.659	74.000	-4.876	PK

Profile: RSE	Page No.: 51
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 1:Transmit at 914.9MHz by LoRa 125K	



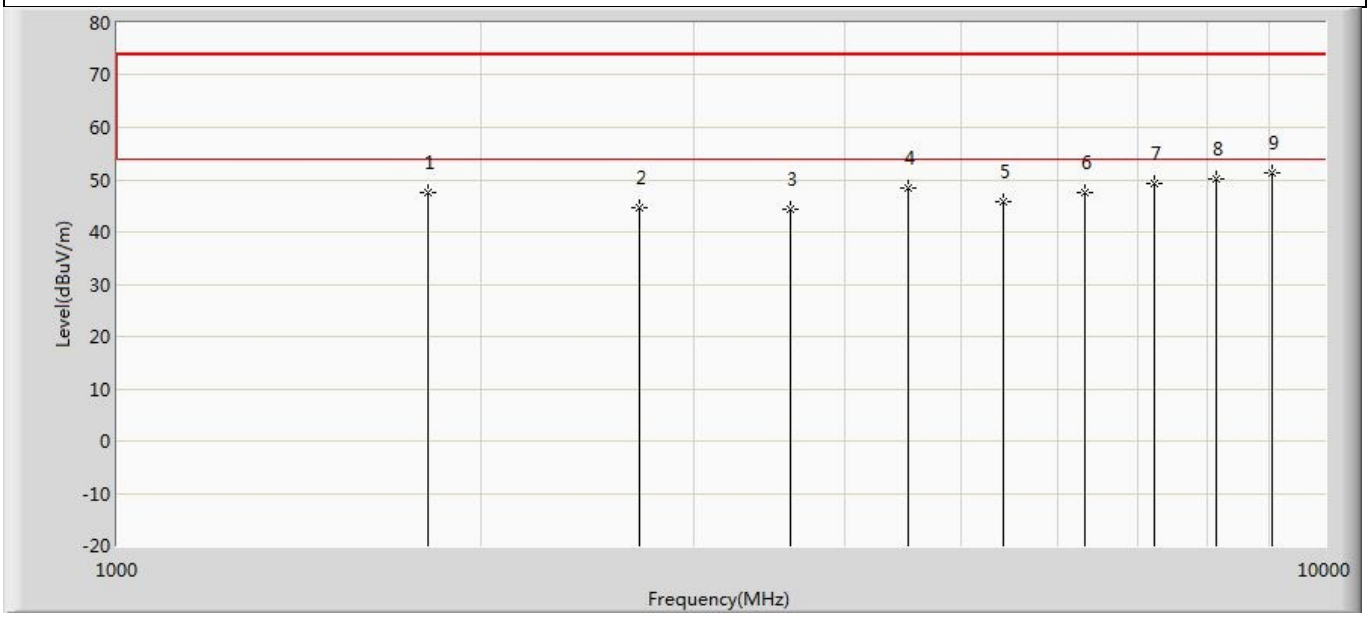
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1828.000	46.731	65.253	-27.269	74.000	-18.522	PK
2		2744.700	44.487	60.595	-29.513	74.000	-16.109	PK
3		3659.600	44.460	58.802	-29.540	74.000	-14.343	PK
4		4574.500	47.599	59.888	-26.401	74.000	-12.289	PK
5		5489.400	48.993	58.700	-25.007	74.000	-9.707	PK
6		6404.300	46.930	55.544	-27.070	74.000	-8.614	PK
7		7319.200	49.148	56.520	-24.852	74.000	-7.372	PK
8		8234.100	49.931	56.438	-24.069	74.000	-6.506	PK
9	*	9149.000	51.669	56.178	-22.331	74.000	-4.509	PK

Profile: RSE	Page No.: 52
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 1:Transmit at 914.9MHz by LoRa 125K	



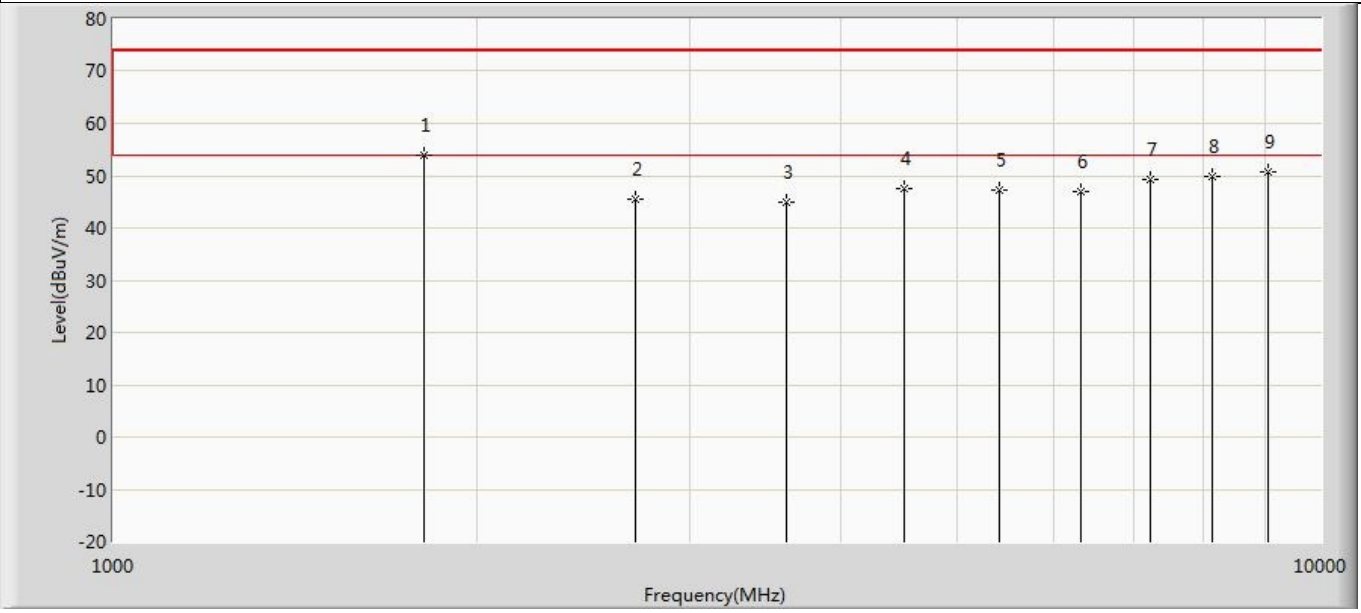
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1828.000	54.185	72.707	-19.815	74.000	-18.522	PK
2		2744.700	44.852	60.960	-29.148	74.000	-16.109	PK
3		3659.600	45.062	59.404	-28.938	74.000	-14.343	PK
4		4574.500	47.304	59.593	-26.696	74.000	-12.289	PK
5		5489.400	48.255	57.962	-25.745	74.000	-9.707	PK
6		6404.300	47.066	55.680	-26.934	74.000	-8.614	PK
7		7319.200	49.188	56.560	-24.812	74.000	-7.372	PK
8		8234.100	49.995	56.502	-24.005	74.000	-6.506	PK
9		9149.000	51.937	56.446	-22.063	74.000	-4.509	PK

Profile: RSE	Page No.: 53
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 2:Transmit at 903MHz by LoRa 500K	



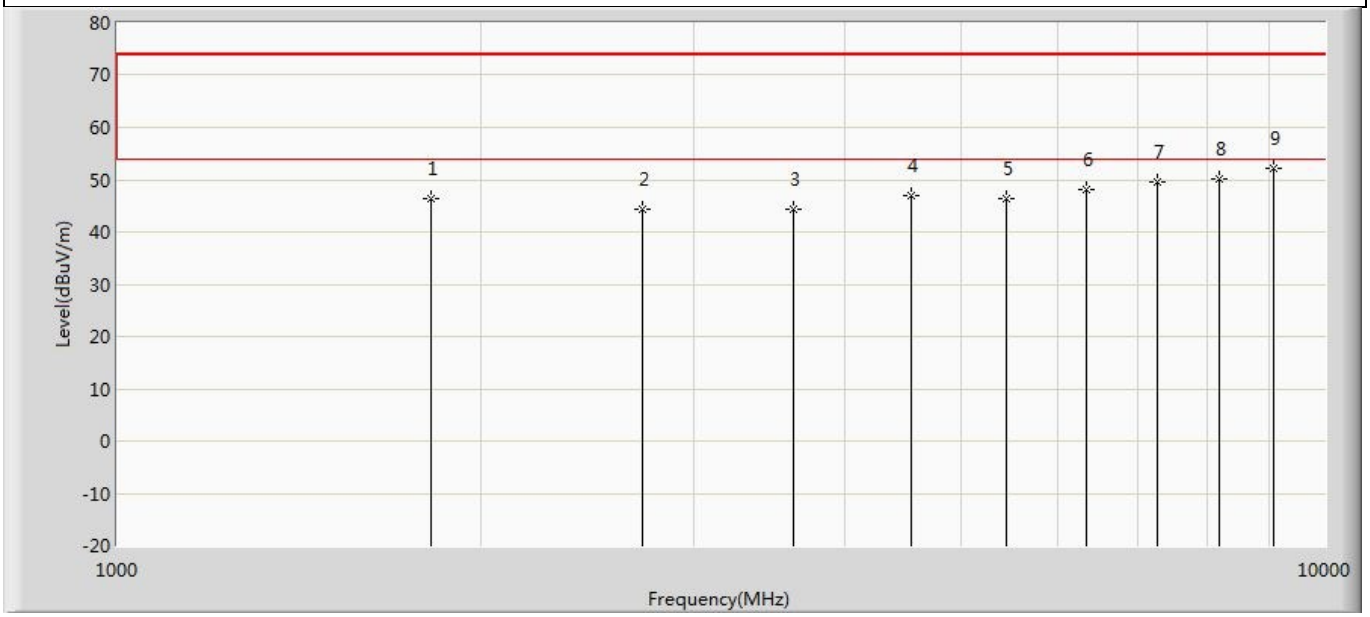
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1810.000	47.425	65.948	-26.575	74.000	-18.523	PK
2		2709.000	44.759	60.948	-29.241	74.000	-16.189	PK
3		3612.000	44.340	58.880	-29.660	74.000	-14.540	PK
4		4515.000	48.329	60.830	-25.671	74.000	-12.501	PK
5		5418.000	45.919	56.747	-28.081	74.000	-10.827	PK
6		6321.000	47.467	55.955	-26.533	74.000	-8.488	PK
7		7224.000	49.131	56.449	-24.869	74.000	-7.317	PK
8		8127.000	50.214	56.495	-23.786	74.000	-6.282	PK
9	*	9030.000	51.227	56.569	-22.773	74.000	-5.342	PK

Profile: RSE	Page No.: 54
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 2:Transmit at 903MHz by LoRa 500K	



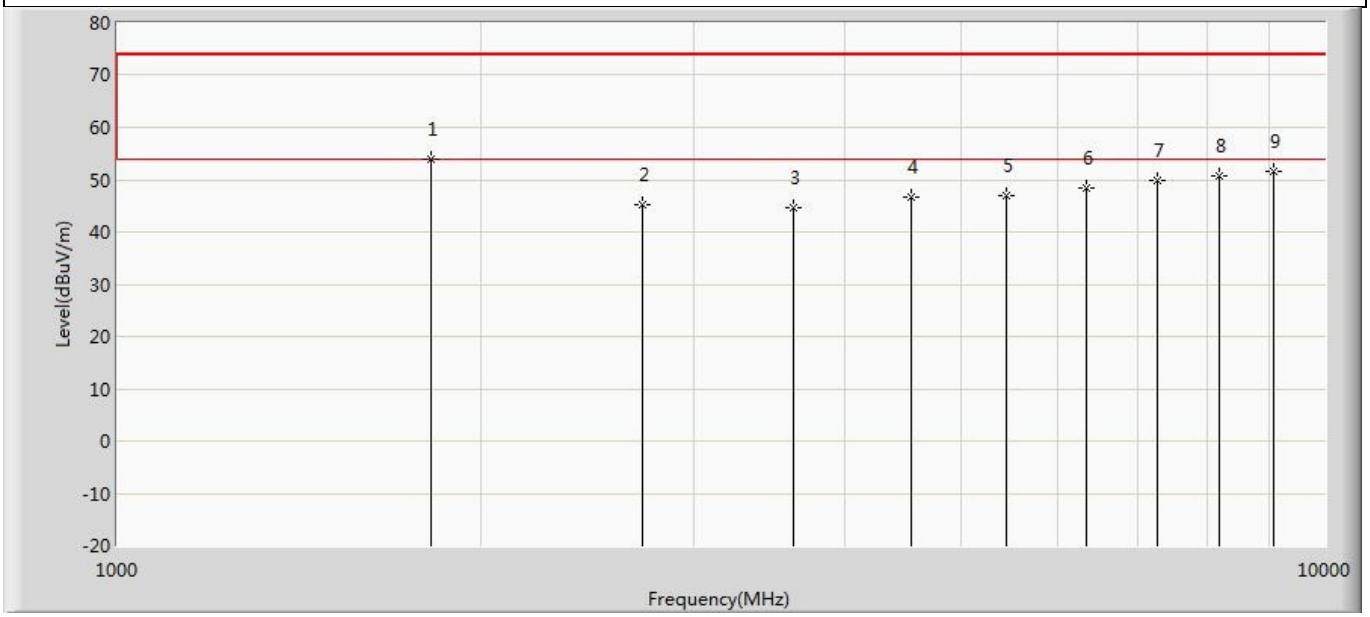
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1810.000	54.010	72.533	-19.990	74.000	-18.523	PK
2		2709.000	45.514	61.703	-28.486	74.000	-16.189	PK
3		3612.000	44.790	59.330	-29.210	74.000	-14.540	PK
4		4515.000	47.473	59.974	-26.527	74.000	-12.501	PK
5		5418.000	47.138	57.966	-26.862	74.000	-10.827	PK
6		6321.000	47.051	55.539	-26.949	74.000	-8.488	PK
7		7224.000	49.158	56.476	-24.842	74.000	-7.317	PK
8		8127.000	49.822	56.103	-24.178	74.000	-6.282	PK
9		9030.000	50.586	55.928	-23.414	74.000	-5.342	PK

Profile: RSE	Page No.: 55
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 2:Transmit at 907.8MHz by LoRa 500K	



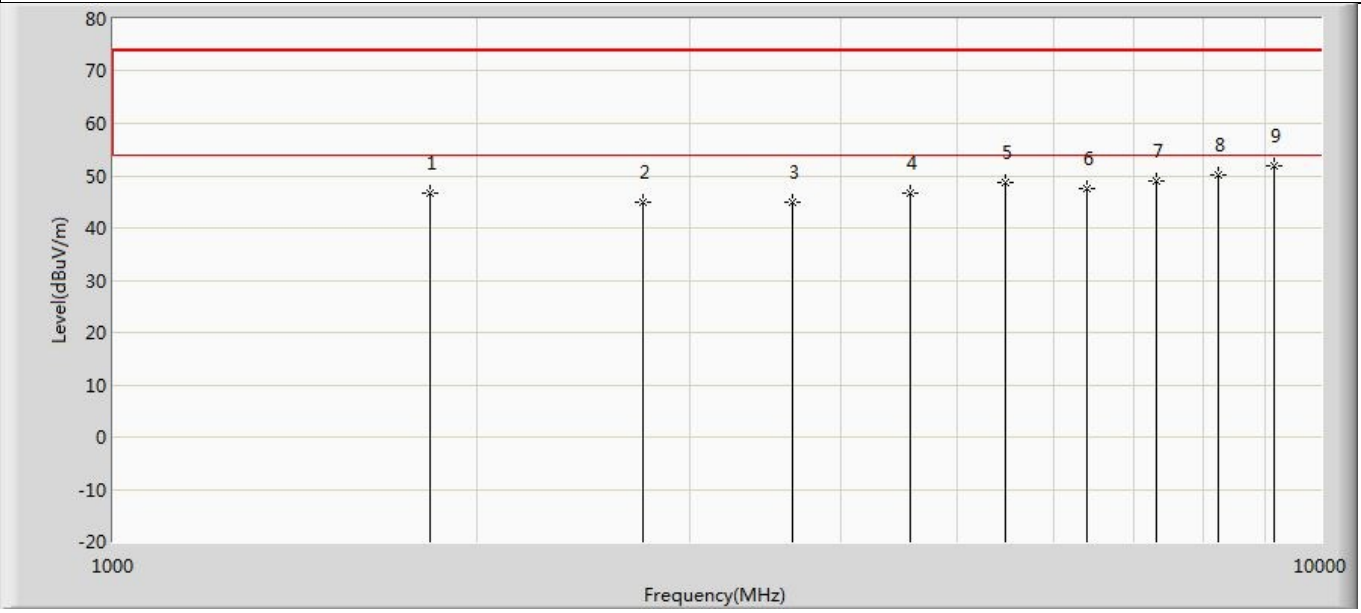
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1819.000	46.495	64.931	-27.505	74.000	-18.436	PK
2		2723.400	44.462	60.691	-29.538	74.000	-16.229	PK
3		3631.200	44.484	59.036	-29.516	74.000	-14.552	PK
4		4539.000	46.888	59.631	-27.112	74.000	-12.743	PK
5		5446.800	46.517	56.863	-27.483	74.000	-10.346	PK
6		6354.600	48.084	56.249	-25.916	74.000	-8.164	PK
7		7262.400	49.577	56.246	-24.423	74.000	-6.668	PK
8		8170.200	50.112	56.059	-23.888	74.000	-5.946	PK
9	*	9078.000	52.097	56.823	-21.903	74.000	-4.726	PK

Profile: RSE	Page No.: 56
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 2:Transmit at 907.8MHz by LoRa 500K	



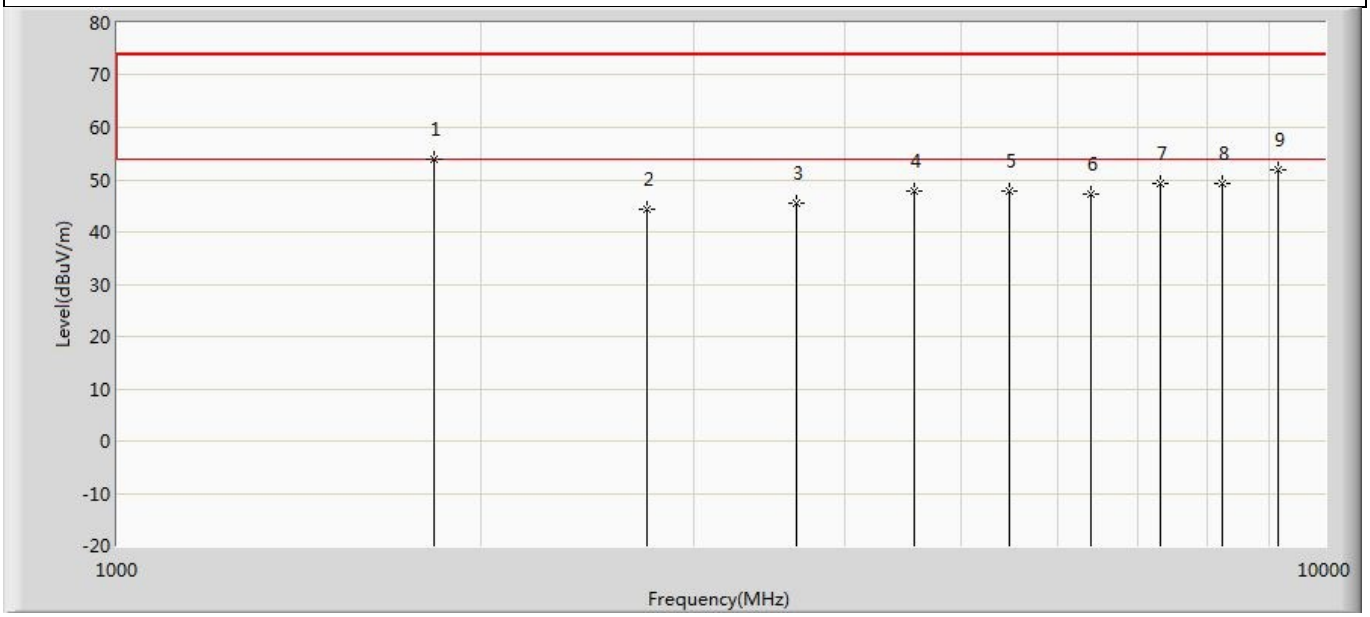
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1819.000	54.037	72.473	-19.963	74.000	-18.436	PK
2		2723.400	45.079	61.308	-28.921	74.000	-16.229	PK
3		3631.200	44.589	59.141	-29.411	74.000	-14.552	PK
4		4539.000	46.545	59.288	-27.455	74.000	-12.743	PK
5		5446.800	46.846	57.192	-27.154	74.000	-10.346	PK
6		6354.600	48.366	56.531	-25.634	74.000	-8.164	PK
7		7262.400	50.000	56.669	-24.000	74.000	-6.668	PK
8		8170.200	50.681	56.628	-23.319	74.000	-5.946	PK
9		9078.000	51.708	56.434	-22.292	74.000	-4.726	PK

Profile: RSE	Page No.: 57
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 2:Transmit at 914.2MHz by LoRa 500K	



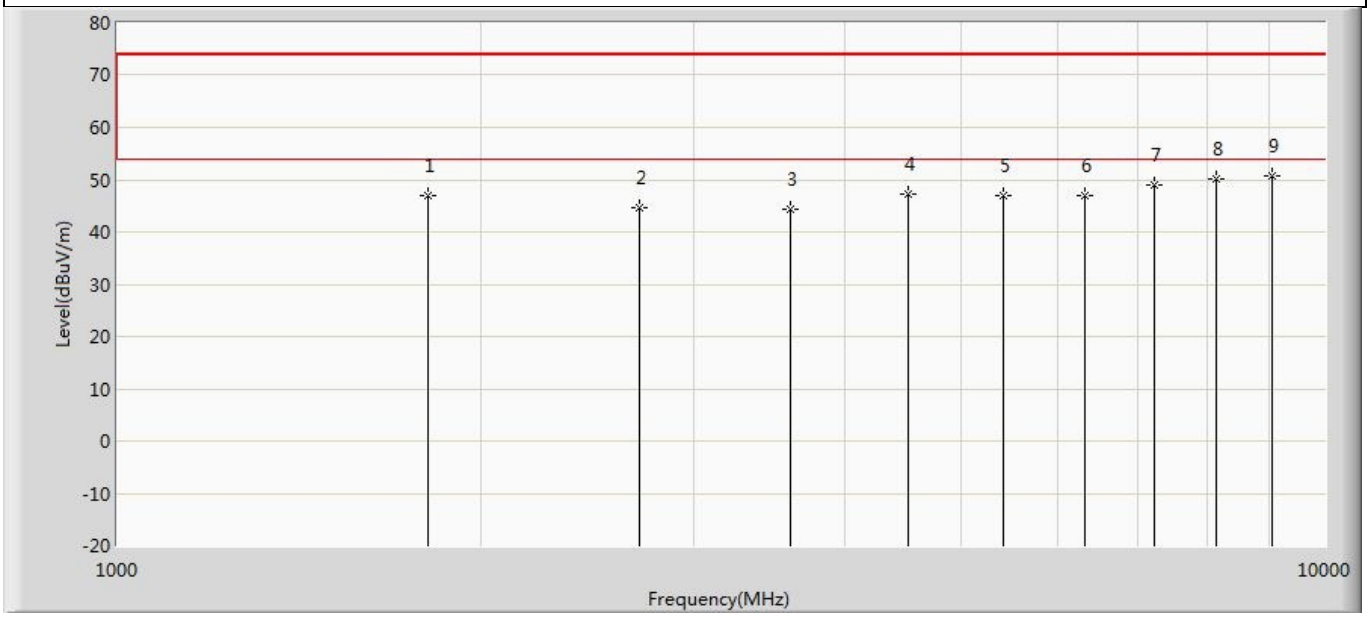
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1828.000	46.716	65.238	-27.284	74.000	-18.522	PK
2		2742.600	44.856	61.054	-29.144	74.000	-16.198	PK
3		3656.800	44.910	59.263	-29.090	74.000	-14.353	PK
4		4571.000	46.722	59.057	-27.278	74.000	-12.335	PK
5		5485.200	48.748	58.637	-25.252	74.000	-9.889	PK
6		6399.400	47.396	55.959	-26.604	74.000	-8.563	PK
7		7313.600	49.028	56.485	-24.972	74.000	-7.456	PK
8		8227.800	50.068	56.687	-23.932	74.000	-6.619	PK
9	*	9142.000	51.910	56.615	-22.090	74.000	-4.705	PK

Profile: RSE	Page No.: 58
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 2:Transmit at 914.2MHz by LoRa 500K	



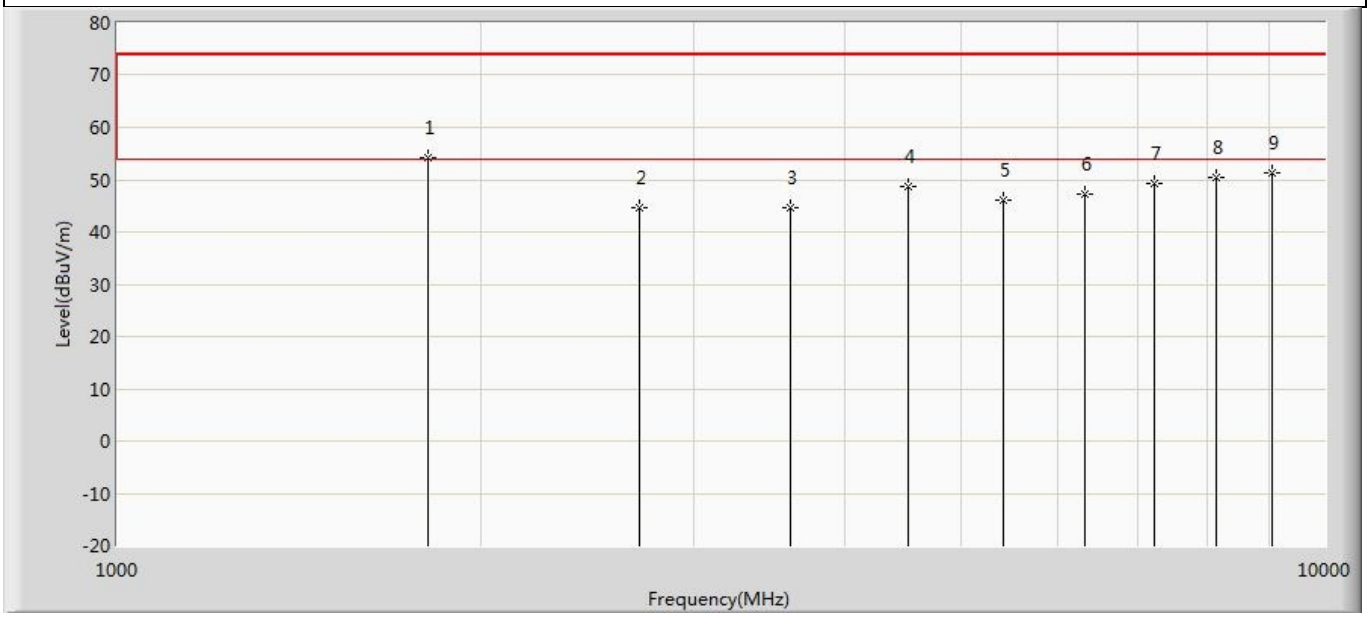
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1828.000	54.024	72.546	-19.976	74.000	-18.522	PK
2		2742.600	44.263	60.461	-29.737	74.000	-16.198	PK
3		3656.800	45.430	59.783	-28.570	74.000	-14.353	PK
4		4571.000	47.707	60.042	-26.293	74.000	-12.335	PK
5		5485.200	47.919	57.808	-26.081	74.000	-9.889	PK
6		6399.400	47.295	55.858	-26.705	74.000	-8.563	PK
7		7313.600	49.142	56.599	-24.858	74.000	-7.456	PK
8		8227.800	49.239	55.858	-24.761	74.000	-6.619	PK
9		9142.000	51.976	56.681	-22.024	74.000	-4.705	PK

Profile: RSE	Page No.: 59
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 3:Transmit at 903MHz by LoRa FHSS	



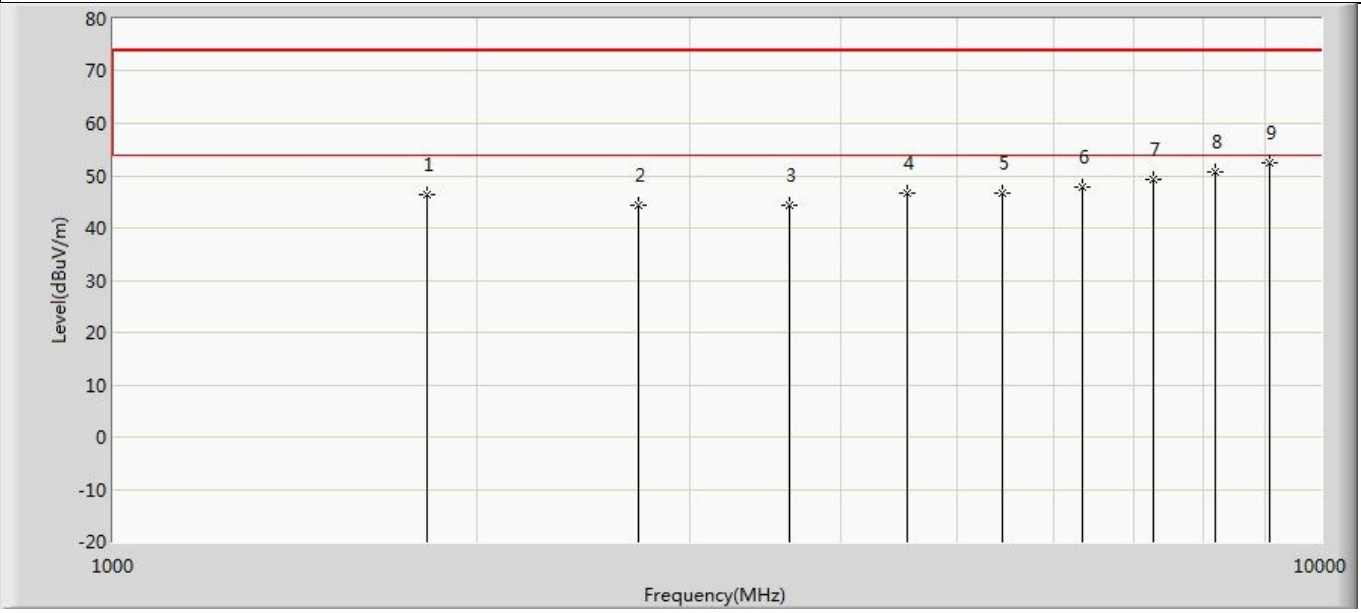
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1810.000	46.830	65.353	-27.170	74.000	-18.523	PK
2		2709.000	44.770	60.959	-29.230	74.000	-16.189	PK
3		3612.000	44.459	58.999	-29.541	74.000	-14.540	PK
4		4515.000	47.239	59.740	-26.761	74.000	-12.501	PK
5		5418.000	46.879	57.707	-27.121	74.000	-10.827	PK
6		6321.000	47.034	55.522	-26.966	74.000	-8.488	PK
7		7224.000	48.880	56.198	-25.120	74.000	-7.317	PK
8		8127.000	50.006	56.287	-23.994	74.000	-6.282	PK
9	*	9030.000	50.676	56.018	-23.324	74.000	-5.342	PK

Profile: RSE	Page No.: 60
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 3:Transmit at 903MHz by LoRa FHSS	



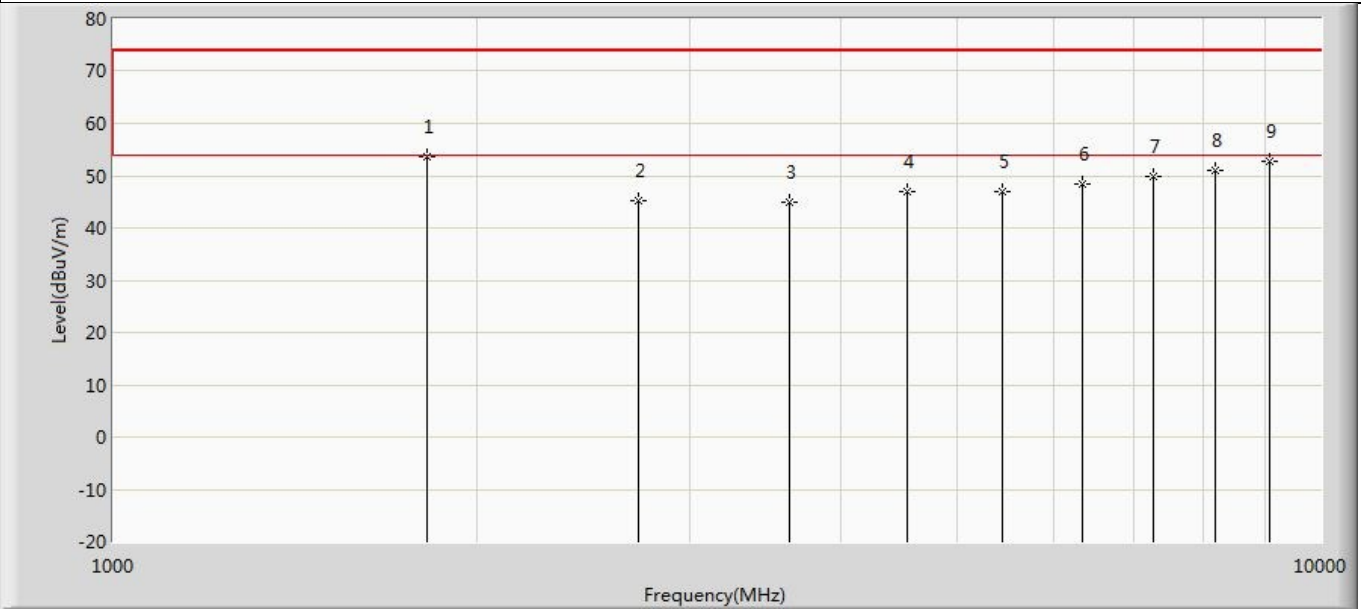
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1810.000	54.218	72.741	-19.782	74.000	-18.523	PK
2		2709.000	44.704	60.893	-29.296	74.000	-16.189	PK
3		3612.000	44.515	59.055	-29.485	74.000	-14.540	PK
4		4515.000	48.601	61.102	-25.399	74.000	-12.501	PK
5		5418.000	45.979	56.807	-28.021	74.000	-10.827	PK
6		6321.000	47.356	55.844	-26.644	74.000	-8.488	PK
7		7224.000	49.209	56.527	-24.791	74.000	-7.317	PK
8		8127.000	50.347	56.628	-23.653	74.000	-6.282	PK
9		9030.000	51.189	56.531	-22.811	74.000	-5.342	PK

Profile: RSE	Page No.: 61
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 3:Transmit at 907.8MHz by LoRa FHSS	



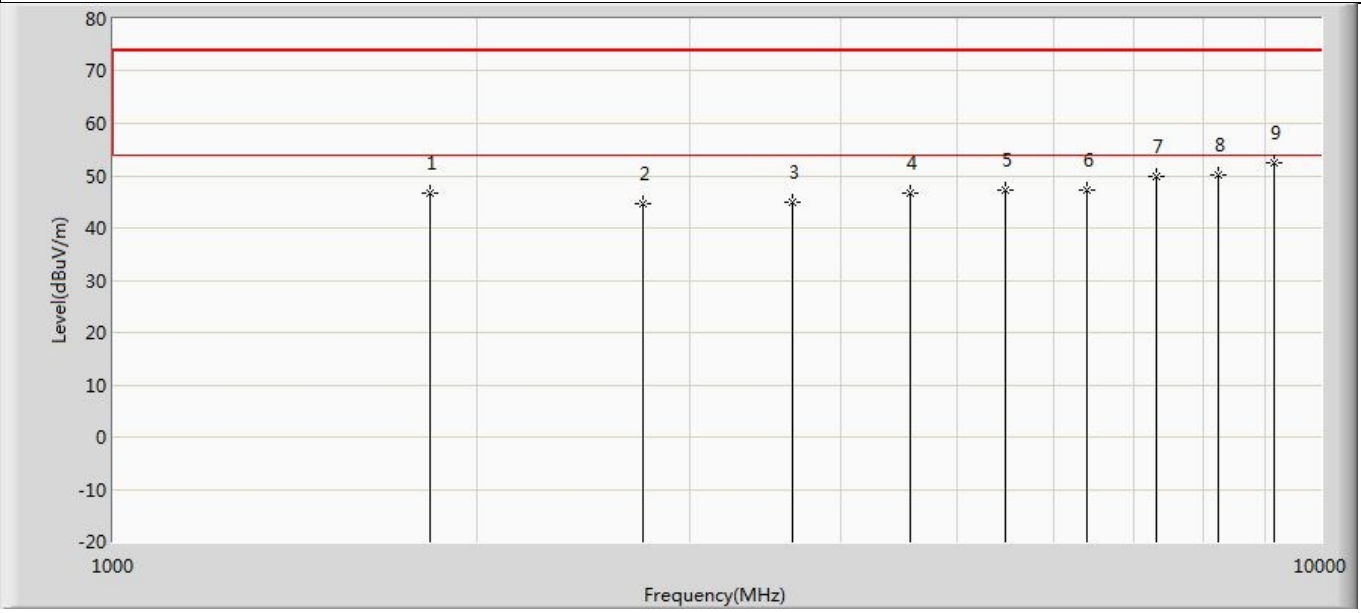
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1819.000	46.324	64.760	-27.676	74.000	-18.436	PK
2		2723.400	44.203	60.432	-29.797	74.000	-16.229	PK
3		3631.200	44.454	59.006	-29.546	74.000	-14.552	PK
4		4539.000	46.642	59.385	-27.358	74.000	-12.743	PK
5		5446.800	46.587	56.933	-27.413	74.000	-10.346	PK
6		6354.600	47.701	55.866	-26.299	74.000	-8.164	PK
7		7262.400	49.179	55.848	-24.821	74.000	-6.668	PK
8		8170.200	50.661	56.608	-23.339	74.000	-5.946	PK
9	*	9078.000	52.482	57.208	-21.518	74.000	-4.726	PK

Profile: RSE	Page No.: 62
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 3:Transmit at 907.8MHz by LoRa FHSS	



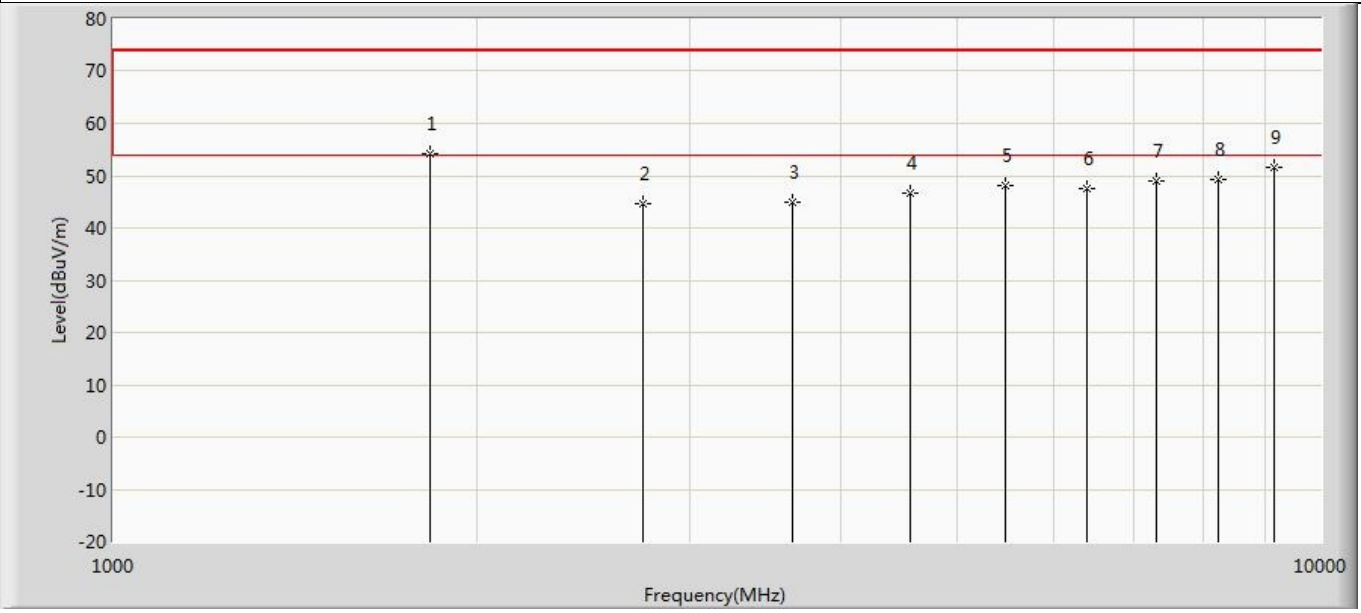
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1819.000	53.697	72.133	-20.303	74.000	-18.436	PK
2		2723.400	45.191	61.420	-28.809	74.000	-16.229	PK
3		3631.200	44.788	59.340	-29.212	74.000	-14.552	PK
4		4539.000	46.850	59.593	-27.150	74.000	-12.743	PK
5		5446.800	47.092	57.438	-26.908	74.000	-10.346	PK
6		6354.600	48.332	56.497	-25.668	74.000	-8.164	PK
7		7262.400	49.936	56.605	-24.064	74.000	-6.668	PK
8		8170.200	51.143	57.090	-22.857	74.000	-5.946	PK
9		9078.000	52.873	57.599	-21.127	74.000	-4.726	PK

Profile: RSE	Page No.: 63
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 3:Transmit at 914.2MHz by LoRa FHSS	



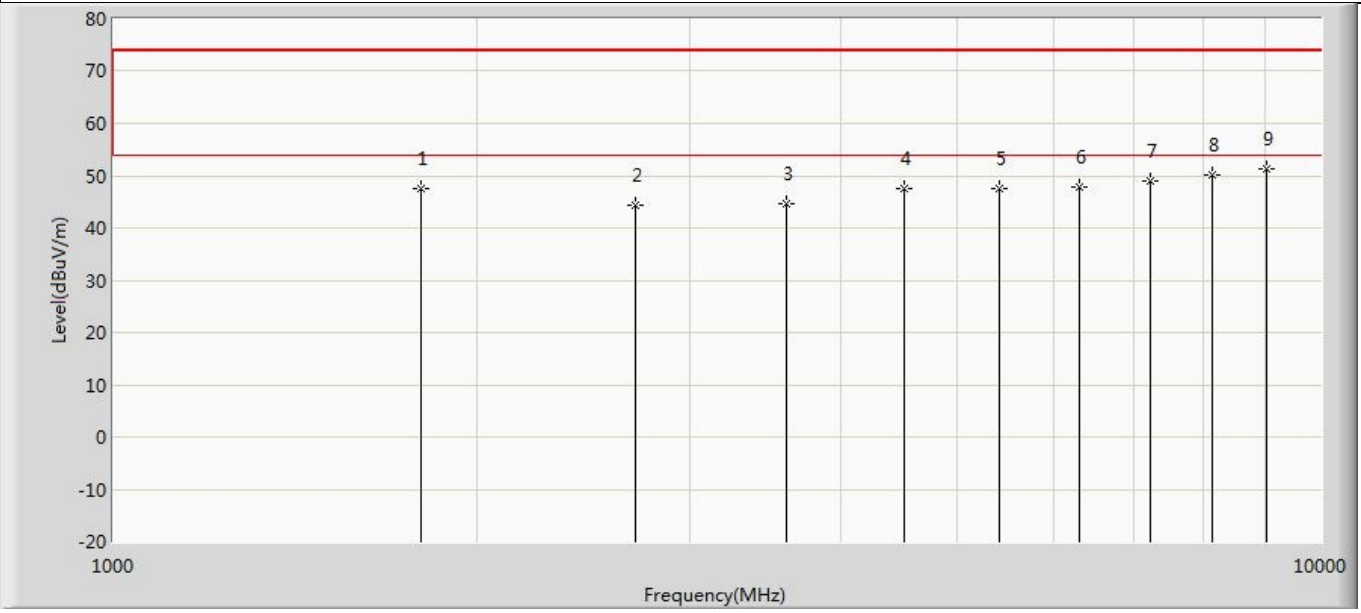
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1828.000	46.715	65.237	-27.285	74.000	-18.522	PK
2		2742.600	44.529	60.727	-29.471	74.000	-16.198	PK
3		3656.800	44.797	59.150	-29.203	74.000	-14.353	PK
4		4571.000	46.720	59.055	-27.280	74.000	-12.335	PK
5		5485.200	47.272	57.161	-26.728	74.000	-9.889	PK
6		6399.400	47.122	55.685	-26.878	74.000	-8.563	PK
7		7313.600	49.739	57.196	-24.261	74.000	-7.456	PK
8		8227.800	50.287	56.906	-23.713	74.000	-6.619	PK
9	*	9142.000	52.412	57.117	-21.588	74.000	-4.705	PK

Profile: RSE	Page No.: 64
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 3:Transmit at 914.2MHz by LoRa FHSS	



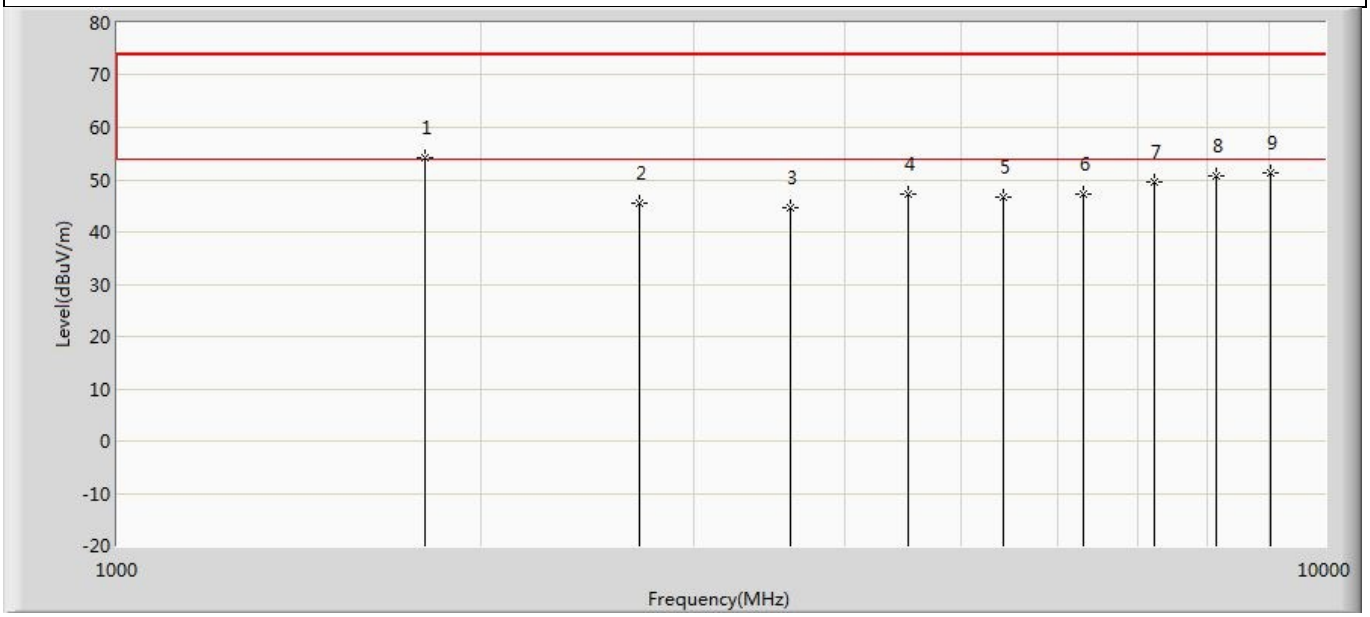
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1828.000	54.145	72.667	-19.855	74.000	-18.522	PK
2		2742.600	44.741	60.939	-29.259	74.000	-16.198	PK
3		3656.800	44.904	59.257	-29.096	74.000	-14.353	PK
4		4571.000	46.570	58.905	-27.430	74.000	-12.335	PK
5		5485.200	48.252	58.141	-25.748	74.000	-9.889	PK
6		6399.400	47.409	55.972	-26.591	74.000	-8.563	PK
7		7313.600	49.035	56.492	-24.965	74.000	-7.456	PK
8		8227.800	49.312	55.931	-24.688	74.000	-6.619	PK
9		9142.000	51.597	56.302	-22.403	74.000	-4.705	PK

Profile: RSE	Page No.: 35
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 6:Transmit at 902.5MHz by SubG CSS	



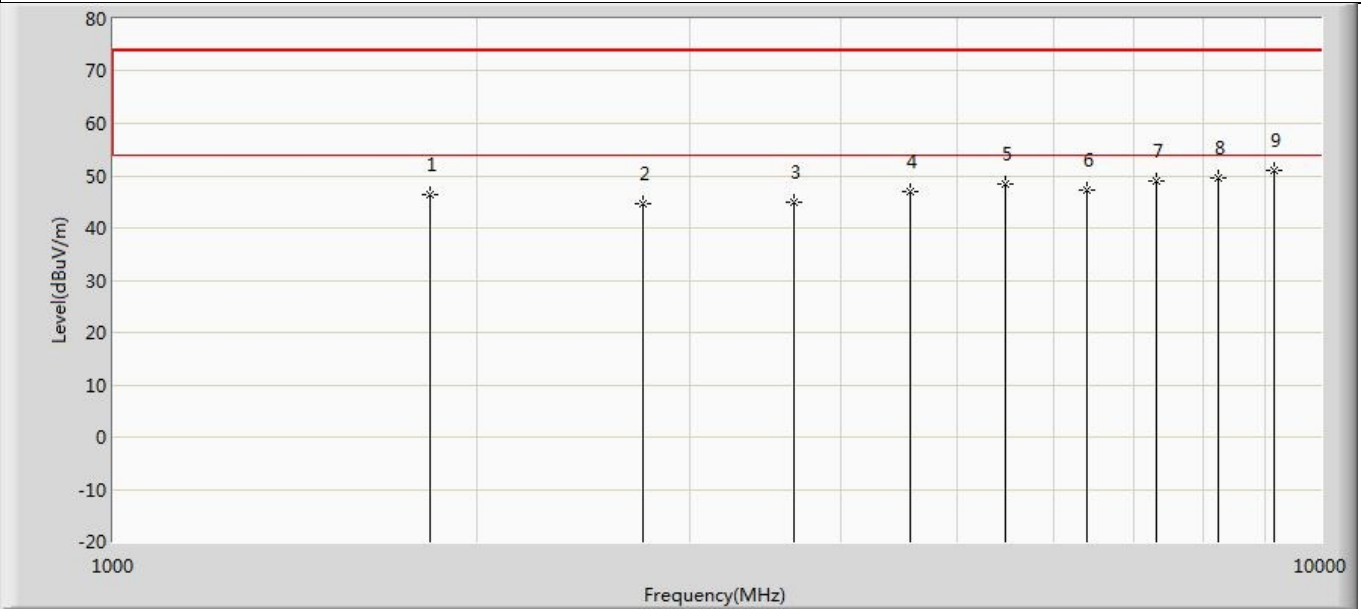
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1801.000	47.489	66.185	-26.511	74.000	-18.697	PK
2		2707.500	44.415	60.634	-29.585	74.000	-16.219	PK
3		3610.000	44.501	59.070	-29.499	74.000	-14.569	PK
4		4512.500	47.672	60.162	-26.328	74.000	-12.490	PK
5		5415.000	47.405	58.166	-26.595	74.000	-10.761	PK
6		6317.500	47.887	56.383	-26.113	74.000	-8.495	PK
7		7220.000	49.036	56.287	-24.964	74.000	-7.251	PK
8		8122.500	50.196	56.449	-23.804	74.000	-6.252	PK
9	*	9025.000	51.338	56.869	-22.662	74.000	-5.531	PK

Profile: RSE	Page No.: 36
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 6:Transmit at 902.5MHz by SubG CSS	



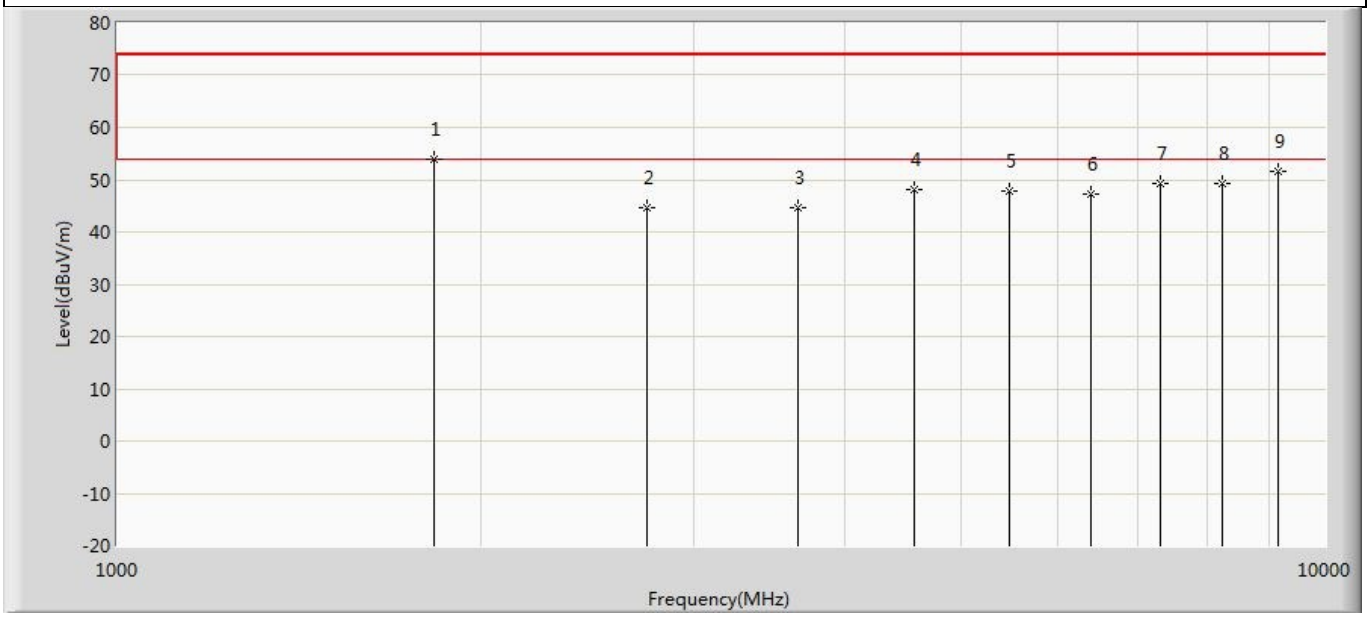
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1801.000	54.126	72.822	-19.874	74.000	-18.697	PK
2		2707.500	45.546	61.765	-28.454	74.000	-16.219	PK
3		3610.000	44.553	59.122	-29.447	74.000	-14.569	PK
4		4512.500	47.114	59.604	-26.886	74.000	-12.490	PK
5		5415.000	46.732	57.493	-27.268	74.000	-10.761	PK
6		6317.500	47.157	55.653	-26.843	74.000	-8.495	PK
7		7220.000	49.481	56.732	-24.519	74.000	-7.251	PK
8		8122.500	50.643	56.896	-23.357	74.000	-6.252	PK
9		9025.000	51.406	56.937	-22.594	74.000	-5.531	PK

Profile: RSE	Page No.: 37
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 6:Transmit at 914.5MHz by SubG CSS	



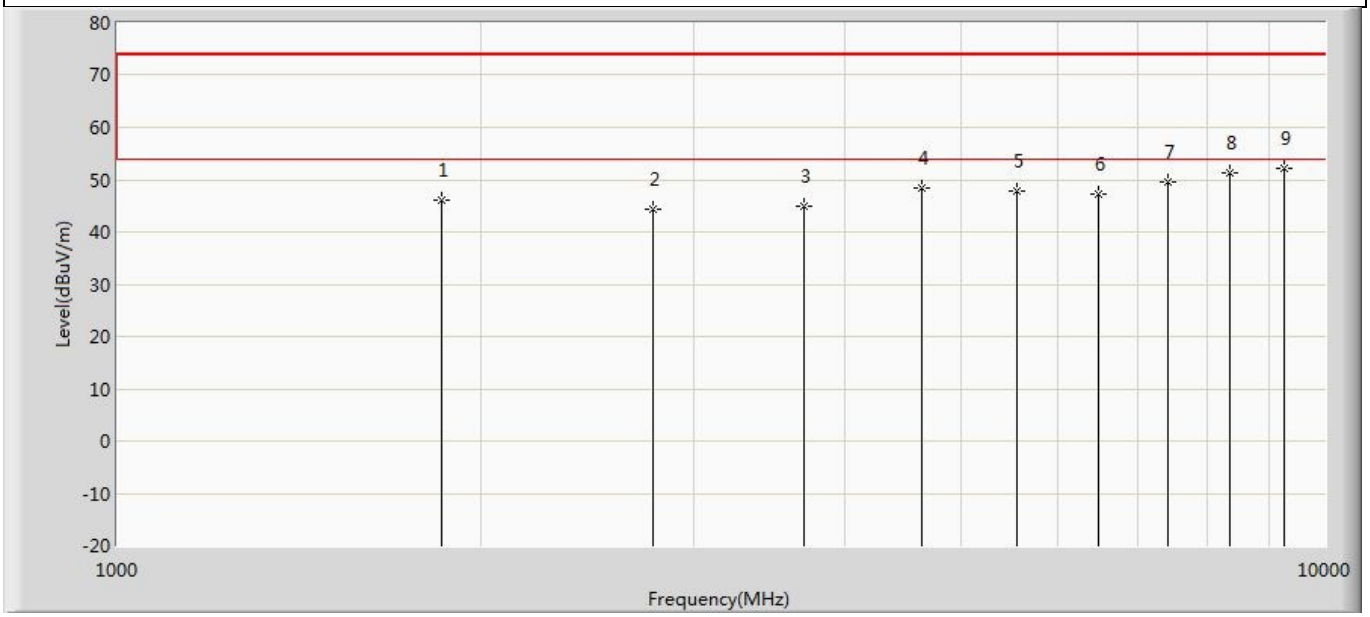
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1828.000	46.484	65.006	-27.516	74.000	-18.522	PK
2		2743.500	44.737	60.896	-29.263	74.000	-16.159	PK
3		3658.000	44.790	59.138	-29.210	74.000	-14.348	PK
4		4572.500	46.998	59.313	-27.002	74.000	-12.315	PK
5		5487.000	48.429	58.204	-25.571	74.000	-9.775	PK
6		6401.500	47.275	55.860	-26.725	74.000	-8.585	PK
7		7316.000	48.968	56.389	-25.032	74.000	-7.421	PK
8		8230.500	49.669	56.240	-24.331	74.000	-6.571	PK
9	*	9145.000	51.138	55.777	-22.862	74.000	-4.639	PK

Profile: RSE	Page No.: 38
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 6:Transmit at 914.5MHz by SubG CSS	



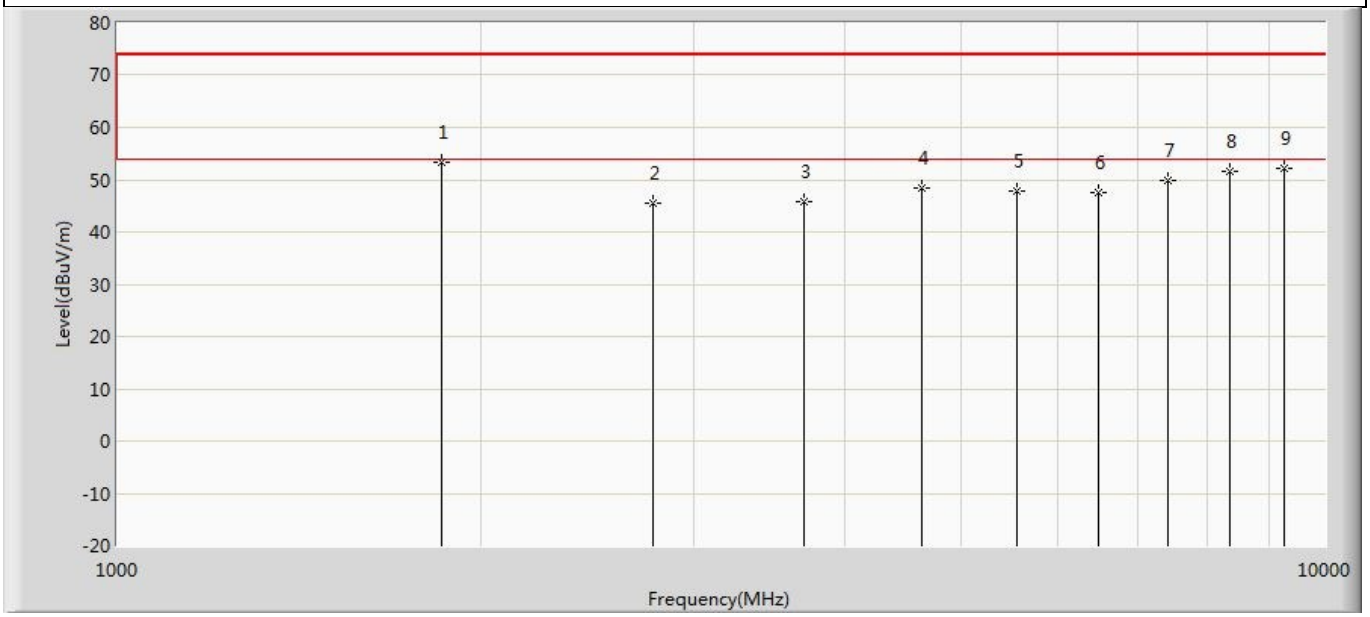
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1828.000	53.937	72.459	-20.063	74.000	-18.522	PK
2		2743.500	44.542	60.701	-29.458	74.000	-16.159	PK
3		3658.000	44.764	59.112	-29.236	74.000	-14.348	PK
4		4572.500	47.977	60.292	-26.023	74.000	-12.315	PK
5		5487.000	47.957	57.732	-26.043	74.000	-9.775	PK
6		6401.500	47.381	55.966	-26.619	74.000	-8.585	PK
7		7316.000	49.358	56.779	-24.642	74.000	-7.421	PK
8		8230.500	49.298	55.869	-24.702	74.000	-6.571	PK
9		9145.000	51.570	56.209	-22.430	74.000	-4.639	PK

Profile: RSE	Page No.: 39
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 6:Transmit at 926.5MHz by SubG CSS	



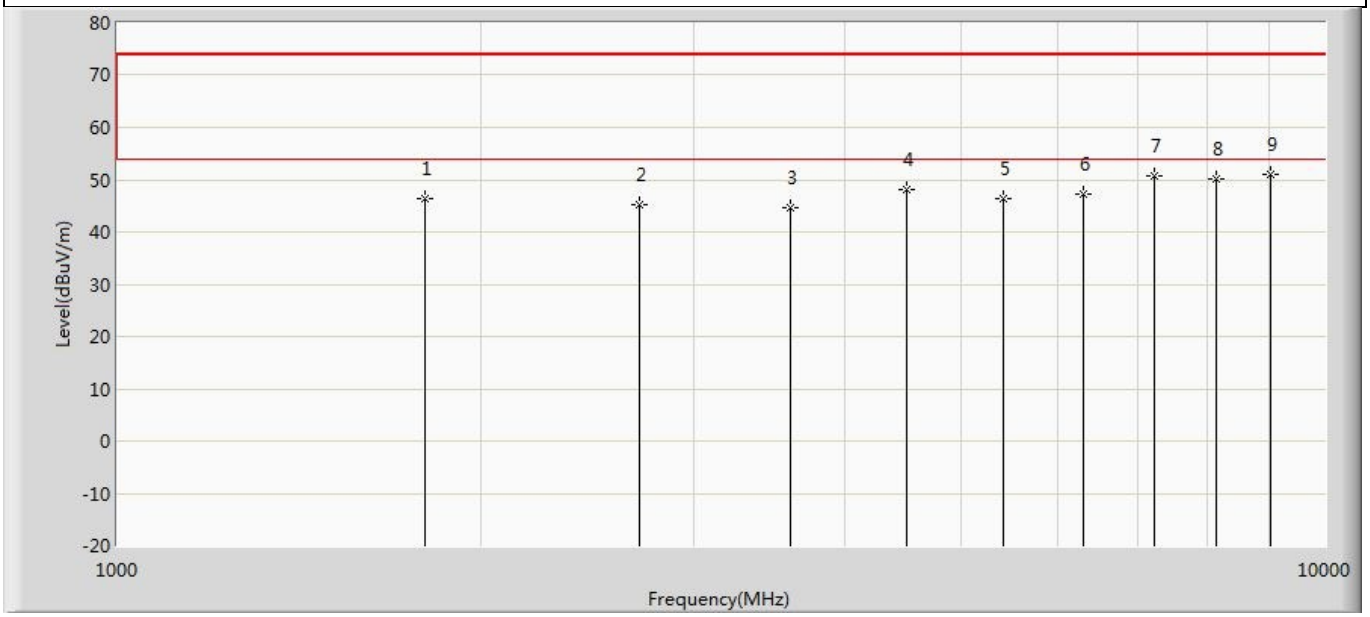
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1855.000	45.990	64.102	-28.010	74.000	-18.112	PK
2		2779.500	44.324	60.603	-29.676	74.000	-16.278	PK
3		3706.000	45.030	59.043	-28.970	74.000	-14.013	PK
4		4632.500	48.358	60.735	-25.642	74.000	-12.378	PK
5		5559.000	47.774	58.435	-26.226	74.000	-10.662	PK
6		6485.500	47.298	56.041	-26.702	74.000	-8.744	PK
7		7412.000	49.614	56.520	-24.386	74.000	-6.906	PK
8		8338.500	51.441	56.406	-22.559	74.000	-4.965	PK
9	*	9265.000	52.247	56.133	-21.753	74.000	-3.886	PK

Profile: RSE	Page No.: 40
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 6:Transmit at 926.5MHz by SubG CSS	



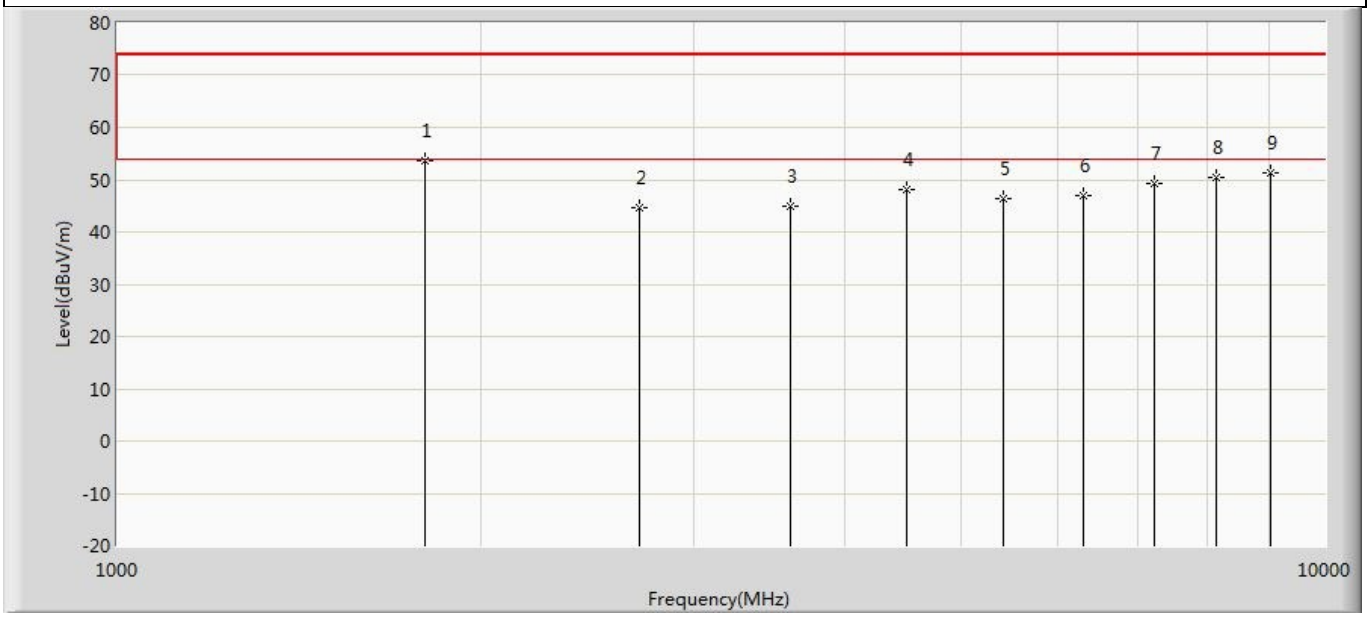
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1855.000	53.425	71.537	-20.575	74.000	-18.112	PK
2		2779.500	45.511	61.790	-28.489	74.000	-16.278	PK
3		3706.000	45.659	59.672	-28.341	74.000	-14.013	PK
4		4632.500	48.446	60.823	-25.554	74.000	-12.378	PK
5		5559.000	47.811	58.472	-26.189	74.000	-10.662	PK
6		6485.500	47.508	56.251	-26.492	74.000	-8.744	PK
7		7412.000	49.923	56.829	-24.077	74.000	-6.906	PK
8		8338.500	51.666	56.631	-22.334	74.000	-4.965	PK
9		9265.000	52.134	56.020	-21.866	74.000	-3.886	PK

Profile: RSE	Page No.: 41
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 7:Transmit at 902.2MHz by SubG FSK	



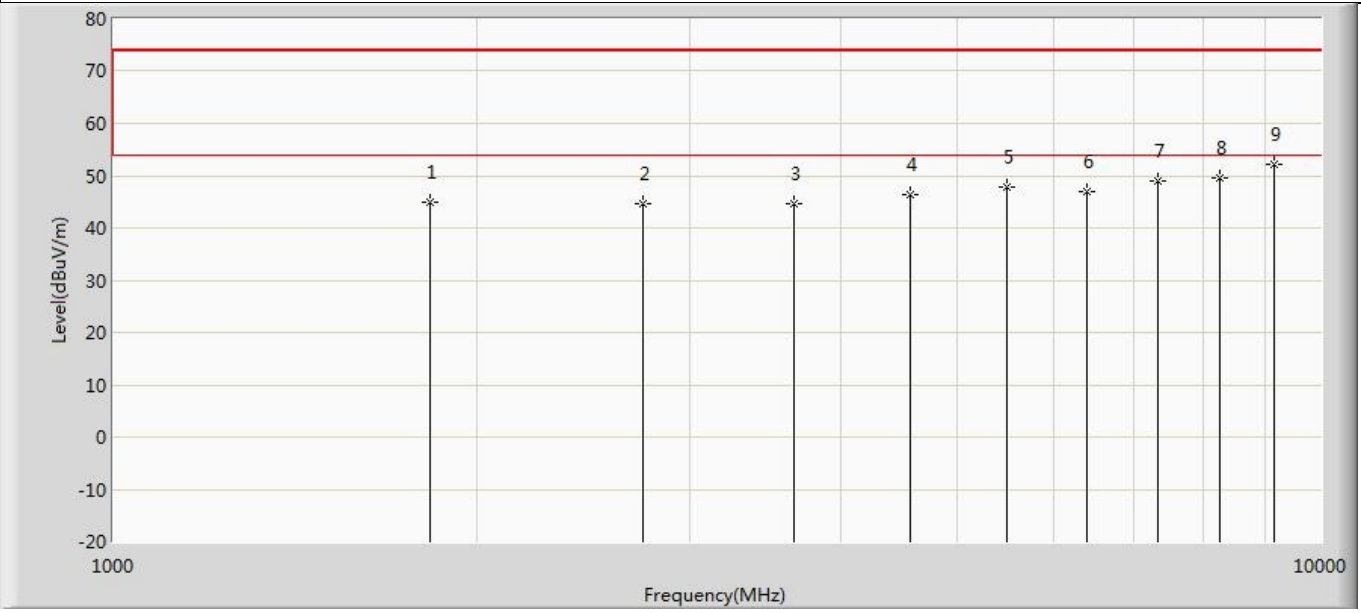
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1801.000	46.298	64.994	-27.702	74.000	-18.697	PK
2		2706.600	45.124	61.361	-28.876	74.000	-16.237	PK
3		3608.800	44.631	59.218	-29.369	74.000	-14.587	PK
4		4511.000	48.046	60.530	-25.954	74.000	-12.484	PK
5		5413.200	46.367	57.087	-27.633	74.000	-10.720	PK
6		6315.400	47.333	55.834	-26.667	74.000	-8.502	PK
7		7217.600	50.599	57.738	-23.401	74.000	-7.139	PK
8		8119.800	50.221	56.536	-23.779	74.000	-6.315	PK
9	*	9022.000	50.930	56.521	-23.070	74.000	-5.591	PK

Profile: RSE	Page No.: 42
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 7:Transmit at 902.2MHz by SubG FSK	



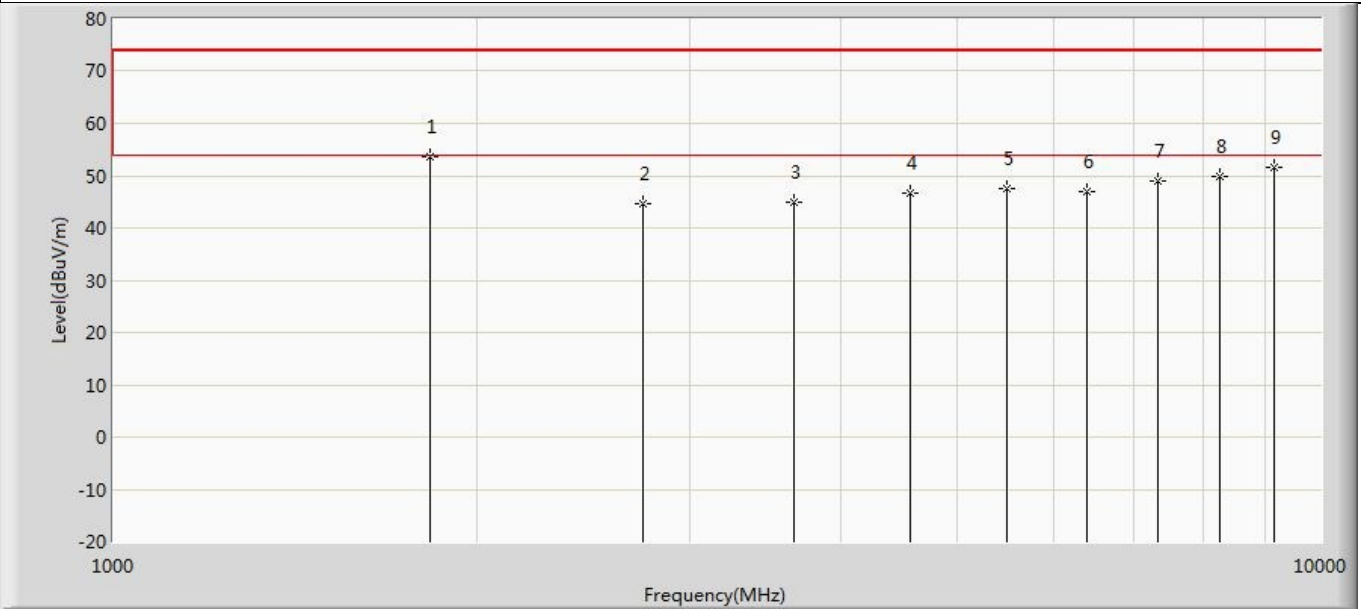
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1801.000	53.751	72.447	-20.249	74.000	-18.697	PK
2		2706.600	44.757	60.994	-29.243	74.000	-16.237	PK
3		3608.800	44.798	59.385	-29.202	74.000	-14.587	PK
4		4511.000	47.973	60.457	-26.027	74.000	-12.484	PK
5		5413.200	46.325	57.045	-27.675	74.000	-10.720	PK
6		6315.400	47.098	55.599	-26.902	74.000	-8.502	PK
7		7217.600	49.393	56.532	-24.607	74.000	-7.139	PK
8		8119.800	50.469	56.784	-23.531	74.000	-6.315	PK
9		9022.000	51.431	57.022	-22.569	74.000	-5.591	PK

Profile: RSE	Page No.: 43
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 7:Transmit at 915MHz by SubG FSK	



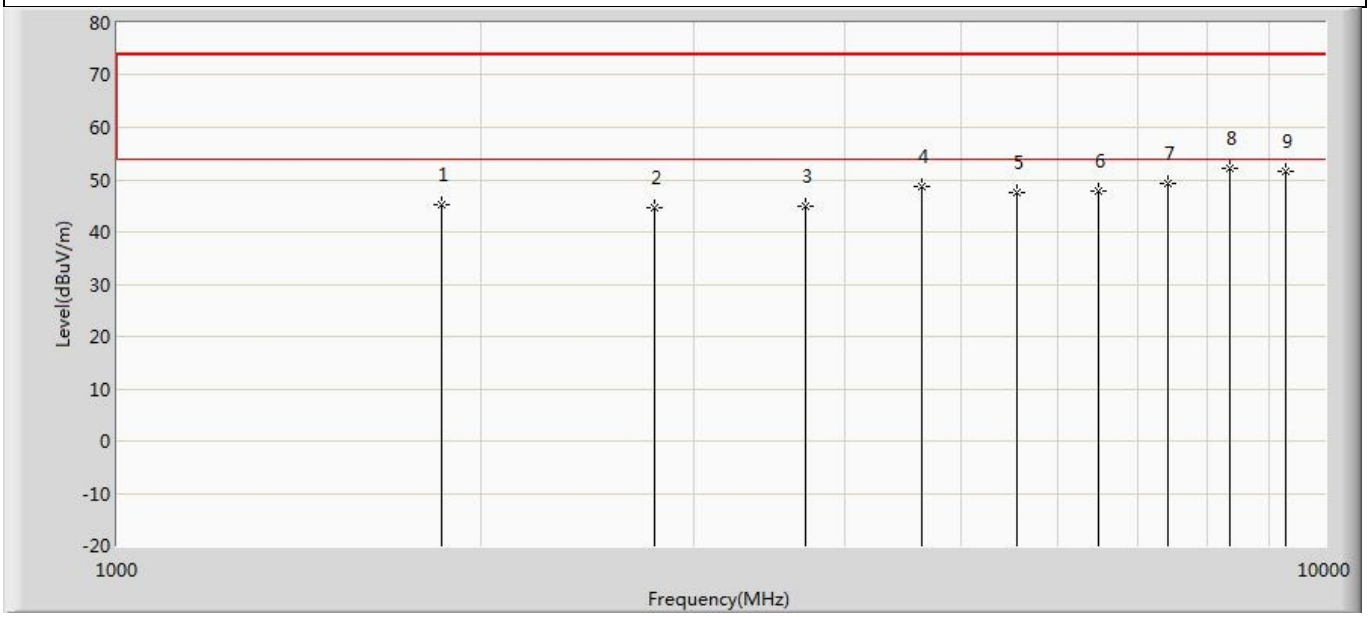
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1828.000	44.891	63.413	-29.109	74.000	-18.522	PK
2		2745.000	44.664	60.759	-29.336	74.000	-16.095	PK
3		3660.000	44.657	58.998	-29.343	74.000	-14.341	PK
4		4575.000	46.403	58.686	-27.597	74.000	-12.282	PK
5		5490.000	47.834	57.539	-26.166	74.000	-9.705	PK
6		6405.000	46.964	55.585	-27.036	74.000	-8.622	PK
7		7320.000	48.920	56.280	-25.080	74.000	-7.360	PK
8		8235.000	49.702	56.193	-24.298	74.000	-6.491	PK
9	*	9150.000	52.088	56.564	-21.912	74.000	-4.475	PK

Profile: RSE	Page No.: 44
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 7:Transmit at 915MHz by SubG FSK	



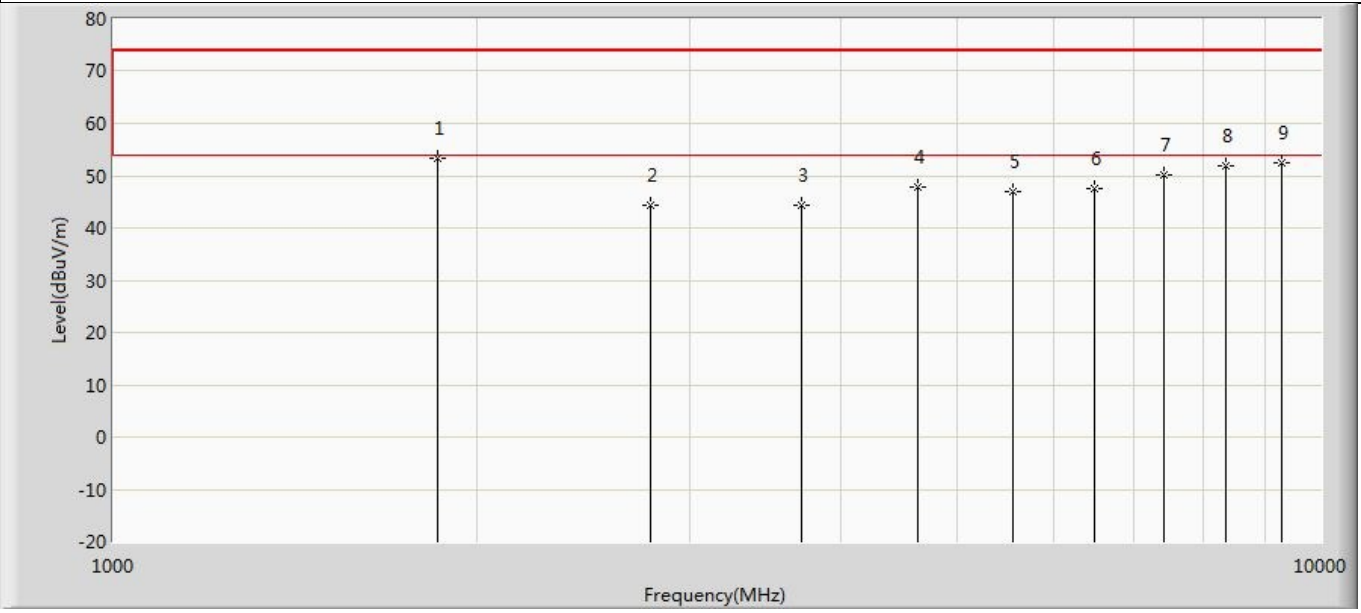
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1828.000	53.609	72.131	-20.391	74.000	-18.522	PK
2		2745.000	44.592	60.687	-29.408	74.000	-16.095	PK
3		3660.000	44.814	59.155	-29.186	74.000	-14.341	PK
4		4575.000	46.610	58.893	-27.390	74.000	-12.282	PK
5		5490.000	47.574	57.279	-26.426	74.000	-9.705	PK
6		6405.000	46.978	55.599	-27.022	74.000	-8.622	PK
7		7320.000	49.016	56.376	-24.984	74.000	-7.360	PK
8		8235.000	49.959	56.450	-24.041	74.000	-6.491	PK
9		9150.000	51.703	56.179	-22.297	74.000	-4.475	PK

Profile: RSE	Page No.: 45
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 7:Transmit at 927.8MHz by SubG FSK	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1855.000	45.150	63.262	-28.850	74.000	-18.112	PK
2		2783.400	44.517	60.852	-29.483	74.000	-16.335	PK
3		3711.200	44.856	58.844	-29.144	74.000	-13.988	PK
4		4639.000	48.551	60.950	-25.449	74.000	-12.399	PK
5		5566.800	47.395	57.678	-26.605	74.000	-10.283	PK
6		6494.600	47.908	56.548	-26.092	74.000	-8.641	PK
7		7422.400	49.401	56.430	-24.599	74.000	-7.029	PK
8	*	8350.200	52.242	56.847	-21.758	74.000	-4.605	PK
9		9278.000	51.655	55.778	-22.345	74.000	-4.123	PK

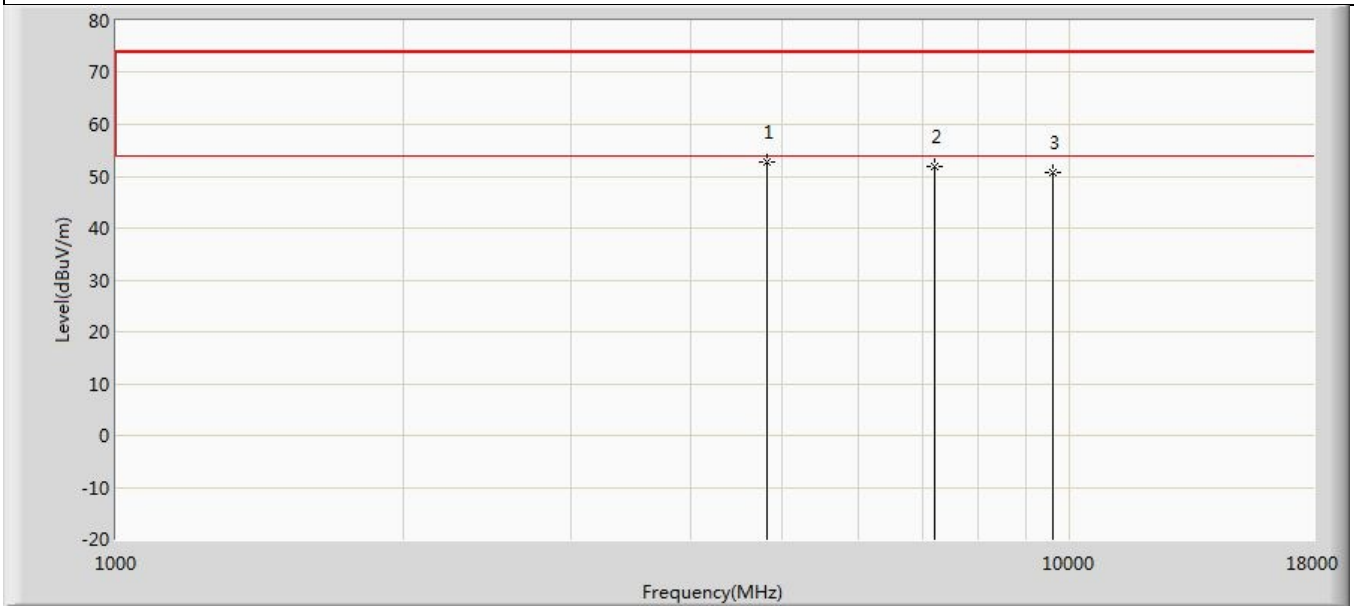
Profile: RSE	Page No.: 46
Engineer: Pengcheng Yang	
Site: AC5	Time: 2024/01/24 - 08:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 7:Transmit at 927.8MHz by SubG FSK	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	1855.000	53.269	71.381	-20.731	74.000	-18.112	PK
2		2783.400	44.482	60.817	-29.518	74.000	-16.335	PK
3		3711.200	44.463	58.451	-29.537	74.000	-13.988	PK
4		4639.000	47.927	60.326	-26.073	74.000	-12.399	PK
5		5566.800	46.839	57.122	-27.161	74.000	-10.283	PK
6		6494.600	47.652	56.292	-26.348	74.000	-8.641	PK
7		7422.400	50.120	57.149	-23.880	74.000	-7.029	PK
8		8350.200	51.925	56.530	-22.075	74.000	-4.605	PK
9		9278.000	52.487	56.610	-21.513	74.000	-4.123	PK

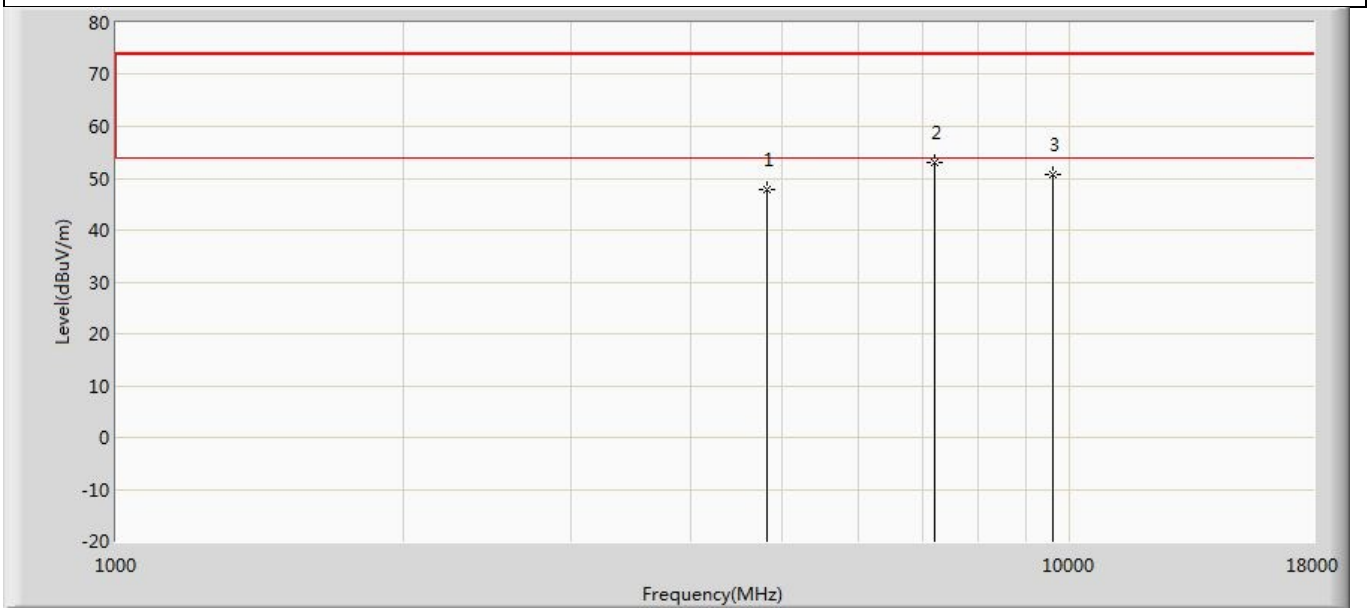
Remark	1. " * ", means this data is the worst emission level. 2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp). 3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed. 4. The emissions of the 2nd harmonics shall apply to the limit of emissions in non-restricted frequency band.

Profile: 23B0020R	Page No.: 13
Engineer: Pengcheng Yang	
Site: AC5	Time: 2023/12/01 - 02:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2402MHz by LoRa with 2.4GHz FSK	



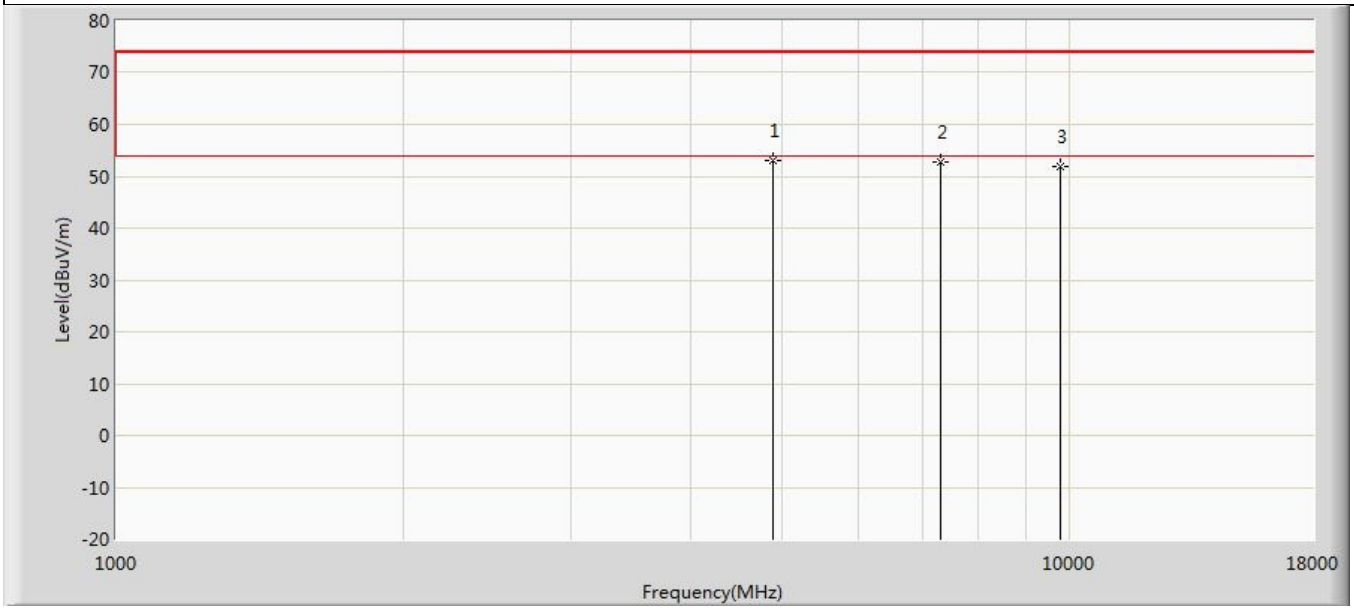
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4808.000	52.650	64.516	-21.350	74.000	-11.866	PK
2		7205.000	51.932	58.082	-22.068	74.000	-6.150	PK
3		9608.000	50.712	53.935	-23.288	74.000	-3.222	PK

Profile: 23B0020R	Page No.: 14
Engineer: Pengcheng Yang	
Site: AC5	Time: 2023/12/01 - 02:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2402MHz by LoRa with 2.4GHz FSK	



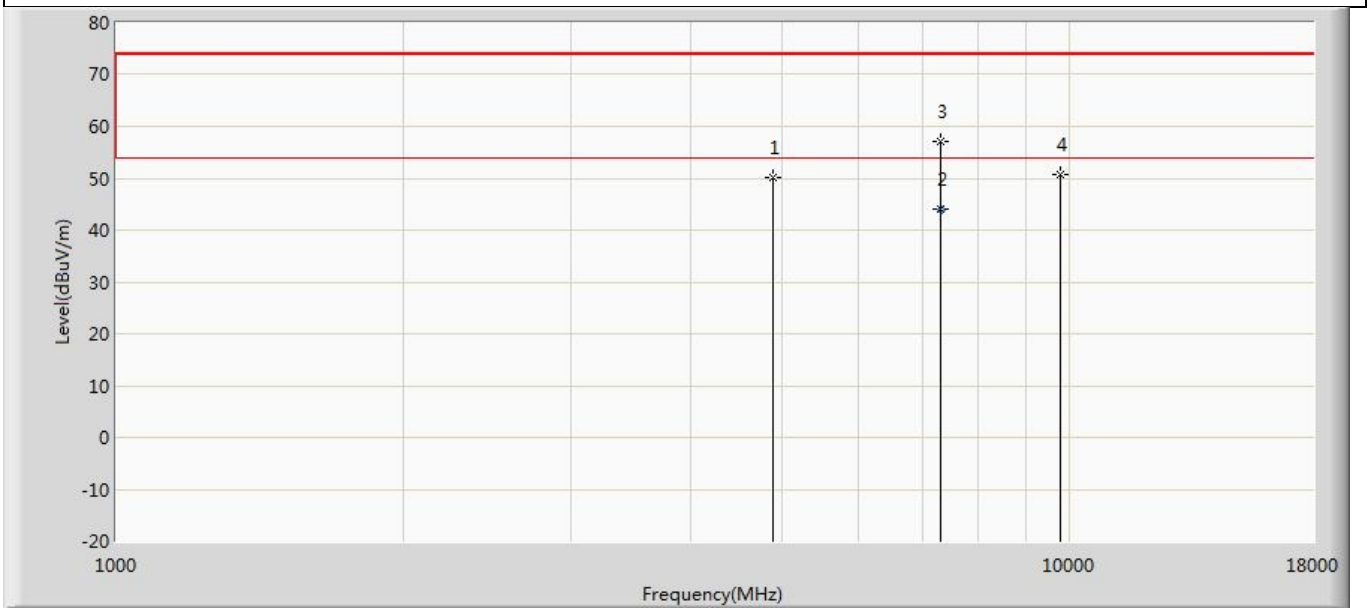
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4808.000	47.890	59.756	-26.110	74.000	-11.866	PK
2	*	7205.000	53.093	59.243	-20.907	74.000	-6.150	PK
3		9608.000	50.701	53.924	-23.299	74.000	-3.222	PK

Profile: 23B0020R	Page No.: 15
Engineer: Pengcheng Yang	
Site: AC5	Time: 2023/12/01 - 02:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2441MHz by LoRa with 2.4GHz FSK	



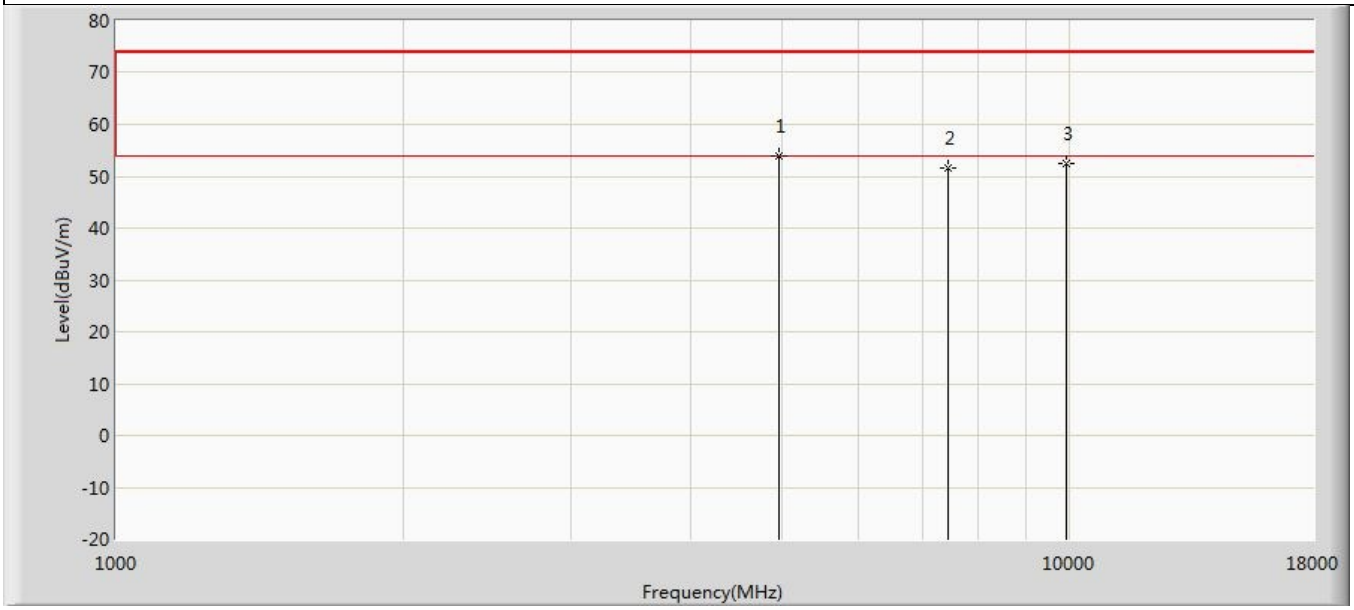
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4876.000	53.137	63.564	-20.863	74.000	-10.427	PK
2		7324.000	52.682	59.517	-21.318	74.000	-6.835	PK
3		9764.000	51.930	54.840	-22.070	74.000	-2.910	PK

Profile: 23B0020R	Page No.: 16
Engineer: Pengcheng Yang	
Site: AC5	Time: 2023/12/01 - 02:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2441MHz by LoRa with 2.4GHz FSK	



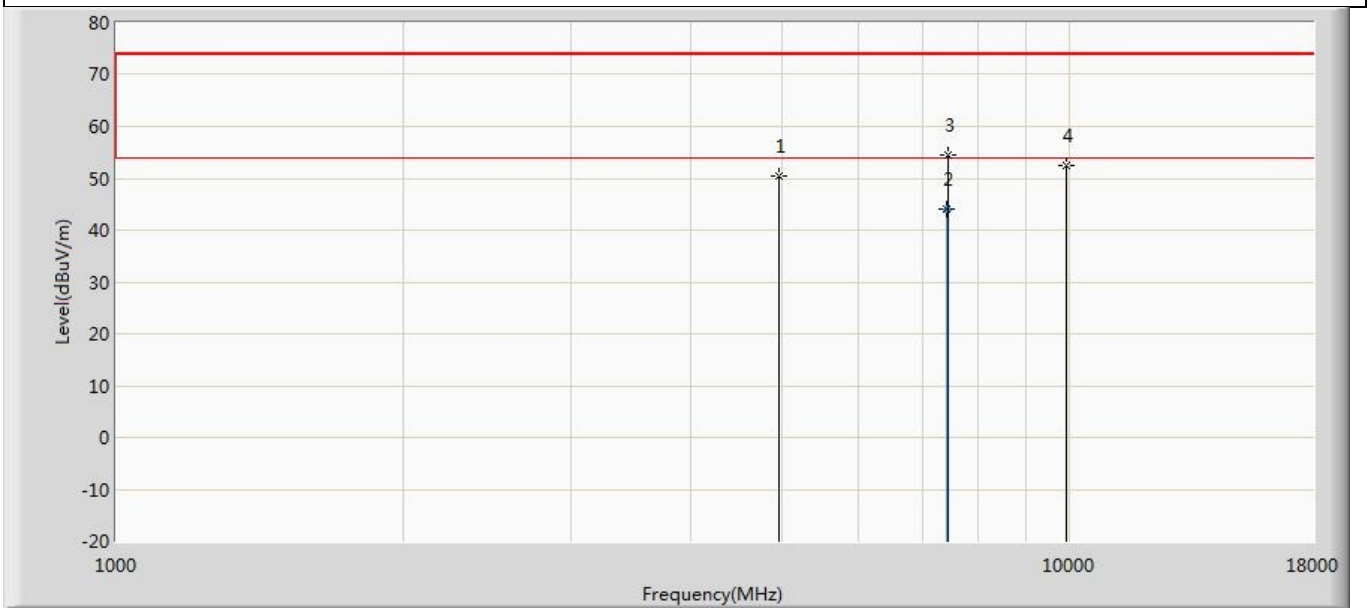
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4876.000	50.054	60.481	-23.946	74.000	-10.427	PK
2	*	7323.000	44.082	50.940	-9.918	54.000	-6.858	AV
3		7324.000	57.166	64.001	-16.834	74.000	-6.835	PK
4		9764.000	50.788	53.698	-23.212	74.000	-2.910	PK

Profile: 23B0020R	Page No.: 17
Engineer: Pengcheng Yang	
Site: AC5	Time: 2023/12/01 - 02:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2480MHz by LoRa with 2.4GHz FSK	



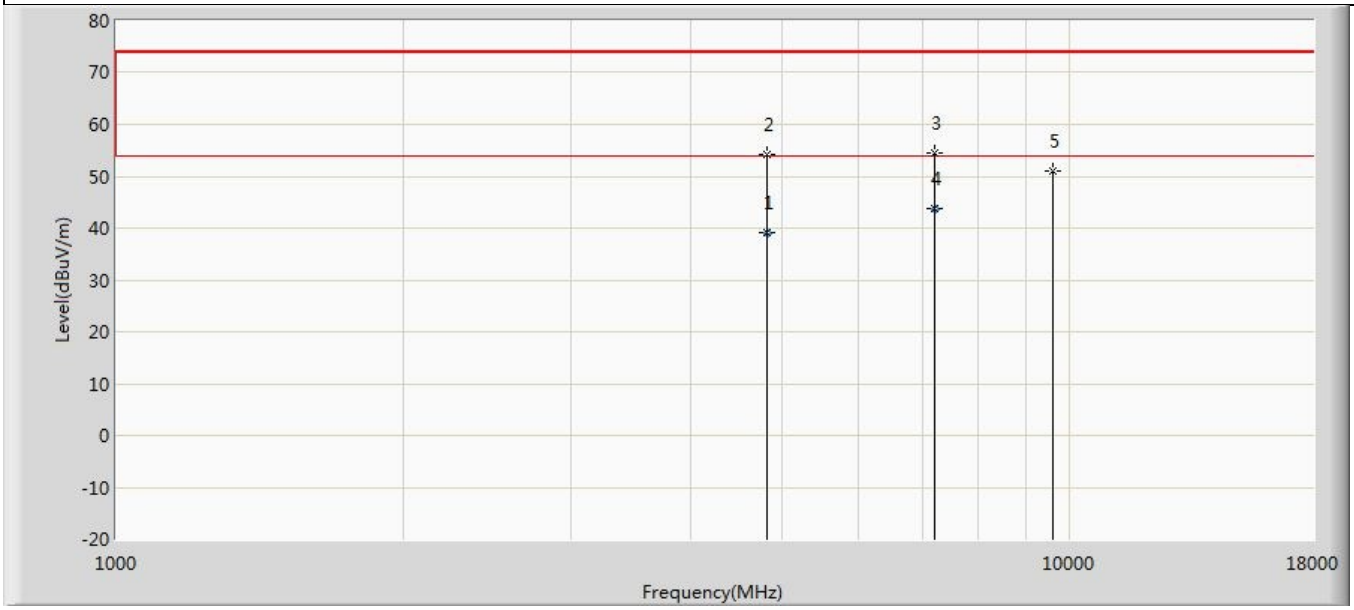
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4961.000	53.941	64.612	-20.059	74.000	-10.671	PK
2		7443.000	51.625	58.382	-22.375	74.000	-6.757	PK
3		9920.000	52.426	54.248	-21.574	74.000	-1.821	PK

Profile: 23B0020R	Page No.: 18
Engineer: Pengcheng Yang	
Site: AC5	Time: 2023/12/01 - 02:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2480MHz by LoRa with 2.4GHz FSK	



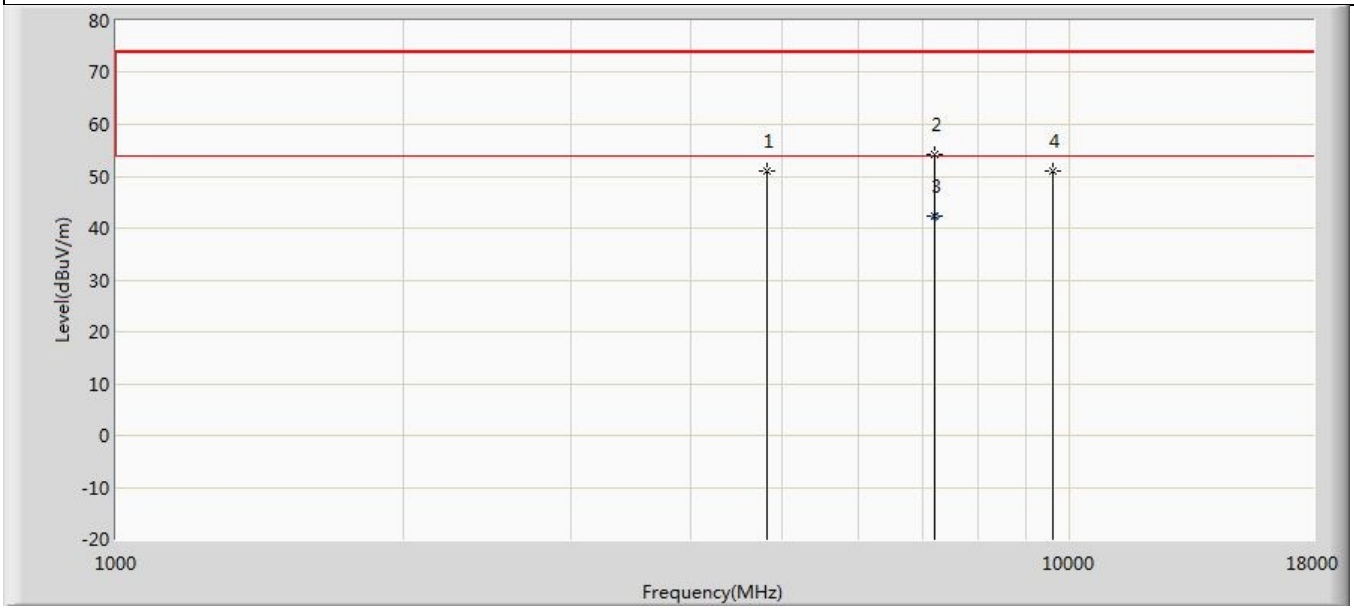
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4961.000	50.317	60.988	-23.683	74.000	-10.671	PK
2	*	7440.000	43.941	50.720	-10.059	54.000	-6.779	AV
3		7443.000	54.438	61.195	-19.562	74.000	-6.757	PK
4		9920.000	52.330	54.152	-21.670	74.000	-1.821	PK

Profile: 23B0020R	Page No.: 19
Engineer: Pengcheng Yang	
Site: AC5	Time: 2023/12/01 - 02:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2403MHz by LoRa with 812kHz LoRa	



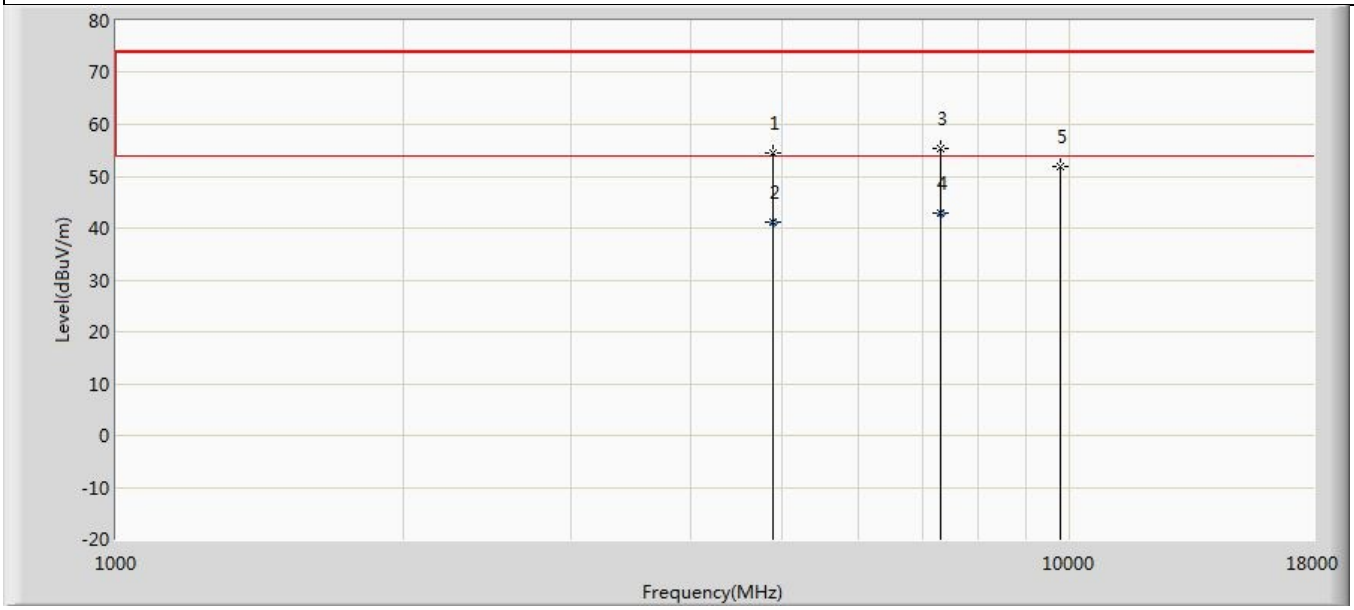
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4806.000	39.143	51.020	-14.857	54.000	-11.877	AV
2		4808.000	54.096	65.962	-19.904	74.000	-11.866	PK
3		7205.000	54.444	60.594	-19.556	74.000	-6.150	PK
4	*	7209.000	43.847	50.060	-10.153	54.000	-6.213	AV
5		9612.000	51.074	54.499	-22.926	74.000	-3.425	PK

Profile: 23B0020R	Page No.: 20
Engineer: Pengcheng Yang	
Site: AC5	Time: 2023/12/01 - 02:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2403MHz by LoRa with 812kHz LoRa	



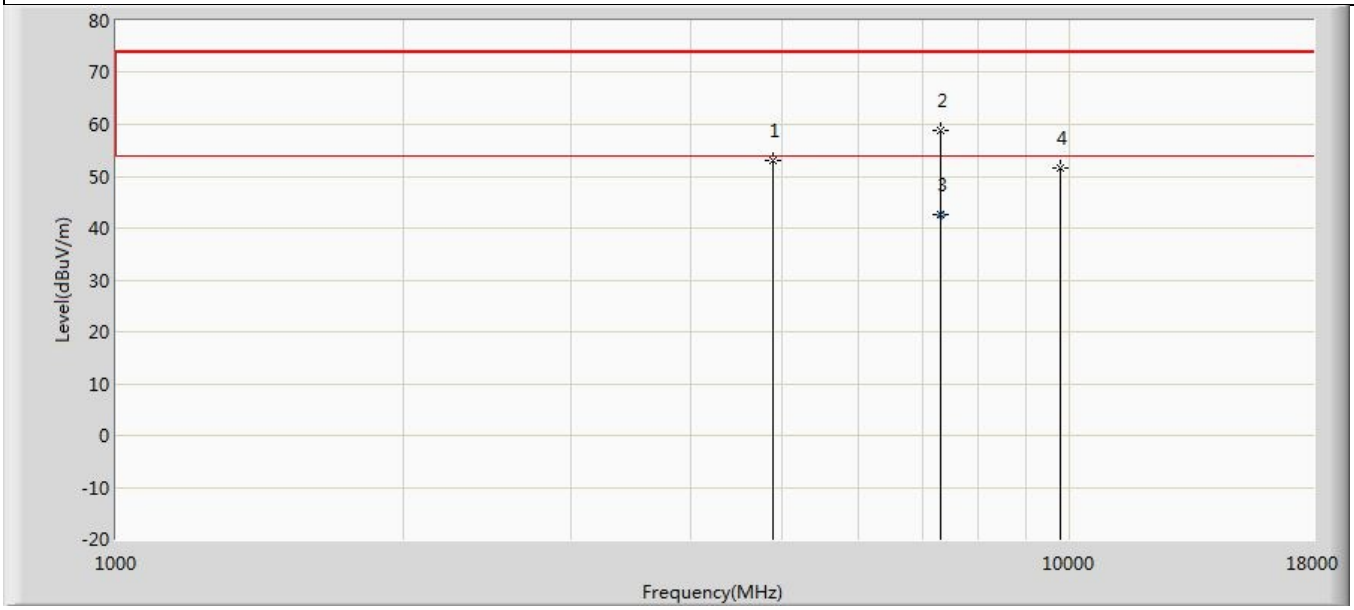
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4808.000	50.996	62.862	-23.004	74.000	-11.866	PK
2		7205.000	54.079	60.229	-19.921	74.000	-6.150	PK
3	*	7209.000	42.458	48.671	-11.542	54.000	-6.213	AV
4		9612.000	51.025	54.450	-22.975	74.000	-3.425	PK

Profile: 23B0020R	Page No.: 21
Engineer: Pengcheng Yang	
Site: AC5	Time: 2023/12/01 - 02:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2442MHz by LoRa with 812kHz LoRa	



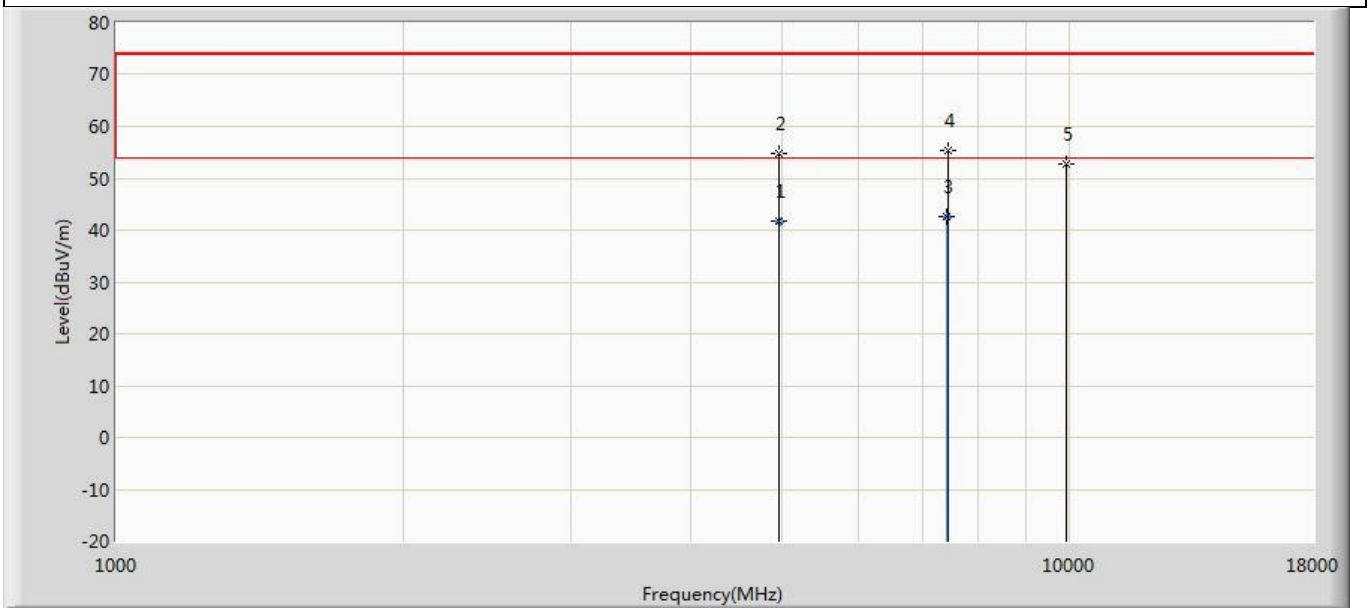
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4876.000	54.427	64.854	-19.573	74.000	-10.427	PK
2		4884.000	41.229	52.010	-12.771	54.000	-10.780	AV
3		7324.000	55.337	62.172	-18.663	74.000	-6.835	PK
4	*	7326.000	42.936	49.720	-11.064	54.000	-6.785	AV
5		9768.000	51.769	54.716	-22.231	74.000	-2.946	PK

Profile: 23B0020R	Page No.: 22
Engineer: Pengcheng Yang	
Site: AC5	Time: 2023/12/01 - 02:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2442MHz by LoRa with 812kHz LoRa	



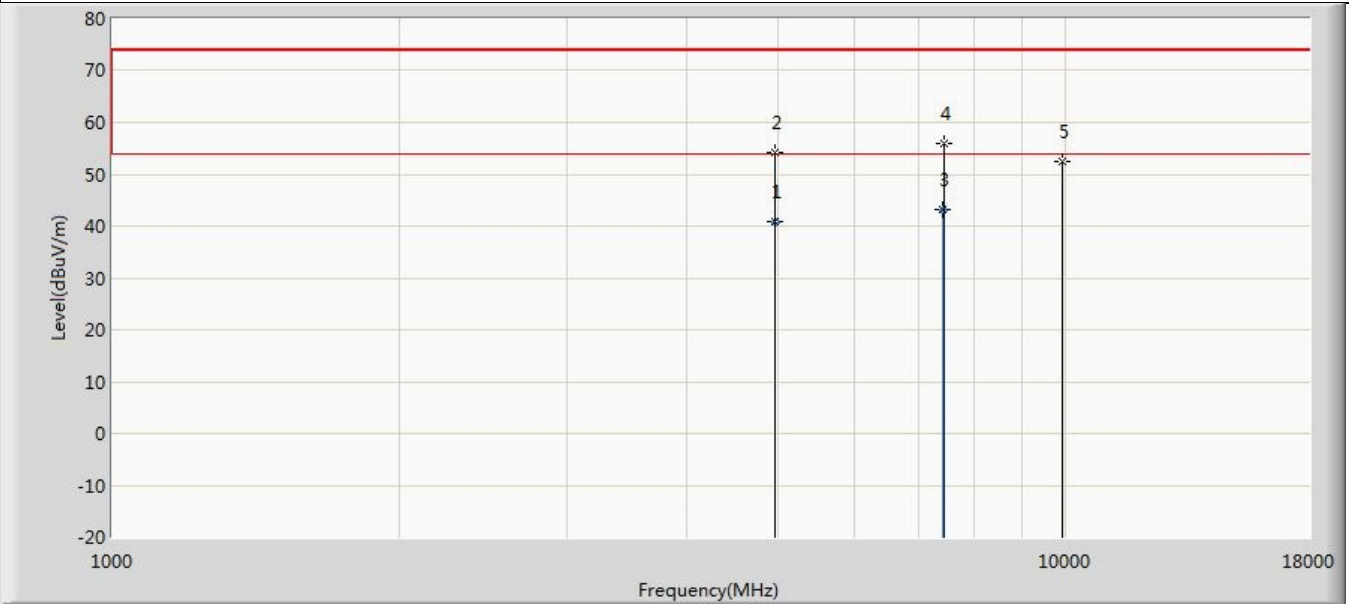
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4876.000	52.946	63.373	-21.054	74.000	-10.427	PK
2		7324.000	58.734	65.569	-15.266	74.000	-6.835	PK
3	*	7326.000	42.536	49.320	-11.464	54.000	-6.785	AV
4		9768.000	51.544	54.491	-22.456	74.000	-2.946	PK

Profile: 23B0020R	Page No.: 23
Engineer: Pengcheng Yang	
Site: AC5	Time: 2023/12/01 - 02:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2479MHz by LoRa with 812kHz LoRa	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4958.000	41.734	52.510	-12.266	54.000	-10.776	AV
2		4961.000	54.684	65.355	-19.316	74.000	-10.671	PK
3	*	7437.000	42.730	49.530	-11.270	54.000	-6.799	AV
4		7443.000	55.265	62.022	-18.735	74.000	-6.757	PK
5		9916.000	52.759	54.499	-21.241	74.000	-1.740	PK

Profile: 23B0020R	Page No.: 24
Engineer: Pengcheng Yang	
Site: AC5	Time: 2023/12/01 - 02:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2479MHz by LoRa with 812kHz LoRa	

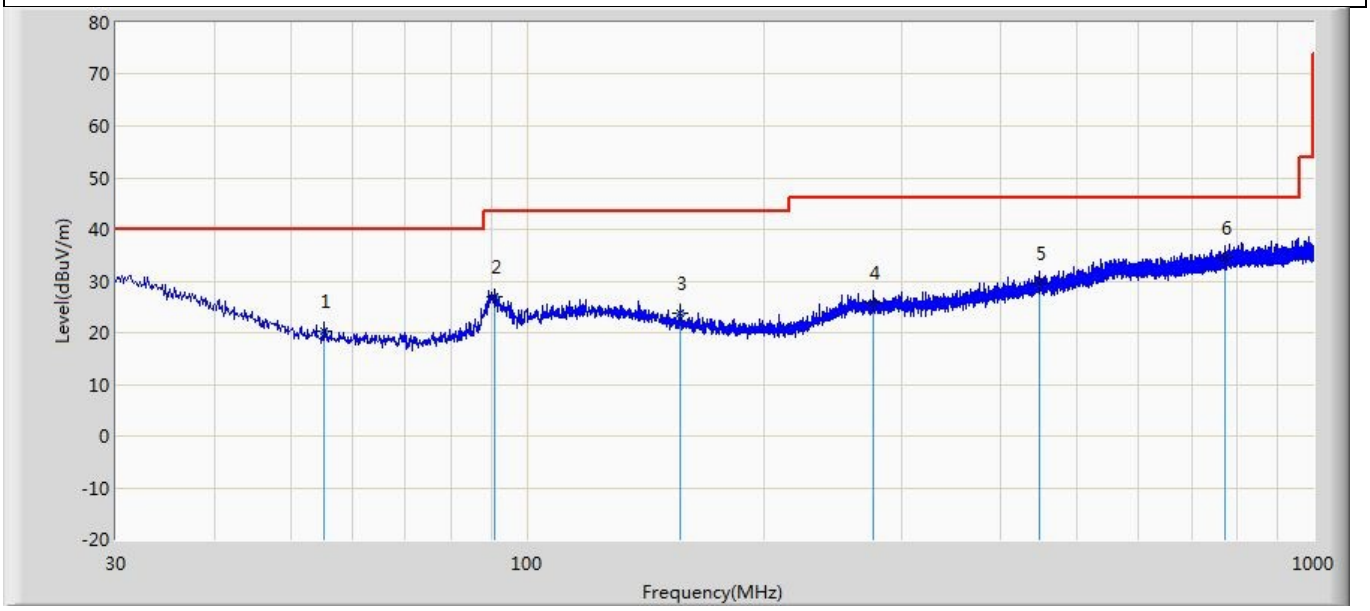


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4958.000	40.964	51.740	-13.036	54.000	-10.776	AV
2		4961.000	54.284	64.955	-19.716	74.000	-10.671	PK
3	*	7437.000	43.320	50.120	-10.680	54.000	-6.799	AV
4		7443.000	56.058	62.815	-17.942	74.000	-6.757	PK
5		9916.000	52.574	54.314	-21.426	74.000	-1.740	PK

Remark	1. " * ", means this data is the worst emission level. 2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp). 3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed. 4. The test frequency range, 18GHz~25GHz test result on peak is lower than average limit, all is the noise base, therefore no data appear in the report.

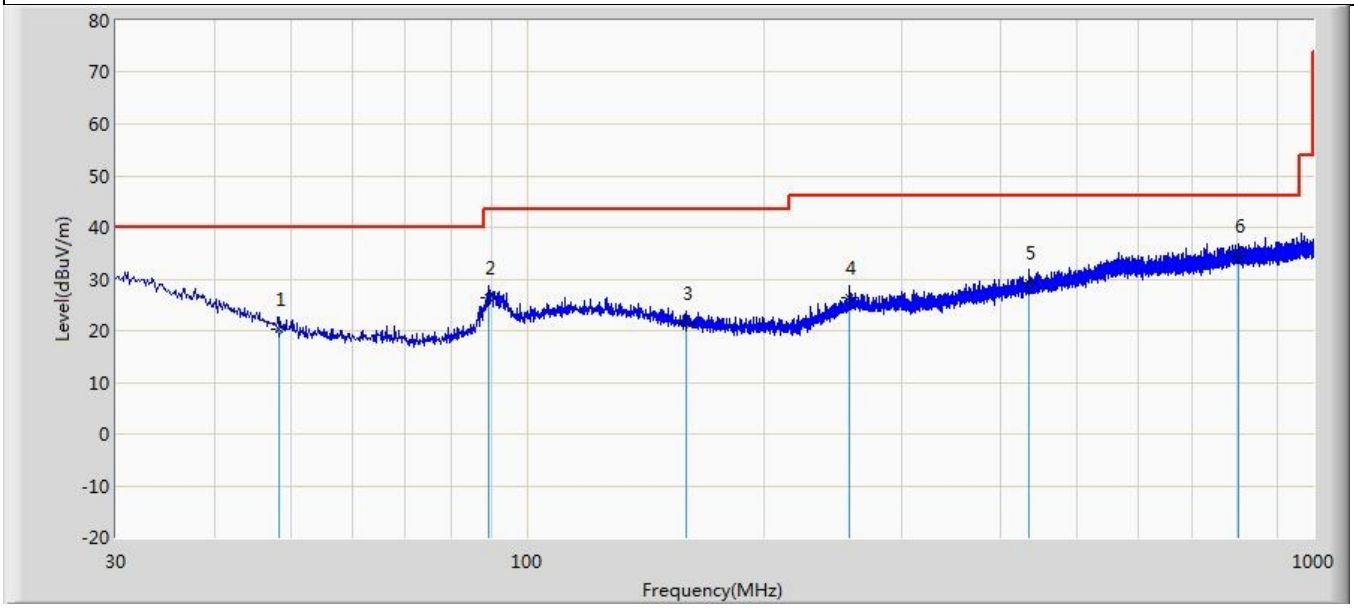
The worst case of Radiated Emission below 1GHz:

Profile: 23B0020R	Page No.: 60
Engineer: Pengchengyang	
Site: AC2	Time: 2023/12/12 - 17:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 2: Transmit at 914.2MHz by LoRa 500kHz bandwidth	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		55.220	20.400	6.774	-19.600	40.000	13.626	QP
2		90.868	26.944	10.858	-16.556	43.500	16.087	QP
3		156.464	23.734	6.600	-19.766	43.500	17.134	QP
4		275.289	25.689	5.355	-20.311	46.000	20.334	QP
5		448.919	29.579	4.965	-16.421	46.000	24.614	QP
6	*	770.474	34.476	5.623	-11.524	46.000	28.853	QP

Profile: 23B0020R	Page No.: 61
Engineer: Pengchengyang	
Site: AC2	Time: 2023/12/12 - 17:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 2: Transmit at 914.2MHz by LoRa 500kHz bandwidth	

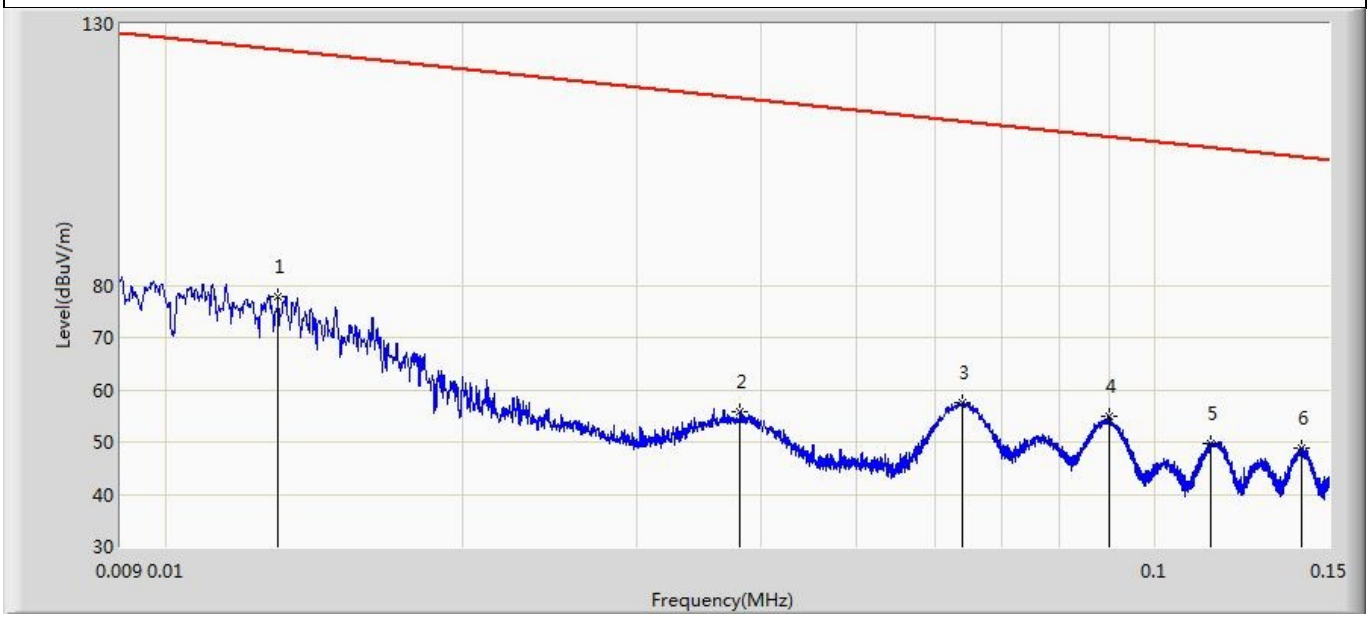


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		48.430	20.263	4.765	-19.737	40.000	15.498	QP
2		89.412	26.460	10.709	-17.040	43.500	15.750	QP
3		159.253	21.396	4.383	-22.104	43.500	17.013	QP
4		257.465	26.448	5.835	-19.552	46.000	20.613	QP
5		435.703	29.179	4.828	-16.821	46.000	24.351	QP
6	*	803.818	34.469	5.058	-11.531	46.000	29.411	QP

Remark	1. " * ", means this data is the worst emission level. 2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp). 3. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary. 4. We tested all the modes and showed the worst mode in the report.

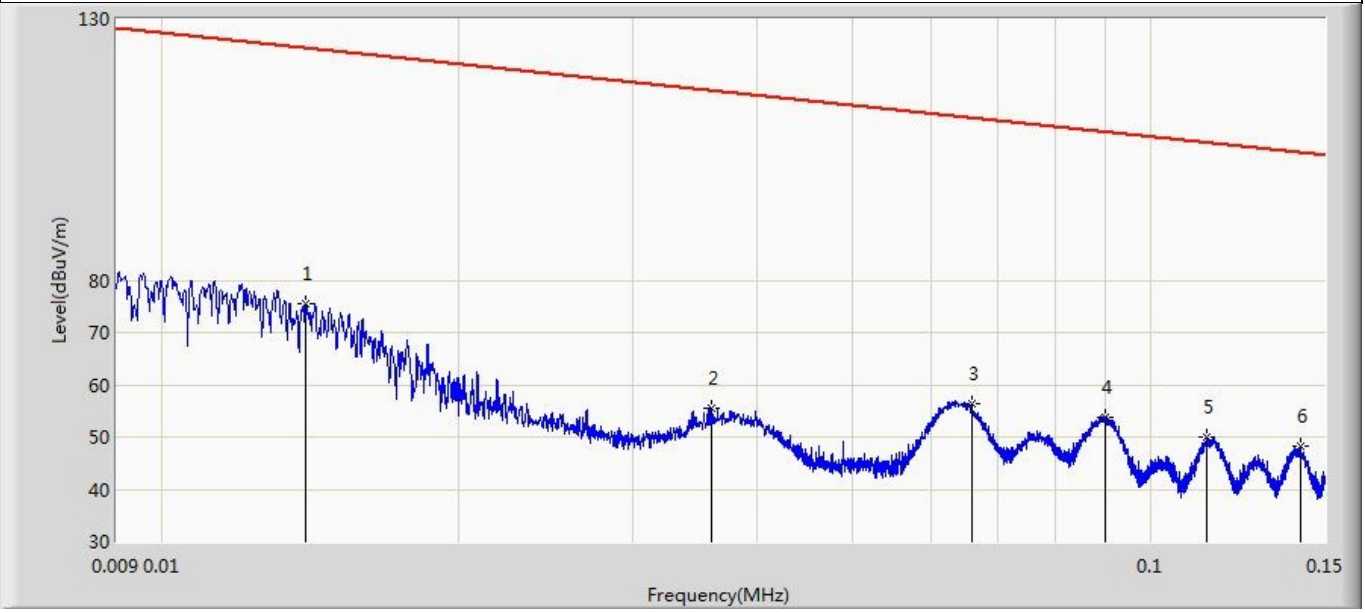
The worst case of Radiated Emission below 1GHz:

Profile: 23B0020R	Page No.: 1
Engineer: Pengchengyang	
Site: AC2	Time: 2023/12/10 - 11:08
Limit: 15.209	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 2: Transmit at 914.2MHz by LoRa 500kHz bandwidth	



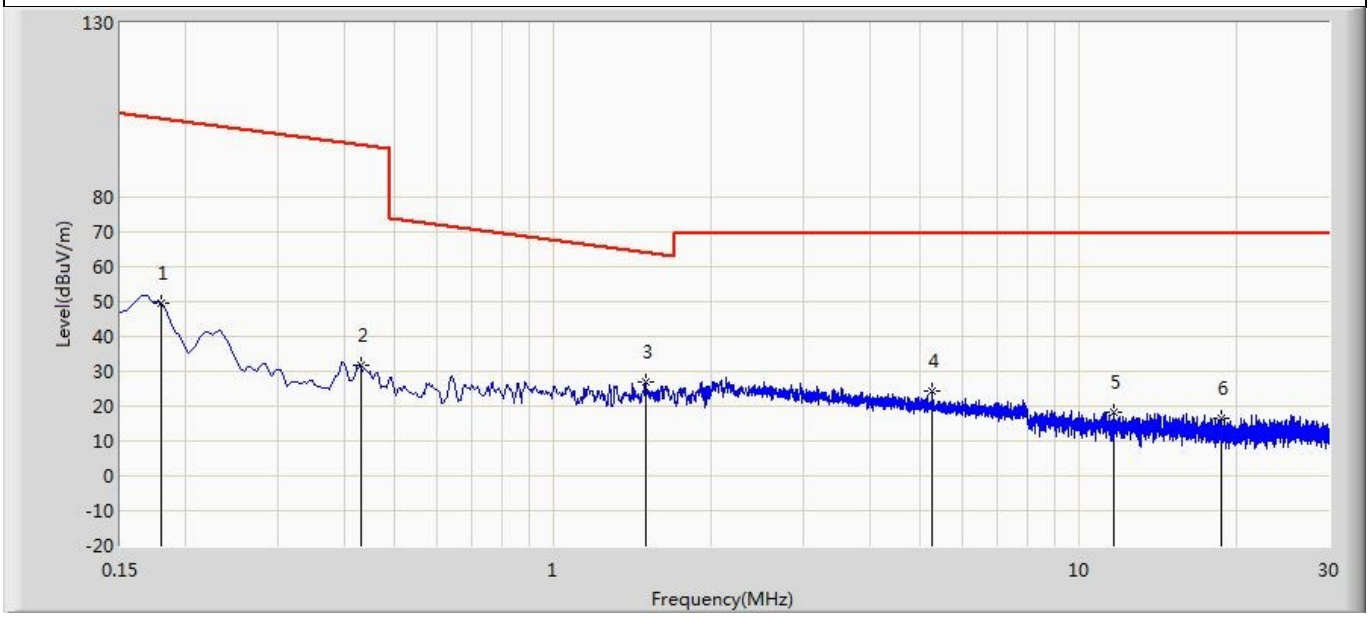
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	0.013	77.803	56.647	-47.405	125.208	21.155	PK
2		0.038	55.667	33.736	-60.229	115.896	21.931	PK
3		0.064	57.590	35.655	-53.781	111.371	21.935	PK
4		0.090	54.801	32.896	-53.610	108.411	21.905	PK
5		0.114	49.731	27.854	-56.628	106.359	21.877	PK
6		0.141	48.793	26.942	-55.721	104.514	21.851	PK

Profile: 23B0020R	Page No.: 3
Engineer: Pengchengyang	
Site: AC2	Time: 2023/12/10 - 11:13
Limit: 15.209	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 2: Transmit at 914.2MHz by LoRa 500kHz bandwidth	



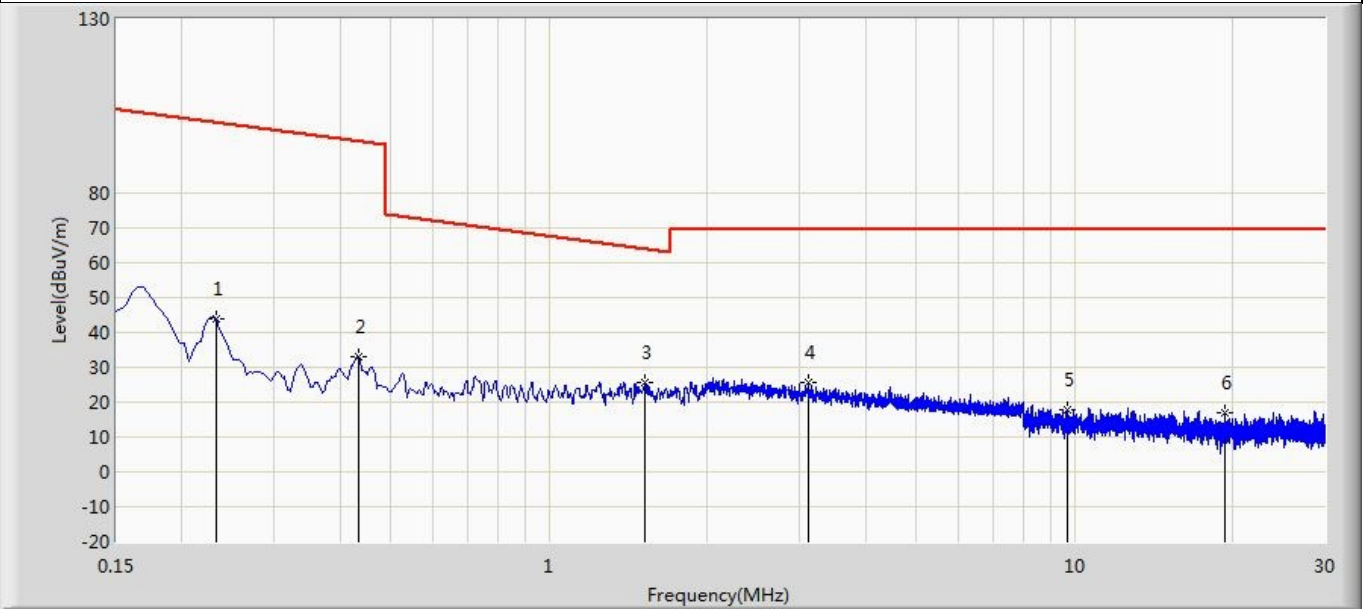
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	0.014	75.627	54.940	-48.938	124.564	20.687	PK
2		0.036	55.610	34.241	-60.755	116.365	21.369	PK
3		0.066	56.348	34.915	-54.756	111.103	21.433	PK
4		0.090	53.837	32.432	-54.574	108.411	21.405	PK
5		0.114	49.933	28.556	-56.426	106.359	21.377	PK
6		0.142	48.248	26.898	-56.204	104.452	21.350	PK

Profile: 23B0020R	Page No.: 2
Engineer: Pengchengyang	
Site: AC2	Time: 2023/12/10 - 11:11
Limit: 15.209	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Horizontal
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 2: Transmit at 914.2MHz by LoRa 500kHz bandwidth	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		0.180	49.557	27.751	-52.837	102.394	21.806	PK
2		0.430	31.683	10.123	-63.151	94.834	21.560	PK
3	*	1.501	27.167	6.725	-36.837	64.004	20.442	PK
4		5.273	24.385	3.805	-45.015	69.400	20.581	PK
5		11.702	18.141	-2.666	-51.259	69.400	20.807	PK
6		18.706	16.648	-3.890	-52.752	69.400	20.538	PK

Profile: 23B0020R	Page No.: 4
Engineer: Pengchengyang	
Site: AC2	Time: 2023/12/10 - 11:18
Limit: 15.209	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Vertical
EUT: LoRa Module	Power: DC 3.3V
Note: Mode 2: Transmit at 914.2MHz by LoRa 500kHz bandwidth	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		0.232	44.042	22.780	-56.149	100.191	21.262	PK
2		0.434	33.241	12.185	-61.512	94.754	21.056	PK
3	*	1.523	25.586	5.621	-38.291	63.878	19.965	PK
4		3.128	25.742	5.419	-43.658	69.400	20.323	PK
5		9.695	17.993	-2.089	-51.407	69.400	20.082	PK
6		19.314	16.792	-3.131	-52.608	69.400	19.923	PK

Remark	1. " * ", means this data is the worst emission level. 2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp). 3. We tested all the modes and showed the worst mode in the report.

4.3 Emissions in non-restricted frequency band	VERDICT: PASS

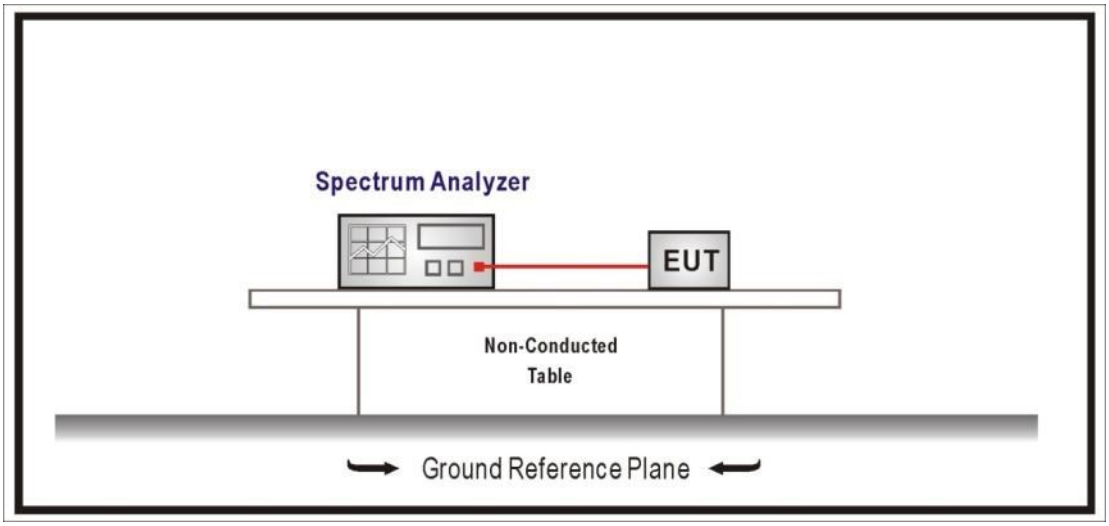
4.3.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.247(d)
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30dBc(Note1)
RF Output power(PK detector)	20dBc(Note2)

Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

4.3.2 Test Setup



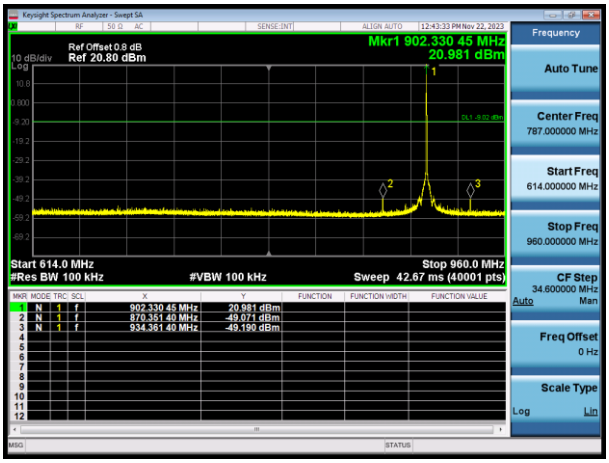
4.3.3 Test Procedure

References Rule			Chapter	Description
☒	ANSI C63.10		11.11	Emissions in non-restricted frequency bands
	☒	ANSI C63.10	11.11.1	General
	☒	ANSI C63.10	11.11.2	Reference level measurement
	☒	ANSI C63.10	11.11.3	Emission level measurement

4.3.4 Test Data

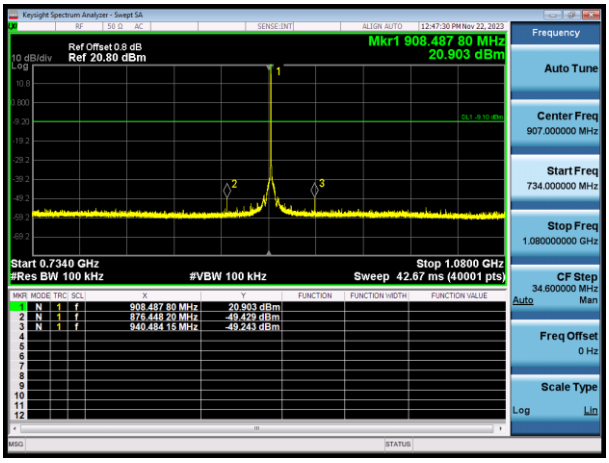
LoRa(FHSS) 125kHz bandwidth

Channel0 902.3MHz



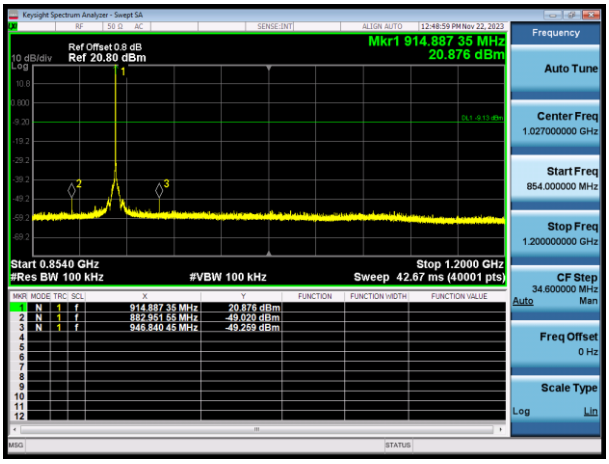
Channel0 902.3MHz

Channel31 908.5MHz

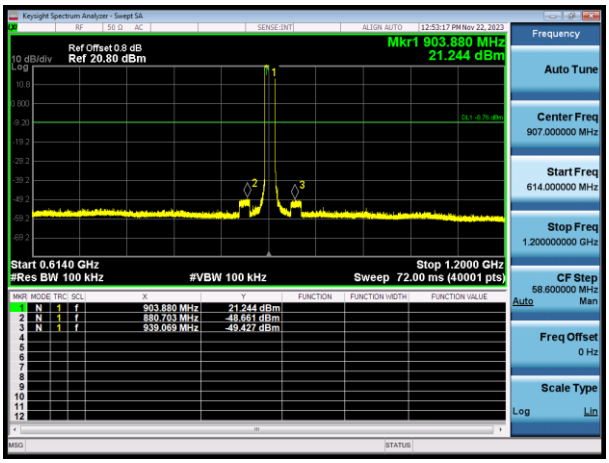


Channel31 908.5MHz

Channel63 914.9MHz



Channel63 914.9MHz

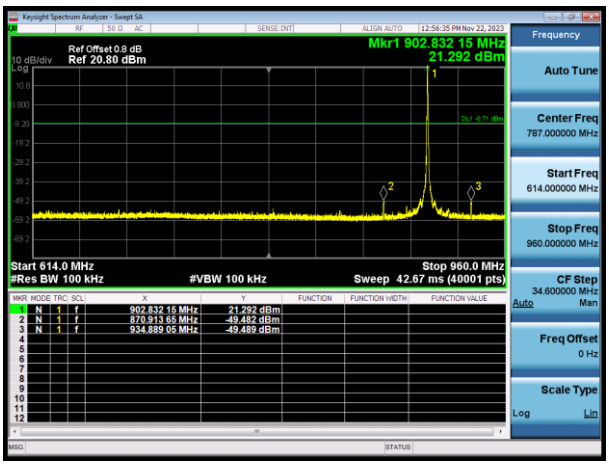
FHSS	FHSS
	

Ref Offset 0.8 dB
10 dB/div
Ref 20.80 dBm
Mkr1 903.880 MHz
21.244 dBm
Start 0.6140 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 1.2000 GHz
Sweep 72.00 ms (40001 pts)
1 N 1 f 903.880 MHz 21.244 dBm
2 N 1 f 880.703 MHz -48.661 dBm
3 N 1 f 939.069 MHz -49.427 dBm
Frequency
Auto Tune
Center Freq
907.000000 MHz
Start Freq
614.000000 MHz
Stop Freq
1.200000000 GHz
CF Step
58.600000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

Ref Offset 0.8 dB
10 dB/div
Ref 23.80 dBm
Mkr1 914.1 MHz
21.381 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 26.50 GHz
Sweep 3.192 s (40001 pts)
1 N 1 f 914.1 MHz 21.381 dBm
2 N 1 f 1.813 4 GHz -33.013 dBm
3 N 1 f 7.017 6 GHz -45.762 dBm
4 N 1 f 10.356 9 GHz -46.179 dBm
5 N 1 f 16.965 2 GHz -40.539 dBm
Frequency
Auto Tune
Center Freq
13.265000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.500000000 GHz
CF Step
2.647000000 GHz
Auto
Man
Freq Offset
0 Hz

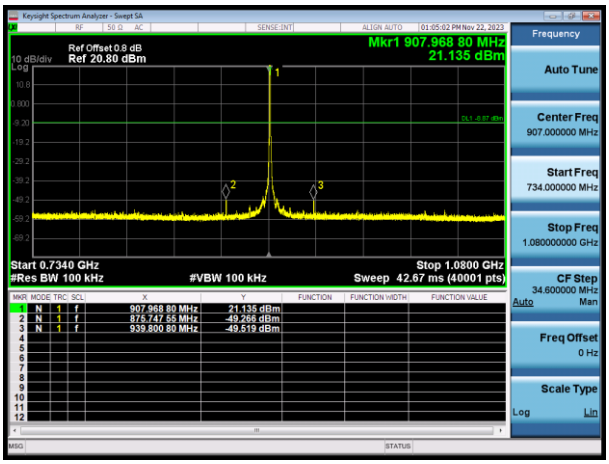
LoRa(DTS) 500kHz bandwidth

Channel64 903MHz



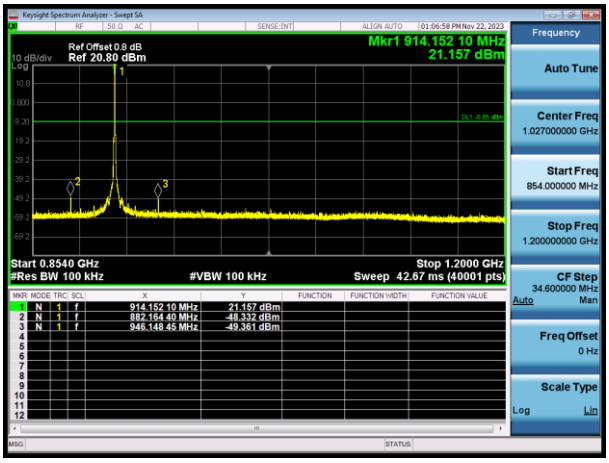
Channel64 903MHz

Channel67 907.8MHz



Channel67 907.8MHz

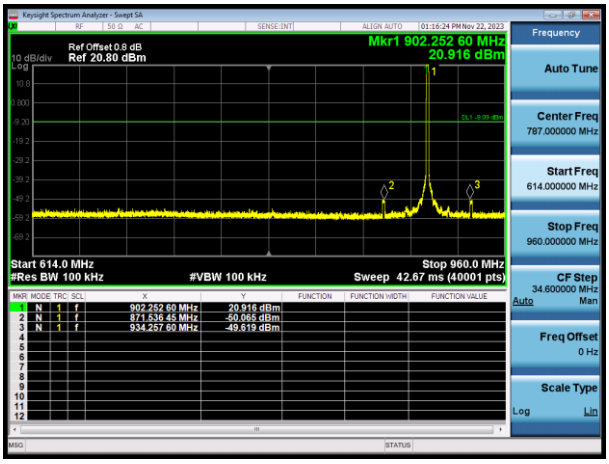
Channel71 914.2MHz



Channel71 914.2MHz

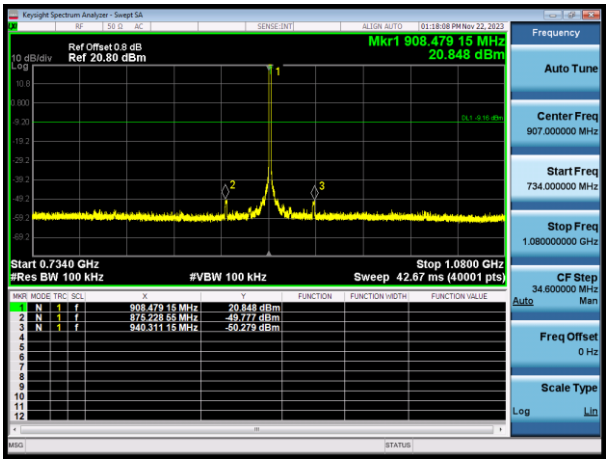
LR-FHSS 1.523MHz bandwidth

Channel64 903MHz



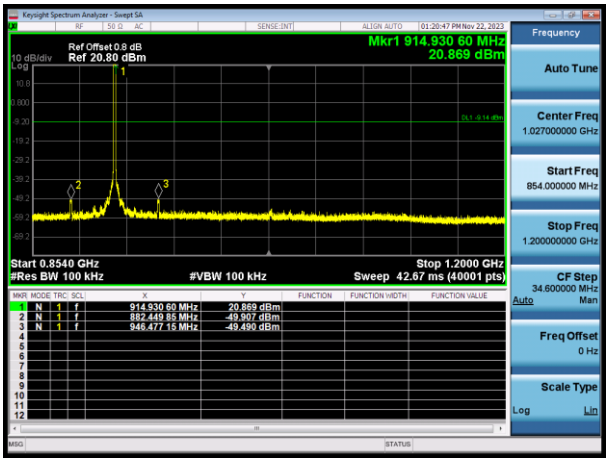
Channel64 903MHz

Channel67 907.8MHz

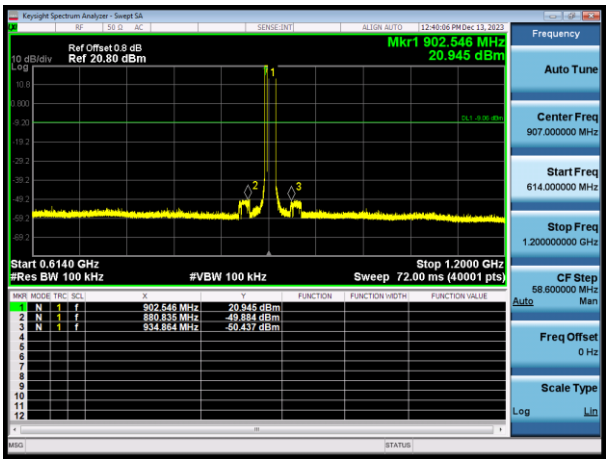
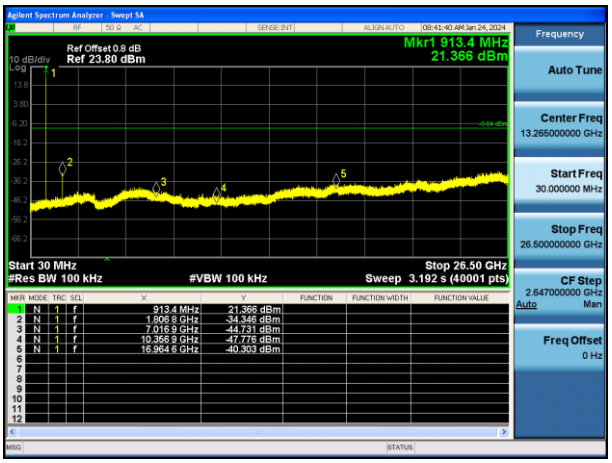


Channel67 907.8MHz

Channel71 914.2MHz



Channel71 914.2MHz

FHSS	FHSS
	

Ref Offset 0.8 dB
10 dB/div
Ref 20.80 dBm
Mkr1 902.546 MHz
20.945 dBm
Start 0.6140 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 1.2000 GHz
Sweep 72.00 ms (40001 pts)
1 N 1 f 902.546 MHz 20.945 dBm
2 N 1 f 880.835 MHz -49.884 dBm
3 N 1 f 934.864 MHz -50.437 dBm
Frequency
Auto Tune
Center Freq
907.000000 MHz
Start Freq
614.000000 MHz
Stop Freq
1.200000000 GHz
CF Step
58.600000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

Ref Offset 0.8 dB
10 dB/div
Ref 23.80 dBm
Mkr1 913.4 MHz
21.366 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 26.50 GHz
Sweep 3.192 s (40001 pts)
1 N 1 f 913.4 MHz 21.366 dBm
2 N 1 f 1.806 9 GHz -34.346 dBm
3 N 1 f 7.016 9 GHz -44.731 dBm
4 N 1 f 10.366 9 GHz -47.776 dBm
5 N 1 f 16.964 6 GHz -40.303 dBm
Frequency
Auto Tune
Center Freq
13.265000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.500000000 GHz
CF Step
2.647000000 GHz
Auto
Man
Freq Offset
0 Hz