

3.7 Conducted Spurious Emission Measurement

3.7.1 Limit of Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

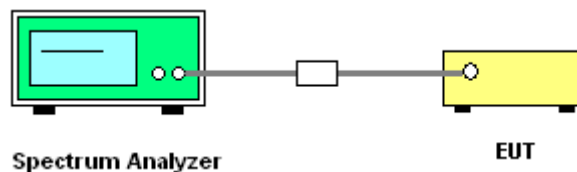
3.7.2 Measuring Instruments

See list of measuring equipment of this test report.

3.7.3 Test Procedure

1. The testing follows ANSI C63.10-2013 clause 7.8.8.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW = 300kHz, scan up through 10th harmonic. All harmonics / spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.7.4 Test Setup



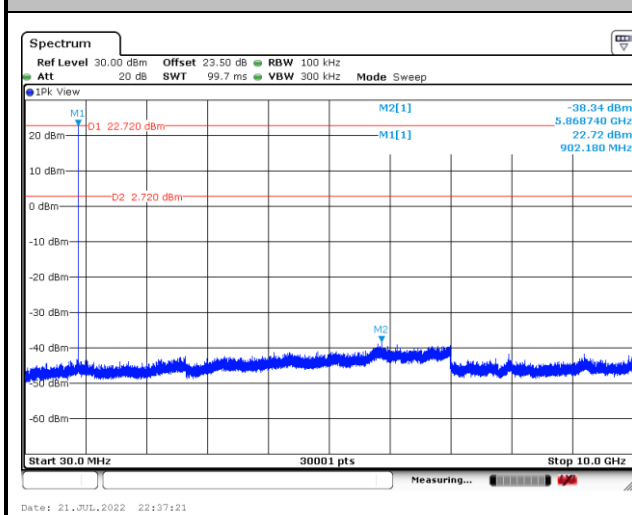


3.7.5 Test Result of Conducted Spurious Emission

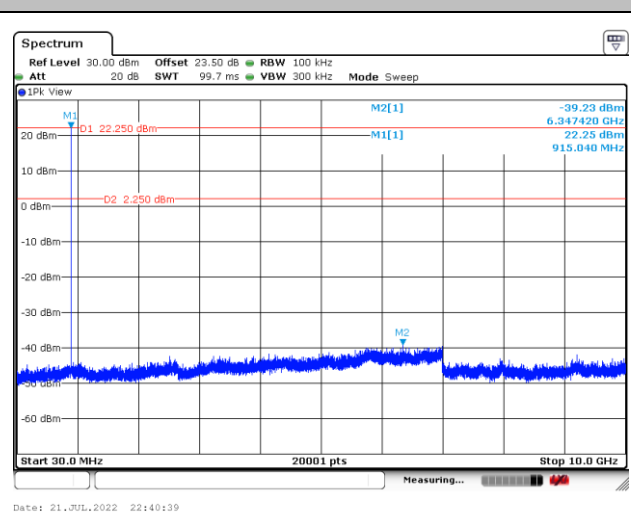
<LoRa 125KHz FHSS>

<Data Rate: SF7>

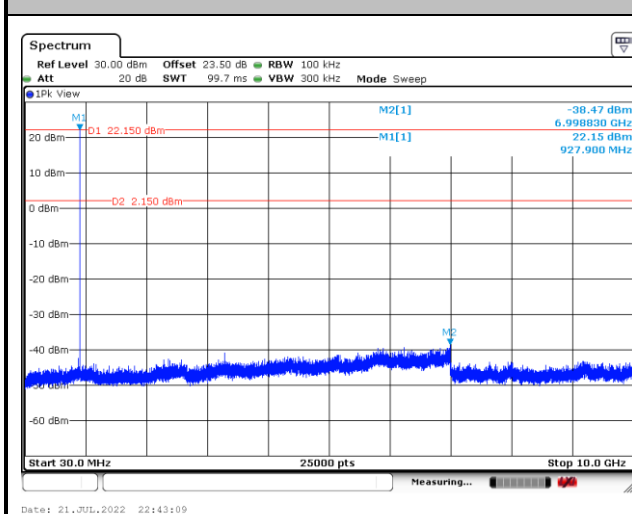
CSE Plot on Ch 01 between 30MHz ~ 10 GHz



CSE Plot on Ch 65 between 30MHz ~ 10 GHz



CSE Plot on Ch 129 between 30MHz ~ 10 GHz

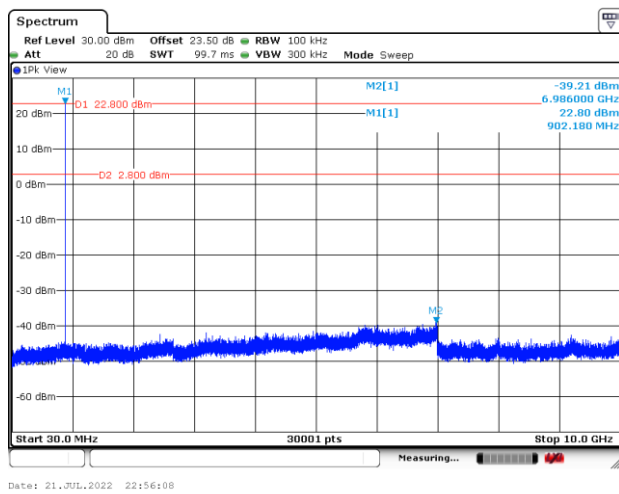


N/A

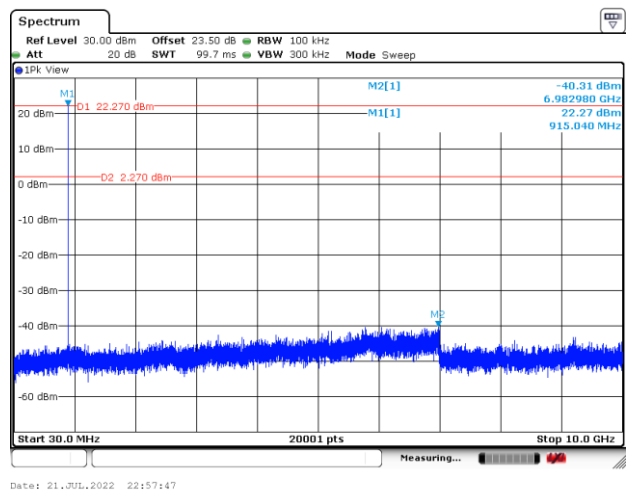


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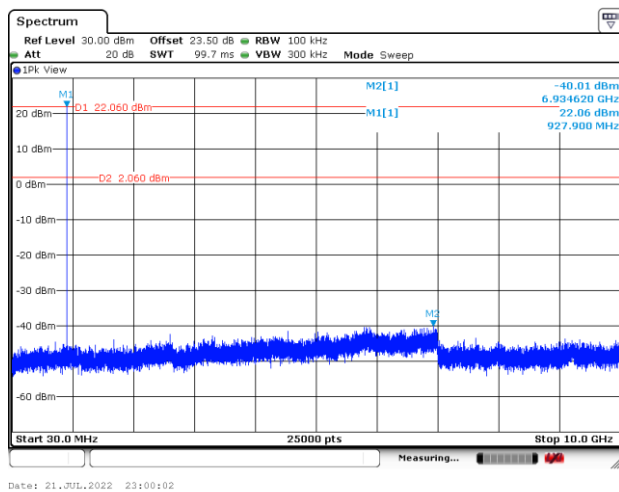
CSE Plot on Ch 01 between 30MHz ~ 10 GHz



CSE Plot on Ch 65 between 30MHz ~ 10 GHz



CSE Plot on Ch 129 between 30MHz ~ 10 GHz

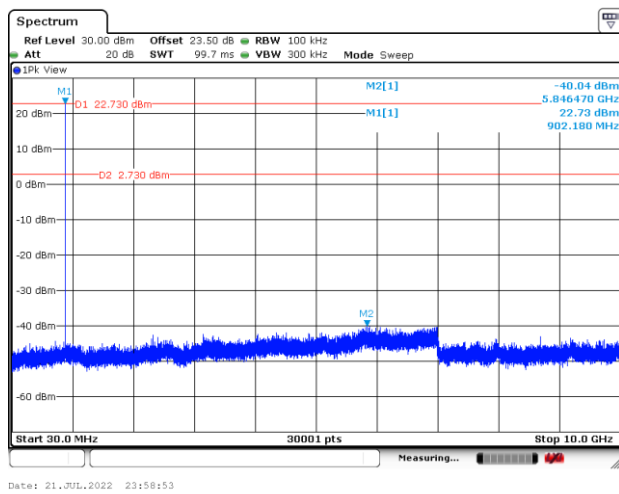


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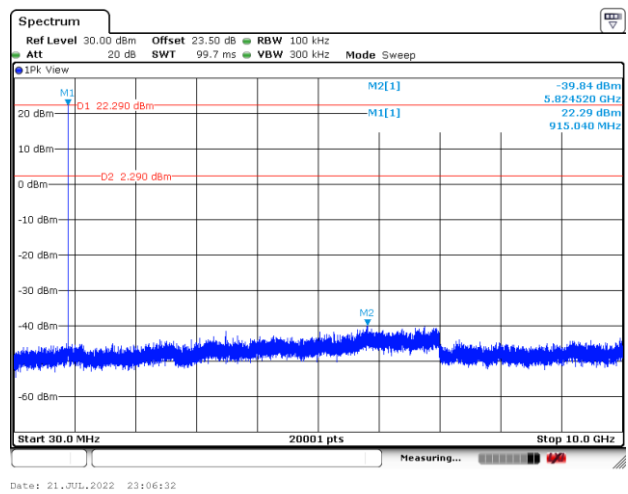


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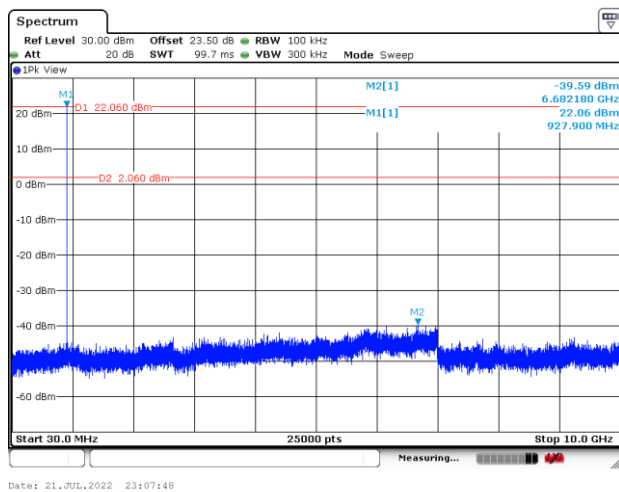
CSE Plot on Ch 01 between 30MHz ~ 10 GHz



CSE Plot on Ch 65 between 30MHz ~ 10 GHz



CSE Plot on Ch 129 between 30MHz ~ 10 GHz

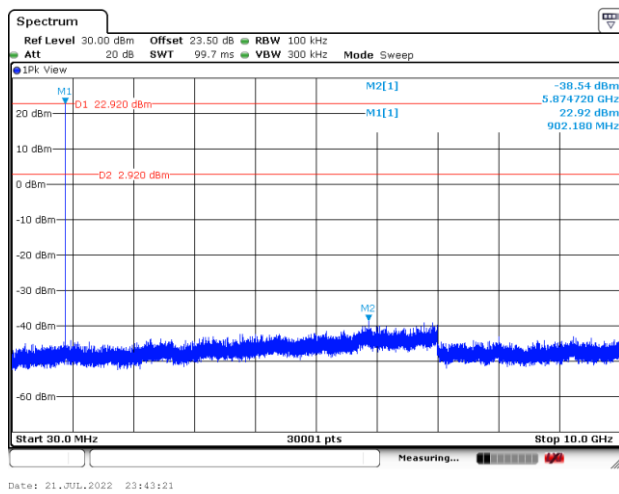


N/A

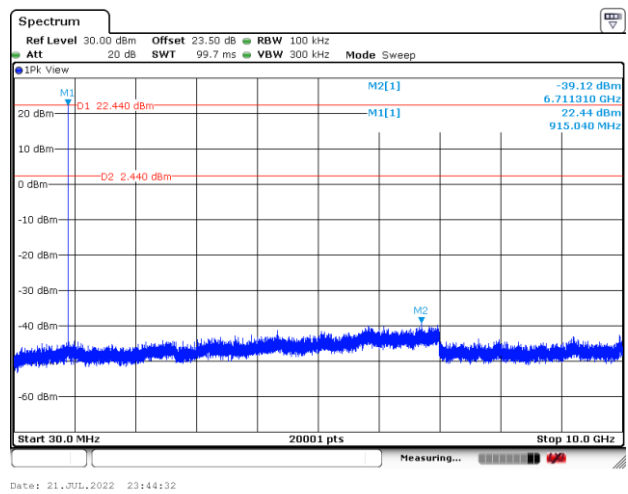


<FSK 50Kbps FHSS>

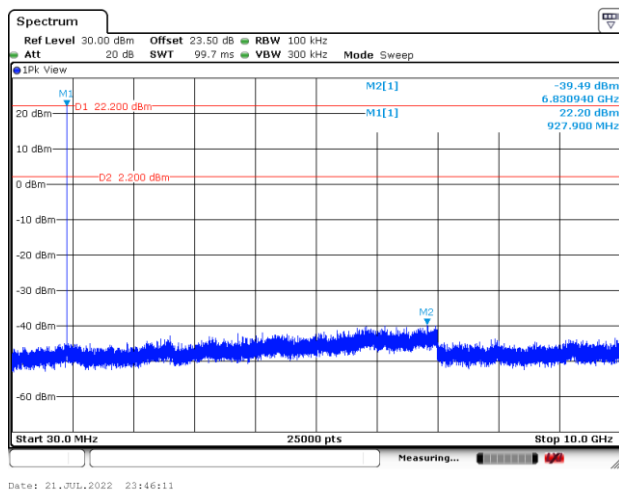
CSE Plot on Ch 01 between 30MHz ~ 10 GHz



CSE Plot on Ch 65 between 30MHz ~ 10 GHz



CSE Plot on Ch 129 between 30MHz ~ 10 GHz

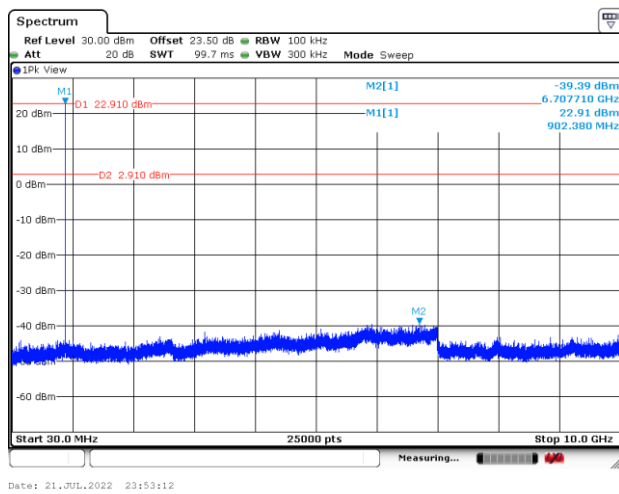


N/A

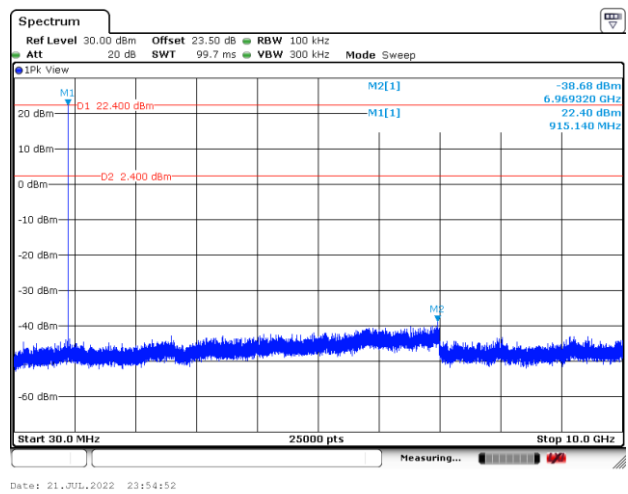


<FSK 150Kbps FHSS>

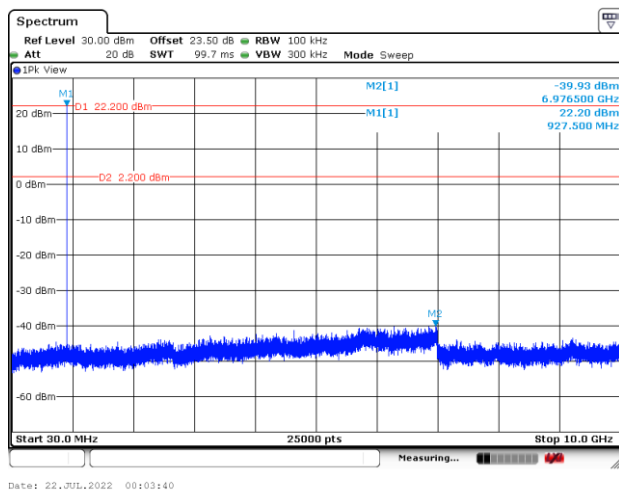
CSE Plot on Ch 01 between 30MHz ~ 10 GHz



CSE Plot on Ch 33 between 30MHz ~ 10 GHz



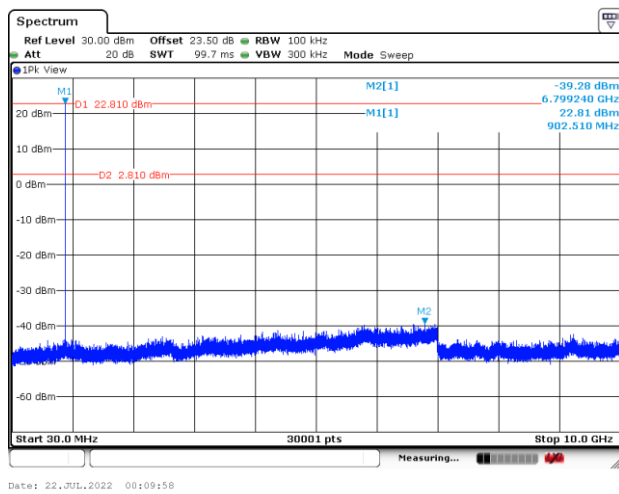
CSE Plot on Ch 64 between 30MHz ~ 10 GHz



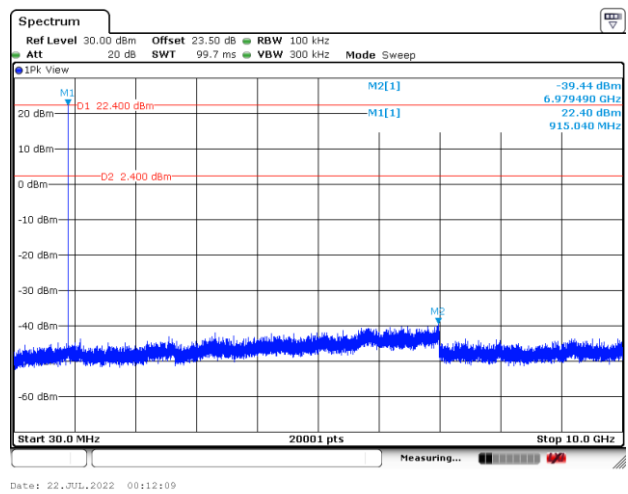
N/A

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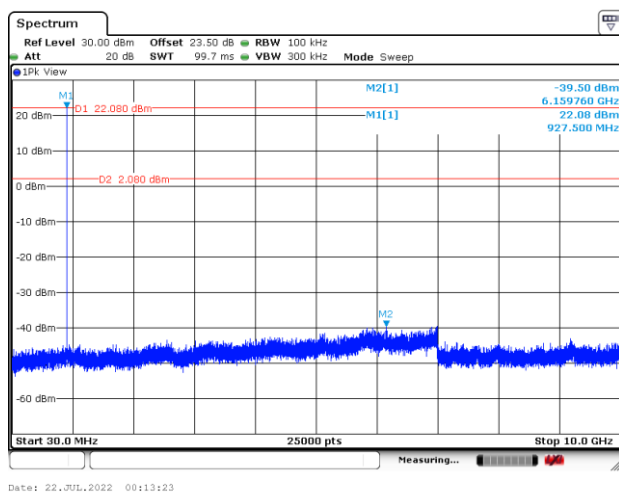
CSE Plot on Ch 01 between 30MHz ~ 10 GHz



CSE Plot on Ch 26 between 30MHz ~ 10 GHz



CSE Plot on Ch 51 between 30MHz ~ 10 GHz



N/A

3.8 Radiated Band Edges and Spurious Emission Measurement

3.8.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/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

3.8.2 Measuring Instruments

See list of measuring equipment of this test report.

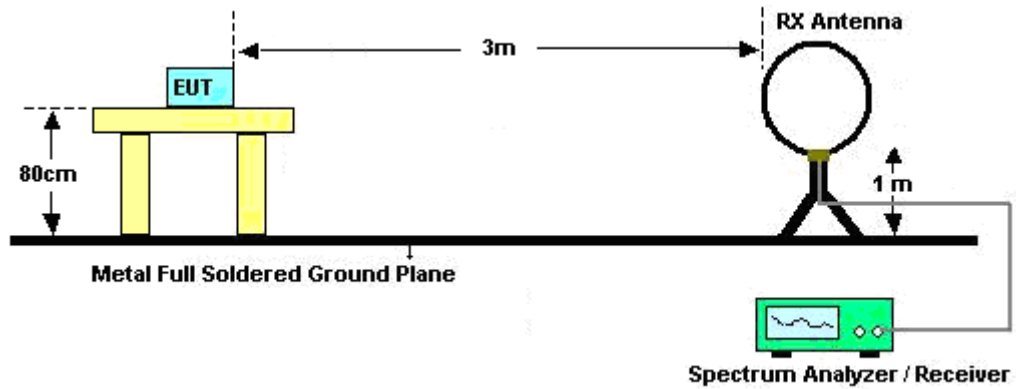
3.8.3 Test Procedures

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. 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 turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for $f < 1$ GHz, RBW=1MHz for $f > 1$ GHz ; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
 - (3) For average measurement: use duty cycle correction factor method per 15.35(c).
Duty cycle = On time/100 milliseconds
$$\text{On time} = N_1 * L_1 + N_2 * L_2 + \dots + N_{n-1} * L_{n-1} + N_n * L_n$$

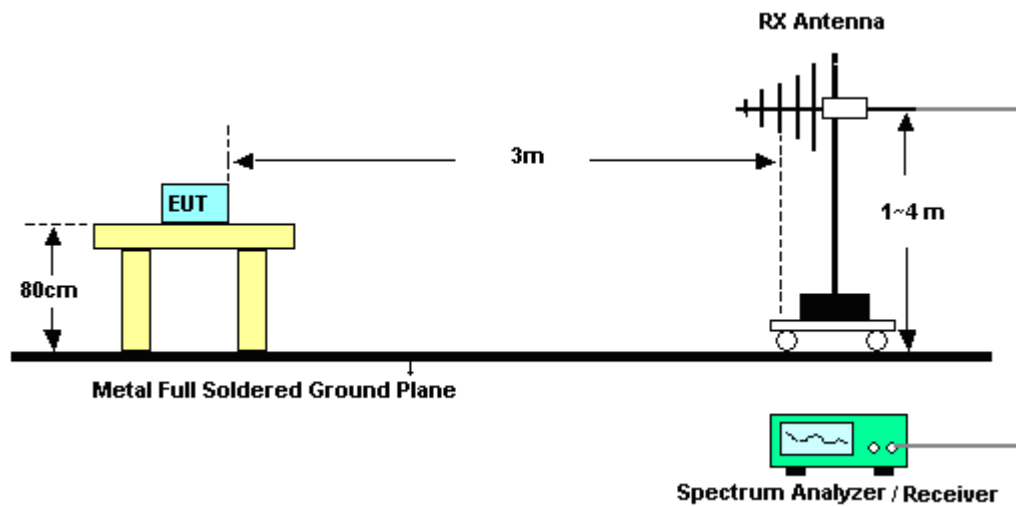
Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc.
Average Emission Level = Peak Emission Level + $20 * \log(\text{Duty cycle})$
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
8. 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 average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.8.4 Test Setup

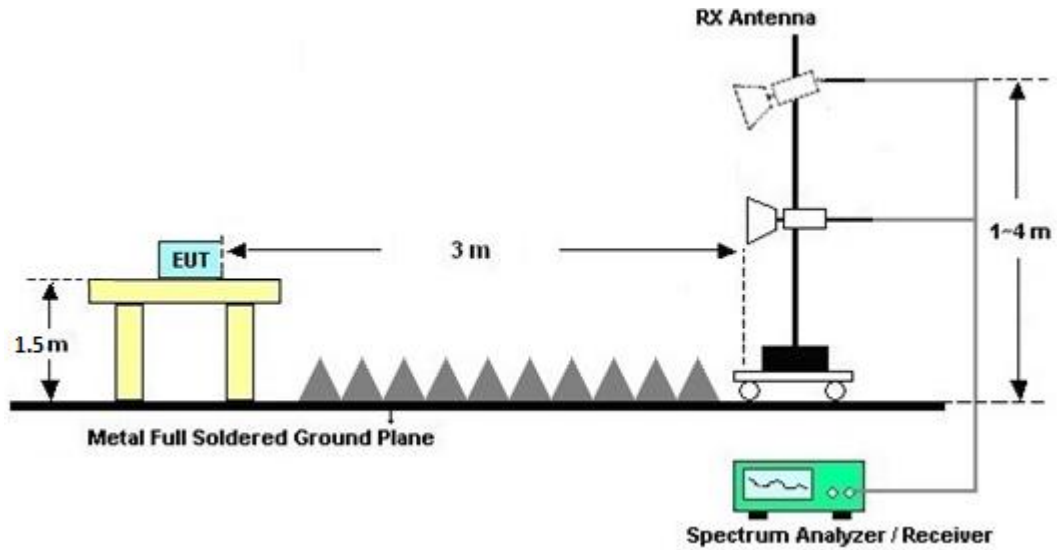
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.8.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

3.8.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

3.8.7 Duty Cycle

Please refer to Appendix E.

3.8.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic)

Please refer to Appendix C and D.

3.9 AC Conducted Emission Measurement

3.9.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

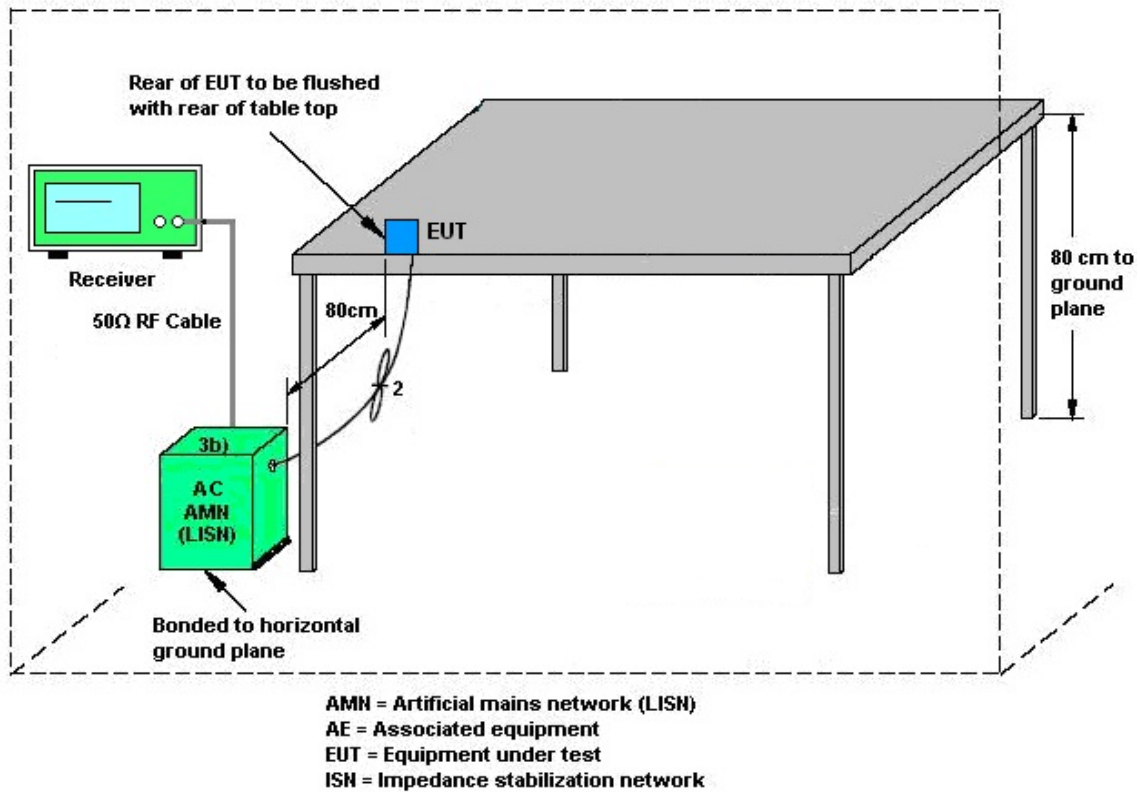
3.9.2 Measuring Instruments

See list of measuring equipment of this test report.

3.9.3 Test Procedures

1. 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.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.9.4 Test Setup



3.9.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.10 Antenna Requirements

3.10.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.10.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	TESEQ	HLA 6120	31244	9 kHz~30 MHz	Mar. 18, 2022	Aug. 17, 2022~ Sep. 07, 2022	Mar. 17, 2023	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 09, 2021	Aug. 17, 2022~ Sep. 07, 2022	Oct. 08, 2022	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1212	1GHz ~ 18GHz	Mar. 10, 2022	Aug. 17, 2022~ Sep. 07, 2022	Mar. 09, 2023	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 10, 2021	Aug. 17, 2022~ Sep. 07, 2022	Dec. 09, 2022	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 10, 2021	Aug. 17, 2022~ Sep. 07, 2022	Nov. 09, 2022	Radiation (03CH11-HY)
Preamplifier	Jet-Power	JPA0118-55-303	171000180005 5007	1GHz~18GHz	Jun. 15, 2022	Aug. 17, 2022~ Sep. 07, 2022	Jun. 14, 2023	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Oct. 15, 2021	Aug. 17, 2022~ Sep. 07, 2022	Oct. 14, 2022	Radiation (03CH11-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20MHz~8.4GHz	Oct. 21, 2021	Aug. 17, 2022~ Sep. 07, 2022	Oct. 20, 2022	Radiation (03CH11-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Aug. 17, 2022~ Sep. 07, 2022	N/A	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Aug. 17, 2022~ Sep. 07, 2022	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Aug. 17, 2022~ Sep. 07, 2022	N/A	Radiation (03CH11-HY)
Software	Audix	E3 6.2009-8-24	RK-001053	N/A	N/A	Aug. 17, 2022~ Sep. 07, 2022	N/A	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2859/2	30MHz-40GHz	Mar. 10, 2022	Aug. 17, 2022~ Sep. 07, 2022	Mar. 09, 2023	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz-30MHz	Mar. 10, 2022	Aug. 17, 2022~ Sep. 07, 2022	Mar. 09, 2023	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	30MHz-18GHz	Mar. 10, 2022	Aug. 17, 2022~ Sep. 07, 2022	Mar. 09, 2023	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	811852/4	30MHz-18GHz	Mar. 10, 2022	Aug. 17, 2022~ Sep. 07, 2022	Mar. 09, 2023	Radiation (03CH11-HY)
Filter	Wainwright	WLK4-1000-1530 -8000-40SS	SN11	1.53G Low Pass	Sep. 13, 2021	Aug. 17, 2022~ Sep. 07, 2022	Sep. 12, 2022	Radiation (03CH11-HY)
Filter	Wainwright	WHKX12-900-10 00-15000-60SS	SN12	1GHz High Pass	Nov. 04, 2021	Aug. 17, 2022~ Sep. 07, 2022	Nov. 03, 2022	Radiation (03CH11-HY)
Filter	Wainwright	WHKX12-2700-3 000-18000-60SS	SN3	3GHz High Pass Filter	Sep. 13, 2021	Aug. 17, 2022~ Sep. 07, 2022	Sep. 12, 2022	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP140325	N/A	Nov. 26, 2021	Aug. 17, 2022~ Sep. 07, 2022	Nov. 25, 2022	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP200880	N/A	Sep. 30, 2021	Aug. 17, 2022~ Sep. 07, 2022	Sep. 29, 2022	Radiation (03CH11-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECEP	DTM-303A	TP201996	N/A	Nov. 16, 2021	Jun. 16, 2022~ Jul. 22, 2022	Nov. 15, 2022	Conducted (TH05-HY)
Power Meter	Anritsu	ML2495A	932001	N/A	Sep. 30, 2021	Jun. 16, 2022~ Jul. 22, 2022	Sep. 29, 2022	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	846202	300MHz~40GHz	Sep. 30, 2021	Jun. 16, 2022~ Jul. 22, 2022	Sep. 29, 2022	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 30, 2021	Jun. 16, 2022~ Jul. 22, 2022	Aug. 29, 2022	Conducted (TH05-HY)
Switch Control Mainframe	E-IUSTRUMENT	ETF-1405-0	EC1900067 (BOX7)	N/A	Aug. 12, 2021	Jun. 16, 2022~ Jul. 22, 2022	Aug. 11, 2022	Conducted (TH05-HY)
AC Power Source	ACPOWER	AFC-11003G	F317040033	N/A	N/A	Jul. 06, 2022	N/A	Conduction (CO07-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Jul. 06, 2022	N/A	Conduction (CO07-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	9561-F N00373	9kHz-200MHz	Oct. 29, 2021	Jul. 06, 2022	Oct. 28, 2022	Conduction (CO07-HY)
RF Cable	HUBER + SUHNER	RG 214/U	1358175	9kHz~30MHz	Mar. 16, 2022	Jul. 06, 2022	Mar. 15, 2023	Conduction (CO07-HY)
Two-Line V-Network	TESEQ	NNB 51	45051	N/A	Feb. 16, 2022	Jul. 06, 2022	Feb. 15, 2023	Conduction (CO07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI7	100724	9kHz~7GHz	Feb. 24, 2022	Jul. 06, 2022	Feb. 23, 2023	Conduction (CO07-HY)



5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.3 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.8 dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.4 dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.9 dB
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Appendix A. Test Result of Conducted Test Items

Test Engineer:	Shiming Liu	Temperature:	23~25	°C
Test Date:	2022/6/16~2022/7/22	Relative Humidity:	54~58	%

TEST RESULTS DATA**20dB and 99% Occupied Bandwidth and Hopping Channel Separation**

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
Lora 125KHz	SF7	1	1	902.2	0.143	0.124	0.162	0.1434	Pass
Lora 125KHz	SF7	1	65	915	0.157	0.132	0.234	0.1573	Pass
Lora 125KHz	SF7	1	129	927.8	0.160	0.131	0.191	0.1603	Pass

TEST RESULTS DATA**Dwell Time**

Mod.	Hopping Channel Number Rate	Hops Over Occupancy Time(hops)	Package Transfer Time (msec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
Lora 125KHz	129	1	0.39	0.39	0.4	Pass

TEST RESULTS DATA**Peak Power Table**

Mod.	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
Lora 125KHz	0	1	22.40	30.00	Pass
	39	1	21.97	30.00	Pass
	78	1	21.74	30.00	Pass

TEST RESULTS DATA**Average Power Table****(Reporting Only)**

Mod.	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
Lora 125KHz	0	1	22.34	0.00
	39	1	21.90	0.00
	78	1	21.66	0.00

TEST RESULTS DATA**Number of Hopping Frequency**

Number of Hopping (Channel)	Limits (Channel)	Pass/Fail
129	> 50	Pass

TEST RESULTS DATA**20dB and 99% Occupied Bandwidth and Hopping Channel Separation**

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
Lora 125KHz	SF8	1	1	902.2	0.146	0.127	0.234	0.1464	Pass
Lora 125KHz	SF8	1	65	915	0.157	0.133	0.219	0.1573	Pass
Lora 125KHz	SF8	1	129	927.8	0.157	0.132	0.281	0.1573	Pass

TEST RESULTS DATA**Dwell Time**

Mod.	Hopping Channel Number Rate	Hops Over Occupancy Time(hops)	Package Transfer Time (msec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
Lora 125KHz	129	1	0.39	0.39	0.4	Pass

TEST RESULTS DATA**Peak Power Table**

Mod.	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
Lora 125KHz	0	1	22.38	30.00	Pass
	39	1	21.94	30.00	Pass
	78	1	21.73	30.00	Pass

TEST RESULTS DATA**Average Power Table
(Reporting Only)**

Mod.	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
Lora 125KHz	0	1	22.31	0.00
	39	1	21.86	0.00
	78	1	21.65	0.00

TEST RESULTS DATA**Number of Hopping Frequency**

Number of Hopping (Channel)	Limits (Channel)	Pass/Fail
129	> 50	Pass

TEST RESULTS DATA**20dB and 99% Occupied Bandwidth and Hopping Channel Separation**

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
Lora 125KHz	SF9	1	1	902.2	0.148	0.129	0.191	0.1479	Pass
Lora 125KHz	SF9	1	65	915	0.156	0.134	0.208	0.1558	Pass
Lora 125KHz	SF9	1	129	927.8	0.155	0.133	0.212	0.1553	Pass

TEST RESULTS DATA**Dwell Time**

Mod.	Hopping Channel Number Rate	Hops Over Occupancy Time(hops)	Package Transfer Time (msec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
Lora 125KHz	129	1	0.37	0.00	0.4	Pass

TEST RESULTS DATA**Peak Power Table**

Mod.	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
Lora 125KHz	0	1	22.37	30.00	Pass
	39	1	21.94	30.00	Pass
	78	1	21.73	30.00	Pass

TEST RESULTS DATA**Average Power Table
(Reporting Only)**

Mod.	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
Lora 125KHz	0	1	22.30	0.00
	39	1	21.87	0.00
	78	1	21.65	0.00

TEST RESULTS DATA**Number of Hopping Frequency**

Number of Hopping (Channel)	Limits (Channel)	Pass/Fail
129	> 50	Pass

TEST RESULTS DATA**20dB and 99% Occupied Bandwidth and Hopping Channel Separation**

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
FSK	50Kbps	1	1	902.2	0.108	0.102	0.200	0.1079	Pass
FSK	50Kbps	1	65	915	0.109	0.103	0.200	0.1093	Pass
FSK	50Kbps	1	129	927.8	0.108	0.103	0.198	0.1081	Pass

TEST RESULTS DATA**Dwell Time**

Mod.	Hopping Channel Number Rate	Hops Over Occupancy Time(hops)	Package Transfer Time (msec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
FSK	129	1.00	0.30	0.30	0.4	Pass

TEST RESULTS DATA**Peak Power Table**

Mod.	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
FSK	1	1	22.40	30.00	Pass
	65	1	21.95	30.00	Pass
	129	1	21.73	30.00	Pass

TEST RESULTS DATA**Average Power Table
(Reporting Only)**

Mod.	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
FSK	1	1	22.34	0.00
	65	1	21.87	0.00
	129	1	21.65	0.00

TEST RESULTS DATA**Number of Hopping Frequency**

Number of Hopping (Channel)	Limits (Channel)	Pass/Fail
129	> 50	Pass

TEST RESULTS DATA**20dB and 99% Occupied Bandwidth and Hopping Channel Separation**

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
FSK	150Kbps	1	1	902.4	0.165	0.156	0.396	0.1653	Pass
FSK	150Kbps	1	33	915.2	0.166	0.155	0.403	0.1662	Pass
FSK	150Kbps	1	64	927.6	0.167	0.155	0.399	0.1674	Pass

TEST RESULTS DATA**Dwell Time**

Mod.	Hopping Channel Number Rate	Hops Over Occupancy Time(hops)	Package Transfer Time (msec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
FSK	64	1.00	0.34	0.34	0.4	Pass

TEST RESULTS DATA**Peak Power Table**

Mod.	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
FSK	1	1	22.37	30.00	Pass
	33	1	21.95	30.00	Pass
	64	1	21.72	30.00	Pass

TEST RESULTS DATA**Average Power Table
(Reporting Only)**

Mod.	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
FSK	1	1	22.30	0.00
	33	1	21.86	0.00
	64	1	21.65	0.00

TEST RESULTS DATA**Number of Hopping Frequency**

Number of Hopping (Channel)	Limits (Channel)	Pass/Fail
64	> 50	Pass

TEST RESULTS DATA**20dB and 99% Occupied Bandwidth and Hopping Channel Separation**

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
FSK	250Kbps	1	1	902.5	0.261	0.253	0.420	0.2609	Pass
FSK	250Kbps	1	26	915	0.257	0.254	0.568	0.2572	Pass
FSK	250Kbps	1	51	927.5	0.261	0.254	0.427	0.2607	Pass

TEST RESULTS DATA**Dwell Time**

Mod.	Hopping Channel Number Rate	Hops Over Occupancy Time(hops)	Package Transfer Time (msec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
FSK	51	1.00	0.30	0.30	0.4	Pass

TEST RESULTS DATA**Peak Power Table**

Mod.	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
FSK	1	1	22.37	30.00	Pass
	26	1	21.95	30.00	Pass
	51	1	21.73	30.00	Pass

TEST RESULTS DATA**Average Power Table
(Reporting Only)**

Mod.	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
FSK	1	1	22.30	0.00
	26	1	21.87	0.00
	51	1	21.66	0.00

TEST RESULTS DATA**Number of Hopping Frequency**

Number of Hopping (Channel)	Limits (Channel)	Pass/Fail
51	50.00	Pass



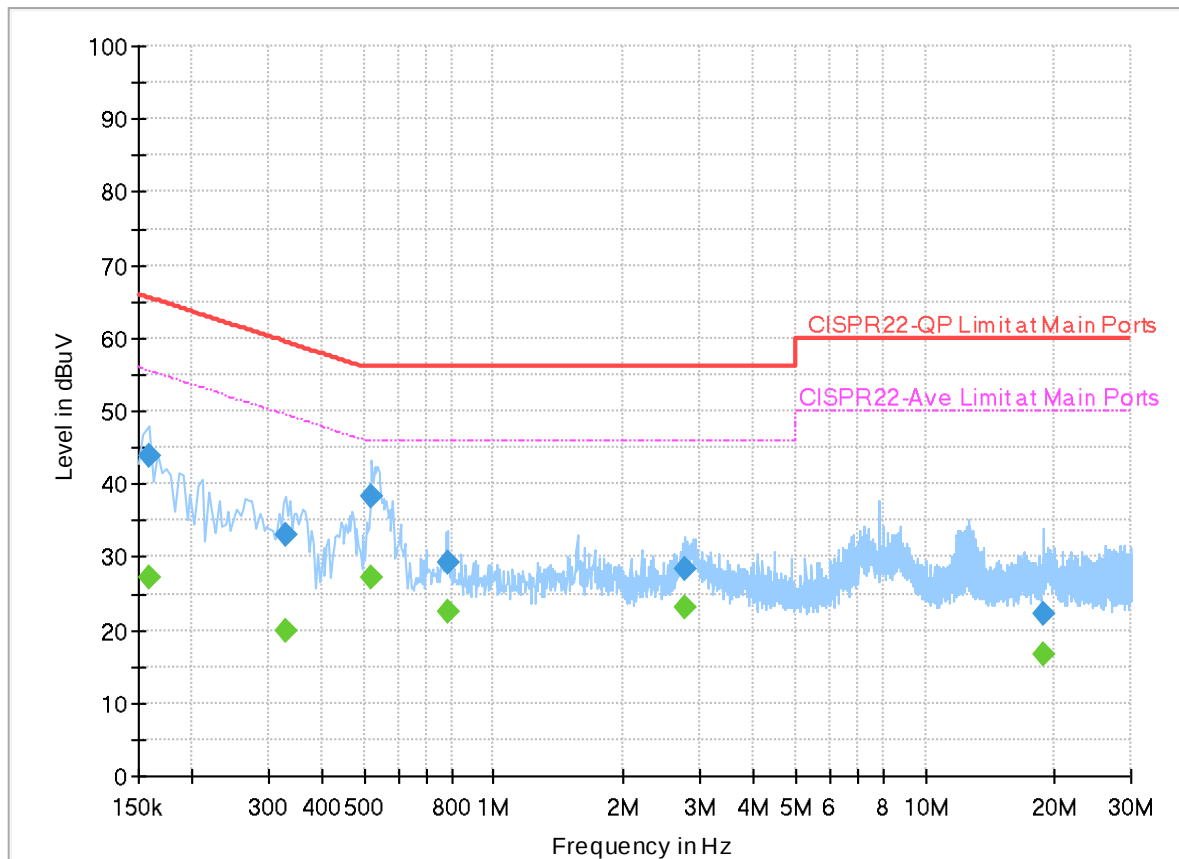
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Louis Chung	Temperature :	22.4~25.6℃
		Relative Humidity :	48.2~57.1%

EUT Information

Report NO : 242615
Test Mode : Mode 1
Test Voltage : 120Vac/60Hz
Phase : Line

Full Spectrum



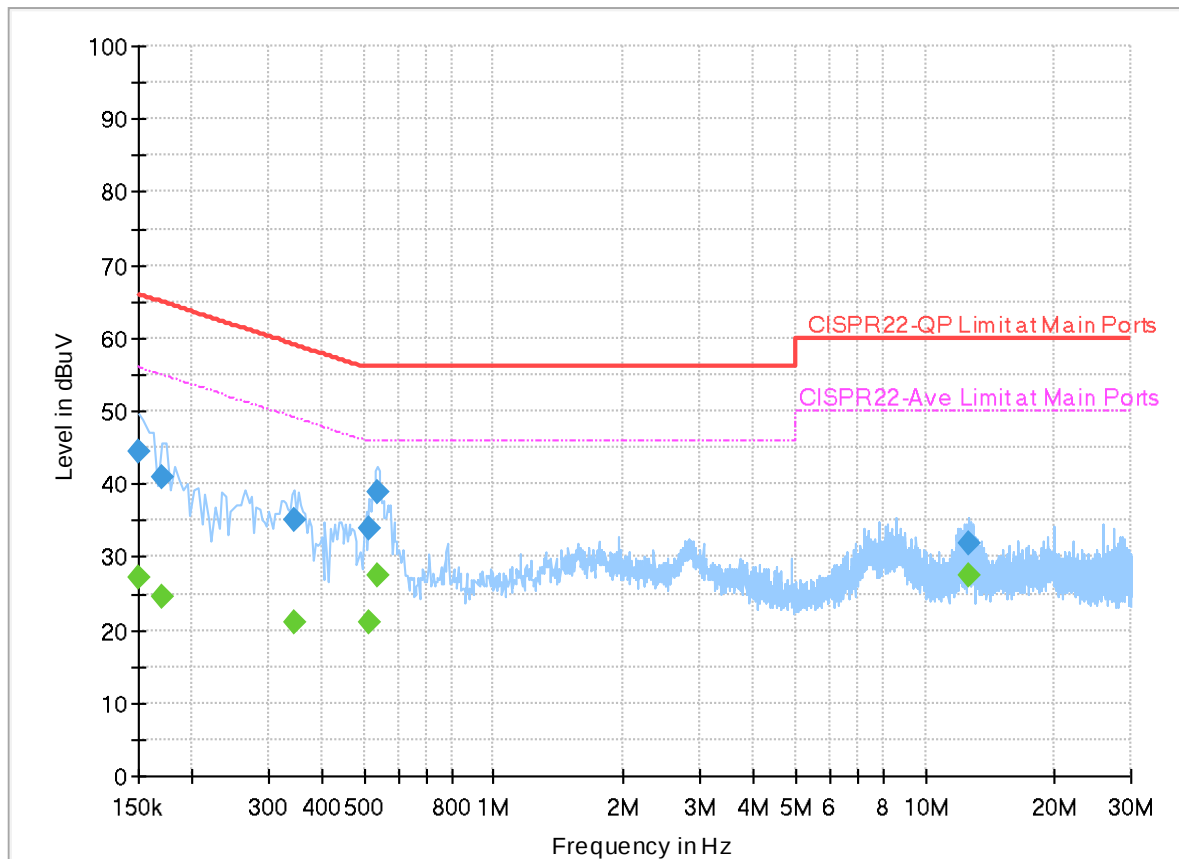
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.158000	---	27.24	55.57	28.33	L1	OFF	20.0
0.158000	43.78	---	65.57	21.79	L1	OFF	20.0
0.330000	---	19.90	49.45	29.55	L1	OFF	20.0
0.330000	32.90	---	59.45	26.55	L1	OFF	20.0
0.522000	---	27.13	46.00	18.87	L1	OFF	20.0
0.522000	38.39	---	56.00	17.61	L1	OFF	20.0
0.782000	---	22.38	46.00	23.62	L1	OFF	20.0
0.782000	29.11	---	56.00	26.89	L1	OFF	20.0
2.778000	---	23.24	46.00	22.76	L1	OFF	20.0
2.778000	28.35	---	56.00	27.65	L1	OFF	20.0
18.826000	---	16.71	50.00	33.29	L1	OFF	20.2
18.826000	22.14	---	60.00	37.86	L1	OFF	20.2

EUT Information

Report NO : 242615
Test Mode : Mode 1
Test Voltage : 120Vac/60Hz
Phase : Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	---	27.25	56.00	28.75	N	OFF	20.0
0.150000	44.49	---	66.00	21.51	N	OFF	20.0
0.170000	---	24.66	54.96	30.30	N	OFF	20.0
0.170000	40.91	---	64.96	24.05	N	OFF	20.0
0.346000	---	21.01	49.06	28.05	N	OFF	20.0
0.346000	34.96	---	59.06	24.10	N	OFF	20.0
0.514000	---	21.10	46.00	24.90	N	OFF	20.0
0.514000	34.05	---	56.00	21.95	N	OFF	20.0
0.538000	---	27.36	46.00	18.64	N	OFF	20.0
0.538000	39.03	---	56.00	16.97	N	OFF	20.0
12.686000	---	27.60	50.00	22.40	N	OFF	20.2
12.686000	32.01	---	60.00	27.99	N	OFF	20.2



Appendix C. Radiated Spurious Emission

Test Engineer :	Yuan Lee and Troye Hsieh	Temperature :	20~21.5°C
		Relative Humidity :	56.4~67.6%

Lora 902~928MHz

Lora 125KHz FHSS_SF7 (Band Edge @ 3m)

Lora	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
Lora 125KHz FHSS CH 01 902.2MHz		30	31.1	-8.9	40	28.36	24.27	10.83	32.36	-	-	P	H
		130.88	26.64	-16.86	43.5	29.93	17.46	11.68	32.43	-	-	P	H
		294.81	29.35	-16.65	46	29.83	19.04	12.58	32.1	-	-	P	H
		376.29	31.78	-14.22	46	29.91	20.8	12.86	31.79	-	-	P	H
		478.14	34.07	-11.93	46	29.42	23.48	13.21	32.04	-	-	P	H
		555.74	36.59	-9.41	46	29.88	25.71	13.55	32.55	-	-	P	H
	*	902.2	121.57	-	-	109.37	28.84	14.58	31.22	100	148	P	H
													H
													H
		31.94	31.68	-8.32	40	30.28	22.99	10.78	32.37	-	-	P	V
		97.9	27.94	-15.56	43.5	33.53	15.41	11.38	32.38	-	-	P	V
		295.78	28.87	-17.13	46	29.35	19.04	12.58	32.1	-	-	P	V
		393.75	31.64	-14.36	46	28.98	21.44	12.94	31.72	-	-	P	V
		472.32	34.15	-11.85	46	29.6	23.38	13.19	32.02	-	-	P	V
		575.14	35.95	-10.05	46	29.38	25.65	13.62	32.7	-	-	P	V
	*	902.2	112.21	-	-	100.01	28.84	14.58	31.22	102	72	P	V
													V
													V
Remark	- No other spurious found. - All results are PASS against limit line. - Non restricted band limit is radio frequency level down 20db - The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



Lora	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
Lora 125KHz FHSS CH 65 915MHz		30.97	31.56	-8.44	40	29.6	23.53	10.8	32.37	-	-	P	H
		127.97	25.9	-17.6	43.5	29.3	17.41	11.61	32.42	-	-	P	H
		261.83	28.65	-17.35	46	28.91	19.58	12.41	32.25	-	-	P	H
		382.11	31.46	-14.54	46	29.35	20.99	12.89	31.77	-	-	P	H
		463.59	34.72	-11.28	46	30.33	23.21	13.16	31.98	-	-	P	H
		576.11	36.81	-9.19	46	30.26	25.63	13.62	32.7	-	-	P	H
	*	915	121.66	-	-	109.22	28.96	14.61	31.13	100	151	P	H
													H
													H
		30	31.29	-8.71	40	28.55	24.27	10.83	32.36	-	-	P	V
		97.9	27.65	-15.85	43.5	33.24	15.41	11.38	32.38	-	-	P	V
		289.96	29.1	-16.9	46	29.76	18.92	12.55	32.13	-	-	P	V
		385.02	31.79	-14.21	46	29.54	21.11	12.9	31.76	-	-	P	V
		498.51	34.25	-11.75	46	29.28	23.81	13.29	32.13	-	-	P	V
		597.45	36.54	-9.46	46	30.4	25.34	13.66	32.86	-	-	P	V
	*	915	112.22	-	-	99.78	28.96	14.61	31.13	100	73	P	V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												
	3. Non restricted band limit is radio frequency level down 20db												
	4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



Lora	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
Lora 125KHz FHSS CH 129 927.8MHz		30	32.04	-7.96	40	29.3	24.27	10.83	32.36	-	-	P	H
		129.91	26.03	-17.47	43.5	29.36	17.42	11.67	32.42	-	-	P	H
		258.92	28.81	-17.19	46	29.26	19.41	12.4	32.26	-	-	P	H
		387.93	31.51	-14.49	46	29.12	21.23	12.91	31.75	-	-	P	H
		479.11	34.83	-11.17	46	30.16	23.5	13.22	32.05	-	-	P	H
		582.9	36.41	-9.59	46	30.01	25.52	13.63	32.75	-	-	P	H
	*	927.8	120.92	-	-	108.01	29.3	14.65	31.04	101	149	P	H
													H
													H
		30	33.28	-6.72	40	30.54	24.27	10.83	32.36	-	-	P	V
		97.9	27.25	-16.25	43.5	32.84	15.41	11.38	32.38	-	-	P	V
		297.72	29.98	-16.02	46	30.42	19.06	12.59	32.09	-	-	P	V
		397.63	32.73	-13.27	46	29.9	21.59	12.95	31.71	-	-	P	V
		490.75	35.01	-10.99	46	30.14	23.71	13.26	32.1	-	-	P	V
		575.14	36.85	-9.15	46	30.28	25.65	13.62	32.7	-	-	P	V
	*	927.8	111.12	-	-	98.21	29.3	14.65	31.04	103	75	P	V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												
	3. Non restricted band limit is radio frequency level down 20db												
	4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



Lora 125KHz FHSS (Harmonic @ 3m)

Lora	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
Lora 125KHz FHSS CH 01 902.2MHz		2706.6	46.37	-27.63	74	43.41	28.23	8.63	33.9	-	-	P	H
		3608.8	39.56	-34.44	74	57.98	29.72	10.78	58.92	-	-	P	H
		4511	40.43	-33.57	74	55.36	31.7	11.09	57.72	-	-	P	H
		5413.2	38.78	-35.22	74	52.11	32.9	12.08	58.31	-	-	P	H
		8119.8	47.36	-26.64	74	54.3	37.1	14.37	58.41	-	-	P	H
		9022	46.77	-27.23	74	51.12	38.06	15.83	58.24	-	-	P	H
													H
		2706.6	45.78	-28.22	74	42.82	28.23	8.63	33.9	-	-	P	V
		3608.8	38.34	-35.66	74	56.76	29.72	10.78	58.92	-	-	P	V
		4511	39.85	-34.15	74	54.78	31.7	11.09	57.72	-	-	P	V
		5413.2	39.21	-34.79	74	52.54	32.9	12.08	58.31	-	-	P	V
		8119.8	51.34	-22.66	74	58.28	37.1	14.37	58.41	100	189	P	V
		8119.8	46.5	-7.5	54	53.44	37.1	14.37	58.41	100	189	A	V
		9022	46.18	-27.82	74	50.53	38.06	15.83	58.24	-	-	P	V
Lora 125KHz FHSS CH 65 915MHz		2745	45.95	-28.05	74	42.78	28.38	8.69	33.9	-	-	P	H
		3660	39.59	-34.41	74	57.7	29.82	10.86	58.79	-	-	P	H
		4575	39.74	-34.26	74	55.06	31.7	10.75	57.77	-	-	P	H
		7320	45.95	-28.05	74	54.22	37.02	13.44	58.73	-	-	P	H
		8235	47.83	-26.17	74	54.53	37.24	14.41	58.35	-	-	P	H
		9150	45.03	-28.97	74	49.4	38.2	15.84	58.41	-	-	P	H
													H
		2745	45.23	-28.77	74	42.06	28.38	8.69	33.9	-	-	P	V
		3660	40.2	-33.8	74	58.31	29.82	10.86	58.79	-	-	P	V
		4575	38.85	-35.15	74	54.17	31.7	10.75	57.77	-	-	P	V
		7320	45.85	-28.15	74	54.12	37.02	13.44	58.73	-	-	P	V
		8235	52.18	-21.82	74	58.88	37.24	14.41	58.35	100	190	P	V
		8235	47.44	-6.56	54	54.14	37.24	14.41	58.35	100	190	A	V
		9150	44.25	-29.75	74	48.62	38.2	15.84	58.41	-	-	P	V



Lora 125KHz FHSS CH 129 927.8MHz		2783.4	46.18	-27.82	74	42.84	28.47	8.76	33.89	-	-	P	H
		3711.2	40.62	-33.38	74	58.39	29.97	10.93	58.67	-	-	P	H
		4639	41.22	-32.78	74	56.49	31.78	10.77	57.82	-	-	P	H
		7422.4	47.34	-26.66	74	55.8	36.51	13.74	58.71	-	-	P	H
		8350.2	49.66	-24.34	74	56.01	37.3	14.63	58.28	124	355	P	H
		8350.2	45.97	-8.03	54	52.32	37.3	14.63	58.28	124	355	A	H
													H
		2783.4	46.09	-27.91	74	42.75	28.47	8.76	33.89	-	-	P	V
		3711.2	41.27	-32.73	74	59.04	29.97	10.93	58.67	-	-	P	V
		4639	39.03	-34.97	74	54.3	31.78	10.77	57.82	-	-	P	V
		7422.4	47.92	-26.08	74	56.38	36.51	13.74	58.71	-	-	P	V
		8350.2	49.48	-24.52	74	55.83	37.3	14.63	58.28	100	192	P	V
		8350.2	44.87	-9.13	54	51.22	37.3	14.63	58.28	100	192	A	V
													V
	Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. Non restricted band limit is radio frequency level down 20db 4. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.											



Lora 902~928MHz

Lora 125KHz FHSS_SF8 (Band Edge @ 3m)

Lora	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
Lora 125KHz FHSS CH 01 902.2MHz		30	33.08	-6.92	40	30.34	24.27	10.83	32.36	-	-	P	H
		103.72	25.66	-17.84	43.5	30.41	16.2	11.44	32.39	-	-	P	H
		166.77	28.65	-14.85	43.5	33.64	15.61	11.88	32.48	-	-	P	H
		226.91	33.72	-12.28	46	38.26	15.63	12.24	32.41	-	-	P	H
		456.8	34.86	-11.14	46	30.57	23.1	13.14	31.95	-	-	P	H
		560.59	38.38	-7.62	46	31.43	25.97	13.57	32.59	-	-	P	H
	*	902.5	120.55	-	-	108.32	28.85	14.59	31.21	100	167	P	H
													H
													H
		34.85	35.16	-4.84	40	34.99	21.85	10.71	32.39	100	17	QP	V
		56.19	25.56	-14.44	40	34.89	12.14	11.01	32.48	-	-	P	V
		125.06	29.2	-14.3	43.5	32.69	17.34	11.59	32.42	-	-	P	V
		245.34	30.11	-15.89	46	32.5	17.61	12.33	32.33	-	-	P	V
		446.13	34.8	-11.2	46	30.72	22.88	13.1	31.9	-	-	P	V
		564.47	36.73	-9.27	46	29.84	25.93	13.58	32.62	-	-	P	V
	*	902.5	113.26	-	-	101.03	28.85	14.59	31.21	100	67	P	V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												
	3. Non restricted band limit is radio frequency level down 20db												
	4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



Lora	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
Lora 125KHz FHSS CH 65 915MHz		30	33.77	-6.23	40	31.03	24.27	10.83	32.36	-	-	P	H
		166.77	28.91	-14.59	43.5	33.9	15.61	11.88	32.48	-	-	P	H
		224.97	33.4	-12.6	46	38.16	15.45	12.21	32.42	-	-	P	H
		243.4	31.35	-14.65	46	33.99	17.37	12.32	32.33	-	-	P	H
		424.79	33.54	-12.46	46	29.67	22.64	13.04	31.81	-	-	P	H
		556.71	36.75	-9.25	46	29.98	25.77	13.56	32.56	-	-	P	H
	*	915	120.53	-	-	108.09	28.96	14.61	31.13	100	167	P	H
													H
													H
		34.85	35.21	-4.79	40	35.04	21.85	10.71	32.39	100	12	QP	V
		54.25	26.66	-13.34	40	35.72	12.43	10.99	32.48	-	-	P	V
		123.12	29.79	-13.71	43.5	33.27	17.35	11.58	32.41	-	-	P	V
		244.37	29.94	-16.06	46	32.45	17.49	12.33	32.33	-	-	P	V
		454.86	34.01	-11.99	46	29.76	23.06	13.13	31.94	-	-	P	V
		565.44	36.65	-9.35	46	29.78	25.91	13.58	32.62	-	-	P	V
	*	915	113.58	-	-	101.14	28.96	14.61	31.13	100	66	P	V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												
	3. Non restricted band limit is radio frequency level down 20db												
	4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



Lora	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
Lora 125KHz FHSS CH 129 927.8MHz		30	33.4	-6.6	40	30.66	24.27	10.83	32.36	-	-	P	H
		132.82	28.06	-15.44	43.5	31.43	17.37	11.69	32.43	-	-	P	H
		167.74	29.17	-14.33	43.5	34.22	15.54	11.89	32.48	-	-	P	H
		229.82	33.72	-12.28	46	37.96	15.91	12.25	32.4	-	-	P	H
		418	33.73	-12.27	46	30.08	22.42	13.01	31.78	-	-	P	H
		567.38	37.4	-8.6	46	30.61	25.84	13.59	32.64	-	-	P	H
	*	927.8	120.32	-	-	107.41	29.3	14.65	31.04	100	166	P	H
													H
													H
		34.85	35.2	-4.8	40	35.03	21.85	10.71	32.39	100	14	QP	V
		125.06	29.97	-13.53	43.5	33.46	17.34	11.59	32.42	-	-	P	V
		193.93	28.4	-15.1	43.5	34.22	14.66	12.04	32.52	-	-	P	V
		246.31	30.69	-15.31	46	32.94	17.73	12.34	32.32	-	-	P	V
		477.17	35.16	-10.84	46	30.53	23.46	13.21	32.04	-	-	P	V
		574.17	36.6	-9.4	46	30.02	25.67	13.6	32.69	-	-	P	V
	*	927.8	113.23	-	-	100.32	29.3	14.65	31.04	100	66	P	V
													V
													V
Remark		1. No other spurious found. 2. All results are PASS against limit line. 3. Non restricted band limit is radio frequency level down 20db 4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.											



Lora 125KHz FHSS (Harmonic @ 3m)

Lora	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
Lora 125KHz FHSS CH 01 902.2MHz		2706.6	46.62	-27.38	74	43.66	28.23	8.63	33.9	-	-	P	H
		3608.8	38.9	-35.1	74	57.32	29.72	10.78	58.92	-	-	P	H
		4511	40.5	-33.5	74	55.43	31.7	11.09	57.72	-	-	P	H
		5413.2	39.74	-34.26	74	53.07	32.9	12.08	58.31	-	-	P	H
		8119.8	47.15	-26.85	74	54.09	37.1	14.37	58.41	-	-	P	H
		9022	47.27	-26.73	74	51.62	38.06	15.83	58.24	-	-	P	H
													H
		2706.6	46.22	-27.78	74	43.26	28.23	8.63	33.9	-	-	P	V
		3608.8	38.69	-35.31	74	57.11	29.72	10.78	58.92	-	-	P	V
		4511	40.54	-33.46	74	55.47	31.7	11.09	57.72	-	-	P	V
		5413.2	39.84	-34.16	74	53.17	32.9	12.08	58.31	-	-	P	V
		8119.8	49.73	-24.27	74	56.67	37.1	14.37	58.41	100	199	P	V
		8119.8	45.17	-8.83	54	52.11	37.1	14.37	58.41	100	199	A	V
		9022	46.81	-27.19	74	51.16	38.06	15.83	58.24	-	-	P	V
Lora 125KHz FHSS CH 65 915MHz		2745	45.8	-28.2	74	42.63	28.38	8.69	33.9	-	-	P	H
		3660	38.42	-35.58	74	56.53	29.82	10.86	58.79	-	-	P	H
		4575	39.82	-34.18	74	55.14	31.7	10.75	57.77	-	-	P	H
		7320	41.98	-32.02	74	50.25	37.02	13.44	58.73	-	-	P	H
		8235	43.85	-30.15	74	50.55	37.24	14.41	58.35	-	-	P	H
		9150	45.31	-28.69	74	49.68	38.2	15.84	58.41	-	-	P	H
												P	H
		2745	45.65	-28.35	74	42.48	28.38	8.69	33.9	-	-	P	V
		3660	39	-35	74	57.11	29.82	10.86	58.79	-	-	P	V
		4575	39.3	-34.7	74	54.62	31.7	10.75	57.77	-	-	P	V
		7320	45.64	-28.36	74	53.91	37.02	13.44	58.73	-	-	P	V
		8235	42.94	-31.06	74	49.64	37.24	14.41	58.35	-	-	P	V
		9150	44.29	-29.71	74	48.66	38.2	15.84	58.41	-	-	P	V
												P	V



Lora 125KHz FHSS CH 129 927.8MHz		2783.4	45.9	-28.1	74	42.56	28.47	8.76	33.89	-	-	P	H
		3711.2	39.58	-34.42	74	57.35	29.97	10.93	58.67	-	-	P	H
		4639	38.76	-35.24	74	54.03	31.78	10.77	57.82	-	-	P	H
		7422.4	47.28	-26.72	74	55.74	36.51	13.74	58.71	-	-	P	H
		8350.2	48.84	-25.16	74	55.19	37.3	14.63	58.28	125	358	P	H
		8350.2	44.36	-9.64	54	50.71	37.3	14.63	58.28	125	358	A	H
												P	H
		2783.4	46.2	-27.8	74	42.86	28.47	8.76	33.89	-	-	P	V
		3711.2	39.99	-34.01	74	57.76	29.97	10.93	58.67	-	-	P	V
		4639	39.2	-34.8	74	54.47	31.78	10.77	57.82	-	-	P	V
		7422.4	47.43	-26.57	74	55.89	36.51	13.74	58.71	-	-	P	V
		8350.2	49.78	-24.22	74	56.13	37.3	14.63	58.28	105	193	P	V
		8350.2	45.16	-8.84	54	51.51	37.3	14.63	58.28	105	193	A	V
												P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. Non restricted band limit is radio frequency level down 20db 4. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												



Lora 902~928MHz

Lora 125KHz FHSS_SF9 (Band Edge @ 3m)

Lora	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
Lora 125KHz FHSS CH 01 902.2MHz		30	33.14	-6.86	40	30.4	24.27	10.83	32.36	-	-	P	H
		133.79	27.21	-16.29	43.5	30.6	17.34	11.7	32.43	-	-	P	H
		168.71	28.99	-14.51	43.5	34.06	15.51	11.9	32.48	-	-	P	H
		230.79	33.35	-12.65	46	37.47	16.01	12.26	32.39	-	-	P	H
		420.91	34.5	-11.5	46	30.71	22.55	13.03	31.79	-	-	P	H
		561.56	36.85	-9.15	46	29.92	25.96	13.57	32.6	-	-	P	H
	*	902.5	120.37	-	-	108.14	28.85	14.59	31.21	100	167	P	H
													H
													H
		34.85	35.2	-4.8	40	35.03	21.85	10.71	32.39	100	14	QP	V
		125.06	30.15	-13.35	43.5	33.64	17.34	11.59	32.42	-	-	P	V
		196.84	28.08	-15.42	43.5	33.84	14.71	12.06	32.53	-	-	P	V
		247.28	30.82	-15.18	46	32.95	17.84	12.35	32.32	-	-	P	V
		421.88	33.83	-12.17	46	30.03	22.57	13.03	31.8	-	-	P	V
		555.74	36.54	-9.46	46	29.83	25.71	13.55	32.55	-	-	P	V
	*	902.5	113.43	-	-	101.2	28.85	14.59	31.21	100	65	P	V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												
	3. Non restricted band limit is radio frequency level down 20db												
	4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



Lora	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
Lora 125KHz FHSS CH 65 915MHz		30	33.48	-6.52	40	30.74	24.27	10.83	32.36	-	-	P	H
		167.74	29.22	-14.28	43.5	34.27	15.54	11.89	32.48	-	-	P	H
		229.82	33.49	-12.51	46	37.73	15.91	12.25	32.4	-	-	P	H
		439.34	33.64	-12.36	46	29.66	22.78	13.07	31.87	-	-	P	H
		494.63	34.96	-11.04	46	30.05	23.76	13.27	32.12	-	-	P	H
		564.47	36.81	-9.19	46	29.92	25.93	13.58	32.62	-	-	P	H
	*	915	120.09	-	-	107.65	28.96	14.61	31.13	100	171	P	H
													H
													H
		34.85	35.47	-4.53	40	35.3	21.85	10.71	32.39	100	12	QP	V
		54.25	27.03	-12.97	40	36.09	12.43	10.99	32.48	-	-	P	V
		121.18	29.56	-13.94	43.5	33.09	17.31	11.57	32.41	-	-	P	V
		248.25	29.83	-16.17	46	31.83	17.96	12.35	32.31	-	-	P	V
		448.07	34.32	-11.68	46	30.21	22.92	13.1	31.91	-	-	P	V
		563.5	36.89	-9.11	46	29.98	25.94	13.58	32.61	-	-	P	V
	*	915	113.51	-	-	101.07	28.96	14.61	31.13	103	65	P	V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												
	3. Non restricted band limit is radio frequency level down 20db												
	4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



Lora	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
Lora 125KHz FHSS CH 129 927.8MHz		31.94	32.02	-7.98	40	30.62	22.99	10.78	32.37	-	-	P	H
		124.09	27.38	-16.12	43.5	30.84	17.37	11.59	32.42	-	-	P	H
		169.68	29.49	-14.01	43.5	34.61	15.46	11.9	32.48	-	-	P	H
		228.85	33.62	-12.38	46	37.95	15.82	12.25	32.4	-	-	P	H
		468.44	34.81	-11.19	46	30.32	23.31	13.18	32	-	-	P	H
		570.29	37.21	-8.79	46	30.54	25.74	13.59	32.66	-	-	P	H
	*	927.8	120.42	-	-	107.51	29.3	14.65	31.04	100	166	P	H
													H
													H
		35.82	34.8	-5.2	40	35.11	21.37	10.72	32.4	100	16	QP	V
		56.19	26.24	-13.76	40	35.57	12.14	11.01	32.48	-	-	P	V
		125.06	29.56	-13.94	43.5	33.05	17.34	11.59	32.42	-	-	P	V
		195.87	28.24	-15.26	43.5	34.02	14.69	12.05	32.52	-	-	P	V
		424.79	33.97	-12.03	46	30.1	22.64	13.04	31.81	-	-	P	V
		557.68	36.57	-9.43	46	29.75	25.83	13.56	32.57	-	-	P	V
	*	927.8	113.9	-	-	100.99	29.3	14.65	31.04	100	66	P	V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												
	3. Non restricted band limit is radio frequency level down 20db												
	4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



Lora 125KHz FHSS (Harmonic @ 3m)

Lora	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
Lora 125KHz FHSS CH 01 902.2MHz		2706.6	46.3	-27.7	74	43.34	28.23	8.63	33.9	-	-	P	H
		3608.8	39.27	-34.73	74	57.69	29.72	10.78	58.92	-	-	P	H
		4511	40.25	-33.75	74	55.18	31.7	11.09	57.72	-	-	P	H
		5413.2	39.64	-34.36	74	52.97	32.9	12.08	58.31	-	-	P	H
		8119.8	47.37	-26.63	74	54.31	37.1	14.37	58.41	-	-	P	H
		9022	45.58	-28.42	74	49.93	38.06	15.83	58.24	-	-	P	H
												P	H
		2706.6	45.38	-28.62	74	42.42	28.23	8.63	33.9	-	-	P	V
		3608.8	37.89	-36.11	74	56.31	29.72	10.78	58.92	-	-	P	V
		4511	40.48	-33.52	74	55.41	31.7	11.09	57.72	-	-	P	V
		5413.2	40.17	-33.83	74	53.5	32.9	12.08	58.31	-	-	P	V
		8119.8	48.7	-25.3	74	55.64	37.1	14.37	58.41	100	192	P	V
		8119.8	44.17	-9.83	54	51.11	37.1	14.37	58.41	100	192	A	V
		9022	46.61	-27.39	74	50.96	38.06	15.83	58.24	-	-	P	V
Lora 125KHz FHSS CH 65 915MHz		2745	45.81	-28.19	74	42.64	28.38	8.69	33.9	-	-	P	H
		3660	38.83	-35.17	74	56.94	29.82	10.86	58.79	-	-	P	H
		4575	39.18	-34.82	74	54.5	31.7	10.75	57.77	-	-	P	H
		7320	42.8	-31.2	74	51.07	37.02	13.44	58.73	-	-	P	H
		8235	43.84	-30.16	74	50.54	37.24	14.41	58.35	-	-	P	H
		9150	44.31	-29.69	74	48.68	38.2	15.84	58.41	-	-	P	H
												P	H
		2745	45.85	-28.15	74	42.68	28.38	8.69	33.9	-	-	P	V
		3660	37.94	-36.06	74	56.05	29.82	10.86	58.79	-	-	P	V
		4575	38.87	-35.13	74	54.19	31.7	10.75	57.77	-	-	P	V
		7320	44	-30	74	52.27	37.02	13.44	58.73	-	-	P	V
		8235	44.3	-29.7	74	51	37.24	14.41	58.35	-	-	P	V
		9150	44.11	-29.89	74	48.48	38.2	15.84	58.41	-	-	P	V
												P	V



Lora 125KHz FHSS CH 129 927.8MHz		2784.4	46.82	-27.18	74	43.48	28.47	8.76	33.89	-	-	P	H
		3711.2	39.83	-34.17	74	57.6	29.97	10.93	58.67	-	-	P	H
		4639	39.3	-34.7	74	54.57	31.78	10.77	57.82	-	-	P	H
		7422.4	46.84	-27.16	74	55.3	36.51	13.74	58.71	-	-	P	H
		8350.2	49.93	-24.07	74	56.28	37.3	14.63	58.28	120	353	P	H
		8350.2	45.4	-8.6	54	51.75	37.3	14.63	58.28	120	353	A	H
												P	H
		2784.4	46.92	-27.08	74	43.58	28.47	8.76	33.89	-	-	P	V
		3711.2	39.72	-34.28	74	57.49	29.97	10.93	58.67	-	-	P	V
		4639	38.3	-35.7	74	53.57	31.78	10.77	57.82	-	-	P	V
		7422.4	47.95	-26.05	74	56.41	36.51	13.74	58.71	-	-	P	V
		8350.2	48.89	-25.11	74	55.24	37.3	14.63	58.28	100	192	P	V
		8350.2	44.37	-9.63	54	50.72	37.3	14.63	58.28	100	192	A	V
												P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. Non restricted band limit is radio frequency level down 20db 4. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												



FSK 902~928MHz

FSK 50Kbps FHSS (Band Edge @ 3m)

Lora	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
FSK 50Kbps FHSS CH 01 902.2MHz		30.97	33.43	-6.57	40	31.47	23.53	10.8	32.37	-	-	P	H
		169.68	30.78	-12.72	43.5	35.9	15.46	11.9	32.48	-	-	P	H
		255.04	31.06	-14.94	46	32.11	18.85	12.38	32.28	-	-	P	H
		423.82	34.33	-11.67	46	30.48	22.61	13.04	31.8	-	-	P	H
		514.03	36.43	-9.57	46	31.45	23.86	13.36	32.24	-	-	P	H
		564.47	36.59	-9.41	46	29.7	25.93	13.58	32.62	-	-	P	H
	*	902.2	121.64	-	-	109.44	28.84	14.58	31.22	100	151	P	H
													H
													H
		30.97	35.24	-4.76	40	33.28	23.53	10.8	32.37	100	14	QP	V
		57.16	26.26	-13.74	40	35.81	11.92	11	32.47	-	-	P	V
		127	28.66	-14.84	43.5	32.07	17.4	11.61	32.42	-	-	P	V
		256.98	30.12	-15.88	46	30.87	19.13	12.39	32.27	-	-	P	V
		446.13	33.96	-12.04	46	29.88	22.88	13.1	31.9	-	-	P	V
		568.35	36.7	-9.3	46	29.95	25.81	13.59	32.65	-	-	P	V
	*	902.2	112.23	-	-	100.03	28.84	14.58	31.22	100	74	P	V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												
	3. Non restricted band limit is radio frequency level down 20db												
	4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



FSK	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
FSK 50Kbps FHSS CH 65 915MHz		30	32.73	-7.27	40	29.99	24.27	10.83	32.36	-	-	P	H
		127	25.87	-17.63	43.5	29.28	17.4	11.61	32.42	-	-	P	H
		257.95	28.4	-17.6	46	29	19.27	12.4	32.27	-	-	P	H
		348.16	31.26	-14.74	46	30.18	20.23	12.75	31.9	-	-	P	H
		463.59	34.59	-11.41	46	30.2	23.21	13.16	31.98	-	-	P	H
	*	569.32	36.25	-9.75	46	29.54	25.77	13.59	32.65	-	-	P	H
		915	121.77	-	-	109.33	28.96	14.61	31.13	100	152	P	H
													H
													H
		30	32.68	-7.32	40	29.94	24.27	10.83	32.36	-	-	P	V
		97.9	28.68	-14.82	43.5	34.27	15.41	11.38	32.38	-	-	P	V
		247.28	26.85	-19.15	46	28.98	17.84	12.35	32.32	-	-	P	V
		379.2	31.06	-14.94	46	29.08	20.89	12.87	31.78	-	-	P	V
		470.38	34.6	-11.4	46	30.07	23.36	13.18	32.01	-	-	P	V
	*	561.56	36.26	-9.74	46	29.33	25.96	13.57	32.6	-	-	P	V
		915	112.31	-	-	99.87	28.96	14.61	31.13	100	73	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line. 3. Non restricted band limit is radio frequency level down 20db 4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



FSK	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
FSK 50Kbps FHSS CH 129 927.8MHz		30	32.69	-7.31	40	29.95	24.27	10.83	32.36	-	-	P	H
		125.06	27.05	-16.45	43.5	30.54	17.34	11.59	32.42	-	-	P	H
		263.77	29.76	-16.24	46	29.98	19.6	12.42	32.24	-	-	P	H
		383.08	31.39	-14.61	46	29.22	21.03	12.9	31.76	-	-	P	H
		473.29	34.92	-11.08	46	30.35	23.4	13.19	32.02	-	-	P	H
	*	589.69	37.31	-8.69	46	30.99	25.48	13.64	32.8	-	-	P	H
		927.8	120.97	-	-	108.06	29.3	14.65	31.04	100	148	P	H
													H
													H
		30.97	31.94	-8.06	40	29.98	23.53	10.8	32.37	-	-	P	V
		97.9	27.73	-15.77	43.5	33.32	15.41	11.38	32.38	-	-	P	V
		285.11	28.79	-17.21	46	29.62	18.79	12.53	32.15	-	-	P	V
		383.08	31.26	-14.74	46	29.09	21.03	12.9	31.76	-	-	P	V
		486.87	35.05	-10.95	46	30.25	23.64	13.24	32.08	-	-	P	V
	*	586.78	36.83	-9.17	46	30.48	25.49	13.64	32.78	-	-	P	V
		927.8	111.07	65.07	46	98.16	29.3	14.65	31.04	103	75	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line. 3. Non restricted band limit is radio frequency level down 20db 4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



FSK 50Kbps FHSS (Harmonic @ 3m)

FSK	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
FSK 50Kbps FHSS CH 01 902.2MHz		2706.6	45.19	-28.81	74	42.23	28.23	8.63	33.9	-	-	P	H
		3608.8	38.01	-35.99	74	56.43	29.72	10.78	58.92	-	-	P	H
		4511	40.08	-33.92	74	55.01	31.7	11.09	57.72	-	-	P	H
		5413.2	38.89	-35.11	74	52.22	32.9	12.08	58.31	-	-	P	H
		8119.8	46.15	-27.85	74	53.09	37.1	14.37	58.41	-	-	P	H
		9022	46.55	-27.45	74	50.9	38.06	15.83	58.24	-	-	P	H
													H
		2706.6	44.74	-29.26	74	41.78	28.23	8.63	33.9	-	-	P	V
		3608.8	38.3	-35.7	74	56.72	29.72	10.78	58.92	-	-	P	V
		4511	39.86	-34.14	74	54.79	31.7	11.09	57.72	-	-	P	V
		5413.2	38.63	-35.37	74	51.96	32.9	12.08	58.31	-	-	P	V
		8119.8	49.02	-24.98	74	55.96	37.1	14.37	58.41	100	189	P	V
		8119.8	44.97	-9.03	54	51.91	37.1	14.37	58.41	100	189	A	V
		9022	45.85	-28.15	74	50.2	38.06	15.83	58.24	-	-	P	V
FSK 50Kbps FHSS CH 65 915MHz		2745	44.55	-29.45	74	41.38	28.38	8.69	33.9	-	-	P	H
		3660	38.65	-35.35	74	56.76	29.82	10.86	58.79	-	-	P	H
		4575	39.45	-34.55	74	54.77	31.7	10.75	57.77	-	-	P	H
		7320	43.38	-30.62	74	51.65	37.02	13.44	58.73	-	-	P	H
		8235	43.72	-30.28	74	50.42	37.24	14.41	58.35	-	-	P	H
		9150	44.33	-29.67	74	48.7	38.2	15.84	58.41	-	-	P	H
													H
		2745	43.73	-30.27	74	40.56	28.38	8.69	33.9	-	-	P	V
		3660	38.38	-35.62	74	56.49	29.82	10.86	58.79	-	-	P	V
		4575	38.59	-35.41	74	53.91	31.7	10.75	57.77	-	-	P	V
		7320	44.76	-29.24	74	53.03	37.02	13.44	58.73	-	-	P	V
		8235	43.48	-30.52	74	50.18	37.24	14.41	58.35	-	-	P	V
		9150	44.4	-29.6	74	48.77	38.2	15.84	58.41	-	-	P	V
													V



FSK 50Kbps FHSS CH 129 927.8MHz		2783.4	45.78	-28.22	74	42.44	28.47	8.76	33.89	-	-	P	H
		3711.2	39.33	-34.67	74	57.1	29.97	10.93	58.67	-	-	P	H
		4639	38.85	-35.15	74	54.12	31.78	10.77	57.82	-	-	P	H
		7422.4	45.67	-28.33	74	54.13	36.51	13.74	58.71	-	-	P	H
		8350.2	49.05	-24.95	74	55.4	37.3	14.63	58.28	122	359	P	H
		8350.2	44.66	-9.34	54	51.01	37.3	14.63	58.28	122	359	A	H
													H
		2783.4	44.65	-29.35	74	41.31	28.47	8.76	33.89	-	-	P	V
		3711.2	38.75	-35.25	74	56.52	29.97	10.93	58.67	-	-	P	V
		4639	38.46	-35.54	74	53.73	31.78	10.77	57.82	-	-	P	V
		7422.4	46.6	-27.4	74	55.06	36.51	13.74	58.71	-	-	P	V
		8350.2	47.2	-26.8	74	53.55	37.3	14.63	58.28	-	-	P	V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. Non restricted band limit is radio frequency level down 20db 4. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												



FSK 902~928MHz

FSK 150Kbps FHSS (Band Edge @ 3m)

Lora	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
FSK 150Kbps FHSS CH 01 902.4MHz		30	32.43	-7.57	40	29.69	24.27	10.83	32.36	-	-	P	H
		126.03	27.3	-16.2	43.5	30.78	17.34	11.6	32.42	-	-	P	H
		257.95	28.58	-17.42	46	29.18	19.27	12.4	32.27	-	-	P	H
		396.66	31.84	-14.16	46	29.05	21.55	12.95	31.71	-	-	P	H
		482.02	34.82	-11.18	46	30.09	23.56	13.23	32.06	-	-	P	H
		558.65	36.82	-9.18	46	29.94	25.89	13.56	32.57	-	-	P	H
	*	902.4	121.66	-	-	109.44	28.84	14.59	31.21	100	152	P	H
													H
													H
		30	32.75	-7.25	40	30.01	24.27	10.83	32.36	-	-	P	V
		97.9	27.63	-15.87	43.5	33.22	15.41	11.38	32.38	-	-	P	V
		292.87	28.89	-17.11	46	29.44	18.99	12.57	32.11	-	-	P	V
		393.75	31.85	-14.15	46	29.19	21.44	12.94	31.72	-	-	P	V
		450.98	34.39	-11.61	46	30.23	22.97	13.11	31.92	-	-	P	V
		574.17	37.17	-8.83	46	30.59	25.67	13.6	32.69	-	-	P	V
	*	902.4	112.07	-	-	99.85	28.84	14.59	31.21	102	71	P	V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												
	3. Non restricted band limit is radio frequency level down 20db												
	4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



FSK	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
FSK 150Kbps FHSS CH 33 915.2MHz		30	32.33	-7.67	40	29.59	24.27	10.83	32.36	-	-	P	H
		133.79	26.25	-17.25	43.5	29.64	17.34	11.7	32.43	-	-	P	H
		260.86	28.49	-17.51	46	28.76	19.58	12.41	32.26	-	-	P	H
		385.99	31.85	-14.15	46	29.54	21.15	12.91	31.75	-	-	P	H
		491.72	34.98	-11.02	46	30.09	23.72	13.27	32.1	-	-	P	H
		553.8	36.6	-9.4	46	30.07	25.52	13.55	32.54	-	-	P	H
	*	915.2	121.68	75.68	46	109.24	28.96	14.61	31.13	100	151	P	H
													H
													H
		30	32.97	-7.03	40	30.23	24.27	10.83	32.36	-	-	P	V
		97.9	27.19	-16.31	43.5	32.78	15.41	11.38	32.38	-	-	P	V
		263.77	30.13	-15.87	46	30.35	19.6	12.42	32.24	-	-	P	V
		393.75	31.46	-14.54	46	28.8	21.44	12.94	31.72	-	-	P	V
		496.57	34.6	-11.4	46	29.66	23.78	13.28	32.12	-	-	P	V
		577.08	36.47	-9.53	46	29.95	25.61	13.62	32.71	-	-	P	V
	*	915.2	112.2	66.2	46	99.76	28.96	14.61	31.13	102	77	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line. 3. Non restricted band limit is radio frequency level down 20db 4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



FSK	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
FSK 150Kbps FHSS CH 64 927.6MHz		30	32.43	-7.57	40	29.69	24.27	10.83	32.36	-	-	P	H
		144.46	26.79	-16.71	43.5	30.43	17.05	11.76	32.45	-	-	P	H
		263.77	28.53	-17.47	46	28.75	19.6	12.42	32.24	-	-	P	H
		396.66	32.7	-13.3	46	29.91	21.55	12.95	31.71	-	-	P	H
		474.26	34.58	-11.42	46	30.01	23.41	13.19	32.03	-	-	P	H
		572.23	36.92	-9.08	46	30.28	25.71	13.6	32.67	-	-	P	H
	*	927.6	120.88	-	-	107.99	29.29	14.65	31.05	100	153	P	H
													H
													H
		30	32.95	-7.05	40	30.21	24.27	10.83	32.36	-	-	P	V
		97.9	27.64	-15.86	43.5	33.23	15.41	11.38	32.38	-	-	P	V
		266.68	29.14	-16.86	46	29.56	19.37	12.44	32.23	-	-	P	V
		376.29	30.62	-15.38	46	28.75	20.8	12.86	31.79	-	-	P	V
		416.06	32.98	-13.02	46	29.41	22.32	13.02	31.77	-	-	P	V
		574.17	36.5	-9.5	46	29.92	25.67	13.6	32.69	-	-	P	V
	*	927.6	111.04	-	-	98.15	29.29	14.65	31.05	102	72	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line. 3. Non restricted band limit is radio frequency level down 20db 4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



FSK 150Kbps FHSS (Harmonic @ 3m)

FSK	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
FSK 150Kbps FHSS CH 01 902.4MHz		2707.2	44.04	-29.96	74	41.08	28.23	8.63	33.9	-	-	P	H
		3609.6	37.8	-36.2	74	56.21	29.72	10.78	58.91	-	-	P	H
		4512	39.81	-34.19	74	54.75	31.7	11.08	57.72	-	-	P	H
		5414.4	38.75	-35.25	74	52.08	32.9	12.08	58.31	-	-	P	H
		8121.6	44.69	-29.31	74	51.63	37.1	14.37	58.41	-	-	P	H
		9024	45.4	-28.6	74	49.75	38.05	15.84	58.24	-	-	P	H
													H
		2707.2	44.97	-29.03	74	42.01	28.23	8.63	33.9	-	-	P	V
		3609.6	38.59	-35.41	74	57	29.72	10.78	58.91	-	-	P	V
		4512	39.69	-34.31	74	54.63	31.7	11.08	57.72	-	-	P	V
		5414.4	39.17	-34.83	74	52.5	32.9	12.08	58.31	-	-	P	V
		8121.6	46.12	-27.88	74	53.06	37.1	14.37	58.41	-	-	P	V
		9024	45.66	-28.34	74	50.01	38.05	15.84	58.24	-	-	P	V
													V
FSK 150Kbps FHSS CH 33 915.2MHz		2745.6	44.43	-29.57	74	41.26	28.38	8.69	33.9	-	-	P	H
		3660.8	37.45	-36.55	74	55.56	29.82	10.86	58.79	-	-	P	H
		4576	39.35	-34.65	74	54.67	31.7	10.75	57.77	-	-	P	H
		7321.6	44.93	-29.07	74	53.2	37.01	13.45	58.73	-	-	P	H
		8236.8	46.89	-27.11	74	53.58	37.25	14.41	58.35	-	-	P	H
		9152	45.08	-28.92	74	49.46	38.2	15.84	58.42	-	-	P	H
													H
		2745.6	44.52	-29.48	74	41.35	28.38	8.69	33.9	-	-	P	V
		3660.8	38.38	-35.62	74	56.49	29.82	10.86	58.79	-	-	P	V
		4576	38.93	-35.07	74	54.25	31.7	10.75	57.77	-	-	P	V
		7321.6	45.25	-28.75	74	53.52	37.01	13.45	58.73	-	-	P	V
		8236.8	48.77	-25.23	74	55.46	37.25	14.41	58.35	100	188	P	V
		8236.8	44.52	-9.48	54	51.21	37.25	14.41	58.35	100	188	A	V
		9152	44.33	-29.67	74	48.71	38.2	15.84	58.42	-	-	P	V



FSK 150Kbps FHSS CH 64 927.6MHz		2782.8	43.71	-30.29	74	40.37	28.47	8.76	33.89	-	-	P	H
		3710.4	38.84	-35.16	74	56.63	29.96	10.92	58.67	-	-	P	H
		4638	38.46	-35.54	74	53.72	31.78	10.77	57.81	-	-	P	H
		7420.8	45.46	-28.54	74	53.92	36.52	13.73	58.71	-	-	P	H
		8348.4	49.03	-24.97	74	55.39	37.3	14.62	58.28	125	360	P	H
		8348.4	45.05	-8.95	54	51.41	37.3	14.62	58.28	125	360	A	H
													H
		2782.8	44.6	-29.4	74	41.26	28.47	8.76	33.89	-	-	P	V
		3710.4	38.79	-35.21	74	56.58	29.96	10.92	58.67	-	-	P	V
		4638	38.36	-35.64	74	53.62	31.78	10.77	57.81	-	-	P	V
		7420.8	47.18	-26.82	74	55.64	36.52	13.73	58.71	-	-	P	V
		8348.4	48.53	-25.47	74	54.89	37.3	14.62	58.28	100	191	P	V
		8348.4	43.95	-10.05	54	50.31	37.3	14.62	58.28	100	191	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. Non restricted band limit is radio frequency level down 20db 4. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												



FSK 915~928MHz

FSK 250Kbps FHSS (Band Edge @ 3m)

Lora	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
FSK 250Kbps FHSS CH 01 902.5MHz		30	31.03	-8.97	40	28.29	24.27	10.83	32.36	-	-	P	H
		137.67	26.76	-16.74	43.5	30.25	17.23	11.72	32.44	-	-	P	H
		266.68	28.62	-17.38	46	29.04	19.37	12.44	32.23	-	-	P	H
		396.66	32.12	-13.88	46	29.33	21.55	12.95	31.71	-	-	P	H
		451.95	34.13	-11.87	46	29.95	22.99	13.12	31.93	-	-	P	H
		563.5	36.41	-9.59	46	29.5	25.94	13.58	32.61	-	-	P	H
	*	902.5	121.64	-	-	109.41	28.85	14.59	31.21	100	149	P	H
													H
													H
		30	32.27	-7.73	40	29.53	24.27	10.83	32.36	-	-	P	V
		97.9	27.05	-16.45	43.5	32.64	15.41	11.38	32.38	-	-	P	V
		289.96	29.11	-16.89	46	29.77	18.92	12.55	32.13	-	-	P	V
		397.63	32.2	-13.8	46	29.37	21.59	12.95	31.71	-	-	P	V
		483.96	34.3	-11.7	46	29.55	23.59	13.23	32.07	-	-	P	V
		561.56	36.77	-9.23	46	29.84	25.96	13.57	32.6	-	-	P	V
	*	902.5	111.87	-	-	99.64	28.85	14.59	31.21	102	73	P	V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												
	3. Non restricted band limit is radio frequency level down 20db												
	4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



FSK	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
FSK 250Kbps FHSS CH 26 915MHz		30.97	31.97	-8.03	40	30.01	23.53	10.8	32.37	-	-	P	H
		126.03	25.89	-17.61	43.5	29.37	17.34	11.6	32.42	-	-	P	H
		292.87	29.28	-16.72	46	29.83	18.99	12.57	32.11	-	-	P	H
		396.66	34.15	-11.85	46	31.36	21.55	12.95	31.71	-	-	P	H
		464.56	35.11	-10.89	46	30.71	23.22	13.16	31.98	-	-	P	H
		555.74	36.34	-9.66	46	29.63	25.71	13.55	32.55	-	-	P	H
	*	915	120.99	-	-	108.55	28.96	14.61	31.13	100	153	P	H
													H
													H
		30	31.37	-8.63	40	28.63	24.27	10.83	32.36	-	-	P	V
		97.9	27.3	-16.2	43.5	32.89	15.41	11.38	32.38	-	-	P	V
		264.74	29.33	-16.67	46	29.53	19.61	12.43	32.24	-	-	P	V
		395.69	32.16	-13.84	46	29.43	21.51	12.94	31.72	-	-	P	V
		482.02	35.01	-10.99	46	30.28	23.56	13.23	32.06	-	-	P	V
		568.35	36.11	-9.89	46	29.36	25.81	13.59	32.65	-	-	P	V
	*	915	111.77	-	-	99.33	28.96	14.61	31.13	101	77	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line. 3. Non restricted band limit is radio frequency level down 20db 4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



FSK	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
FSK 250Kbps FHSS CH 51 927.5MHz		30	33.05	-6.95	40	30.31	24.27	10.83	32.36	-	-	P	H
		130.88	26.22	-17.28	43.5	29.51	17.46	11.68	32.43	-	-	P	H
		268.62	28.55	-17.45	46	29.22	19.1	12.45	32.22	-	-	P	H
		387.93	31.56	-14.44	46	29.17	21.23	12.91	31.75	-	-	P	H
		477.17	33.95	-12.05	46	29.32	23.46	13.21	32.04	-	-	P	H
		567.38	36.24	-9.76	46	29.45	25.84	13.59	32.64	-	-	P	H
	*	927.5	120.02	-	-	107.14	29.28	14.65	31.05	100	150	P	H
													H
													H
		30	33.08	-6.92	40	30.34	24.27	10.83	32.36	-	-	P	V
		97.9	27.32	-16.18	43.5	32.91	15.41	11.38	32.38	-	-	P	V
		283.17	29.04	-16.96	46	29.94	18.74	12.52	32.16	-	-	P	V
		397.63	31.76	-14.24	46	28.93	21.59	12.95	31.71	-	-	P	V
		482.99	34.53	-11.47	46	29.8	23.57	13.23	32.07	-	-	P	V
		583.87	36.37	-9.63	46	29.99	25.51	13.63	32.76	-	-	P	V
	*	927.5	110.66	-	-	97.78	29.28	14.65	31.05	100	72	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line. 3. Non restricted band limit is radio frequency level down 20db 4. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



FSK 250KBps FHSS (Harmonic @ 3m)

FSK	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
FSK 250Kbps FHSS CH 01 902.5MHz		2707.5	45.92	-28.08	74	42.96	28.23	8.63	33.9	-	-	P	H
		3610	38.2	-35.8	74	56.61	29.72	10.78	58.91	-	-	P	H
		4512.5	39.81	-34.19	74	54.75	31.7	11.08	57.72	-	-	P	H
		5415	39.7	-34.3	74	53.03	32.9	12.08	58.31	-	-	P	H
		8122.5	46.42	-27.58	74	53.36	37.1	14.37	58.41	-	-	P	H
		9025	46.03	-27.97	74	50.39	38.05	15.83	58.24	-	-	P	H
													H
		2707.5	45.59	-28.41	74	42.63	28.23	8.63	33.9	-	-	P	V
		3610	37.79	-36.21	74	56.2	29.72	10.78	58.91	-	-	P	V
		4512.5	40.06	-33.94	74	55	31.7	11.08	57.72	-	-	P	V
		5415	38.44	-35.56	74	51.77	32.9	12.08	58.31	-	-	P	V
		8122.5	46.34	-27.66	74	53.28	37.1	14.37	58.41	-	-	P	V
		9025	45.22	-28.78	74	49.58	38.05	15.83	58.24	-	-	P	V
													V
FSK 250Kbps FHSS CH 26 915MHz		2745	45.14	-28.86	74	41.97	28.38	8.69	33.9	-	-	P	H
		3660	38.99	-35.01	74	57.1	29.82	10.86	58.79	-	-	P	H
		4575	39.4	-34.6	74	54.72	31.7	10.75	57.77	-	-	P	H
		7320	42.24	-31.76	74	50.51	37.02	13.44	58.73	-	-	P	H
		8235	43.14	-30.86	74	49.84	37.24	14.41	58.35	-	-	P	H
		9150	43.93	-30.07	74	48.3	38.2	15.84	58.41	-	-	P	H
													H
		2745	45.58	-28.42	74	42.41	28.38	8.69	33.9	-	-	P	V
		3660	38.95	-35.05	74	57.06	29.82	10.86	58.79	-	-	P	V
		4575	38.87	-35.13	74	54.19	31.7	10.75	57.77	-	-	P	V
		7320	45.77	-28.23	74	54.04	37.02	13.44	58.73	-	-	P	V
		8235	43.92	-30.08	74	50.62	37.24	14.41	58.35	-	-	P	V
		9150	45.02	-28.98	74	49.39	38.2	15.84	58.41	-	-	P	V
													V



FSK 250Kbps FHSS CH 51 927.5MHz		2782.5	44.97	-29.03	74	41.63	28.47	8.76	33.89	-	-	P	H
		3710	39.41	-34.59	74	57.2	29.96	10.92	58.67	-	-	P	H
		4637.5	39.42	-34.58	74	54.7	31.77	10.76	57.81	-	-	P	H
		7420	42.1	-31.9	74	50.56	36.52	13.73	58.71	-	-	P	H
		8347.5	45.92	-28.08	74	52.3	37.29	14.62	58.29	-	-	P	H
													H
													H
		2782.5	46.11	-27.89	74	42.77	28.47	8.76	33.89	-	-	P	V
		3710	39.11	-34.89	74	56.9	29.96	10.92	58.67	-	-	P	V
		4637.5	38.89	-35.11	74	54.17	31.77	10.76	57.81	-	-	P	V
		7420	46.07	-27.93	74	54.53	36.52	13.73	58.71	-	-	P	V
		8347.5	47.99	-26.01	74	54.37	37.29	14.62	58.29	-	-	P	V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. Non restricted band limit is radio frequency level down 20db 4. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	P eak or A verage
H/V	H orizontal or V ertical



A calculation example for radiated spurious emission is shown as below:

Lora	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
Lora 125KHz FHSS CH 01 902.2MHz		8119.8	51.34	-22.66	74	58.28	37.1	14.37	58.41	100	189	P	V
		8119.8	46.5	-7.5	54	53.44	37.1	14.37	58.41	100	189	A	V

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Margin(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 8119.8MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 37.1(dB/m) + 14.37(dB) + 58.28(dBμV) – 58.41 (dB)
= 51.34 (dBμV/m)
2. Margin(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 51.34(dBμV/m) – 74(dBμV/m)
= -22.66(dB)

For Average Limit @ 8119.8MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 37.1(dB/m) + 14.37(dB) + 53.44(dBμV) – 58.41 (dB)
= 46.5 (dBμV/m)
2. Margin(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 46.5(dBμV/m) – 54(dBμV/m)
= -7.5(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.

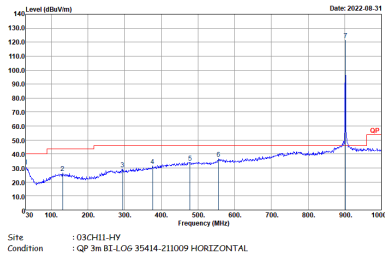
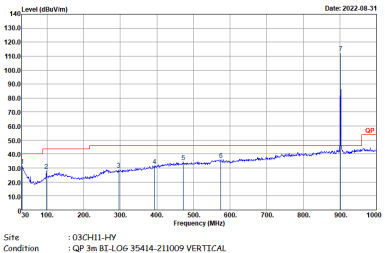


Appendix D. Radiated Spurious Emission Plots

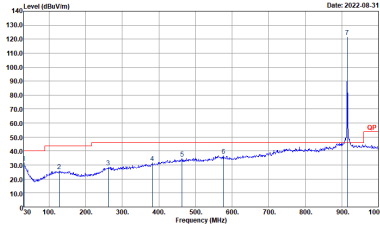
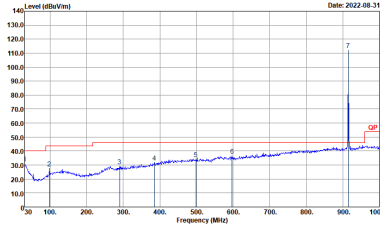
Test Engineer :	Yuan Lee and Troye Hsieh	Temperature :	20~21.5°C
		Relative Humidity :	56.4~67.6%

Lora 902~928MHz

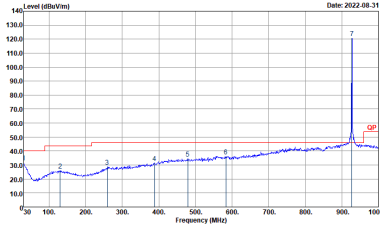
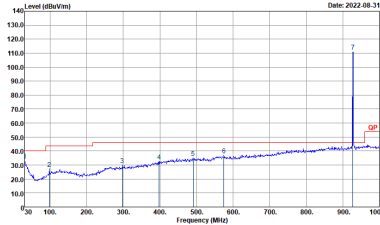
Lora 125KHz FHSS_SF7 (Band Edge @ 3m)

Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch01 902.2MHz	
	Horizontal	Vertical
QP / Peak		

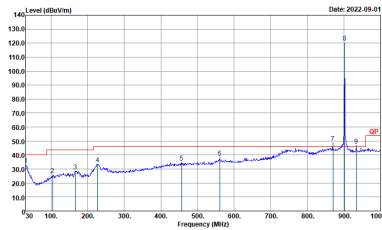
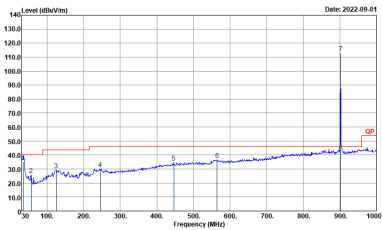


Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch65 915 MHz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 VERTICAL



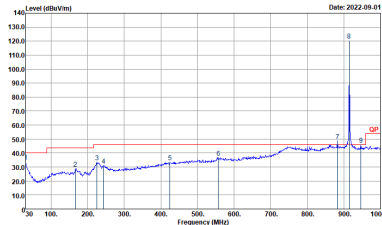
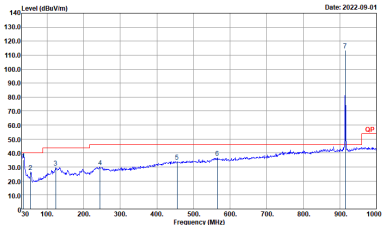
Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch129 927.8 MHz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 VERTICAL

Lora 902~928MHz
Lora 125KHz FHSS_SF8 (Band Edge @ 3m)

Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch01 902.2MHz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH11-HY Condition : QP 3m BE-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HY Condition : QP 3m BE-LOG 35414-211009 VERTICAL

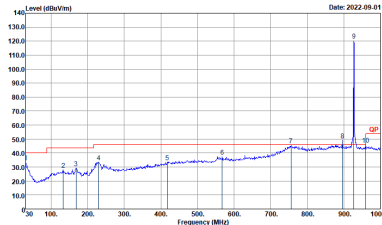
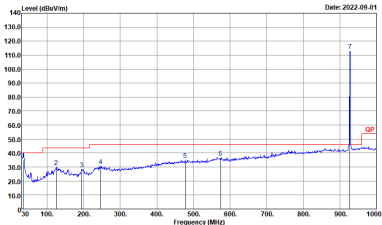
Remark: The unwanted signal of mark #7.9 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).



Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch65 915 MHz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 VERTICAL

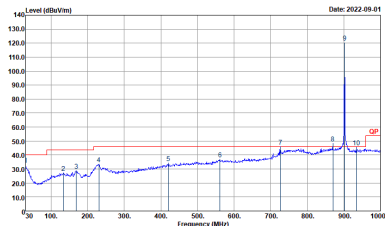
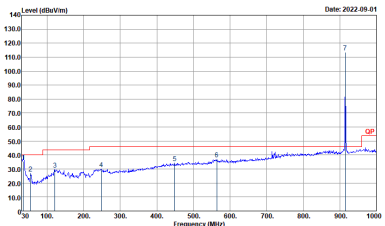
Remark: The unwanted signal of mark #7.9 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).



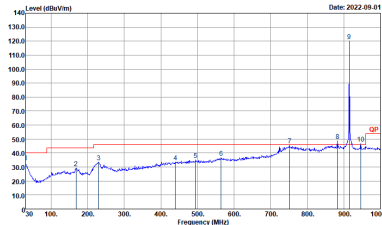
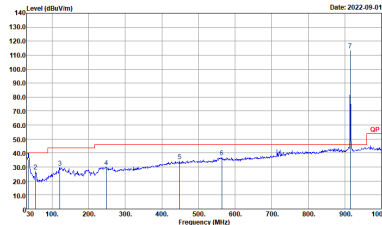
Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch129 927.8 MHz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 VERTICAL

Remark: The unwanted signal of mark #7.8.10 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).

Lora 902~928MHz
Lora 125KHz FHSS_SF9 (Band Edge @ 3m)

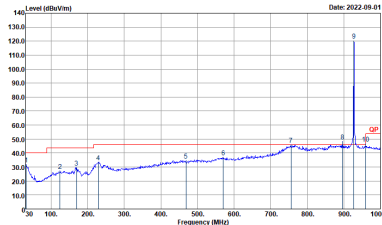
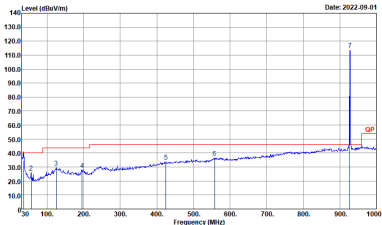
Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch01 902.2MHz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH11-HY Condition : QP 3m BE-LO6 35414-211009 HORIZONTAL	 Site : 03CH11-HY Condition : QP 3m BE-LO6 35414-211009 VERTICAL

Remark: The unwanted signal of mark #7.8.10 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).

Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch65 915 MHz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 VERTICAL

Remark: The unwanted signal of mark #7.8.10 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).



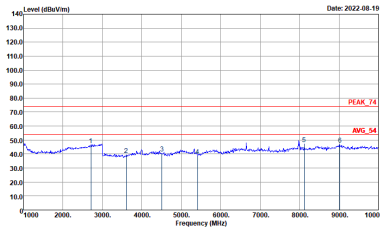
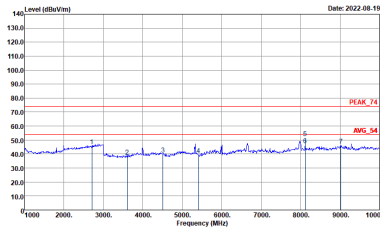
Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch129 927.8 MHz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 VERTICAL

Remark: The unwanted signal of mark #7.8.10 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).

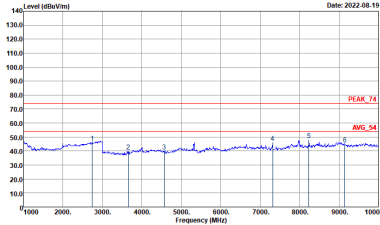
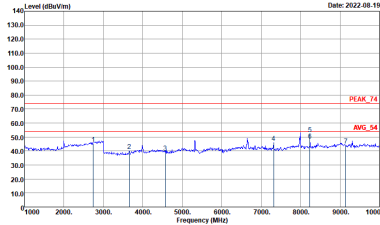


Lora 902~928MHz

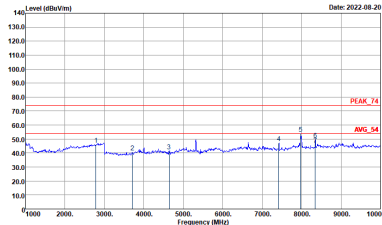
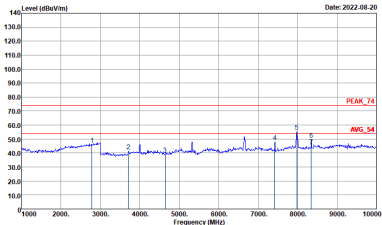
Lora 125KHz FHSS_SF7 (Harmonic @ 3m)

Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch01 902.2Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL



Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch65 915Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL



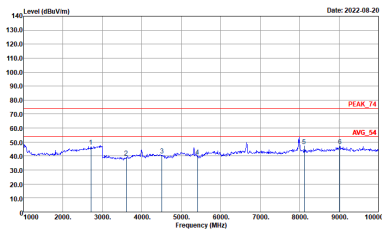
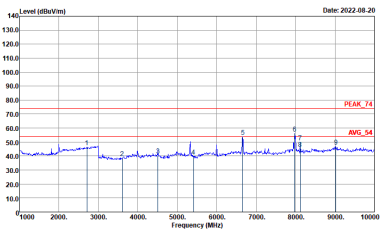
Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch129 927.8Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

Remark: The unwanted signal of mark #5 in Horizontal plot and #5 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).



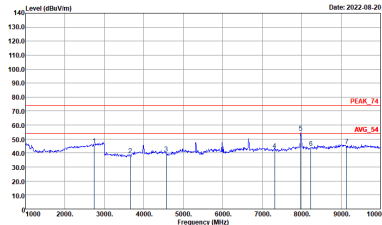
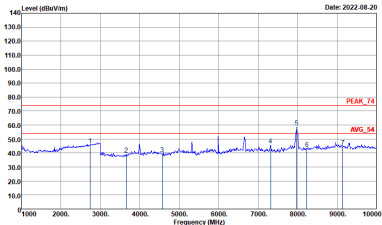
Lora 902~928MHz

Lora 125KHz FHSS_SF8 (Harmonic @ 3m)

Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch01 902.2Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

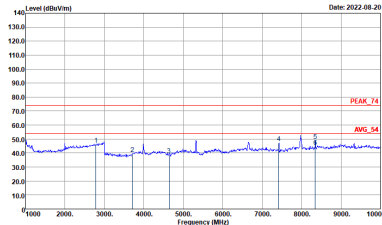
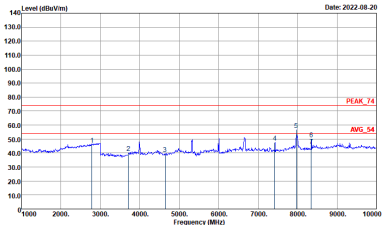
Remark: The unwanted signal of mark #5.6 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).



Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch65 915Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

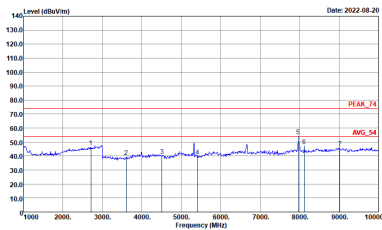
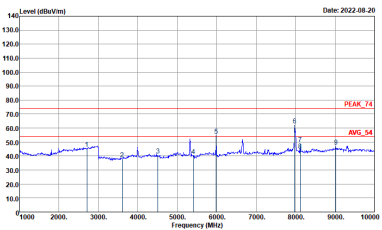
Remark: The unwanted signal of mark #5 in Horizontal plot and #5 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).



Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch129 927.8Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

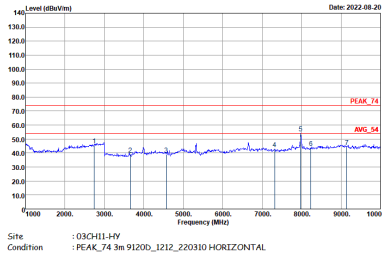
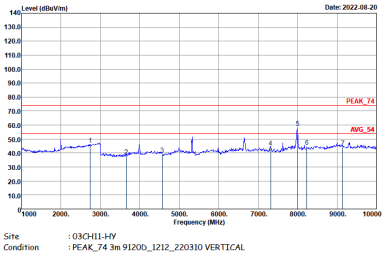
Remark: The unwanted signal of mark #5 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).

Lora 902~928MHz
Lora 125KHz FHSS_SF9 (Harmonic @ 3m)

Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch01 902.2Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

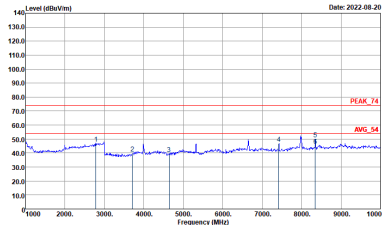
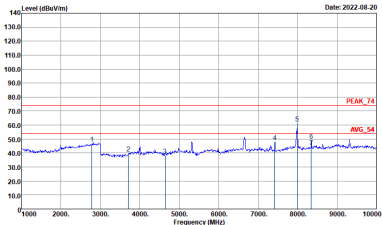
Remark: The unwanted signal of mark #5 in Horizontal plot and #6 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).



Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch65 915Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

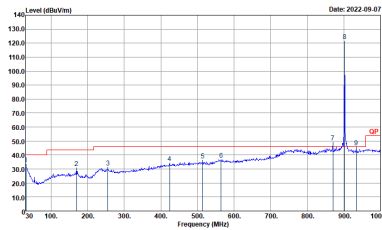
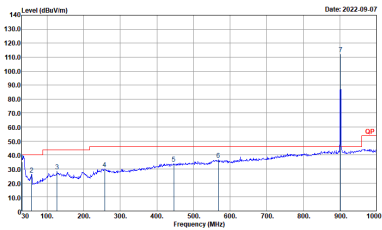
Remark: The unwanted signal of mark #5 in Horizontal plot and #5 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).



Lora	Lora 902~928MHz	
	Lora 125KHz FHSS Ch129 927.8Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

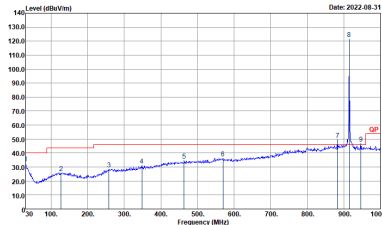
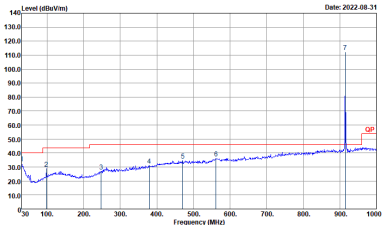
Remark: The unwanted signal of mark #5 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).

FSK 902~928MHz
FSK 50Kbps FHSS (Band Edge @ 3m)

FSK	FSK 902~928MHz	
	FSK 50Kbps FHSS Ch01 902.2Mhz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH11-HY Condition : QP 3m BE-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HY Condition : QP 3m BE-LOG 35414-211009 VERTICAL

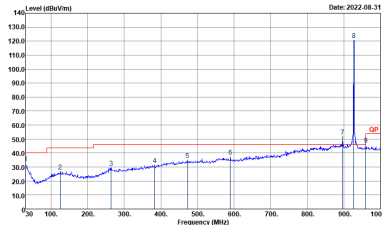
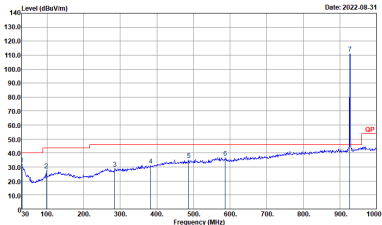
Remark: The unwanted signal of mark #7.9 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).



FSK	FSK 902~928MHz	
	FSK 50Kbps FHSS Ch65 915Mhz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH11-HV Condition : QP 3m BT-L.O.G 35414-211009 HORIZONTAL	 Site : 03CH11-HV Condition : QP 3m BT-L.O.G 35414-211009 VERTICAL

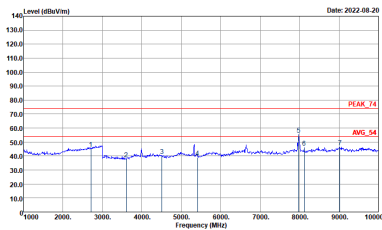
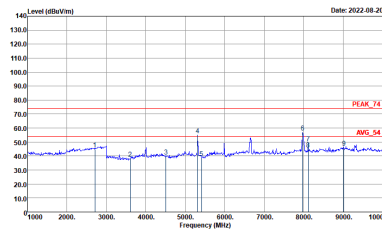
Remark: The unwanted signal of mark #7.9 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).



FSK	FSK 902~928MHz	
	FSK 50Kbps FHSS Ch129 927.8Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 VERTICAL

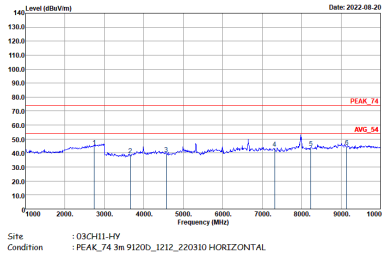
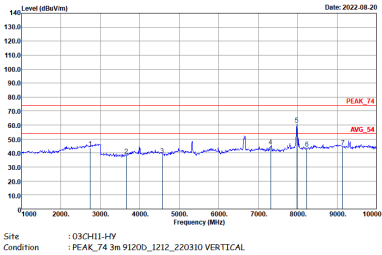
Remark: The unwanted signal of mark #7.9 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).

FSK 902~928MHz
FSK 50Kbps FHSS (Harmonic @ 3m)

FSK	FSK 902~928MHz	
	FSK 50Kbps FHSS Ch01 902.2Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

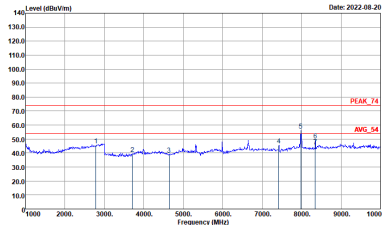
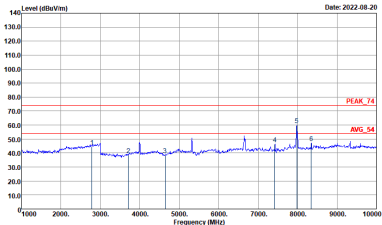
Remark: The unwanted signal of mark #5 in Horizontal plot and #4.6 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).



FSK	FSK 902~928MHz	
	FSK 50Kbps FHSS Ch65 915Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

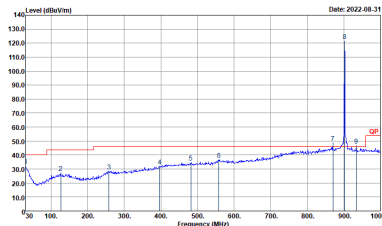
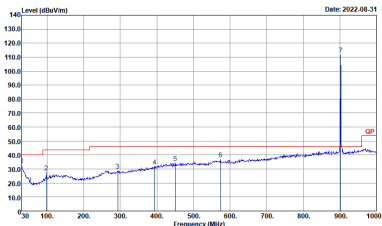
Remark: The unwanted signal of mark #5 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).



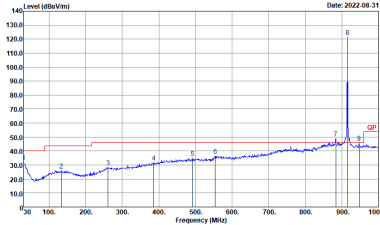
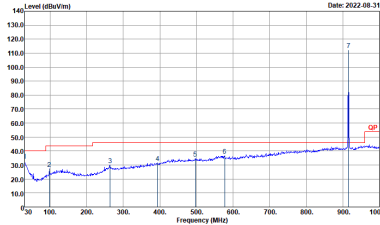
FSK	FSK 902~928MHz	
	FSK 50Kbps FHSS Ch129 927.8Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

Remark: The unwanted signal of mark #5 in Horizontal plot and #5 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).

FSK 902~928MHz
FSK 150Kbps FHSS (Band Edge @ 3m)

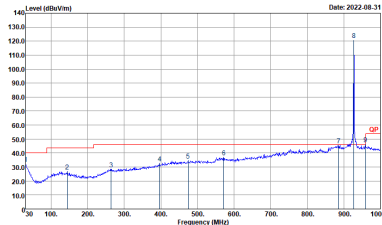
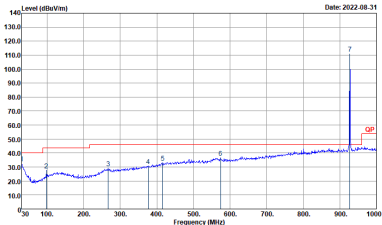
FSK	FSK 902~928MHz	
	FSK 150Kbps FHSS Ch01 902.4Mhz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH11-HY Condition : QP 3m BE-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HY Condition : QP 3m BE-LOG 35414-211009 VERTICAL

Remark: The unwanted signal of mark #7.9 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).

FSK	FSK 902~928MHz	
	FSK 150Kbps FHSS Ch33 915.2Mhz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH11-HV Condition : QP 3m BT-L06 35414-211009 HORIZONTAL	 Site : 03CH11-HV Condition : QP 3m BT-L06 35414-211009 VERTICAL

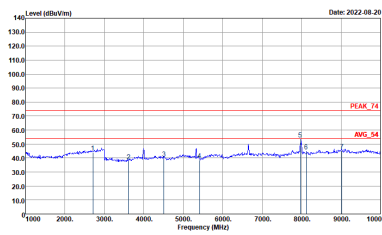
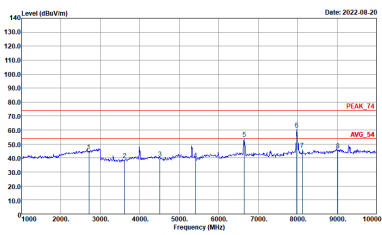
Remark: The unwanted signal of mark #7.9 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).



FSK	FSK 902~928MHz	
	FSK 150Kbps FHSS Ch64 927.6Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 VERTICAL

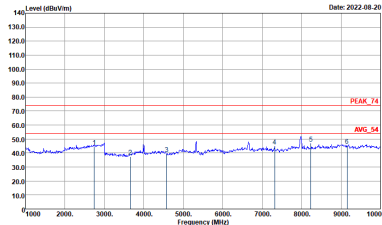
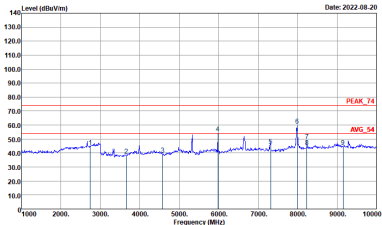
Remark: The unwanted signal of mark #7.9 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).

FSK 902~928MHz
FSK 150Kbps FHSS (Harmonic @ 3m)

FSK	FSK 902~928MHz	
	FSK 150Kbps FHSS Ch01 902.4Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

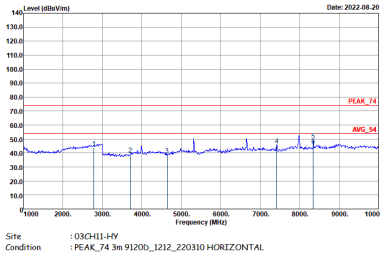
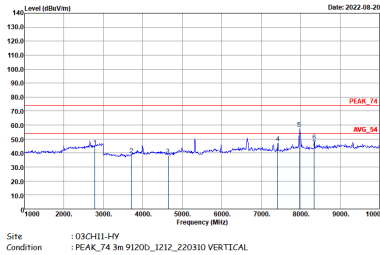
Remark: The unwanted signal of mark #5 in Horizontal plot and #5.6 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).



FSK	FSK 902~928MHz	
	FSK 150Kbps FHSS Ch33 915.2Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

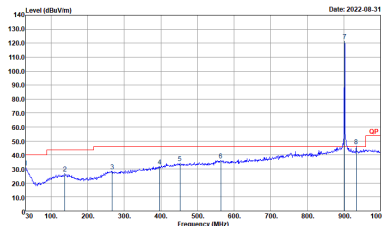
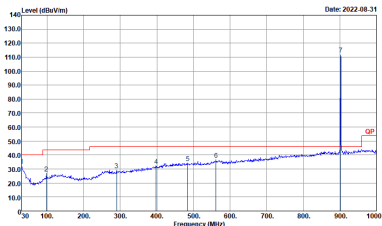
Remark: The unwanted signal of mark #4.6 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).



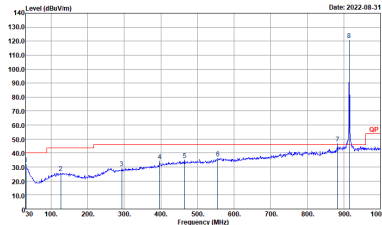
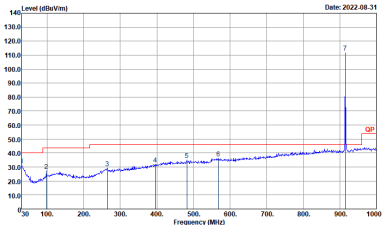
FSK	FSK 902~928MHz	
	FSK 150Kbps FHSS Ch64 927.6Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

Remark: The unwanted signal of mark #5 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).

FSK 902~928MHz
FSK 250Kbps FHSS (Band Edge @ 3m)

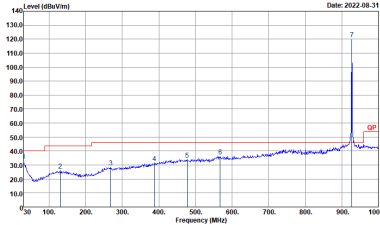
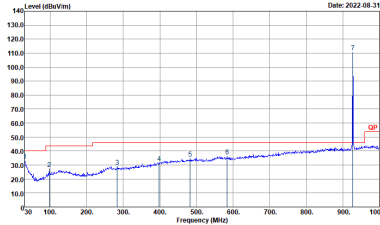
FSK	FSK 902~928MHz	
	FSK 250Kbps FHSS Ch01 902.5Mhz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH11-HY Condition : QP 3m BE-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HY Condition : QP 3m BE-LOG 35414-211009 VERTICAL

Remark: The unwanted signal of mark #8 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).

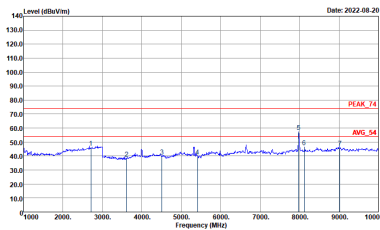
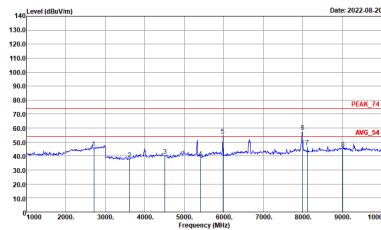
FSK	FSK 902~928MHz	
	FSK 250Kbps FHSS Ch26 915Mhz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH11-HV Condition : QP 3m BT-L.OG 35414-211009 HORIZONTAL	 Site : 03CH11-HV Condition : QP 3m BT-L.OG 35414-211009 VERTICAL

Remark: The unwanted signal of mark #7 in Horizontal plot falls within the non-restricted band and meet the requirements of 15.247 (d).



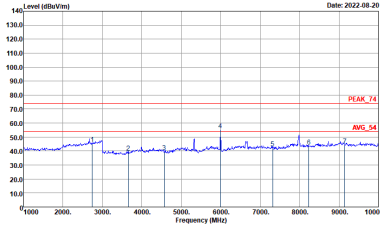
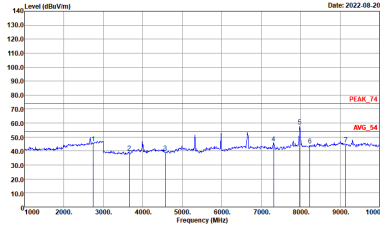
FSK	FSK 902~928MHz	
	FSK 250Kbps FHSS Ch51 927.5Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HV Condition : QP 3m BT-LOG 35414-211009 VERTICAL

FSK 902~928MHz
FSK 250Kbps FHSS (Harmonic @ 3m)

FSK	FSK 902~928MHz	
	FSK 250Kbps FHSS Ch01 902.5Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

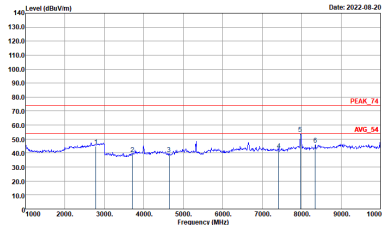
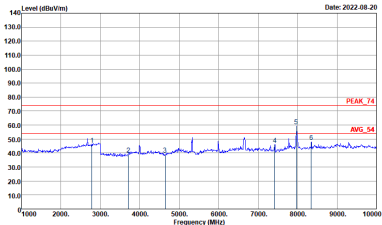
Remark: The unwanted signal of mark #5 in Horizontal plot and #5.6 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).



FSK	FSK 902~928MHz	
	FSK 250Kbps FHSS Ch26 915Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

Remark: The unwanted signal of mark #4 in Horizontal plot and #5 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).



FSK	FSK 902~928MHz	
	FSK 250Kbps FHSS Ch51 927.5Mhz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_1212_220310 VERTICAL

Remark: The unwanted signal of mark #5 in Horizontal plot and #5 in Vertical plot falls within the non-restricted band and meet the requirements of 15.247 (d).

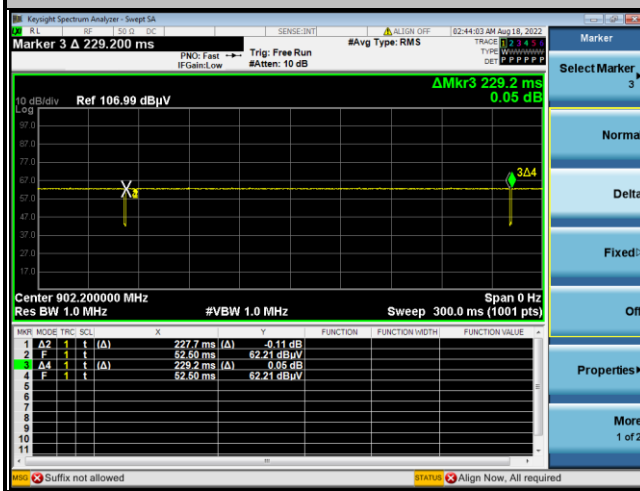


Appendix E. Duty Cycle Plots

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
Lora 125kHz FHSS SF7	99.35	-	-	10Hz
Lora 125kHz FHSS SF8	99.63	-	-	10Hz
Lora 125kHz FHSS SF9	100.00	-	-	10Hz
FSK 50Kbps	97.32	72600	0.01	30Hz
FSK 150Kbps	92.55	24230	0.04	100Hz
FSK 250Kbps	88.18	14550	0.07	100Hz



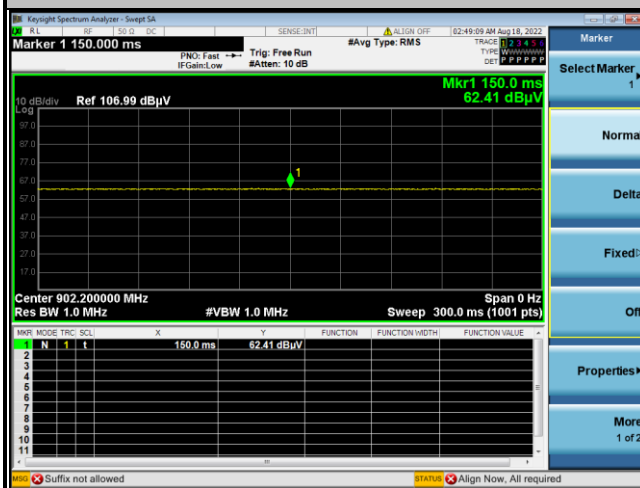
Lora 125kHz FHSS SF7



Lora 125kHz FHSS SF8



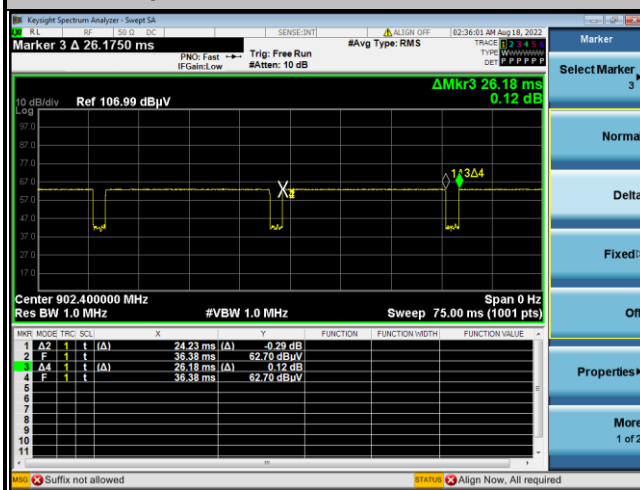
Lora 125kHz FHSS SF9



FSK 50Kbps



FSK 150Kbps



FSK 250Kbps

