



FCC RADIO TEST REPORT

Applicant : BROWAN Communications Inc.

Address : No.15-1, Zhonghua Rd., Hsinchu Industrial Park,
Hukou, Hsinchu, Taiwan, 30352.

Equipment : MerryIoT 5G Gateway

Model No. : L0009

Trade Name : BROWAN

FCC ID. : 2AAS9-L0009

I HEREBY CERTIFY THAT :

The sample was received on Nov. 02, 2022 and the testing was completed on Nov. 22, 2022 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Mark Liao / Supervisor

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory





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History of this test report

Report No.	Issued Date	Description
22090005-TRFCC01	Nov. 23, 2022	Original



1. Summary of Test Procedure and Test Results

1.1 Applicable Standards

ANSI C63.10:2013

FCC Rules and Regulations Part 15 Subpart C §15.247

FCC Rule	Description of Test	Result
15.203	. Antenna Requirement	PASS
15.247(a)(1)	.Pseudorandom Frequency Hopping Sequence	PASS
15.207	. AC Power Line Conducted Emission	PASS
15.209 15.205	. Radiated Spurious Emission	PASS
15.247(d)	. Conducted Spurious Emission	PASS
15.247(a)(1)	. Channel Carrier Frequencies Separation	PASS
15.247(a)(1)	. 20dB Bandwidth	PASS
15.247(a)(1)	. Dwell Time	PASS
15.247(b)	. Number of Hopping Channels	PASS
15.247(b)	. Output Power	PASS
2.1091 OR 2.1093	. Radio Frequency Exposure	PASS

* The lab has reduced the uncertainty risk factor from test equipment, environment and staff technicians which according to the standard on contract. Therefore, the test result will only be determined by standard requirement.



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Operation Frequency Range	902-928MHz
Center Frequency Range	902.3-927.8MHz
Modulation Type	Hybrid
Modulation Technology	FHSS
Data Rate	125kbps
Antenna Type	Dipole Antenna
Max Antenna Gain	1.45 dBi
Adapter	Brand: EDAC Model: EA10681N-120
Antenna 1	Brand: Tengxiang Model: AB0915-4602RS-1P5M Antenna Gain:0.61 dBi
Antenna 2	Brand: LYNwave Model: WSMK-163GN Antenna Gain:1.45 dBi
Power Code	Brand: QUEENPUO Model: 332-700010-201G

Note: For more details, please refer to the User's manual of the EUT.



2.2 Carrier Frequency of Channes

Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
*CH0	902.3	CH40	910.3	CH80	918.4	CH120	926.4
CH1	902.5	CH41	910.5	CH81	918.6	CH121	926.6
CH2	902.7	CH42	910.7	CH82	918.8	CH122	926.8
CH3	902.9	CH43	910.9	CH83	919	CH123	927
CH4	903.1	CH44	911.1	CH84	919.2	CH124	927.2
CH5	903.3	CH45	911.3	CH85	919.4	CH125	927.4
CH6	903.5	CH46	911.5	CH86	919.6	CH126	927.6
CH7	903.7	CH47	911.7	CH87	919.8	*CH127	927.8
CH8	903.9	CH48	911.9	CH88	920		
CH9	904.1	CH49	912.1	CH89	920.2		
CH10	904.3	CH50	912.3	CH90	920.4		
CH11	904.5	CH51	912.5	CH91	920.6		
CH12	904.7	CH52	912.7	CH92	920.8		
CH13	904.9	CH53	912.9	CH93	921		
CH14	905.1	CH54	913.1	CH94	921.2		
CH15	905.3	CH55	913.3	CH95	921.4		
CH16	905.5	CH56	913.5	CH96	921.6		
CH17	905.7	CH57	913.7	CH97	921.8		
CH18	905.9	CH58	913.9	CH98	922		
CH19	906.1	CH59	914.1	CH99	922.2		
CH20	906.3	CH60	914.3	CH100	922.4		
CH21	906.5	CH61	914.5	CH101	922.6		
CH22	906.7	CH62	914.7	CH102	922.8		
CH23	906.9	*CH63	914.9	CH103	923		
CH24	907.1	CH64	915.2	CH104	923.2		
CH25	907.3	CH65	915.4	CH105	923.4		
CH26	907.5	CH66	915.6	CH106	923.6		
CH27	907.7	CH67	915.8	CH107	923.8		
CH28	907.9	CH68	916	CH108	924		
CH29	908.1	CH69	916.2	CH109	924.2		
CH30	908.3	CH70	916.4	CH110	924.4		
CH31	908.5	CH71	916.6	CH111	924.6		
CH32	908.7	CH72	916.8	CH112	924.8		
CH33	908.9	CH73	917	CH113	925		
CH34	909.1	CH74	917.2	CH114	925.2		
CH35	909.3	CH75	917.4	CH115	925.4		
CH36	909.5	CH76	917.6	CH116	925.6		
CH37	909.7	CH77	917.8	CH117	925.8		
CH38	909.9	CH78	918	CH118	926		
CH39	910.1	CH79	918.2	CH119	926.2		

Note: Channels remarked * are selected to perform test.



2.3 Test Mode & Test Software

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.10
- b. The complete test system included Notebook and EUT for RF test.
- c. An executive program, "command" under Windows OS system was executed to transmit and receive data via Lora 125K.
- d. The following test modes were performed for the test:

Conducted Emissions from the AC mains power ports	
Test Mode	Operating Description
1	Lora 125K From Adapter
caused "Test Mode 1" generated the worst case, it was reported as the final data.	
Radiation Emissions (BELOW 1G)	
Test Mode	Operating Description
1	Lora 125K From Adapter
caused "Test Mode 1" generated the worst case, it was reported as the final data.	
Radiation Emissions (1GHz ~ 10GHz)	
Test Mode	Operating Description
1	Lora 125K From Adapter
caused "Test Mode 1" generated the worst case, they were reported as the final data.	

Note:

1. There are two kinds of test voltage: AC 120V / 60Hz and AC 240V / 60Hz.
For AC Power Line Conducted Emission, AC 240V / 60Hz is worst case.
For Radiated Spurious Emission(BELOW 1G & 1GHz ~ 10GHz), AC 120V / 60Hz is worst case.
2. The EUT has two types of antenna(Brand: Tengxiang and Brand: LYNwave).
After engineering evaluation, Brand: LYNwave are worst case, hence, are used at test report.



2.4 Description of Test System

RF Conducted				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	lenovo	S1GL2W	N/A	Adapter / 1.8m / NS
RJ45 Cable	TE CONNECTIVITY	CAT5E	1.2m / NS	N/A
Radiated Emissions				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	Lenovo	S1GL2W	N/A	Adapter / 1.8m / NS
RJ45 Cable	TE CONNECTIVITY	CAT5E	15m / NS	N/A
AC Power Line Conducted Emission				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	Lenovo	S1GL2W	N/A	Adapter / 1.8m / NS
RJ45 Cable	TE CONNECTIVITY	CAT5E	15m / NS	N/A



2.5 General Information of Test

Test Site	Cerpass Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881	
	FCC	TW1439, TW1079
	IC	4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication test C-4663 for Conducted emission test R-4218 for Radiated emission test G-10812, G-10813 for radiated disturbance above 1GHz
Frequency Range Investigated:	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 10,000MHz	
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.	

Test Item	Test Site	Test Period	Environmental Conditions	Tested By
RF Conducted	RFCON01-NK	2022/11/11	28℃ / 46%	Leon Huang
Radiated Emissions	3M03-NK	2022/11/03~2022/11/09	20~21℃ / 56~69%	Leon Huang
		2022/11/22	24℃ / 70%	Leon Huang
AC Power Line Conducted Emission	CON01-NK	2022/11/10	23℃ / 54%	Leon Huang



2.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Measurement Item	Uncertainty
AC Power Line Conduction(150K~30MHz)	$\pm 3.12\text{dB}$
Radiated Spurious Emission(9KHz~30MHz)	$\pm 3.4\text{dB}$
Radiated Spurious Emission(30MHz~1GHz)	$\pm 5.7\text{dB}$
Radiated Spurious Emission(1GHz~25GHz)	$\pm 6.8\text{dB}$
Conducted Spurious Emission	$\pm 1.8\text{dB}$
6dB Bandwidth	$\pm 4.4\%$
20dB Bandwidth	$\pm 4.4\%$
Occupied Bandwidth	$\pm 4.4\%$
Peak Output Power(Conducted Power Meter)	$\pm 1.1\text{dB}$
Dwell Time / Deactivation Time	$\pm 1.2\%$
Power Spectral Density	$\pm 1.8\text{dB}$
Duty Cycle	$\pm 1.2\%$



3. Test Equipment and Ancillaries Used for Tests

Test Item	Radiated Emissions (2022/11/03~2022/11/09)				
Test Site	Semi Anechoic Room(3M03-NK)				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Bilog Antenna	Sunol	JB1	A051717	2022/7/22	2023/7/21
Active Loop Antenna	EMCO	6507	40855	2022/5/25	2023/5/24
Double Ridged Guide Horn Antenna	RF SPAN	DRH18-E	210309A18-ES	2022/8/24	2023/8/23
Horn Antenna	EMCO	3116	31970	2022/3/18	2023/3/17
EMI Receiver	ROHDE & SCHWARZ	ESCI	100821	2022/7/5	2023/7/4
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 40	100219	2022/8/16	2023/8/15
Preamplifier	EM Electronics corp.	EM01G18G	60831	2022/6/30	2023/6/29
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2021/11/16	2022/11/15
Preamplifier	EM Electronics corp.	EM330	60644	2022/9/5	2023/9/4
Cable-6m(9k~300M)	NA	EMC5D-BM-BM-6	130606	2022/3/21	2023/3/20
Cable-10m(30M-1G)	HUBER SUHNER	RG-214	01126M	2022/4/22	2023/4/21
Cable-1.5m(30M-1G)	HUBER SUHNER	RG-214	00420M	2022/6/21	2023/6/20
Cable-1m(30M-1G)	HUBER SUHNER	RG-214	01099M	2022/4/22	2023/4/21
Cable-6m(1G-26.5G)	HUBER SUHNER	SUCOFLEX 102	28417/2	2022/3/17	2023/3/16
Cable-0.5m(1G-18G)	EMEC	EM104-SMSM-0.5M	CCE1354	2022/5/26	2023/5/25
Cable-3m(1G-18G)	EMEC	EM104-SMSM-3M	CCE1355	2022/5/26	2023/5/25
Cable-0.5m(1G-40G)	Rapidtek	40GHZ 50CM	38MS-38MS50314	2022/4/9	2023/4/8
Cable-3m(1G-40G)	Rapidtek	40GHZ 300CM	38MS-38MS300314	2022/4/9	2023/4/8
Cable-0.5m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	28420/2	2022/4/9	2023/4/8
Cable-3m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	MY2608/2	2022/4/9	2023/4/8
E3	AUDIX	v8.2014-8-6	RK-000529	NA	NA

Test Item	Radiated Emissions (2022/11/22)				
Test Site	Semi Anechoic Room(3M03-NK)				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Bilog Antenna	Sunol	JB1	A051717	2022/7/22	2023/7/21
Active Loop Antenna	EMCO	6507	40855	2022/5/25	2023/5/24
Double Ridged Guide Horn Antenna	RF SPAN	DRH18-E	210309A18-ES	2022/8/24	2023/8/23
Horn Antenna	EMCO	3116	31970	2022/3/18	2023/3/17
EMI Receiver	ROHDE & SCHWARZ	ESCI	100821	2022/7/5	2023/7/4
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 40	100219	2022/8/16	2023/8/15
Preamplifier	EM Electronics corp.	EM01G18G	60831	2022/6/30	2023/6/29
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2022/11/11	2023/11/10
Preamplifier	EM Electronics corp.	EM330	60644	2022/9/5	2023/9/4
Cable-6m(9k~300M)	NA	EMC5D-BM-BM-6	130606	2022/3/21	2023/3/20
Cable-10m(30M-1G)	HUBER SUHNER	RG-214	01126M	2022/4/22	2023/4/21
Cable-1.5m(30M-1G)	HUBER SUHNER	RG-214	00420M	2022/6/21	2023/6/20
Cable-1m(30M-1G)	HUBER SUHNER	RG-214	01099M	2022/4/22	2023/4/21
Cable-6m(1G-26.5G)	HUBER SUHNER	SUCOFLEX 102	28417/2	2022/3/17	2023/3/16
Cable-0.5m(1G-18G)	EMEC	EM104-SMSM-0.5M	CCE1354	2022/5/26	2023/5/25
Cable-3m(1G-18G)	EMEC	EM104-SMSM-3M	CCE1355	2022/5/26	2023/5/25
Cable-0.5m(1G-40G)	Rapidtek	40GHZ 50CM	38MS-38MS50314	2022/4/9	2023/4/8
Cable-3m(1G-40G)	Rapidtek	40GHZ 300CM	38MS-38MS300314	2022/4/9	2023/4/8
Cable-0.5m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	28420/2	2022/4/9	2023/4/8
Cable-3m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	MY2608/2	2022/4/9	2023/4/8
E3	AUDIX	v8.2014-8-6	RK-000529	NA	NA



Test Item	RF Conducted				
Test Site	RFCON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 40	100047	2022/03/04	2023/03/03
Attenuator	KEYSIGHT	8491B	MY39250703	2022/04/12	2023/04/11
Cable-0.5m(1G-26.5G)	HUBER SUHNER	SUCOFLEX 102	28422/2	2022/04/09	2023/04/08
Power Meter	Anritsu	ML2495A	1224005	2022/04/12	2023/04/11
Power Sensor	Anritsu	MA2411B	1207295	2022/04/12	2023/04/11
Switch Box	Theda	1-4	TW5451159	NA	NA

Test Item	AC Power Line Conducted Emission				
Test Site	CON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
EMI Receiver	ROHDE & SCHWARZ	ESCI	101200	2022/08/22	2023/08/21
Line Impedance Stabilization Network	Schwarzbeck	NSLK 8127	8127-740	2022/08/21	2023/08/20
Pulse Limiter	ROHDE & SCHWARZ	ESH3-Z2	101934	2022/03/21	2023/03/20
Cable-6m(9k~300M)	NA	EMC5D-BM-BM-6	130606	2022/03/21	2023/03/20
E3	AUDIX	v8.2014-8-6	RK-000531	NA	NA



4. Antenna Requirements

4.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.2 Antenna Construction and Directional Gain

Antenna Type	Dipole Antenna
Antenna 1	Brand: Tengxiang Model: AB0915-4602RS-1P5M Antenna Gain:0.61 dBi
Antenna 2	Brand: LYNwave Model: WSMK-163GN Antenna Gain:1.45 dBi



5. Frequency Hopping System Requirements

5.1 Frequency Hopping Requirement

According to FCC Part 15.247(a)(1), The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

(g) Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.

(h) The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.



5.2 EUT Hopping System

This transmitter device is frequency hopping device, and complies with FCC part 15.247 rule.

This device uses Bluetooth radio which operates in 2400-2483.5 MHz band. Bluetooth uses a radio technology called frequency-hopping spread spectrum, which chops up the data being sent and transmits chunks of it on up to 79 bands (1 MHz each; centred from 2402 to 2480 MHz) in the range 2,400-2,483.5 MHz. The transmitter switches hop frequencies 1,600 times per second to assure a high degree of data security. All Bluetooth devices participating in a given piconet are synchronized to the frequency-hopping channel for the piconet. The frequency hopping sequence is determined by the master's device address and the phase of the hopping sequence (the frequency to hop at a specific time) is determined by the master's internal clock. Therefore, all slaves in a piconet must know the master's device address and must synchronize their clocks with the master's clock.

Adaptive Frequency Hopping (AFH) was introduced in the Bluetooth specification to provide an effective way for a Bluetooth radio to counteract normal interference. AFH identifies "bad" channels, where either other wireless devices are interfering with the Bluetooth signal or the Bluetooth signal is interfering with another device. The AFH-enabled Bluetooth device will then communicate with other devices within its piconet to share details of any identified bad channels. The devices will then switch to alternative available "good" channels, away from the areas of interference, thus having no impact on the bandwidth used.

5.3 Pseudorandom Frequency Hopping Sequence

Pseudorandom Frequency Hopping Sequence Table as below:

Channel number:

31	56	62	41	69	39	24	10	77	51
27	25	24	49	40	61	29	69	28	11
27	42	65	51	58	68	8	22	48	15
28	42	29	15	20	4	66	35	64	63

etc.

The system receiver has input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.



6. Test of AC Power Line Conducted Emission

6.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz, according to the methods defined in ANSI C63.10-2013. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

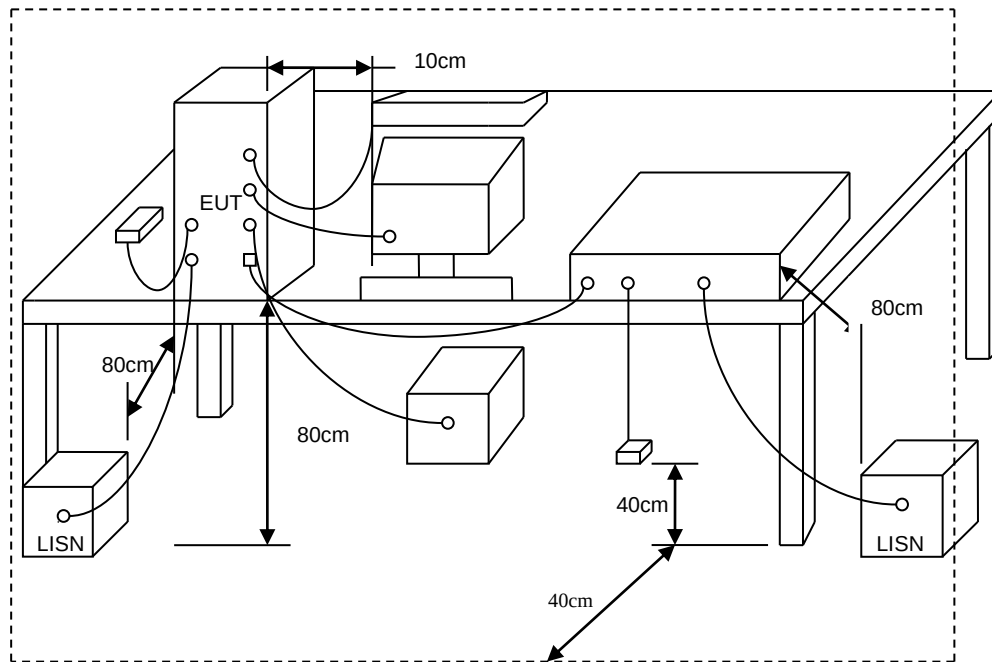
*Decreases with the logarithm of the frequency.

6.2 Test Procedures

- The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connecting to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



6.3 Typical Test Setup

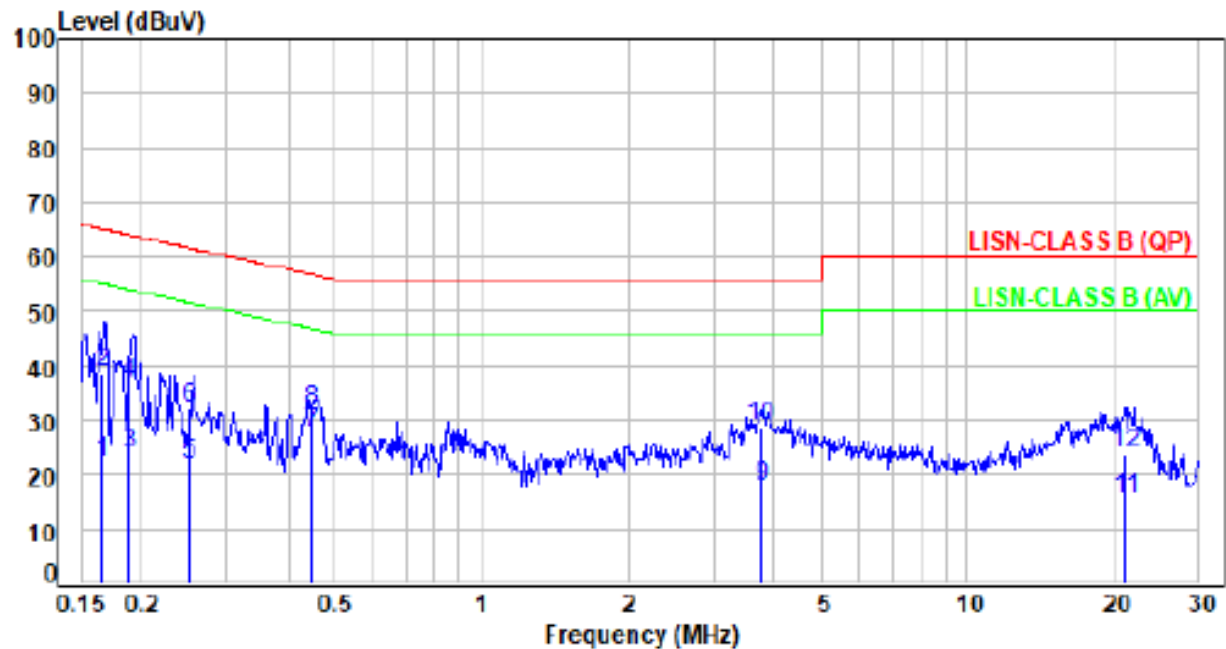




6.4 Test Result and Data

Lora 125K

Power	: AC 240V / 60Hz	Pol/Phase	: LINE
Test Mode	: Mode 1		



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.17	9.89	12.68	22.57	55.19	-32.62	Average	P
2	0.17	9.89	28.81	38.70	65.19	-26.49	QP	P
3	0.19	9.89	14.14	24.03	54.09	-30.06	Average	P
4	0.19	9.89	27.04	36.93	64.09	-27.16	QP	P
5	0.25	9.89	12.34	22.23	51.72	-29.49	Average	P
6	0.25	9.89	22.26	32.15	61.72	-29.57	QP	P
7	0.45	9.89	17.87	27.76	46.92	-19.16	Average	P
8	0.45	9.89	21.97	31.86	56.92	-25.06	QP	P
9	3.75	9.84	7.88	17.72	46.00	-28.28	Average	P
10	3.75	9.84	18.89	28.73	56.00	-27.27	QP	P
11	21.11	10.00	5.48	15.48	50.00	-34.52	Average	P
12	21.11	10.00	13.78	23.78	60.00	-36.22	QP	P

Note: Level=Reading+Factor

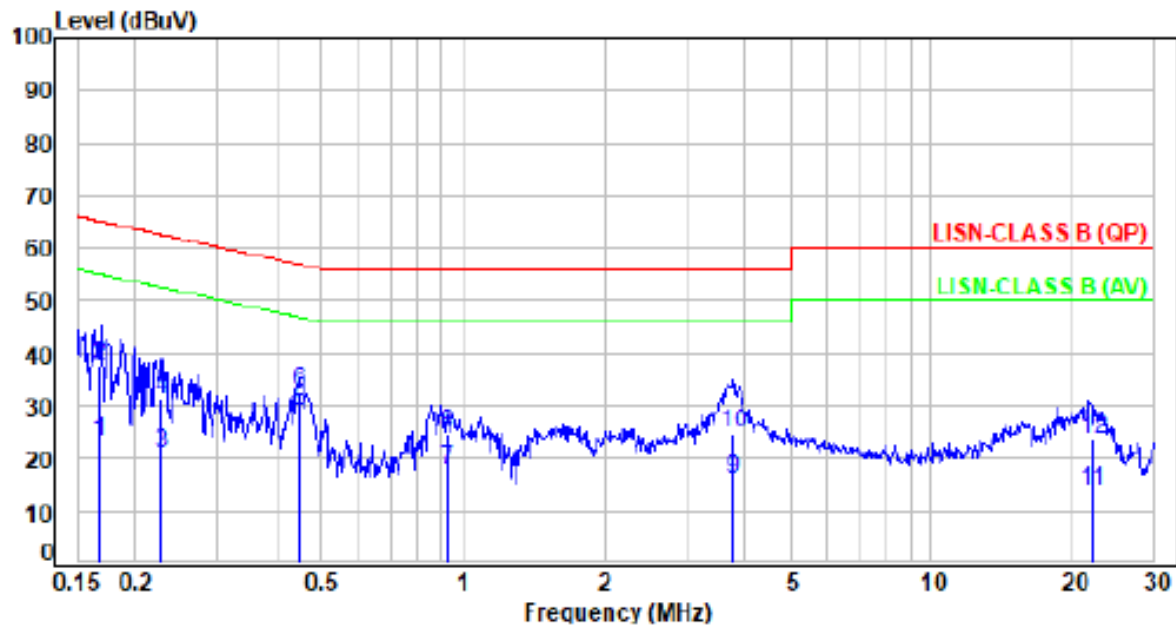
Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



Lora 125K

Power	:	AC 240V / 60Hz	Pol/Phase	:	NEUTRAL
Test Mode	:	Mode 1		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	P/F
1	0.17	9.90	13.45	23.35	55.10	-31.75	Average	P
2	0.17	9.90	27.76	37.66	65.10	-27.44	QP	P
3	0.23	9.90	10.85	20.75	52.52	-31.77	Average	P
4	0.23	9.90	21.09	30.99	62.52	-31.53	QP	P
5	0.45	9.89	18.95	28.84	46.94	-18.10	Average	P
6	0.45	9.89	23.00	32.89	56.94	-24.05	QP	P
7	0.93	9.88	8.17	18.05	46.00	-27.95	Average	P
8	0.93	9.88	14.70	24.58	56.00	-31.42	QP	P
9	3.76	9.84	6.07	15.91	46.00	-30.09	Average	P
10	3.76	9.84	14.71	24.55	56.00	-31.45	QP	P
11	22.10	10.01	3.63	13.64	50.00	-36.36	Average	P
12	22.10	10.01	13.39	23.40	60.00	-36.60	QP	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



7. Test of Radiated Spurious Emission

7.1 Test Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3



7.2 Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- i. "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

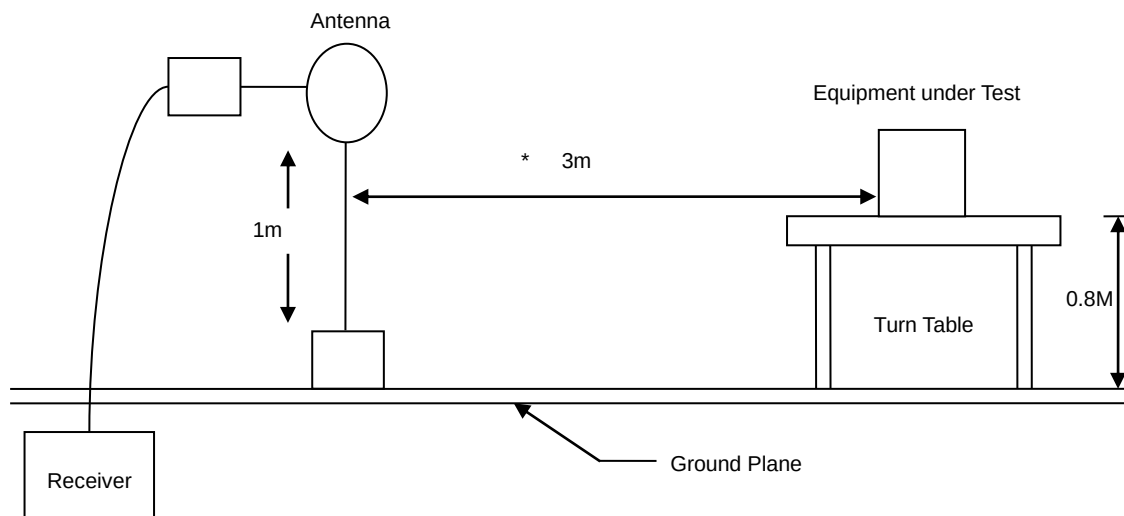
Note:

1. The supporting fixture shall permit orientation of the EUT in each of three orthogonal axis positions such that emissions from the EUT are maximized.

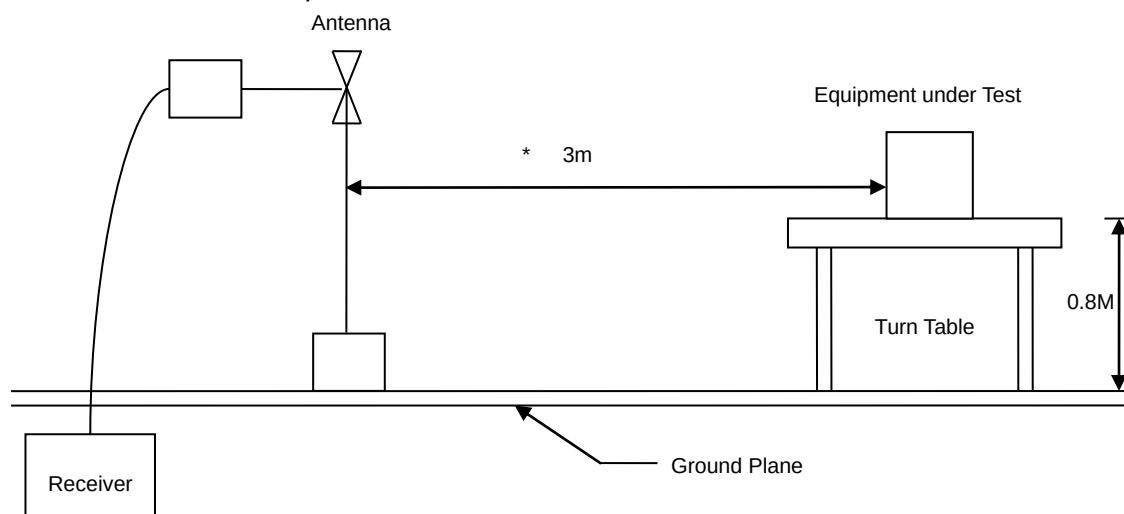


7.3 Typical Test Setup

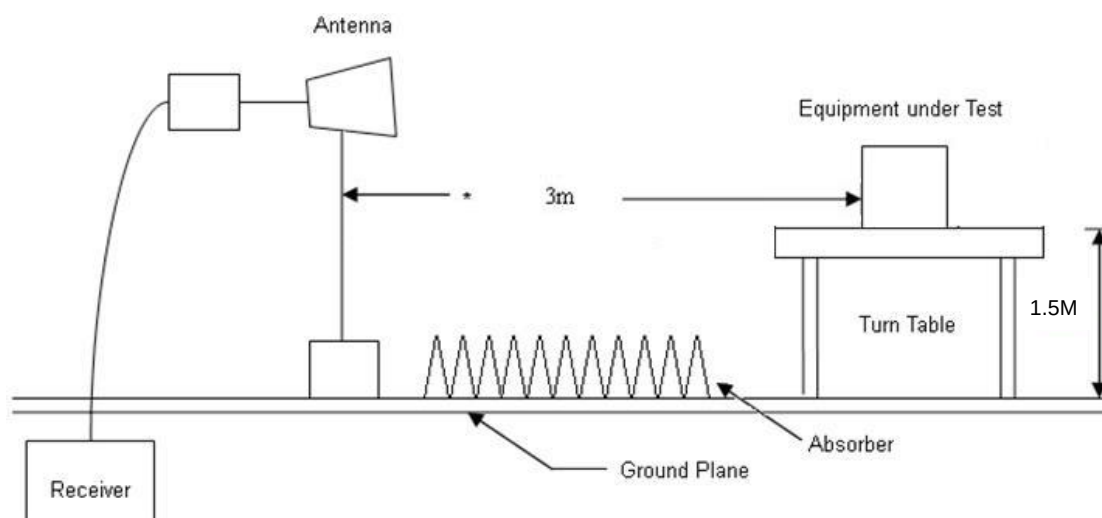
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup





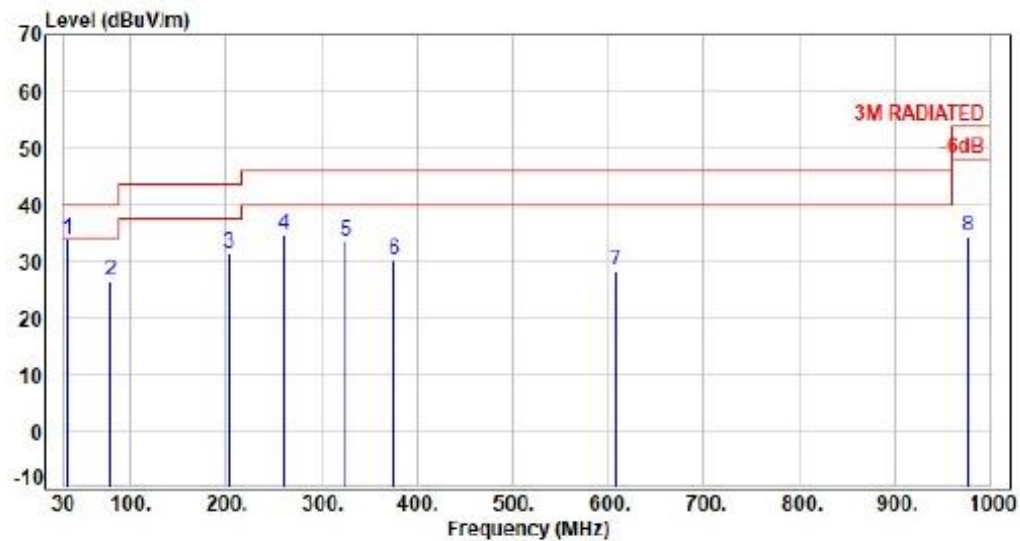
7.4 Test Result and Data (9kHz ~ 30MHz)

The 9kHz-30MHz spurious emission is under limit 20dB more.

7.5 Test Result and Data (30MHz ~ 1GHz)

Lora 125K

Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH00 902.3(MHz)		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	33.88	25.55	8.15	33.70	40.00	-6.30	Peak	400	0	P
2	79.47	14.76	11.82	26.58	40.00	-13.42	Peak	400	0	P
3	202.66	19.92	11.58	31.50	43.50	-12.00	Peak	400	0	P
4	250.86	20.62	14.22	34.84	46.00	-11.16	Peak	400	0	P
5	324.88	22.27	11.16	33.43	46.00	-12.57	Peak	400	0	P
6	375.29	23.68	6.53	30.21	46.00	-15.79	Peak	400	0	P
7	606.12	27.65	0.70	28.35	46.00	-17.65	Peak	400	0	P
8	976.72	33.11	1.20	34.31	54.00	-19.69	Peak	400	0	P

Note: Level=Reading+Factor

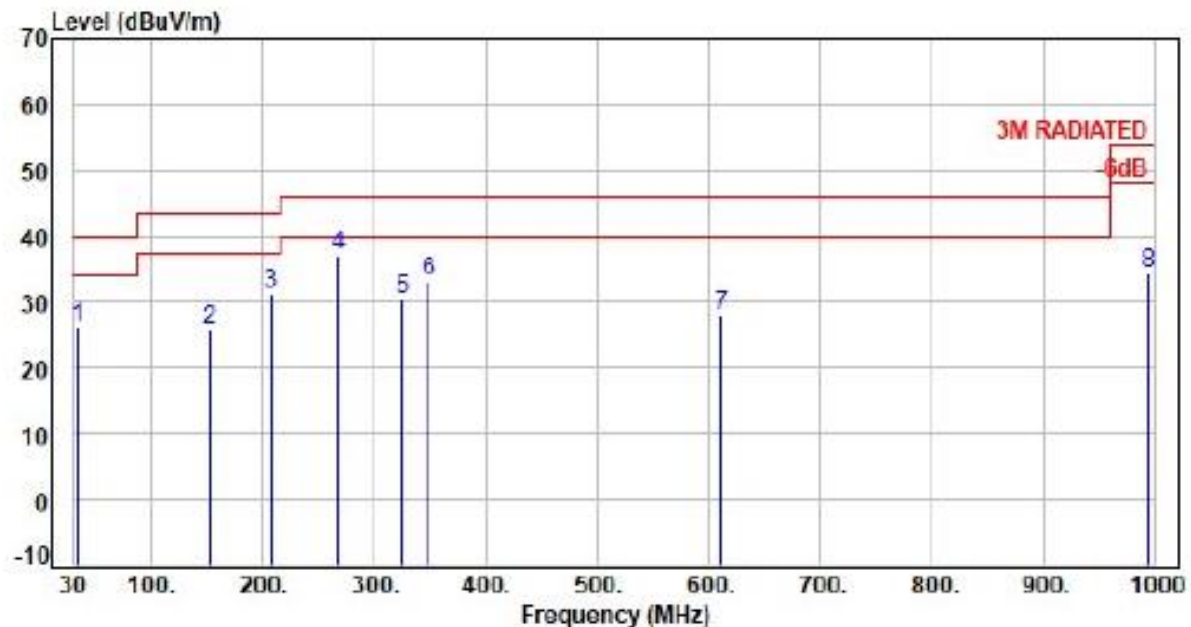
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Lora 125K

Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH00 902.3(MHz)		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	33.88	25.55	0.61	26.16	40.00	-13.84	Peak	400	0	P
2	152.22	20.02	5.81	25.83	43.50	-17.67	Peak	400	0	P
3	207.51	18.51	12.90	31.41	43.50	-12.09	Peak	400	0	P
4	267.65	21.02	16.17	37.19	46.00	-8.81	Peak	400	0	P
5	324.88	22.27	8.06	30.33	46.00	-15.67	Peak	400	0	P
6	348.16	22.77	10.51	33.28	46.00	-12.72	Peak	400	0	P
7	611.03	27.69	0.36	28.05	46.00	-17.95	Peak	400	0	P
8	994.18	33.43	1.01	34.44	54.00	-19.56	Peak	400	0	P

Note: Level=Reading+Factor

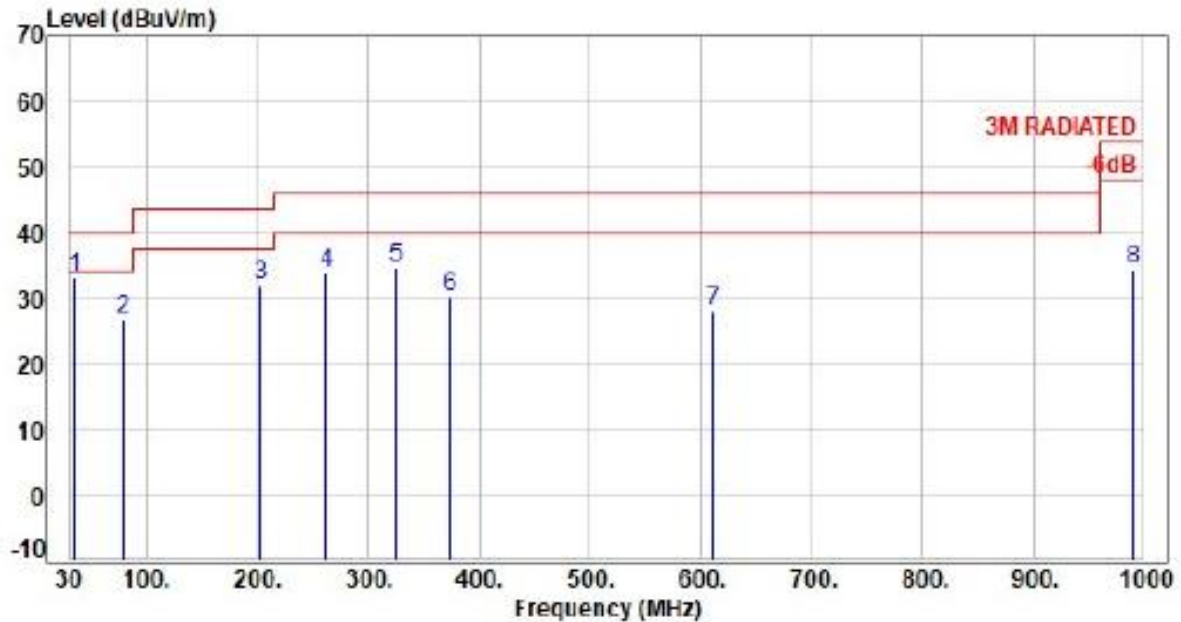
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Lora 125K

Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH63 914.9(MHz)		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	35.82	23.93	9.37	33.30	40.00	-6.70	Peak	400	360	P
2	79.47	14.76	11.99	26.75	40.00	-13.25	Peak	400	360	P
3	202.66	19.92	12.06	31.98	43.50	-11.52	Peak	400	360	P
4	261.83	20.71	13.09	33.80	46.00	-12.20	Peak	400	360	P
5	324.88	22.27	12.34	34.61	46.00	-11.39	Peak	400	360	P
6	374.35	23.70	6.49	30.19	46.00	-15.81	Peak	400	360	P
7	611.03	27.69	0.29	27.98	46.00	-18.02	Peak	400	360	P
8	991.27	33.37	0.93	34.30	54.00	-19.70	Peak	400	360	P

Note: Level=Reading+Factor

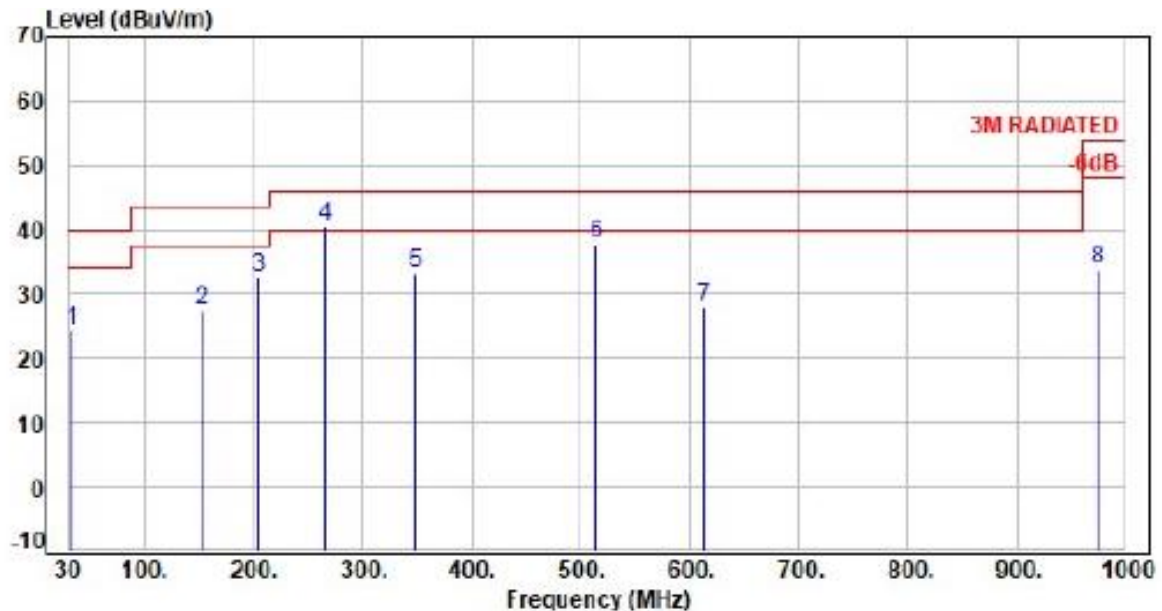
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Lora 125K

Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH63 914.9(MHz)		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	34.85	24.99	-0.75	24.24	40.00	-15.76	Peak	100	0	P
2	152.22	20.02	7.41	27.43	43.50	-16.07	Peak	100	0	P
3	204.60	18.95	13.71	32.66	43.50	-10.84	Peak	100	0	P
4	265.71	20.98	19.43	40.41	46.00	-5.59	Peak	100	0	P
5	348.16	22.77	10.30	33.07	46.00	-12.93	Peak	100	0	P
6	514.03	26.52	11.37	37.89	46.00	-8.11	Peak	100	0	P
7	612.97	27.78	0.19	27.97	46.00	-18.03	Peak	100	0	P
8	974.78	33.10	0.71	33.81	54.00	-20.19	Peak	100	0	P

Note: Level=Reading+Factor

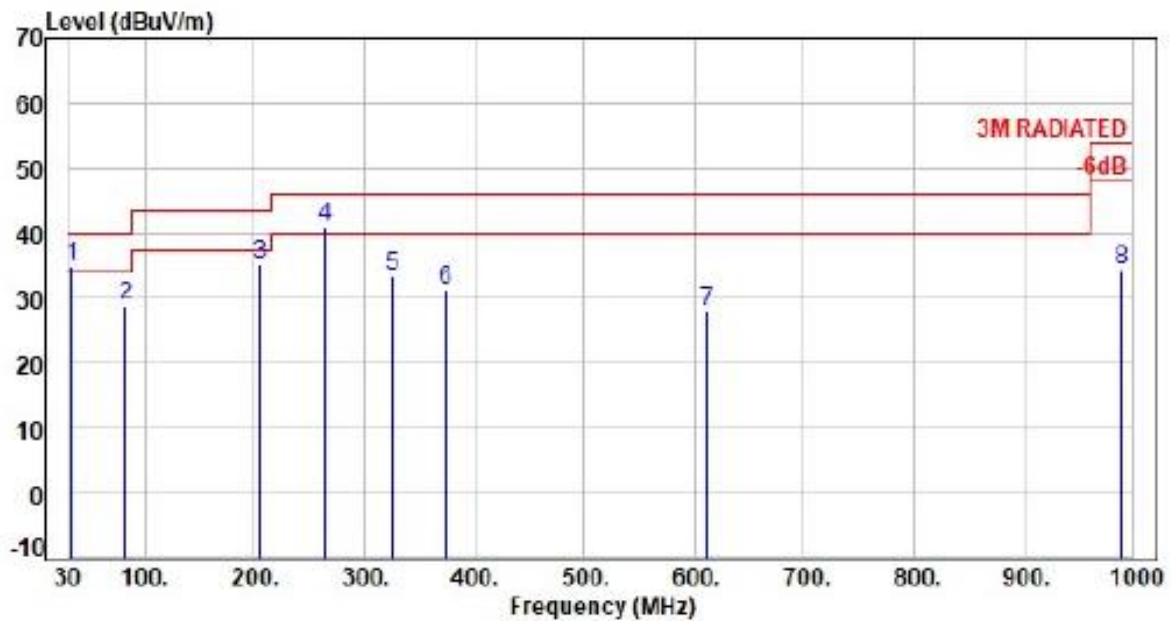
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Lora 125K

Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH127 927.8(MHz)		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	33.88	25.55	9.55	35.10	40.00	-4.90	Peak	400	0	P
2	83.35	14.33	14.74	29.07	40.00	-10.93	Peak	400	0	P
3	204.60	18.95	16.22	35.17	43.50	-8.33	Peak	400	0	P
4	264.74	20.94	20.12	41.06	46.00	-4.94	Peak	400	0	P
5	324.88	22.27	11.13	33.40	46.00	-12.60	Peak	400	0	P
6	374.35	23.70	7.70	31.40	46.00	-14.60	Peak	400	0	P
7	612.00	27.74	0.40	28.14	46.00	-17.86	Peak	400	0	P
8	988.36	33.27	1.16	34.43	54.00	-19.57	Peak	400	0	P

Note: Level=Reading+Factor

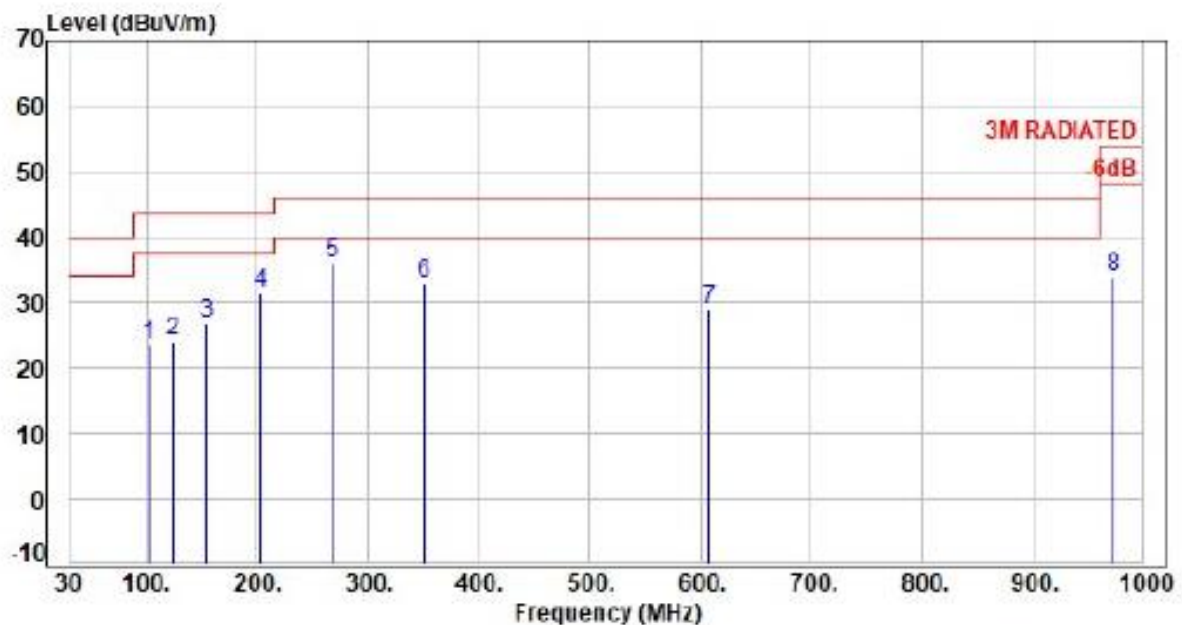
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Lora 125K

Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH127 927.8(MHz)		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	101.78	17.61	5.87	23.48	43.50	-20.02	Peak	400	360	P
2	124.09	21.06	3.06	24.12	43.50	-19.38	Peak	400	360	P
3	154.16	19.88	6.86	26.74	43.50	-16.76	Peak	400	360	P
4	202.66	19.92	11.48	31.40	43.50	-12.10	Peak	400	360	P
5	268.62	21.05	14.76	35.81	46.00	-10.19	Peak	400	360	P
6	350.10	22.86	10.09	32.95	46.00	-13.05	Peak	400	360	P
7	608.12	27.65	1.43	29.08	46.00	-16.92	Peak	400	360	P
8	971.87	32.97	0.92	33.89	54.00	-20.11	Peak	400	360	P

Note: Level=Reading+Factor

Margin=Level-Limit

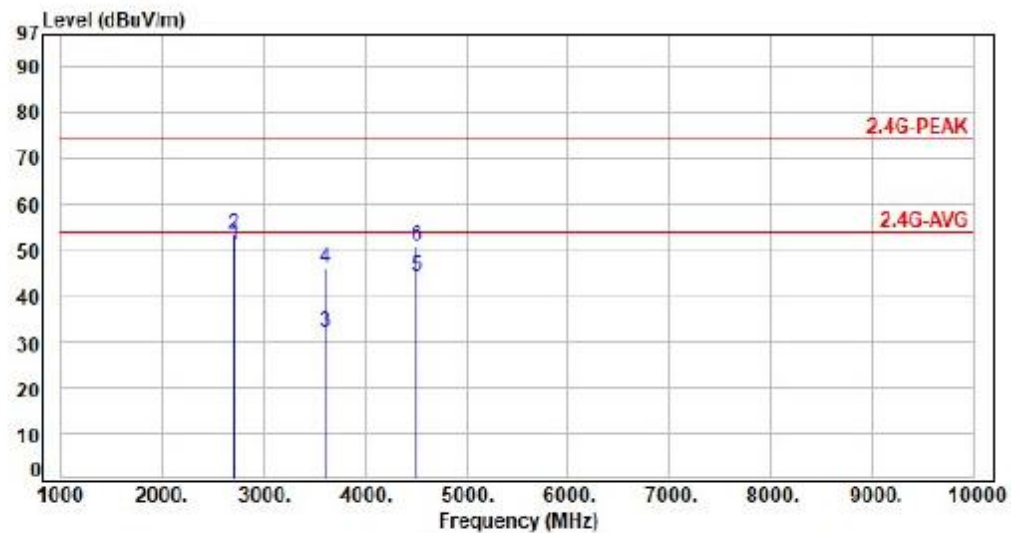
Factor=Antenna Factor + cable loss - Amplifier Factor



7.6 Test Result and Data (1GHz ~ 10GHz)

Lora 125K

Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH00 902.3(MHz)		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2706.90	-10.39	61.65	51.26	54.00	-2.74	Average	294	332	P
2	2706.90	-10.39	63.95	53.56	74.00	-20.44	Peak	294	332	P
3	3609.20	-6.26	38.46	32.20	54.00	-21.80	Average	100	116	P
4	3609.20	-6.26	52.23	45.97	74.00	-28.03	Peak	100	116	P
5	4511.50	-4.34	48.78	44.44	54.00	-9.56	Average	112	142	P
6	4511.50	-4.34	55.41	51.07	74.00	-22.93	Peak	112	142	P

Note: Level=Reading+Factor

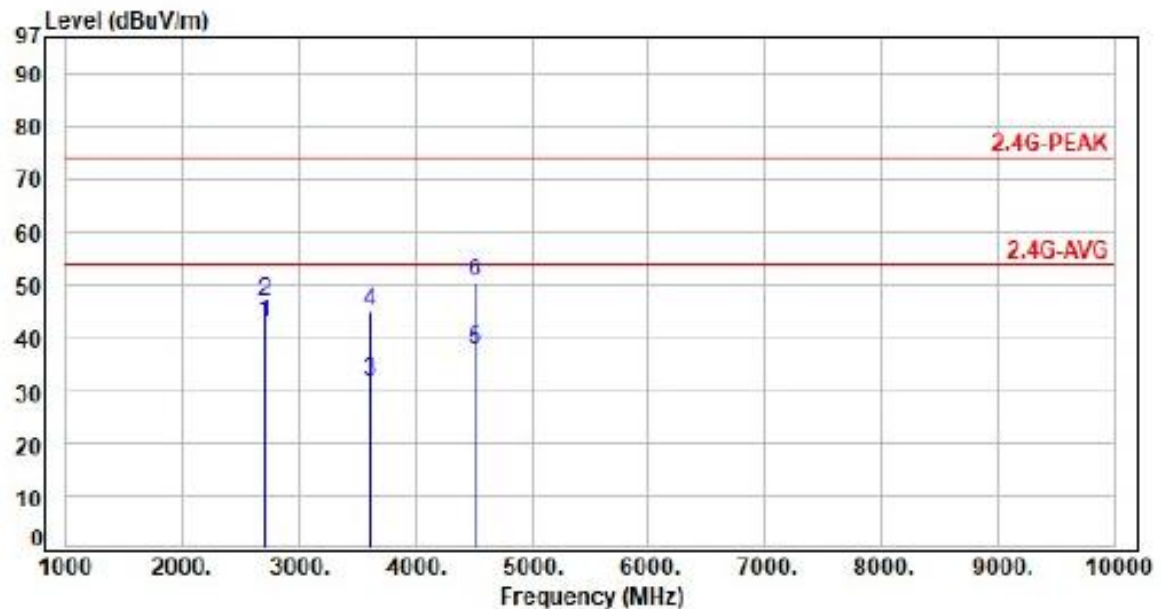
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Lora 125K

Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH00 902.3(MHz)		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2706.90	-10.39	53.27	42.88	54.00	-11.12	Average	118	144	P
2	2706.90	-10.39	57.14	46.75	74.00	-27.25	Peak	118	144	P
3	3609.20	-6.26	38.15	31.89	54.00	-22.11	Average	100	303	P
4	3609.20	-6.26	51.43	45.17	74.00	-28.83	Peak	100	303	P
5	4511.50	-4.34	41.87	37.53	54.00	-16.47	Average	192	178	P
6	4511.50	-4.34	54.78	50.44	74.00	-23.56	Peak	192	178	P

Note: Level=Reading+Factor

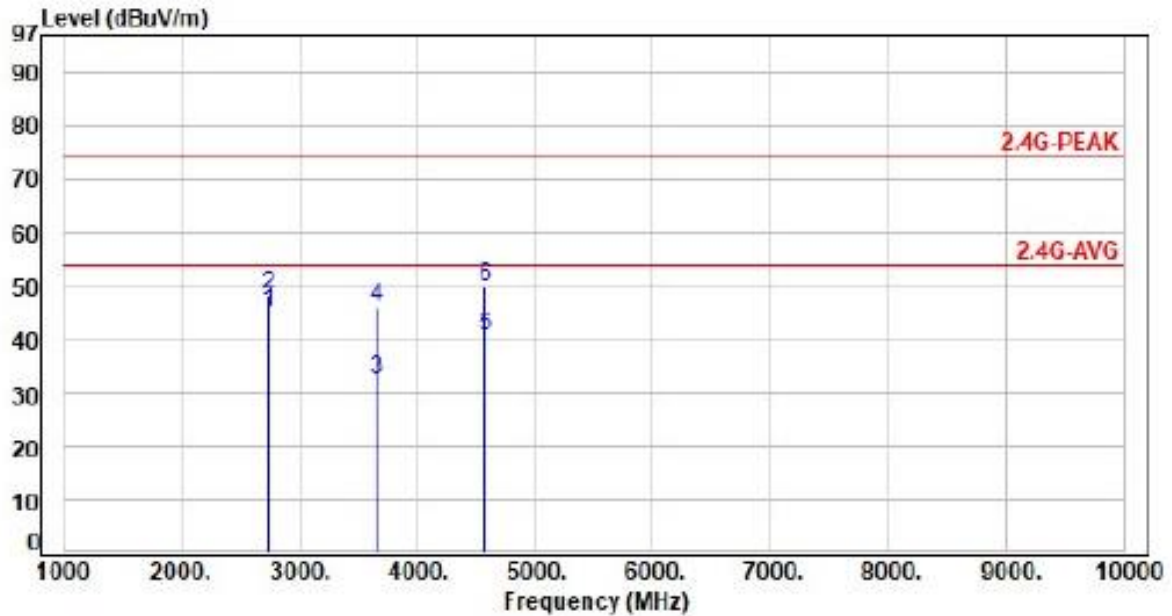
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Lora 125K

Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH63 914.9(MHz)		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2744.70	-10.26	55.19	44.93	54.00	-9.07	Average	248	331	P
2	2744.70	-10.26	58.61	48.35	74.00	-25.65	Peak	248	331	P
3	3659.60	-5.84	38.41	32.57	54.00	-21.43	Average	100	114	P
4	3659.60	-5.84	51.81	45.97	74.00	-28.03	Peak	100	114	P
5	4574.50	-4.07	44.75	40.68	54.00	-13.32	Average	100	141	P
6	4574.50	-4.07	54.04	49.97	74.00	-24.03	Peak	100	141	P

Note: Level=Reading+Factor

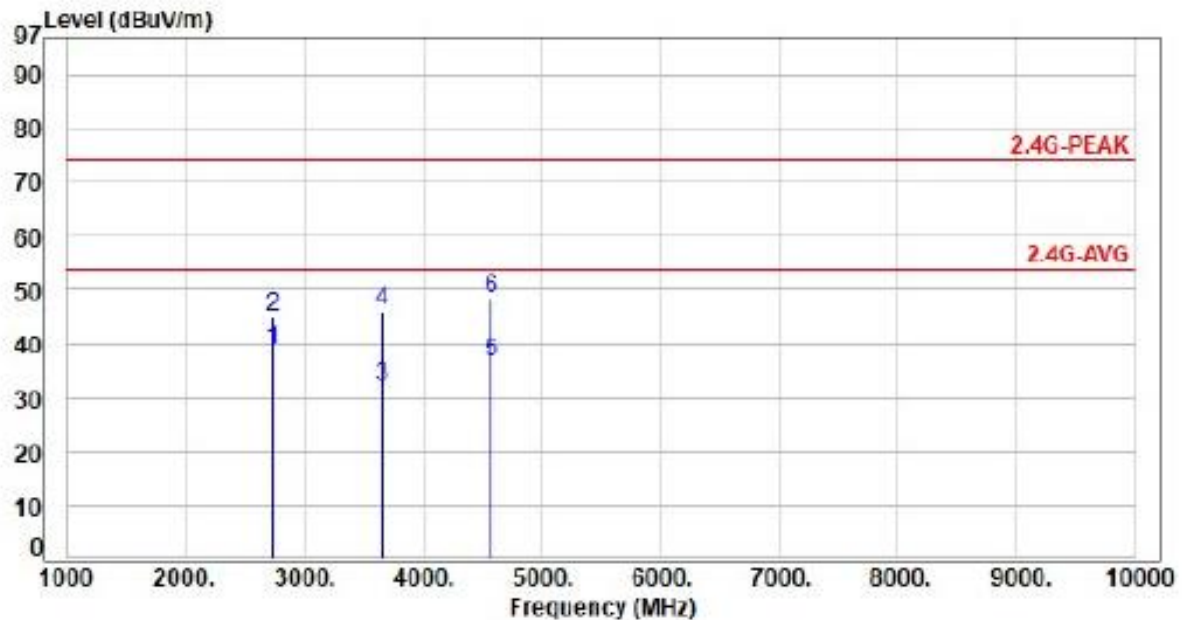
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Lora 125K

Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH63 914.9(MHz)		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2744.70	-10.26	48.83	38.57	54.00	-15.43	Average	100	145	P
2	2744.70	-10.26	55.11	44.85	74.00	-29.15	Peak	100	145	P
3	3659.60	-5.84	38.07	32.23	54.00	-21.77	Average	100	302	P
4	3659.60	-5.84	51.85	46.01	74.00	-27.99	Peak	100	302	P
5	4574.50	-4.07	40.66	36.59	54.00	-17.41	Average	194	180	P
6	4574.50	-4.07	52.28	48.21	74.00	-25.79	Peak	194	180	P

Note: Level=Reading+Factor

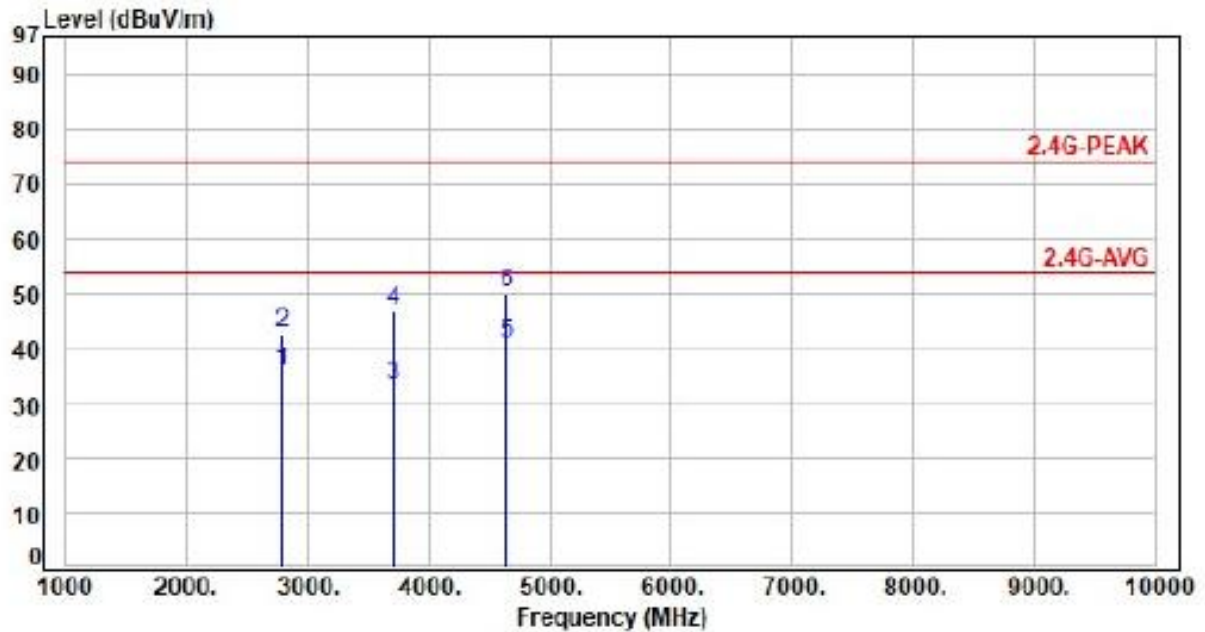
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Lora 125K

Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH127 927.8(MHz)		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2783.40	-10.12	45.83	35.71	54.00	-18.29	Average	219	135	P
2	2783.40	-10.12	52.81	42.69	74.00	-31.31	Peak	219	135	P
3	3711.20	-5.30	38.59	33.29	54.00	-20.71	Average	100	118	P
4	3711.20	-5.30	52.26	46.96	74.00	-27.04	Peak	100	118	P
5	4639.00	-3.71	44.48	40.77	54.00	-13.23	Average	100	145	P
6	4639.00	-3.71	53.89	50.18	74.00	-23.82	Peak	100	145	P

Note: Level=Reading+Factor

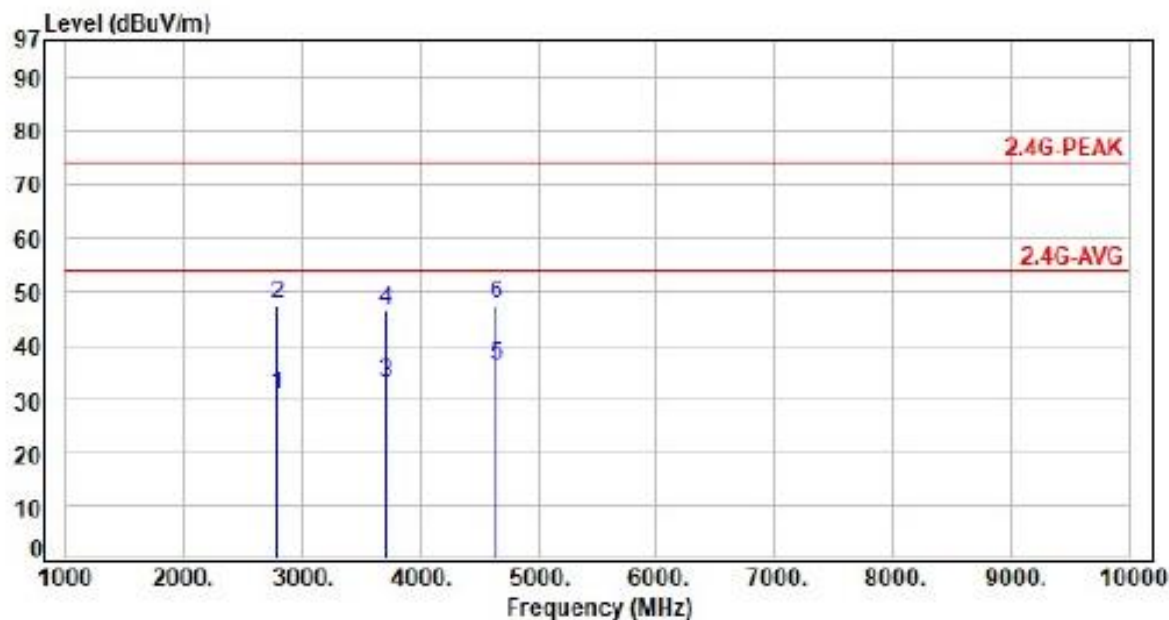
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Lora 125K

Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH127 927.8(MHz)		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2783.40	-10.12	40.71	30.59	54.00	-23.41	Average	107	148	P
2	2783.40	-10.12	57.69	47.57	74.00	-26.43	Peak	107	148	P
3	3711.20	-5.30	38.21	32.91	54.00	-21.09	Average	100	305	P
4	3711.20	-5.30	51.74	46.44	74.00	-27.56	Peak	100	305	P
5	4639.00	-3.71	40.00	36.29	54.00	-17.71	Average	216	181	P
6	4639.00	-3.71	51.44	47.73	74.00	-26.27	Peak	216	181	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



7.7 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.250
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz



8. On Time, Duty Cycle and Measurement methods

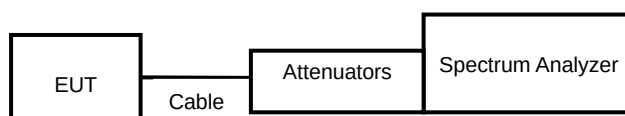
8.1 Test Limit

None; for reporting purposes only.

8.2 Test Procedure

According to the methods defined in ANSI C63.10-2013 Section 11.6
Zero-Span Spectrum Analyzer Method.

8.3 Test Setup Layout

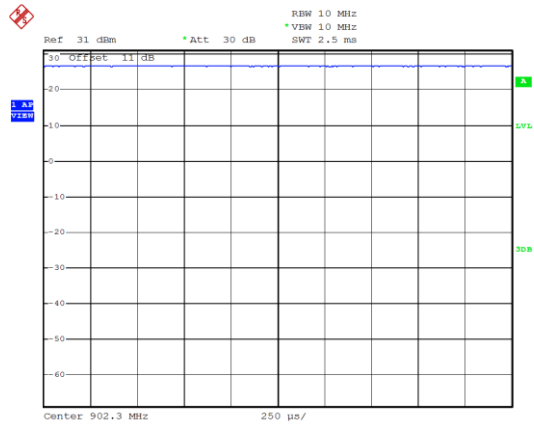


8.4 Test Result and Data

Modulation Mode	On Time (ms)	Period Time (ms)	Duty Cycle (%)
125 KHz	100.00	100.00	100.00%



Modulation Type: Lora 125K





9. Test of Conducted Spurious Emission

9.1 Test Limit

According to the methods defined in ANSI C63.10-2013 Section 7.8.8

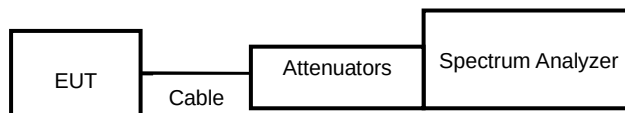
Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

9.2 Test Procedure

According to the methods defined in ANSI C63.10-2013

- The transmitter output was connected to the spectrum analyzer via a low loss cable.
- Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
- The band edges was measured and recorded.

9.3 Test Setup Layout

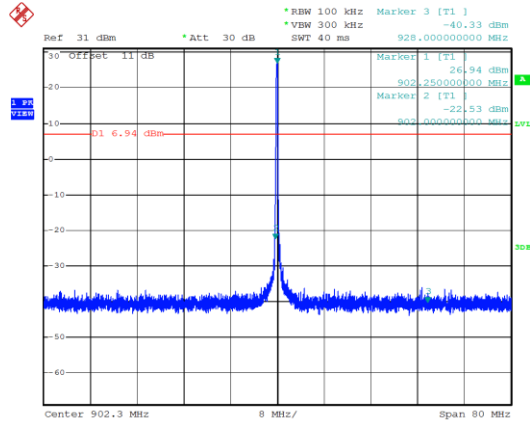


9.4 Test Result and Data

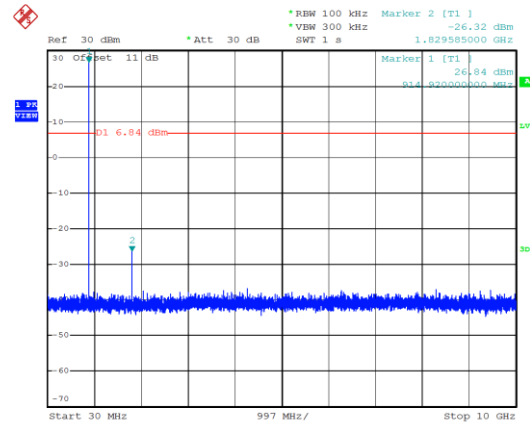
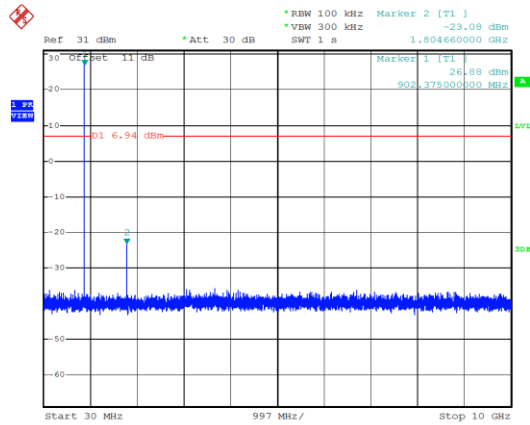
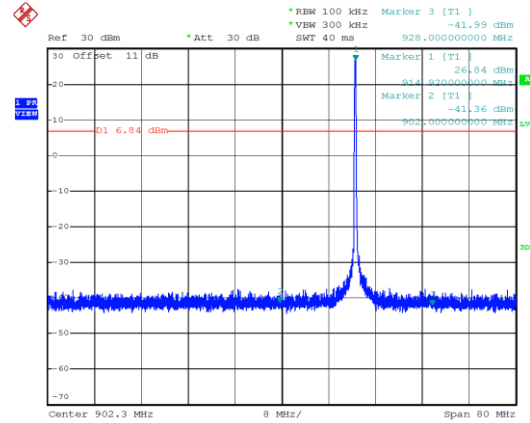
Note: Test plots refer to the following pages.



Modulation Type: Lora 125K
CH00

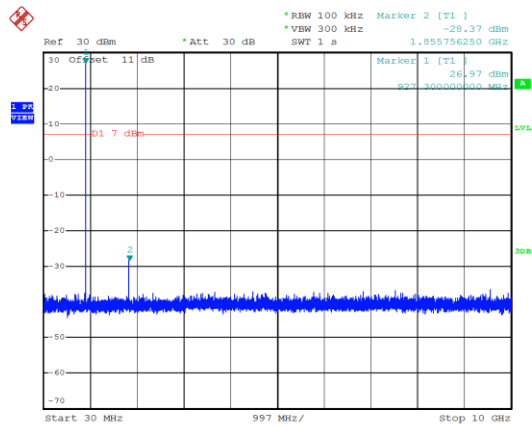
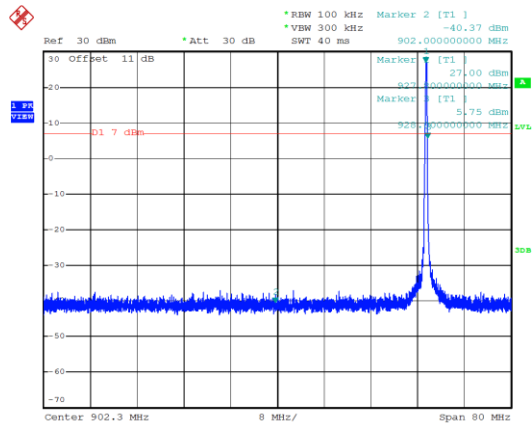


Modulation Type: Lora 125K
CH63



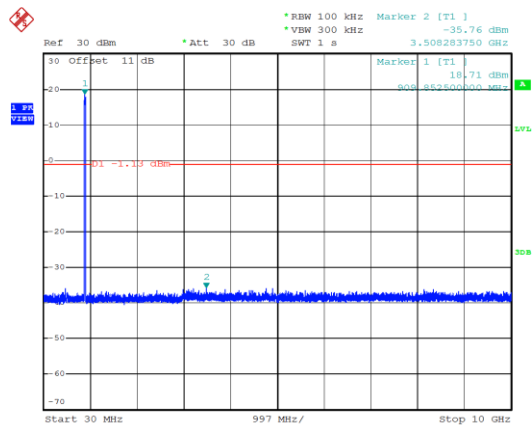
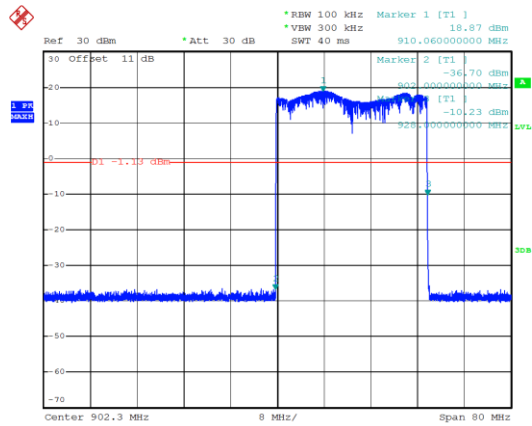


Modulation Type: Lora 125K
CH127





Hopping
Modulation Type: Lora 125K





10. 20dB Bandwidth Measurement Data

10.1 Test Limit

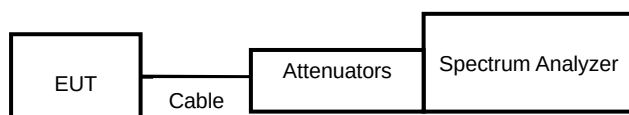
The maximum allowed 20 dB bandwidth of the hopping channel is 250 kHz..

10.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 6.9

- The transmitter output was connected to the spectrum analyzer.
- Set RBW of spectrum analyzer to 10 KHz and VBW to 30 KHz.
- The 20 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20 dB.

10.3 Test Setup Layout

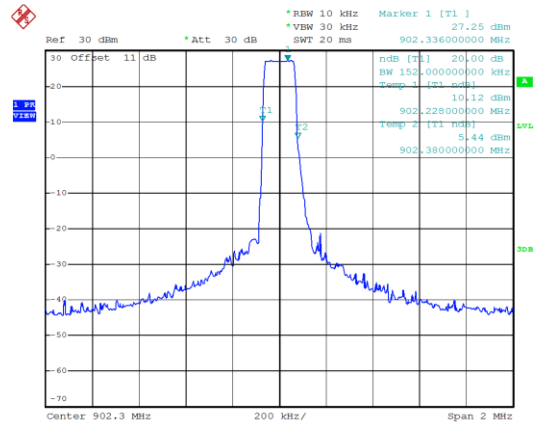


10.4 Test Result and Data

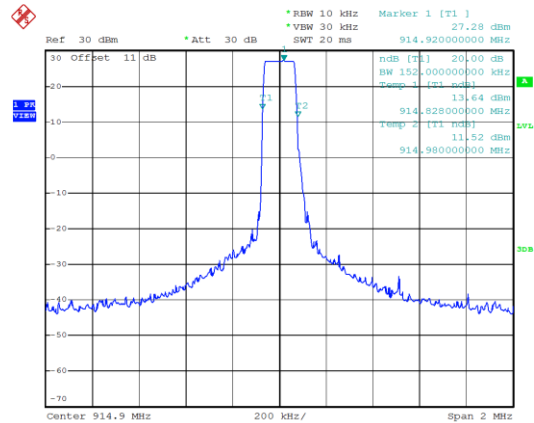
Modulation Type	Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)
125 KHz	0	902.3	152.000
	63	914.9	152.000
	127	927.8	156.000



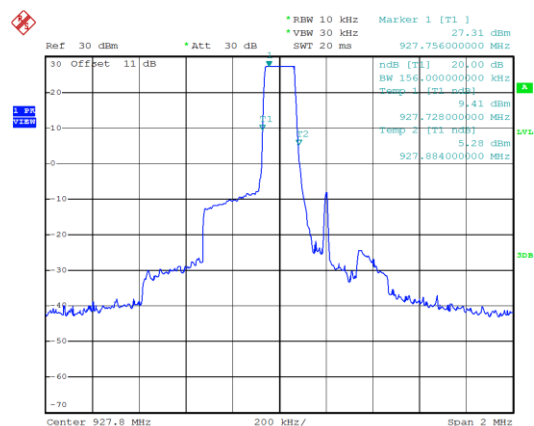
Modulation Type: 125K
CH00



CH63



CH127





11. Carrier Frequency Separation

11.1 Test Limit

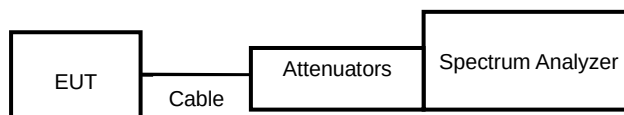
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

11.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 7.8.2

- The transmitter output was connected to the spectrum analyzer.
- Set RBW of spectrum analyzer to 30 KHz and VBW to 100 KHz.
- By using the MaxHold function record the separation of two adjacent channels.
- Measure the frequency difference of these two adjacent channels.

11.3 Test Setup Layout

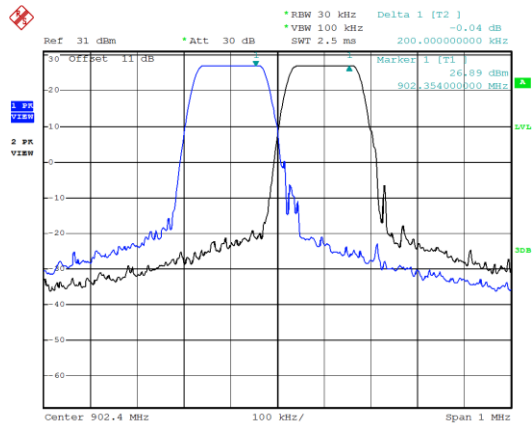


11.4 Test Result and Data

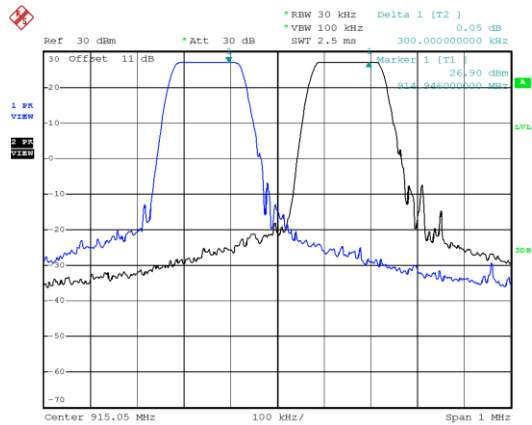
Modulation Type	Channel	Channel Frequency (MHz)	Channel Separation (kHz)	Limit (kHz)
125 KHz	0	902.3	200.00	152
	63	914.9	300.00	152
	127	927.8	200.00	156



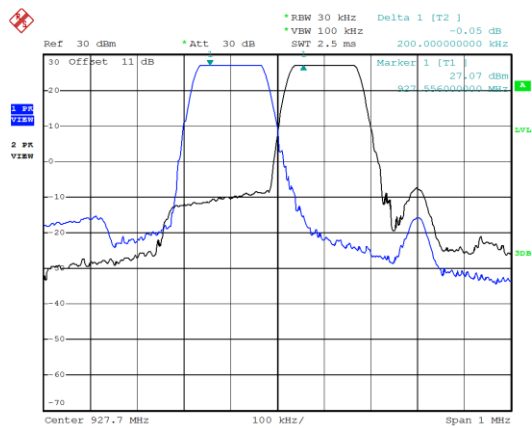
Modulation Type: 125K
CH01



CH63



CH127





12. Dwell Time on each channel

12.1 Test Limit

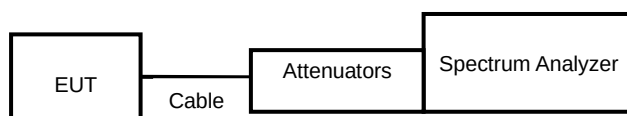
For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

12.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 7.8.4

1. The transmitter output was connected to the spectrum analyzer.
2. Adjust the center frequency to measure frequency, then set zero span mode.
3. Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz.
4. Measure the time duration of one transmission on the measured frequency.

12.3 Test Setup Layout



12.4 Test Result and Data

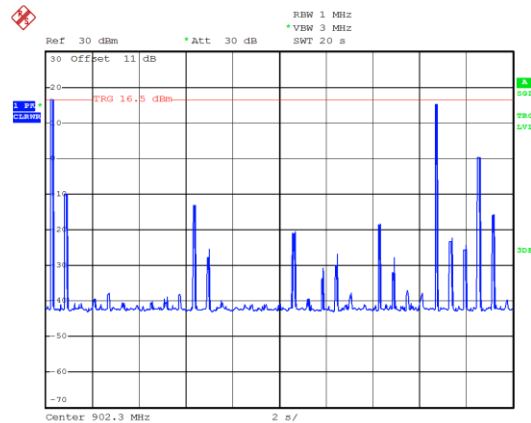
Lora 125K

Channel	Channel Frequency (MHz)	Length of transmission time (ms)	Number of transmission in a 20 sec	Dwell Time (ms)	Limit (ms)
0	902.3	103.440	1.00	103.44	400
63	914.9	103.440	1.00	103.44	400
127	927.8	103.440	1.00	103.44	400

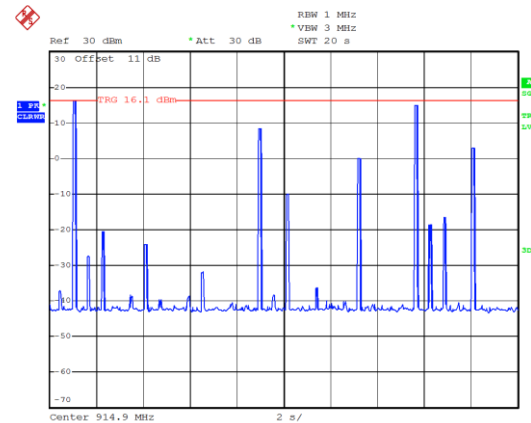
Note: When frequency hops, each channel will be used one time before the next cycle starts.



Modulation Type: 125K
CH00

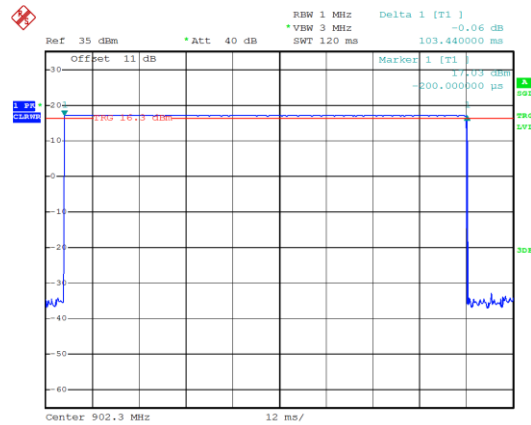


CH63

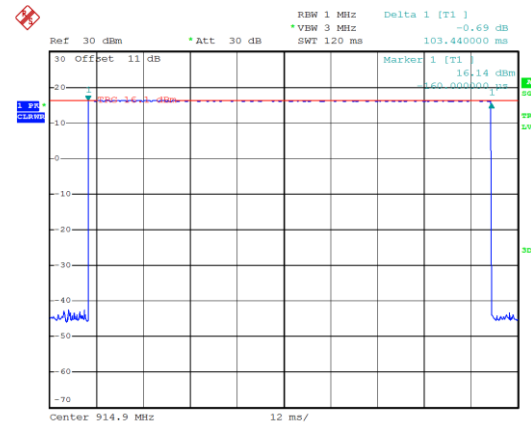


1

CH00

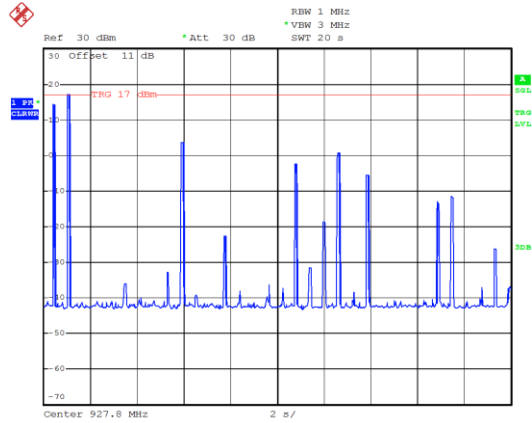


CH63

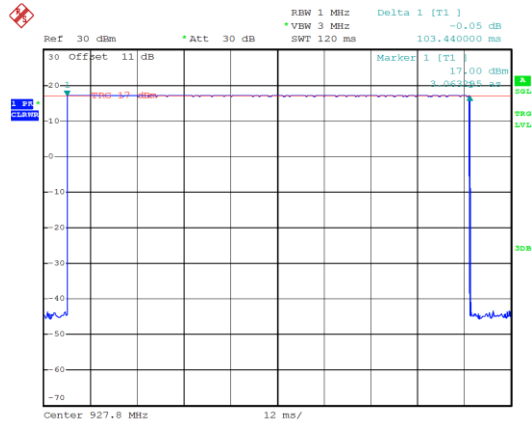




Modulation Type: 125K
CH127



CH127





13. Number of Hopping Channels

13.1 Test Limit

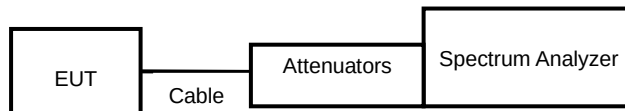
Frequency hopping systems in the 902 ~ 928MHz band shall use at least 50 channels.

13.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 7.8.3

- a. The transmitter output was connected to the spectrum analyzer.
- b. 2. Set RBW of spectrum analyzer to 30 KHz and VBW to 100 KHz.
- c. 3. Set the MaxHold function, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been record.

13.3 Test Setup Layout

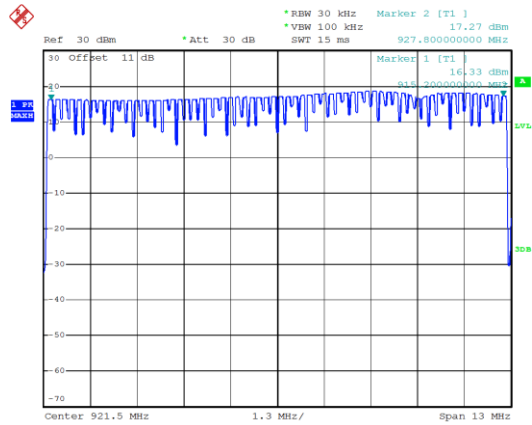
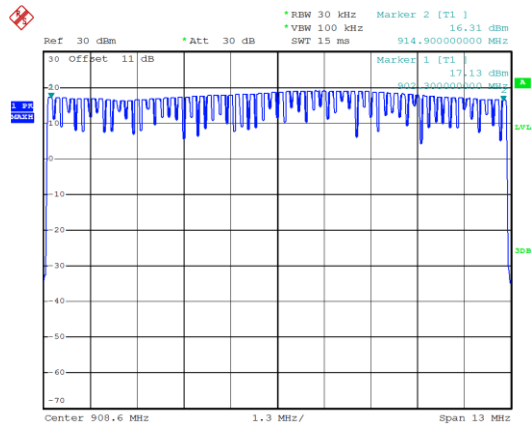


13.4 Test Result and Data

Modulation Type	Hopping Channels
125kHz	128



Modulation Type: 125K





14. Maximum Peak Output Power

14.1 Test Limit

The Maximum Peak Output Power Measurement is 30dBm.

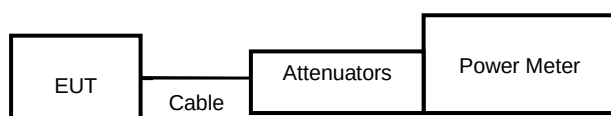
14.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 7.8.5

The antenna port(RF output)of the EUT was connected to the input(RF input)of a power meter.

Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

14.3 Test Setup Layout



14.4 Test Result and Data

Lora 125K

Modulation Type	Channel	Channel Frequency (MHz)	PK Output Power (dBm)	PK Output Power (mW)
125kHz	0	902.3	27.65	582.103
	63	914.9	27.63	579.429
	127	927.8	27.70	588.844

Modulation Type	Channel	Channel Frequency (MHz)	AV Output Power (dBm)	AV Output Power (mW)
125kHz	0	902.3	27.61	576.766
	63	914.9	27.58	572.796
	127	927.8	27.66	583.445

*Note: Average power is for reference only.