

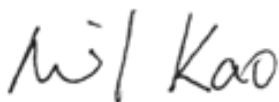


FCC RADIO TEST REPORT

FCC ID : 2AEUP-7AFYA3
Equipment : Environmental Alert Device
Brand Name : 
Model Name : 7AFYA3
Marketing Name : 7AFYA3
Applicant : Ring LLC
12515 Cerise Ave, Hawthorne, CA 90250,
USA
Manufacturer : Ring LLC
12515 Cerise Ave, Hawthorne, CA 90250,
USA
Standard : FCC Part 15 Subpart C §15.247

The product was received on Oct. 28, 2025 and testing was performed from Oct. 28, 2025 to Nov. 19, 2025. We, Sporton International (USA) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International (USA) Inc., the test report shall not be reproduced except in full.



Approved by: Neil Kao

Sporton International (USA) Inc.
1175 Montague Expressway, Milpitas, CA 95035



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description.....	5
1.1 Product Feature of Equipment Under Test.....	5
1.2 Modification of EUT	5
1.3 Testing Location	5
1.4 Applicable Standards.....	5
2 Test Configuration of Equipment Under Test.....	6
2.1 Carrier Frequency Channel	6
2.2 Test Mode.....	9
2.3 Connection Diagram of Test System.....	10
2.4 EUT Operation Test Setup	10
2.5 Measurement Results Explanation Example.....	10
3 Test Result.....	11
3.1 Number of Channel Measurement	11
3.2 Hopping Channel Separation Measurement	12
3.3 Dwell Time Measurement.....	13
3.4 20dB and 99% Bandwidth Measurement	14
3.5 Output Power Measurement.....	15
3.6 Conducted Band Edges Measurement.....	16
3.7 Conducted Spurious Emission Measurement	17
3.8 Radiated Band Edges and Spurious Emission Measurement	18
3.9 Antenna Requirements.....	22
4 List of Measuring Equipment	23
5 Measurement Uncertainty	24
Appendix A. Conducted Test Results	
Appendix B. Radiated Spurious Emission	
Appendix C. Duty Cycle Plots	
Appendix D. Setup Photographs	



History of this test report

Report No.	Version	Description	Issue Date
FR251103002C	01	Initial issue of report	Nov. 26, 2025
FR251103002C	02	Revised FCC ID, Product Feature of Equipment Under Test, and Test Mode This report is an updated version, replacing the report issued on Nov. 26, 2025.	Dec. 01, 2025
FR251103002C	03	Revised Sect 2.2 and Sect 2.3 This report is an updated version, replacing the report issued on Dec. 01, 2025.	Dec. 11, 2025

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(1)	Number of Channels	Pass	-
3.2	15.247(a)(1)	Hopping Channel Separation	Pass	-
3.3	15.247(a)(1)	Dwell Time of Each Channel	Pass	-
3.4	15.247(a)(1)	20dB Bandwidth	Pass	-
3.4	2.1049	99% Occupied Bandwidth	Pass	-
3.5	15.247(b)(2)	Output Power	Pass	-
3.6	15.247(d)	Conducted Band Edges	Pass	-
3.7	15.247(d)	Conducted Spurious Emission	Pass	-
3.8	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass	-
-	15.207	AC Conducted Emission	Pass	See Note
3.9	15.203 15.247(b)	Antenna Requirement	Pass	-

Note: The power source method of the EUT is to use DC power source, and there is no other AC power port, after assessing, AC Conduction Emission test is not required.

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature		
General Specs Bluetooth-LE / LoRa.		
Antenna Type LoRa: Metal IFA antenna		
Antenna information		
902 MHz ~ 928 MHz	Peak Gain (dBi)	0.7

Remark: The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.

1.2 Modification of EUT

No modifications made to the EUT during the testing.

1.3 Testing Location

Test Site	Sporton International (USA) Inc.
Test Site Location	1175 Montague Expressway, Milpitas, CA 95035 TEL : 408 9043300
Test Site No.	Sporton Site No.
	TH01-CA, 03CH02-CA

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: US1250

1.4 Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC KDB Publication No. 558074 D01 15.247 Meas Guidance v05r02
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01
- ♦ FCC Part 15 Subpart C §15.247
- ♦ ANSI C63.10-2020

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

LoRa 125kHz / FSK 50kbps

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
902 – 928 MHz	1	902.2	28	907.6	55	913.0	82	918.4	109	923.8
	2	902.4	29	907.8	56	913.2	83	918.6	110	924.0
	3	902.6	30	908.0	57	913.4	84	918.8	111	924.2
	4	902.8	31	908.2	58	913.6	85	919.0	112	924.4
	5	903.0	32	908.4	59	913.8	86	919.2	113	924.6
	6	903.2	33	908.6	60	914.0	87	919.4	114	924.8
	7	903.4	34	908.8	61	914.2	88	919.6	115	925.0
	8	903.6	35	909.0	62	914.4	89	919.8	116	925.2
	9	903.8	36	909.2	63	914.6	90	920.0	117	925.4
	10	904.0	37	909.4	64	914.8	91	920.2	118	925.6
	11	904.2	38	909.6	65	915.0	92	920.4	119	925.8
	12	904.4	39	909.8	66	915.2	93	920.6	120	926.0
	13	904.6	40	910.0	67	915.4	94	920.8	121	926.2
	14	904.8	41	910.2	68	915.6	95	921.0	122	926.4
	15	905.0	42	910.4	69	915.8	96	921.2	123	926.6
	16	905.2	43	910.6	70	916.0	97	921.4	124	926.8
	17	905.4	44	910.8	71	916.2	98	921.6	125	927.0
	18	905.6	45	911.0	72	916.4	99	921.8	126	927.2
	19	905.8	46	911.2	73	916.6	100	922.0	127	927.4
	20	906.0	47	911.4	74	916.8	101	922.2	128	927.6
	21	906.2	48	911.6	75	917.0	102	922.4	-	-
	22	906.4	49	911.8	76	917.2	103	922.6	-	-
	23	906.6	50	912.0	77	917.4	104	922.8	-	-
	24	906.8	51	912.2	78	917.6	105	923.0	-	-
	25	907.0	52	912.4	79	917.8	106	923.2	-	-
	26	907.2	53	912.6	80	918.0	107	923.4	-	-
	27	907.4	54	912.8	81	918.2	108	923.6	-	-

**FSK 150 kbps**

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
902 – 928 MHz	1	902.4	33	915.2
	2	902.8	34	915.6
	3	903.2	35	916.0
	4	903.6	36	916.4
	5	904.0	37	916.8
	6	904.4	38	917.2
	7	904.8	39	917.6
	8	905.2	40	918.0
	9	905.6	41	918.4
	10	906.0	42	918.8
	11	906.4	43	919.2
	12	906.8	44	919.6
	13	907.2	45	920.0
	14	907.6	46	920.4
	15	908.0	47	920.8
	16	908.4	48	921.2
	17	908.8	49	921.6
	18	909.2	50	922.0
	19	909.6	51	922.4
	20	910.0	52	922.8
	21	910.4	53	923.2
	22	910.8	54	923.6
	23	911.2	55	924.0
	24	911.6	56	924.4
	25	912.0	57	924.8
	26	912.4	58	925.2
	27	912.8	59	925.6
	28	913.2	60	926.0
	29	913.6	61	926.4
	30	914.0	62	926.8
	31	914.4	63	927.2
	32	914.8	64	927.6

**FSK 250 kbps**

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
902 – 928 MHz	1	902.5	28	916.0
	2	903.0	29	916.5
	3	903.5	30	917.0
	4	904.0	31	917.5
	5	904.5	32	918.0
	6	905.0	33	918.5
	7	905.5	34	919.0
	8	906.0	35	919.5
	9	906.5	36	920.0
	10	907.0	37	920.5
	11	907.5	38	921.0
	12	908.0	39	921.5
	13	908.5	40	922.0
	14	909.0	41	922.5
	15	909.5	42	923.0
	16	910.0	43	923.5
	17	910.5	44	924.0
	18	911.0	45	924.5
	19	911.5	46	925.0
	20	912.0	47	925.5
	21	912.5	48	926.0
	22	913.0	49	926.5
	23	913.5	50	927.0
	24	914.0	51	927.5
	25	914.5		
	26	915.0		
	27	915.5		

2.2 Test Mode

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and only the worst case emissions were reported in this report.

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases		
Test Item	Feature	LoRa/FSK
Conducted Test Cases	LoRa 125kHz FHSS SF7	Mode 7: CH01 Tx_902.20 MHz Mode 8: CH65 Tx_915.00 MHz Mode 9: CH128 Tx_927.60 MHz
	FSK 50 kbps FHSS	Mode 10: CH01 Tx_902.20 MHz Mode 11: CH65 Tx_915.00 MHz Mode 12: CH128 Tx_927.60 MHz
	FSK 150 kbps FHSS	Mode 13: CH01 Tx_902.40 MHz Mode 14: CH31 Tx_915.20 MHz Mode 15: CH64 Tx_927.60 MHz
	FSK 250 kbps FHSS	Mode 16: CH01 Tx_902.50 MHz Mode 17: CH26 Tx_915.00 MHz Mode 18: CH51 Tx_927.50 MHz
Radiated Test Cases	LoRa 125kHz FHSS SF7	Mode 7: CH01 Tx_902.20 MHz Mode 8: CH65 Tx_915.00 MHz Mode 9: CH128 Tx_927.60 MHz
	FSK 50 kbps FHSS	Mode 10: CH01 Tx_902.20 MHz Mode 11: CH65 Tx_915.00 MHz Mode 12: CH128 Tx_927.60 MHz
	FSK 150 kbps FHSS	Mode 13: CH01 Tx_902.40 MHz Mode 14: CH31 Tx_915.20 MHz Mode 15: CH64 Tx_927.60 MHz
	FSK 250 kbps FHSS	Mode 16: CH01 Tx_902.50 MHz Mode 17: CH26 Tx_915.00 MHz Mode 18: CH51 Tx_927.50 MHz
Remark: The detailed Radiated test modes are shown in Appendix B.		

2.3 Connection Diagram of Test System



The EUT was tested under standalone configuration.

For detailed, please refer to test mode configuration and setup photos for each test items

2.4 EUT Operation Test Setup

The RF test items, utility “J_Link RTT Viewer V8.86” was installed in EUT which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.5 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10 dB attenuator.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 4.2 + 10 = 14.2 \text{ (dB)}\end{aligned}$$

3 Test Result

3.1 Number of Channel Measurement

3.1.1 Limits of Number of Hopping Frequency

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies.

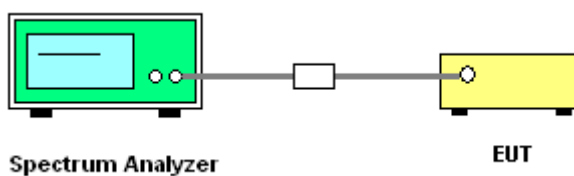
3.1.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.1.3 Test Procedure

1. The testing follows ANSI C63.10 clause 7.8.3.
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings: Span = the frequency band of operation;
RBW = 50kHz; VBW $\geq$ RBW; Sweep = No faster than coupled (auto) time; Detector function = peak; Trace = max hold. for LoRa.
6. The number of hopping frequency used is defined as the number of total channel.
7. Record the measurement data derived from spectrum analyzer.

3.1.4 Test Setup



3.1.5 Test Result of Number of Hopping Frequency

Please refer to Appendix A.

3.2 Hopping Channel Separation Measurement

3.2.1 Limit of Hopping Channel Separation

Frequency hopping systems operating in the 902 – 928 MHz band shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

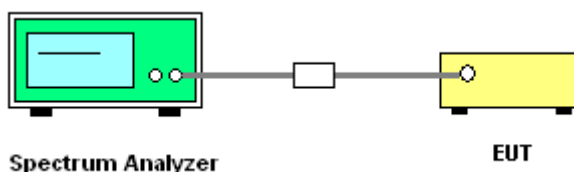
3.2.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.2.3 Test Procedures

1. The testing follows ANSI C63.10 clause 7.8.2.
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings:
Span = wide enough to capture the peaks of two adjacent channels;
RBW = 50kHz for; VBW $\geq$ RBW; Sweep = No faster than coupled (auto) time.; Detector function = peak; Trace = max hold for LoRa.
6. Measure and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Hopping Channel Separation

Please refer to Appendix A.

3.3 Dwell Time Measurement

3.3.1 Limit of Dwell Time

If the 20 dB bandwidth of the hopping channel is less than 250 kHz, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

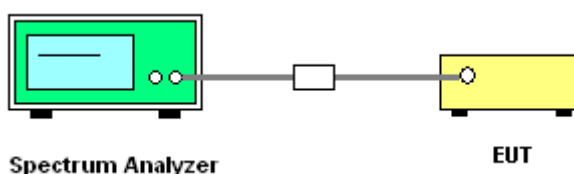
3.3.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.3.3 Test Procedures

1. The testing follows ANSI C63.10 clause 7.8.4.
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel; RBW = 1 MHz; VBW $\geq$ RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold.
6. Measure and record the results in the test report.

3.3.4 Test Setup



3.3.5 Test Result of Dwell Time

Please refer to Appendix A.

3.4 20dB and 99% Bandwidth Measurement

3.4.1 Limit of 20dB and 99% Bandwidth

The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

99% Bandwidth is reporting only.

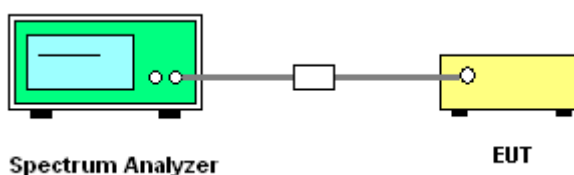
3.4.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.4.3 Test Procedures

1. The testing follows ANSI C63.10 clause 6.9.2 and 6.9.3.
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Use the following spectrum analyzer settings for 20 dB Bandwidth measurement.
Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hopping channel;
RBW $\geq$ 1% of the 20 dB bandwidth, VBW $\geq$ 3 * RBW; Sweep = auto; Detector function = peak;
Trace = max hold.
5. Use the following spectrum analyzer settings for 99 % Bandwidth measurement.
Span = approximately 1.5 to 5 times the 99% bandwidth, centered on a hopping channel;
RBW $\geq$ 1-5% of the 99% bandwidth, VBW $\geq$ 3 * RBW; Sweep = auto; Detector function = peak;
Trace = max hold.
6. Measure and record the results in the test report.

3.4.4 Test Setup



3.4.5 Test Result of 20dB Bandwidth

Please refer to Appendix A.

3.4.6 Test Result of 99% Occupied Bandwidth

Please refer to Appendix A.

3.5 Output Power Measurement

3.5.1 Limit of Output Power

For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

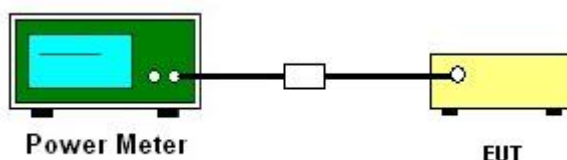
3.5.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.5.3 Test Procedures

1. The testing follows ANSI C63.10 clause 7.8.5.
2. The RF output of EUT is connected to the power meter by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Measure the conducted output power with cable loss and record the results in the test report.
5. Measure and record the results in the test report.

3.5.4 Test Setup



3.5.5 Test Result of Peak Output Power

Please refer to Appendix A.

3.5.6 Test Result of Average Output Power (Reporting Only)

Please refer to Appendix A.

3.6 Conducted Band Edges Measurement

3.6.1 Limit of Band Edges

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.

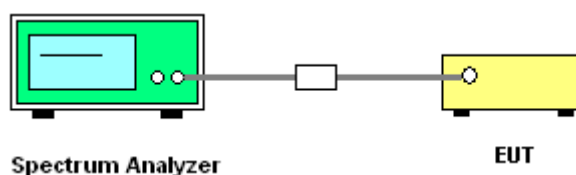
3.6.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.6.3 Test Procedures

1. The testing follows ANSI C63.10 clause 6.10.
2. Set the maximum power setting and enable the EUT to transmit continuously.
3. Set RBW = 100 kHz, VBW = 300 kHz. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. The attenuation shall be 30 dB instead of 20 dB when RMS conducted output power procedure is used.
4. Enable hopping function of the EUT and then repeat step 2 and 3.
5. Measure and record the results in the test report.

3.6.4 Test Setup



3.6.5 Test Result of Conducted Band Edges

Please refer to Appendix A

3.6.6 Test Result of Conducted Hopping Mode Band Edges

Please refer to Appendix A

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.

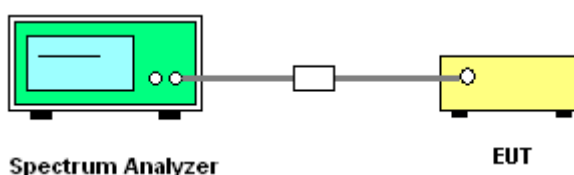
3.7.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.7.3 Test Procedure

1. The testing follows ANSI C63.10 clause 7.8.7.
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Set RBW = 100 kHz, VBW = 300 kHz, scan up through 10th harmonic. All harmonics / spurious 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

Please refer to Appendix 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

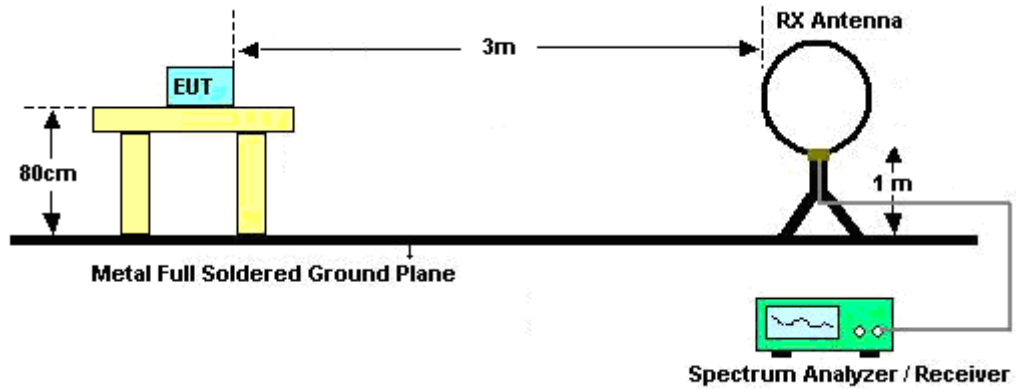
Please refer to the measuring equipment list in this test report.

3.8.3 Test Procedures

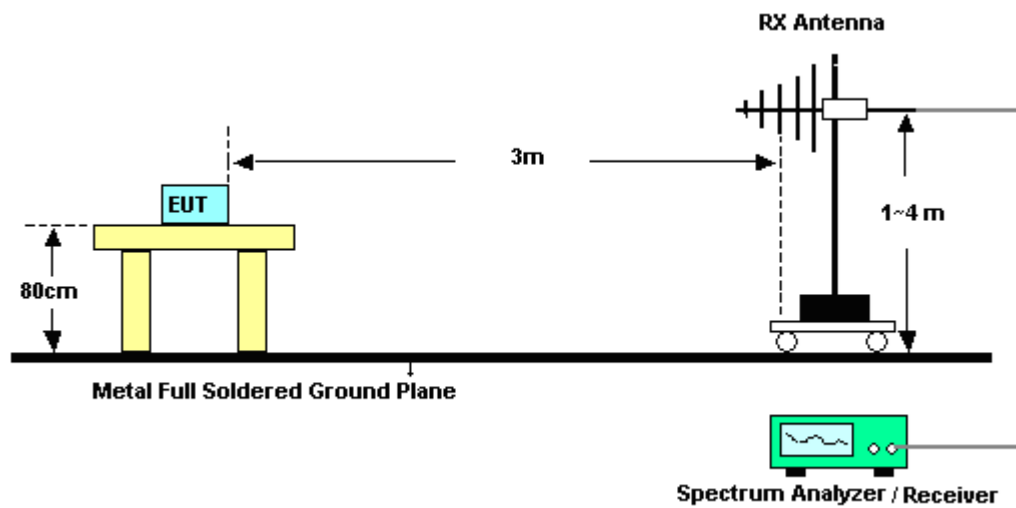
1. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
2. The EUT is set 3 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT is 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 the maximum power setting and enable the EUT to 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 = 1 MHz 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
 $\text{On time} = N_1 \cdot L_1 + N_2 \cdot L_2 + \dots + N_{n-1} \cdot L_{n-1} + N_n \cdot L_n$
Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc.
Average Emission Level = Peak Emission Level + $20 \cdot \log(\text{Duty cycle})$
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as “-”.
8. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-”.

3.8.4 Test Setup

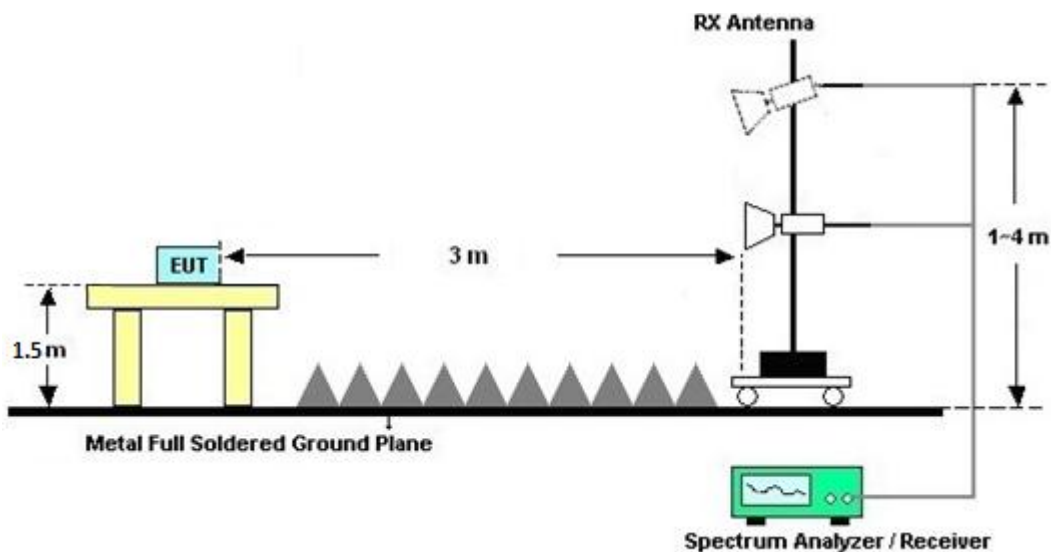
For radiated test below 30MHz



For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



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

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

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

3.8.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B

3.8.7 Duty Cycle

Please refer to Appendix C

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

Please refer to Appendix B.



3.9 Antenna Requirements

3.9.1 Standard Applicable

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.

3.9.2 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
Bilog Antenna	TESEQ	6111D	50392	30MHz~1GHz	Aug. 25, 2025	Oct. 28, 2025~ Nov. 04, 2025	Aug. 24, 2026	Radiation (03CH02-CA)
Loop Antenna	R&S	HFH2-Z2E	100840	9kHz~30MHz	Apr. 28, 2025	Oct. 28, 2025~ Nov. 04, 2025	Apr. 27, 2026	Radiation (03CH02-CA)
Horn Antenna	SCHWARZBECK	BBHA 9120D	02140	1GHz~18GHz	Feb. 07, 2025	Oct. 28, 2025~ Nov. 04, 2025	Feb. 07, 2026	Radiation (03CH02-CA)
Spectrum Analyzer	Keysight	N9010A	MY57420221	10Hz~44GHz	Aug. 18, 2025	Oct. 28, 2025~ Nov. 04, 2025	Aug. 17, 2026	Radiation (03CH02-CA)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00841	18GHz~40GHz	Aug. 08, 2025	Oct. 28, 2025~ Nov. 04, 2025	Aug. 07, 2026	Radiation (03CH02-CA)
Amplifier	SONOMA	310N	372240	9kHz~1GHz	Apr. 14, 2025	Oct. 28, 2025~ Nov. 04, 2025	Apr. 13, 2026	Radiation (03CH02-CA)
Preamplifier	Keysight	83017A	MY53270321	1GHz~26.5GHz	Apr. 14, 2025	Oct. 28, 2025~ Nov. 04, 2025	Apr. 13, 2026	Radiation (03CH02-CA)
Preamplifier	E-instrument	ERA-100M-18G-56-01-A70	EC1900251	1GHz~18GHz	Apr. 14, 2025	Oct. 28, 2025~ Nov. 04, 2025	Apr. 13, 2026	Radiation (03CH02-CA)
Preamplifier	EMEC	EMC18G40G	060726	18G-40G	Apr. 15, 2025	Oct. 28, 2025~ Nov. 04, 2025	Apr. 14, 2026	Radiation (03CH02-CA)
RF Cable	EMCI/ HUBER+SUHNER	EMC101Y-KM-KM/ SUCOFLEX 102	250708, 805581/2, 802860/2	N/A	Oct. 16, 2025	Oct. 28, 2025~ Nov. 04, 2025	Oct. 15, 2026	Radiation (03CH02-CA)
Hygrometer	TESEO	608-H1	45142602	N/A	Aug. 08, 2025	Oct. 28, 2025~ Nov. 04, 2025	Aug. 07, 2026	Radiation (03CH02-CA)
Controller	Chaintek	EM-1000	060876	Control Turn Table & Antenna Mast	N/A	Oct. 28, 2025~ Nov. 04, 2025	N/A	Radiation (03CH02-CA)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Oct. 28, 2025~ Nov. 04, 2025	N/A	Radiation (03CH02-CA)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Oct. 28, 2025~ Nov. 04, 2025	N/A	Radiation (03CH02-CA)
Test Software	Audix E3	E3	N/A	N/A	N/A	Oct. 28, 2025~ Nov. 04, 2025	N/A	Radiation (03CH02-CA)
Hygrometer	Testo	608-H1	45141354	N/A	Aug. 08, 2025	Nov. 18, 2025~ Nov. 19, 2025	Aug. 07, 2026	Conducted (TH01-CA)
Power Sensor	DARE Instruments	RPR3006W	RPR6W-1901024	10MHz~6GHz	Apr. 17, 2025	Nov. 18, 2025~ Nov. 19, 2025	Apr. 16, 2026	Conducted (TH01-CA)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101545	10Hz~40GHz	Apr. 17, 2025	Nov. 18, 2025~ Nov. 19, 2025	Apr. 16, 2026	Conducted (TH01-CA)
Switch Box	EM Electronics	EMSW26	1090304	N/A	Sep. 15, 2025	Nov. 18, 2025~ Nov. 19, 2025	Sep. 14, 2026	Conducted (TH01-CA)
Power Meter	Anritsu	ML2495A	1804004	N/A	Apr. 17, 2025	Nov. 18, 2025~ Nov. 19, 2025	Apr. 16, 2026	Conducted (TH01-CA)



5 Measurement Uncertainty

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.1 dB
--	--------

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.3 dB
--	--------

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.6 dB
--	--------

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Venkata Kondepudi	Temperature:	17.5~17.9	°C
Test Date:	2025/11/18~2025/11/20	Relative Humidity:	54.5~57.2	%

<FHSS 125kHz SF7>

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

Mod.	NTX	CH.	Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
Lora	1	1	902.2	0.131	0.117	0.207	0.1309	Pass
Lora	1	65	915	0.149	0.126	0.203	0.1489	Pass
Lora	1	128	927.6	0.151	0.126	0.203	0.1514	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	128	1	386.40	0.39	0.4	Pass

TEST RESULTS DATA**Peak Power Table**

Mod.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
Lora	1	20.74	30.00	Pass
	1	20.60	30.00	Pass
	1	20.50	30.00	Pass

TEST RESULTS DATA**Number of Hopping Frequency**

Number of Hopping (Channel)	Limits (Channel)	Pass/Fail
128	> 50	Pass

<FSK_50kbps>

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	0.107	0.102	0.206	0.1074	Pass
FSK	50kbps	1	65	915	0.109	0.104	0.197	0.1089	Pass
FSK	50kbps	1	128	927.6	0.106	0.102	0.203	0.1064	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	128	1.00	378.80	0.38	0.4	Pass

TEST RESULTS DATA**Peak Power Table**

Mod.	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
FSK	1	1	20.66	30.00	Pass
	65	1	20.54	30.00	Pass
	128	1	20.45	30.00	Pass

TEST RESULTS DATA**Number of Hopping Frequency**

Number of Hopping (Channel)	Limits (Channel)	Pass/Fail
128	> 50	Pass

<FSK_150kbps>

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	0.164	0.154	0.198	0.1639	Pass
FSK	150kbps	1	33	915.2	0.167	0.157	0.201	0.1673	Pass
FSK	150kbps	1	64	927.6	0.165	0.153	0.197	0.1648	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	365.60	0.37	0.4	Pass

TEST RESULTS DATA**Peak Power Table**

Mod.	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
FSK	1	1	20.75	30.00	Pass
	33	1	20.58	30.00	Pass
	64	1	20.49	30.00	Pass

TEST RESULTS DATA**Number of Hopping Frequency**

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

<FSK_250kbps>

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	0.256	0.251	0.506	0.2555	Pass
FSK	250kbps	1	26	915	0.257	0.253	0.504	0.2565	Pass
FSK	250kbps	1	51	927.5	0.256	0.252	0.499	0.2557	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	389.00	0.39	0.4	Pass

TEST RESULTS DATA**Peak Power Table**

Mod.	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
FSK	1	1	20.68	30.00	Pass
	26	1	20.53	30.00	Pass
	51	1	20.45	30.00	Pass

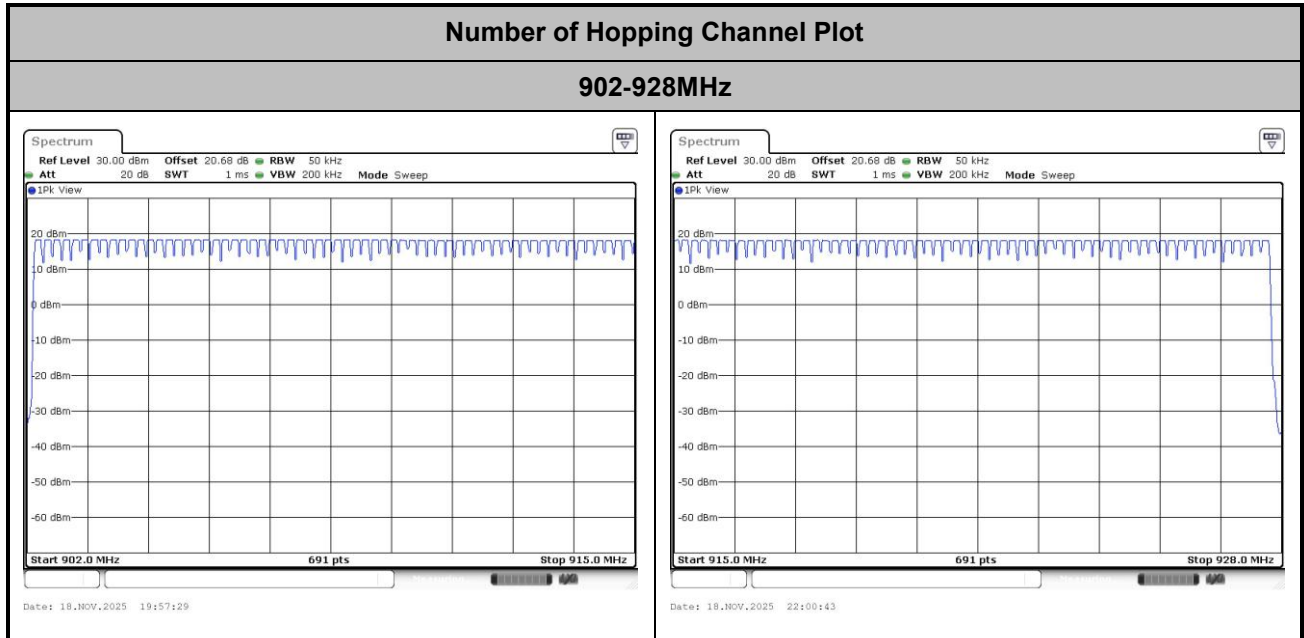
TEST RESULTS DATA**Number of Hopping Frequency**

Number of Hopping (Channel)	Limits (Channel)	Pass/Fail
51	≥ 25	Pass



<FHSS_125kHz_SF7>

Number of Hopping Frequency





Hopping Channel Separation

Channel Separation Plot on 902.2MHz

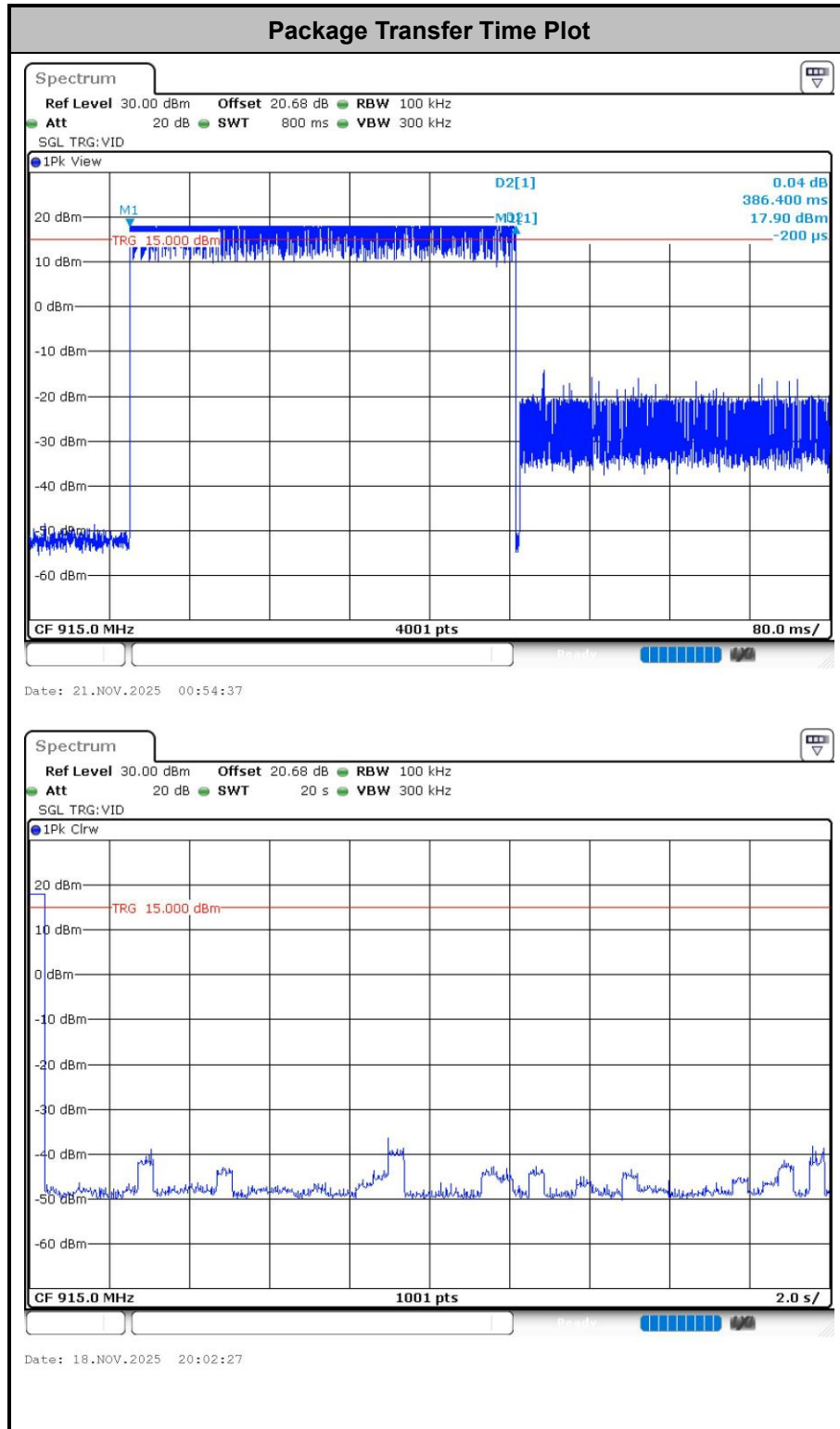


Channel Separation Plot on Channel 915MHz



Channel Separation Plot on Channel 927.6MHz



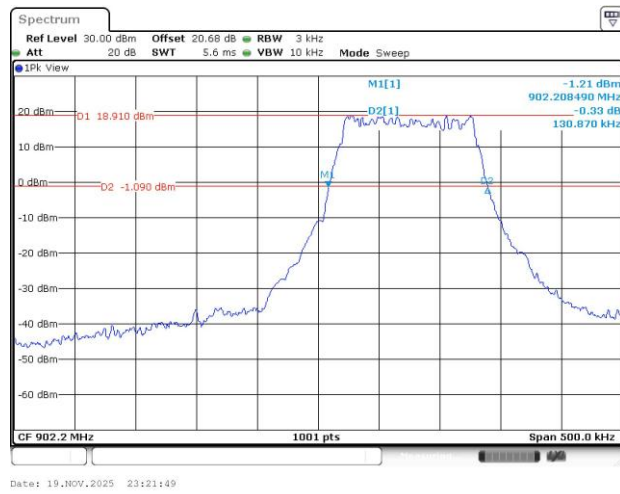
Dwell Time


Remark: Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time
= 1 x 0.3864s = 0.3864s

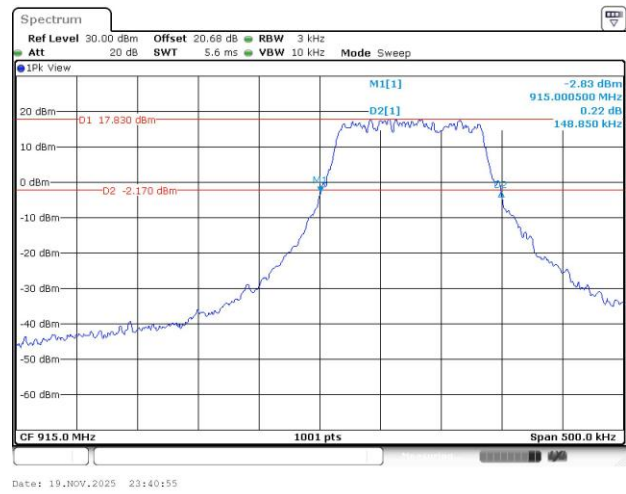


20dB Bandwidth

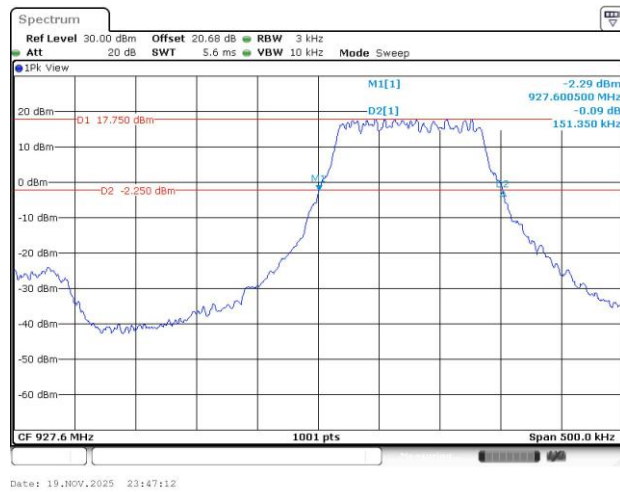
20 dB Bandwidth Plot in 902.2MHz



20 dB Bandwidth Plot in 915MHz

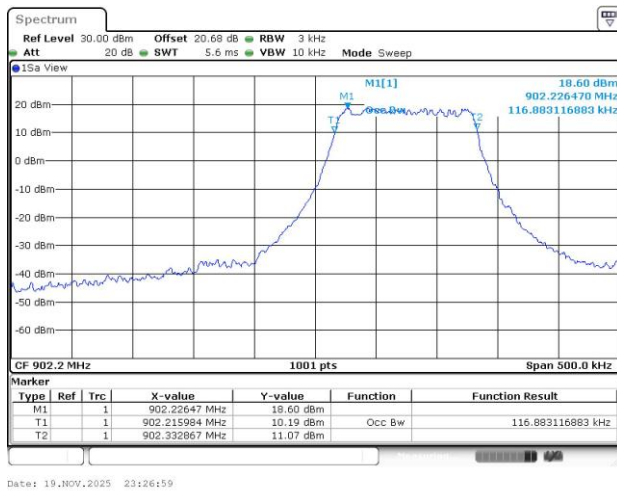


20 dB Bandwidth Plot in 927.6MHz



99% Occupied Bandwidth

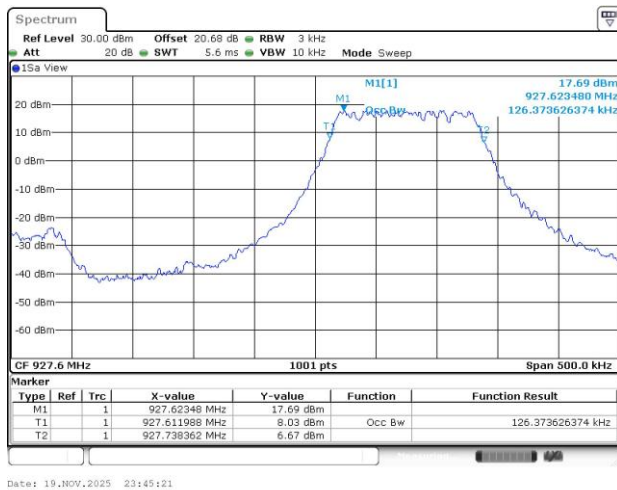
99% Occupied Bandwidth on 902.2MHz



99% Occupied Bandwidth on 915MHz



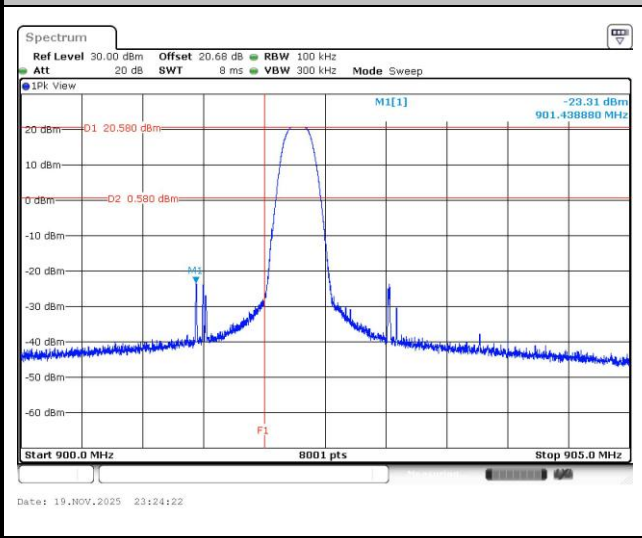
99% Occupied Bandwidth on 927.6MHz



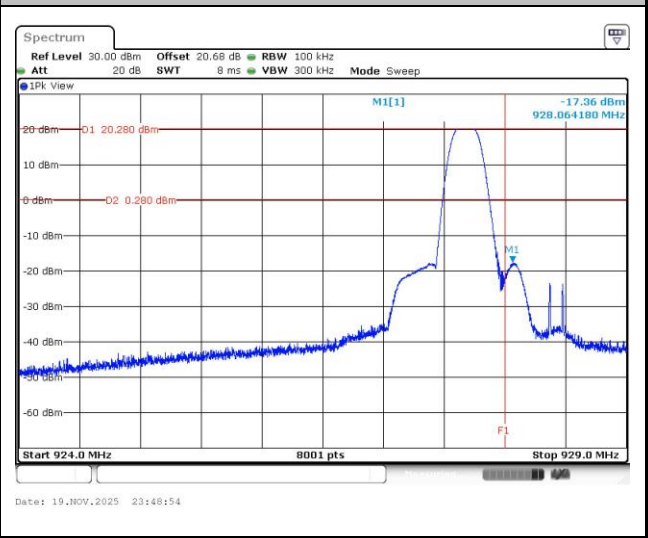


Band Edges

Low Band Edge Plot on 902.2MHz



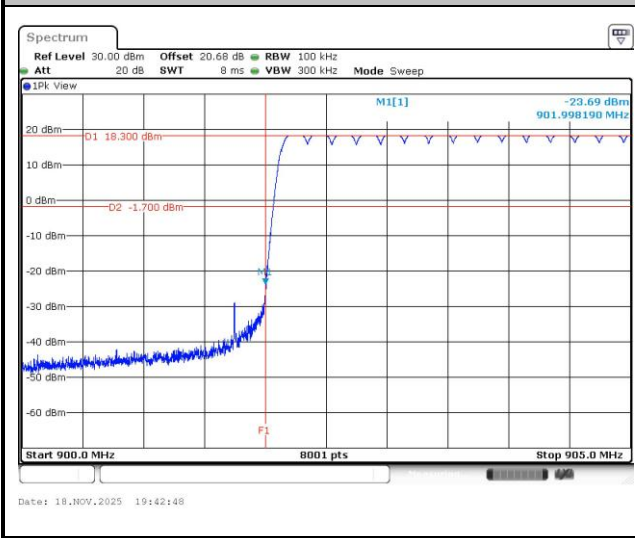
High Band Edge Plot on 927.6MHz



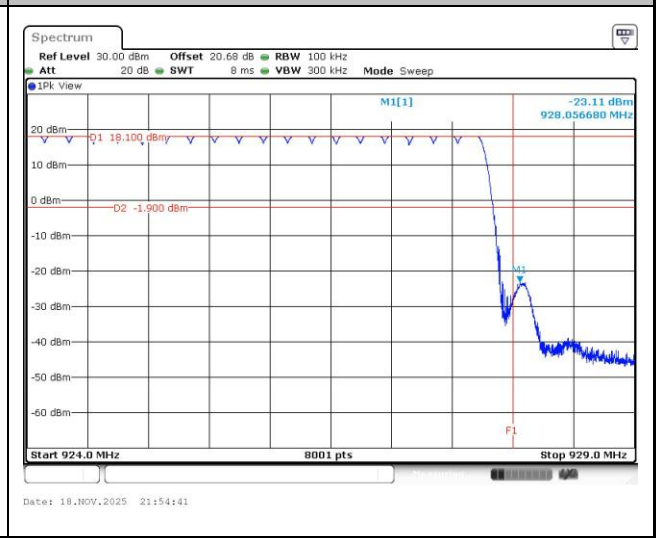


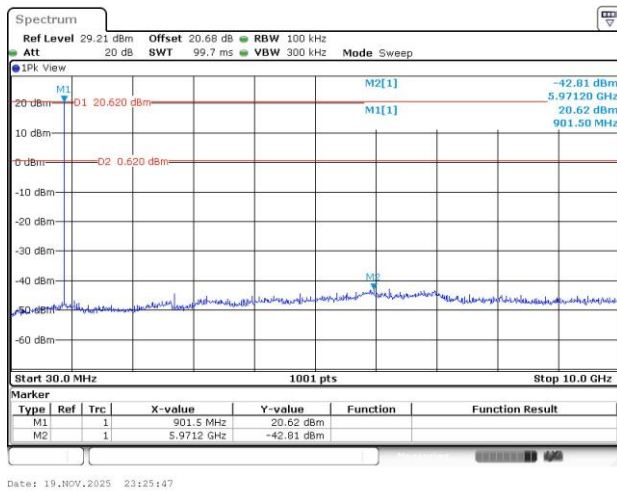
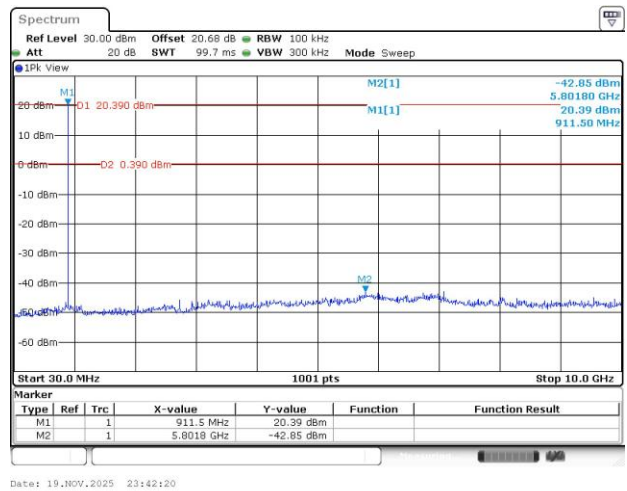
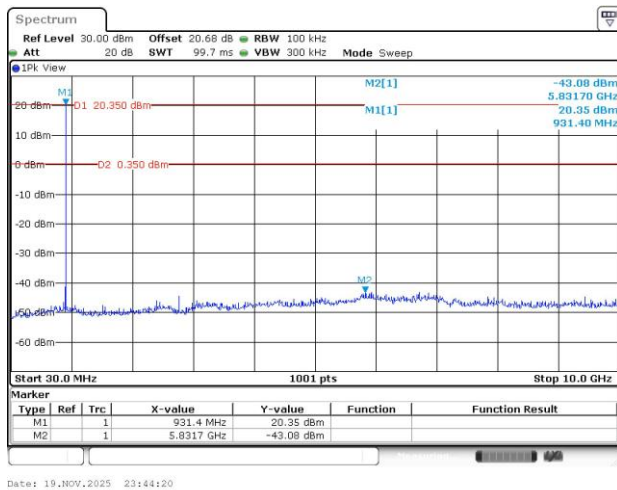
Hopping Mode Band Edges

Hopping Mode Low Band Edge Plot



Hopping Mode High Band Edge Plot

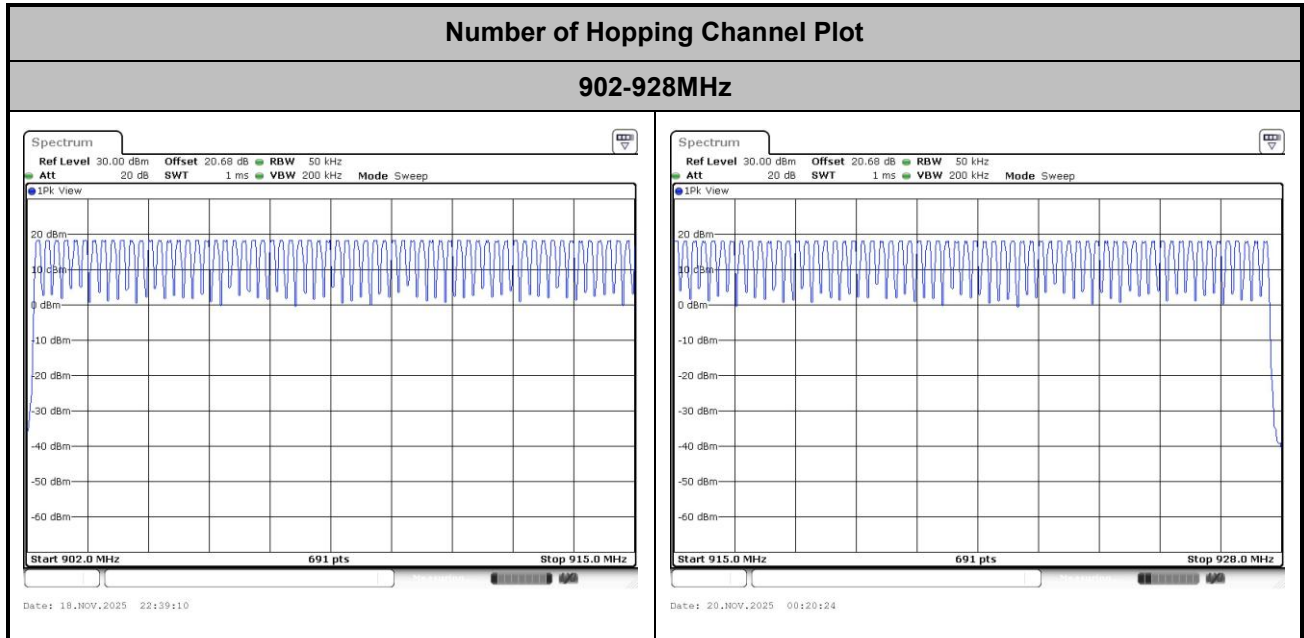


**Conducted Spurious Emission****CSE Plot on Low Ch from 30MHz to 10GHz****CSE Plot on Mid Ch from 30MHz to 10GHz****CSE Plot on High Ch from 30MHz to 10GHz**

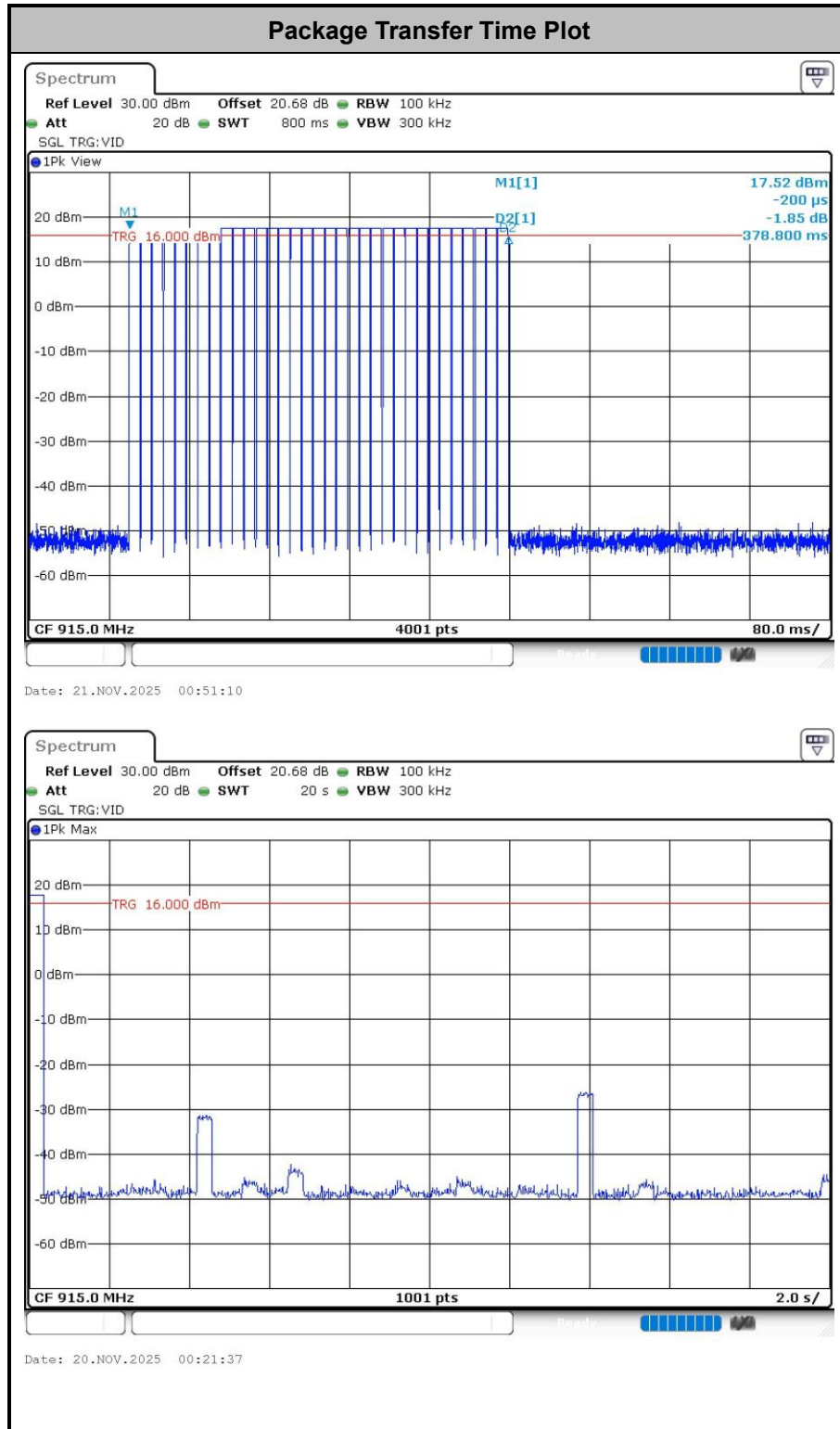


<FSK_50kbps>

Number of Hopping Frequency



**Hopping Channel Separation****Channel Separation Plot on 902.2MHz****Channel Separation Plot on Channel 915MHz****Channel Separation Plot on Channel 927.6MHz**

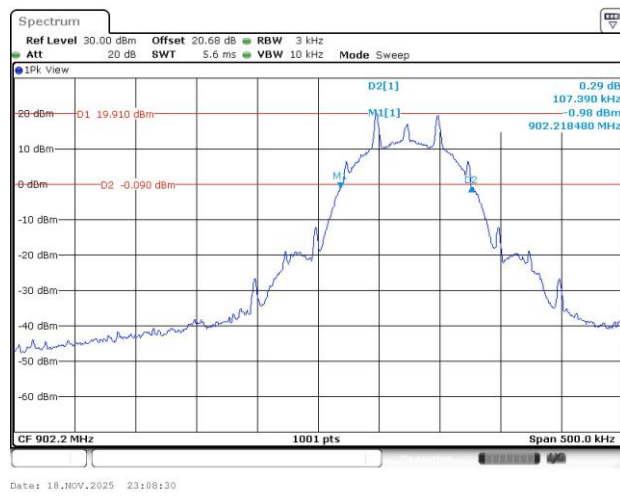
Dwell Time


Remark: Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time
= 1 x 0.3788s = 0.3788s

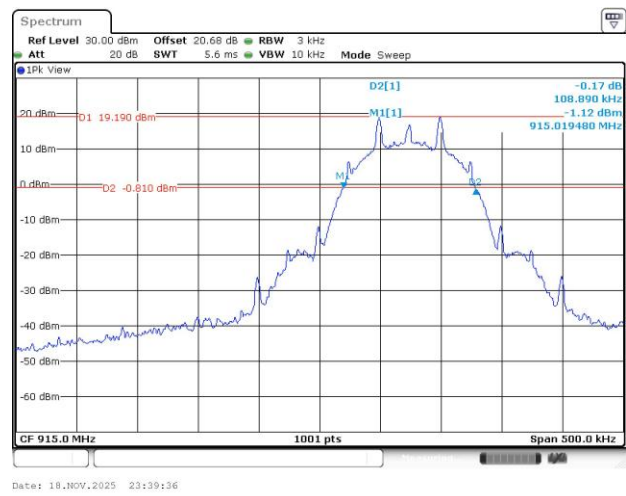


20dB Bandwidth

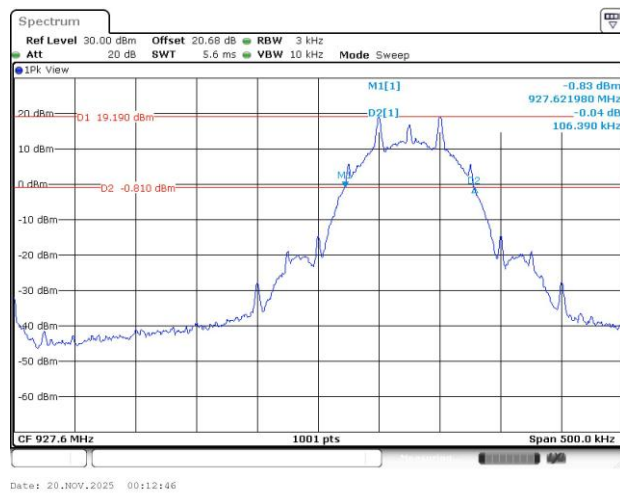
20 dB Bandwidth Plot in 902.2MHz



20 dB Bandwidth Plot in 915MHz



20 dB Bandwidth Plot in 927.6MHz



99% Occupied Bandwidth

99% Occupied Bandwidth on 902.2MHz



99% Occupied Bandwidth on 915MHz



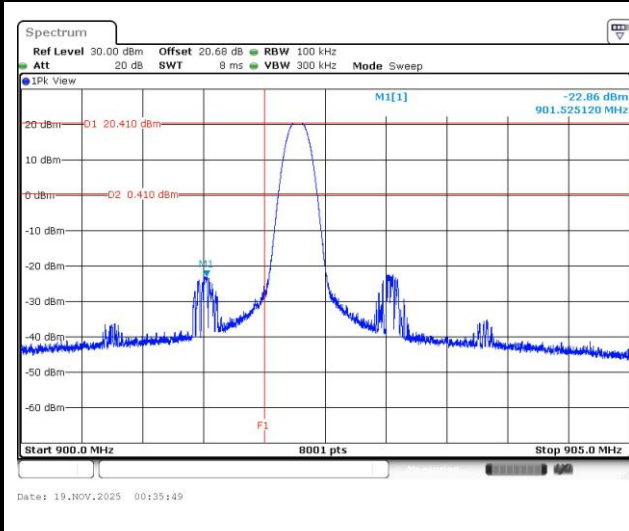
99% Occupied Bandwidth on 927.6MHz



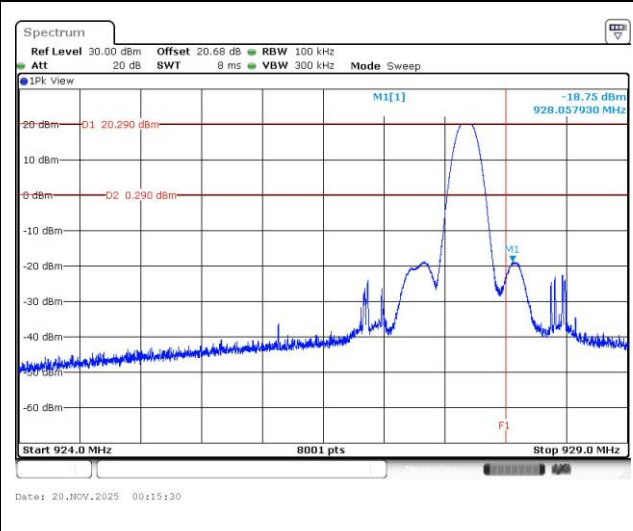


Band Edges

Low Band Edge Plot on 902.2MHz



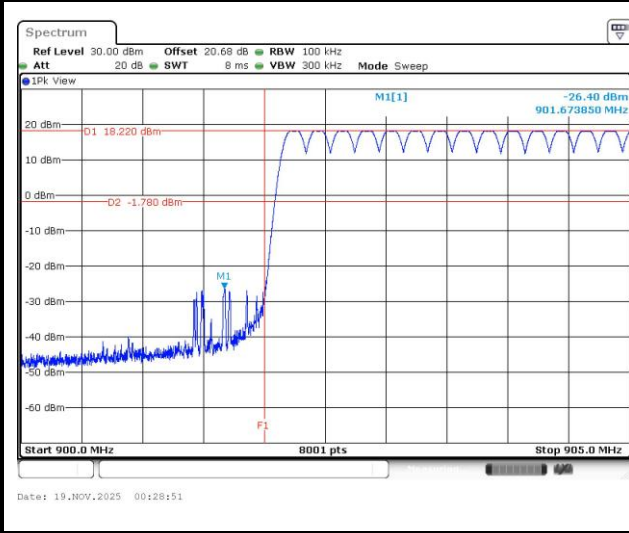
High Band Edge Plot on 927.6MHz



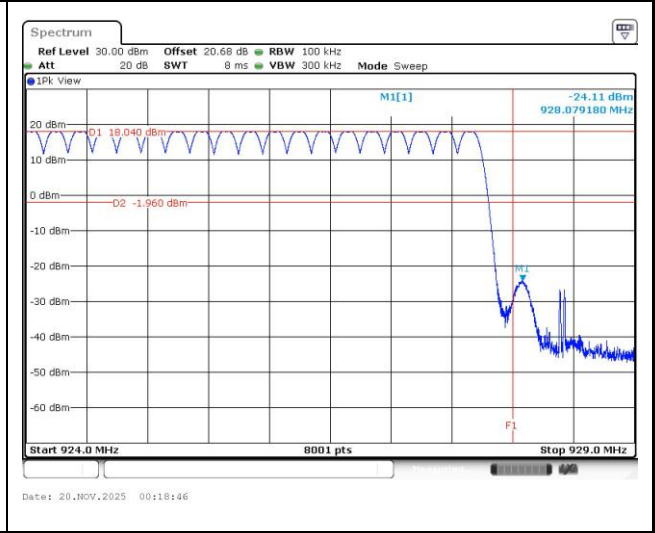


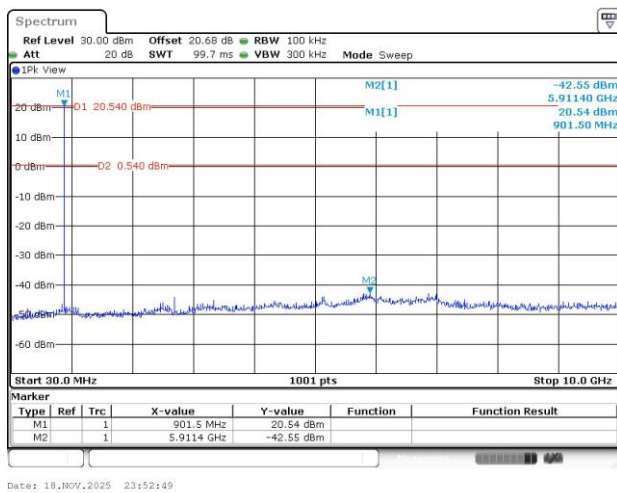
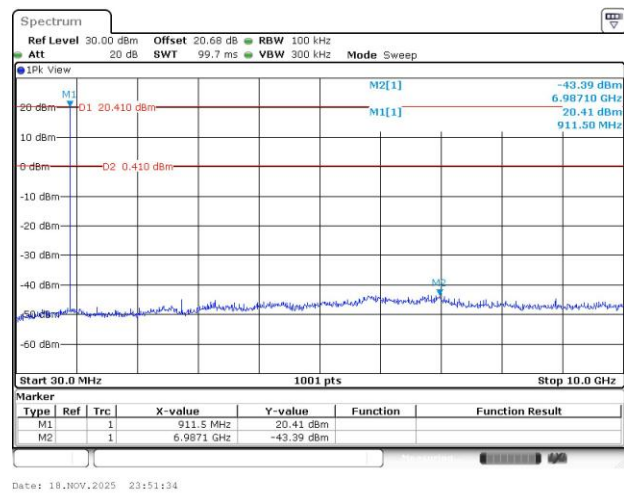
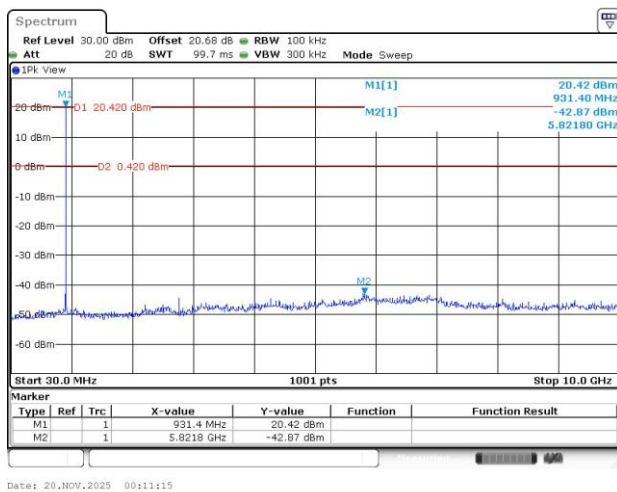
Hopping Mode Band Edges

Hopping Mode Low Band Edge Plot



Hopping Mode High Band Edge Plot

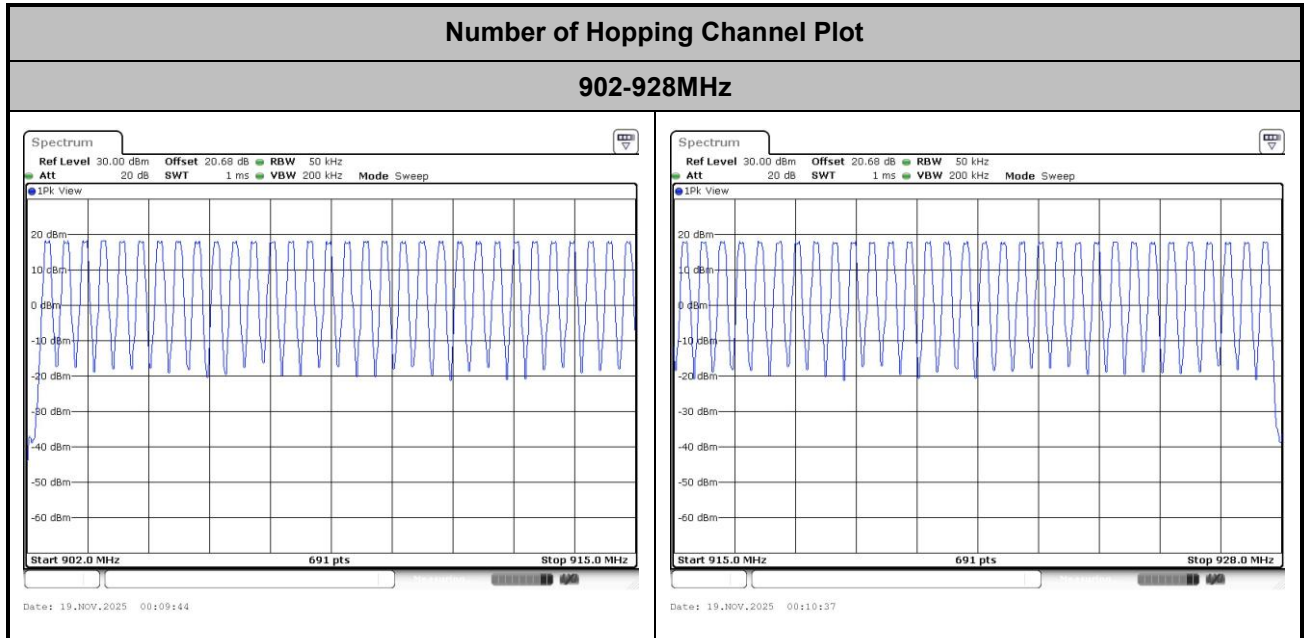


**Conducted Spurious Emission****CSE Plot on Low Ch from 30MHz to 10GHz****CSE Plot on Mid Ch from 30MHz to 10GHz****CSE Plot on High Ch from 30MHz to 10GHz**



<FSK_150kbps>

Number of Hopping Frequency





Hopping Channel Separation

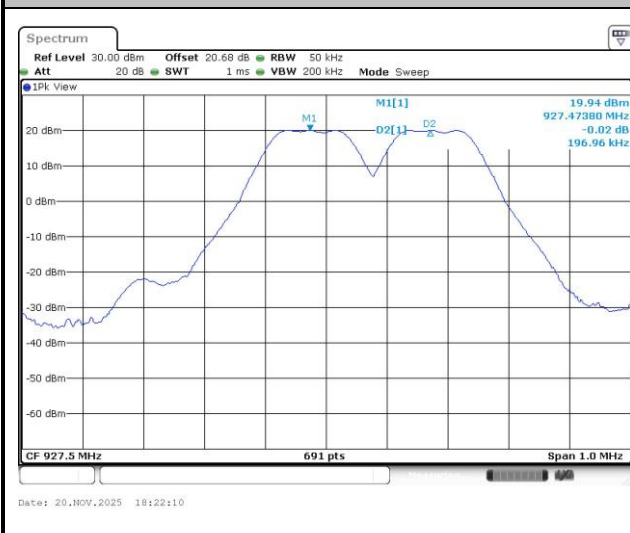
Channel Separation Plot on 902.4MHz

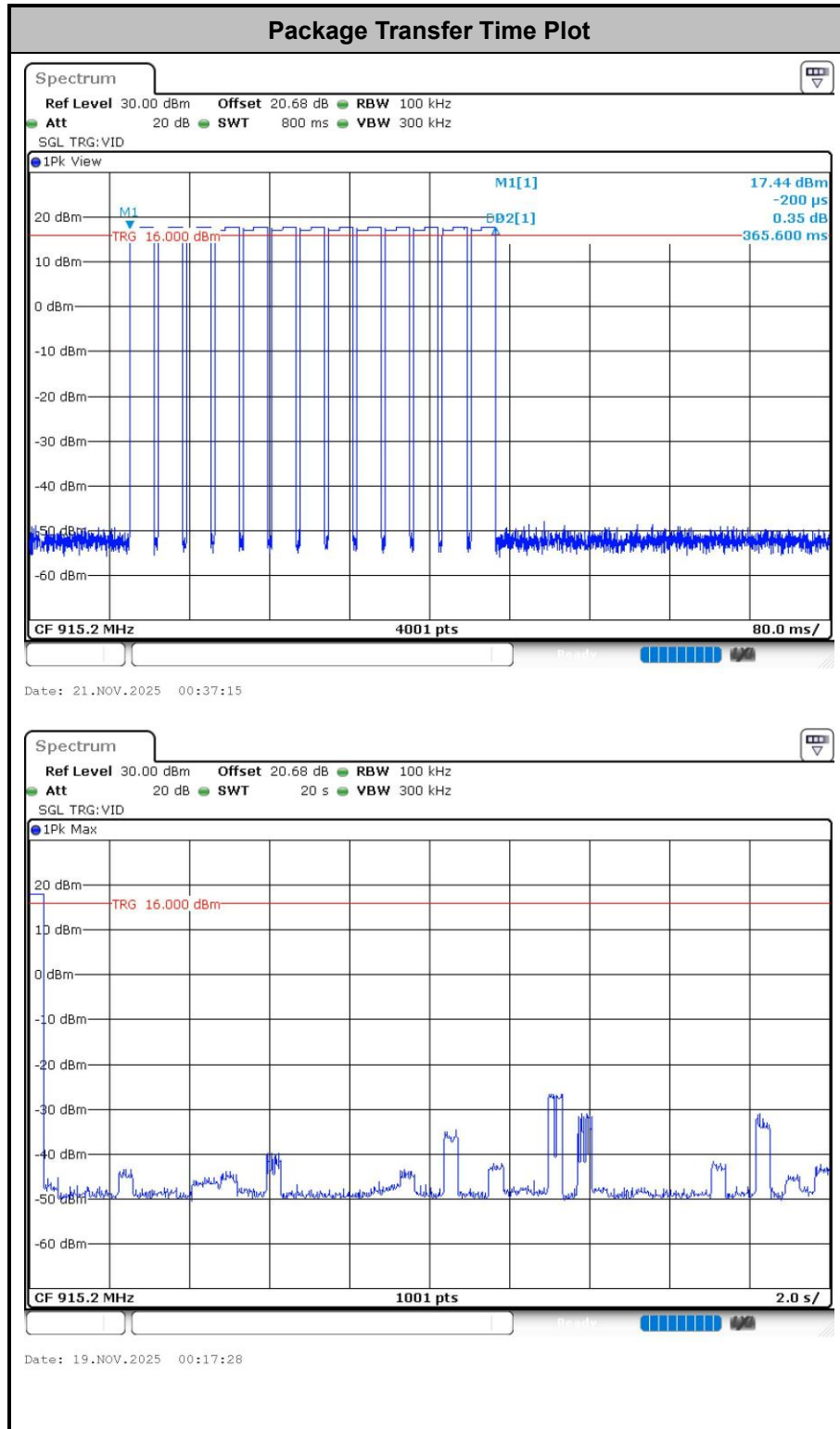


Channel Separation Plot on Channel 915.2MHz



Channel Separation Plot on Channel 927.6MHz



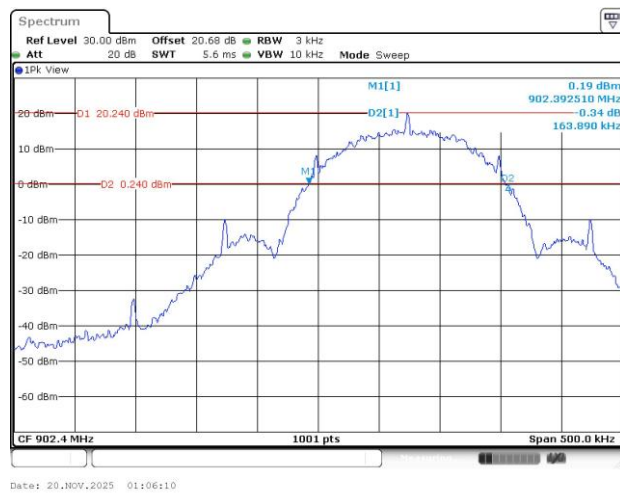
Dwell Time


Remark: Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time
= 1 x 0.3656s = 0.3656s



20dB Bandwidth

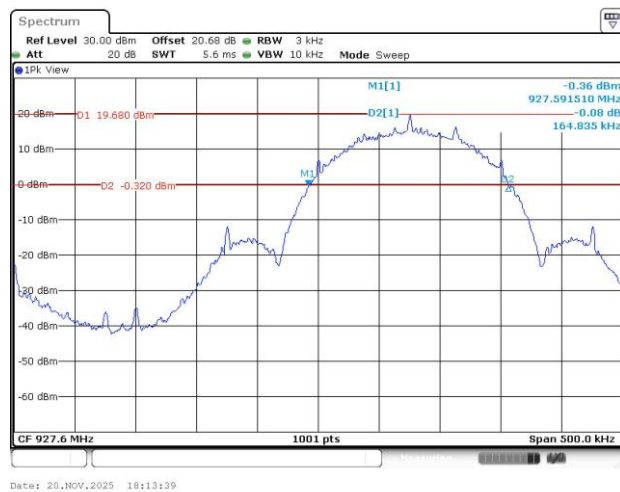
20 dB Bandwidth Plot in 902.4MHz



20 dB Bandwidth Plot in 915.2MHz



20 dB Bandwidth Plot in 927.6MHz

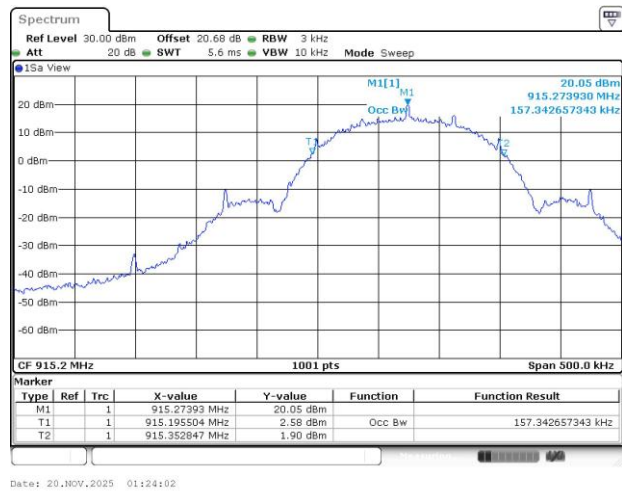


99% Occupied Bandwidth

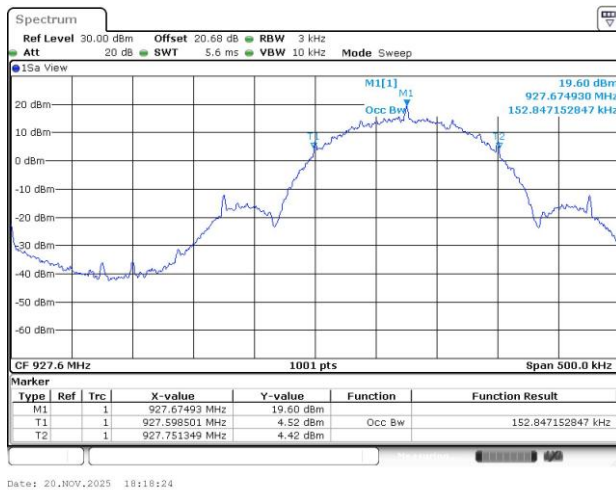
99% Occupied Bandwidth on 902.4MHz



99% Occupied Bandwidth on 915.2MHz



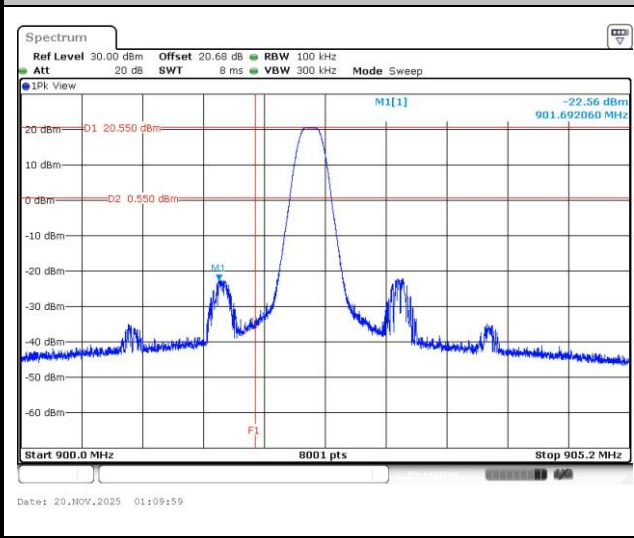
99% Occupied Bandwidth on 927.6MHz



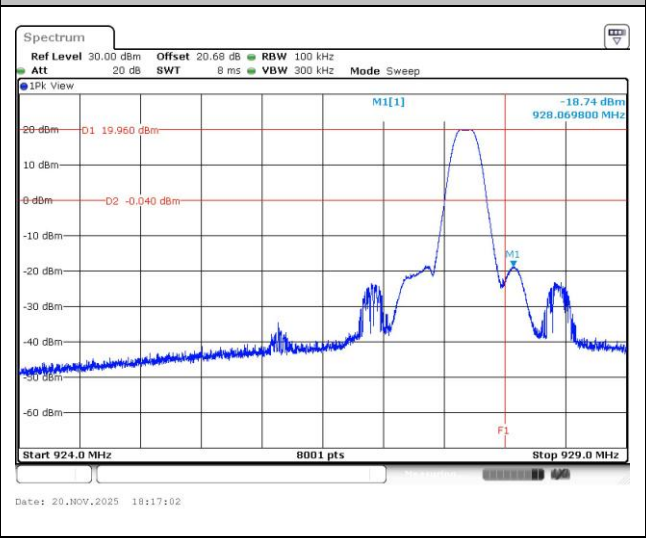


Band Edges

Low Band Edge Plot on 902.4MHz



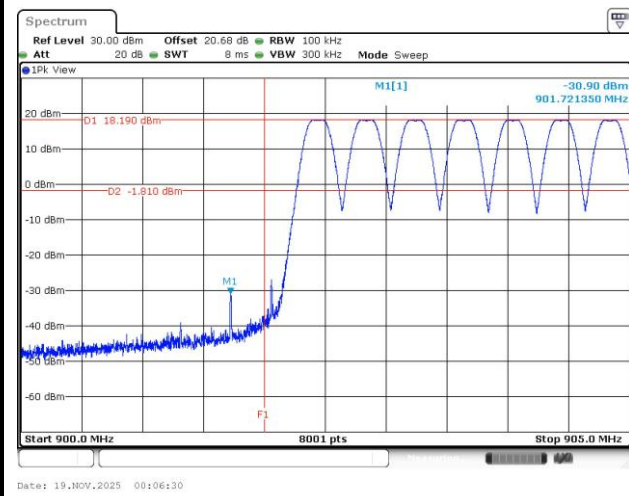
High Band Edge Plot on 927.6MHz



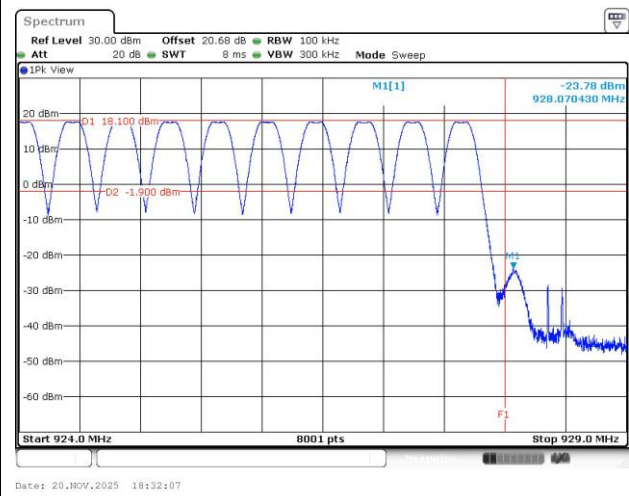


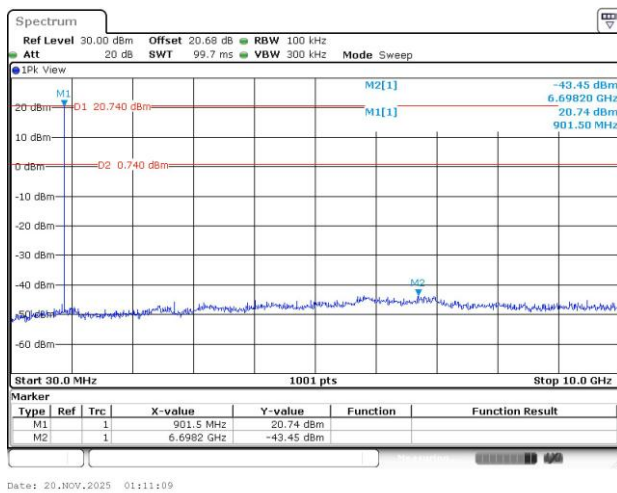
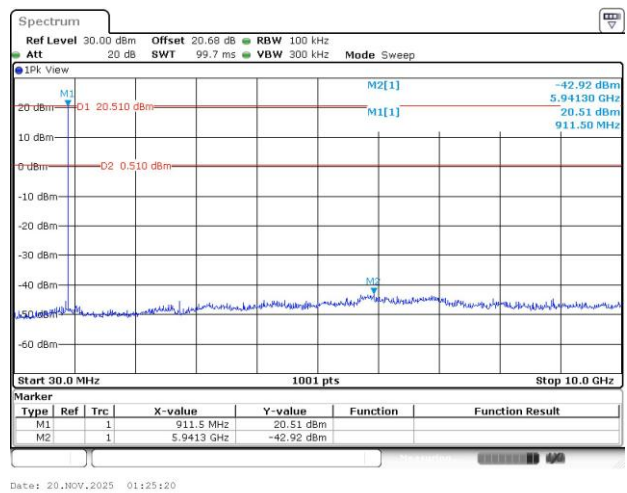
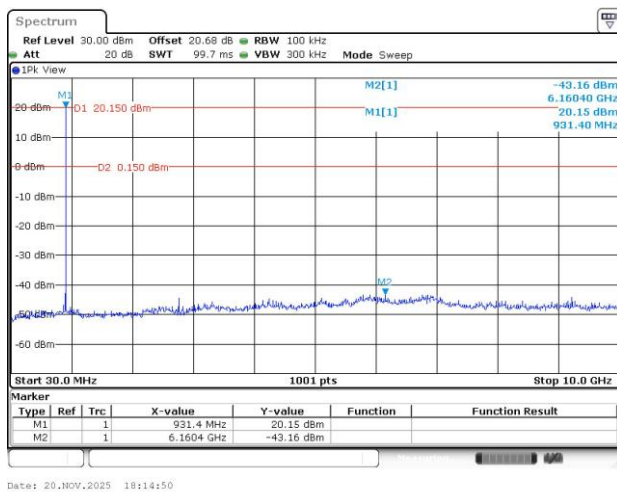
Hopping Mode Band Edges

Hopping Mode Low Band Edge Plot



Hopping Mode High Band Edge Plot

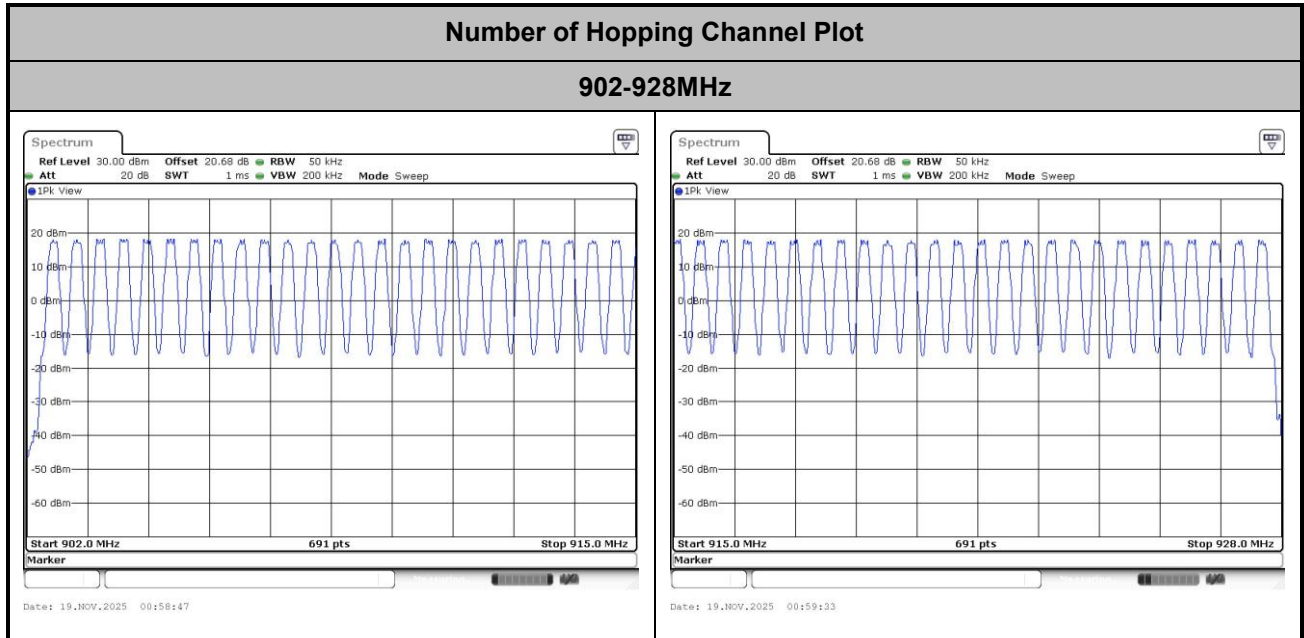


**Conducted Spurious Emission****CSE Plot on Low Ch from 30MHz to 10GHz****CSE Plot on Mid Ch from 30MHz to 10GHz****CSE Plot on High Ch from 30MHz to 10GHz**

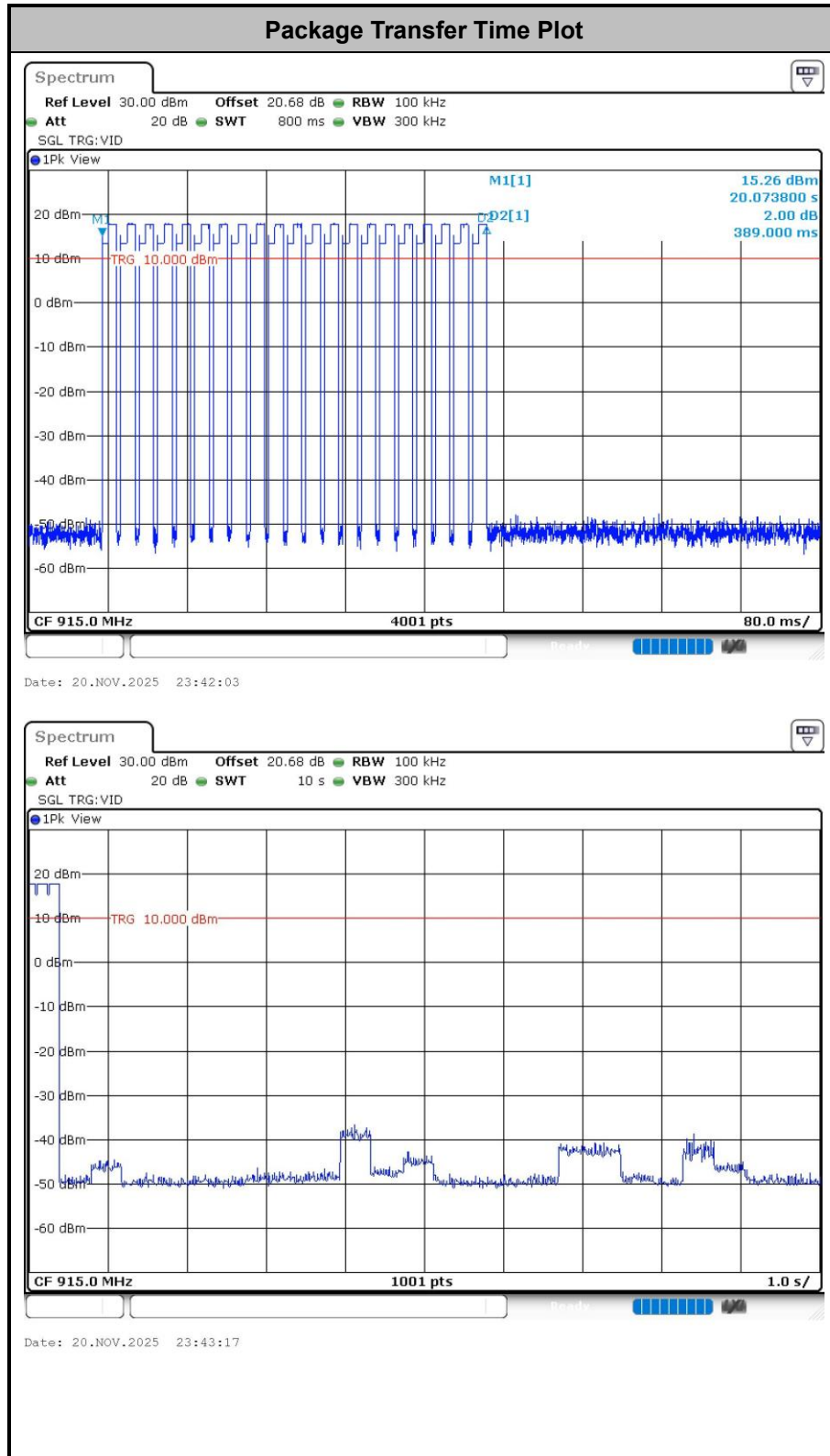


<FSK_250kbps>

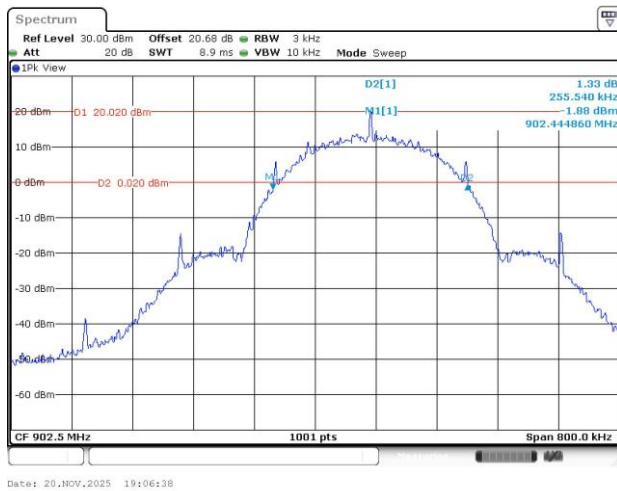
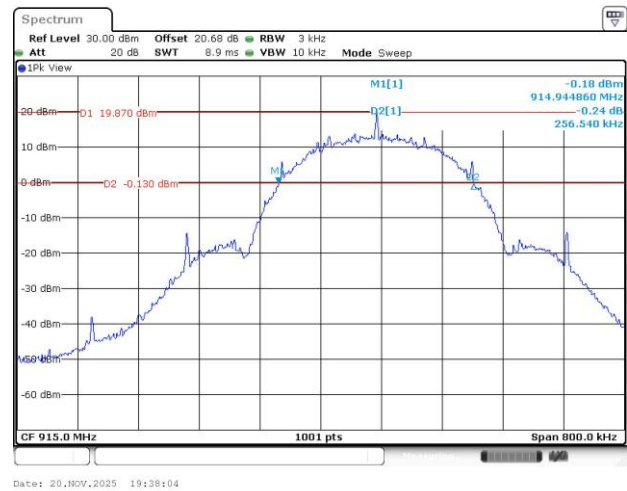
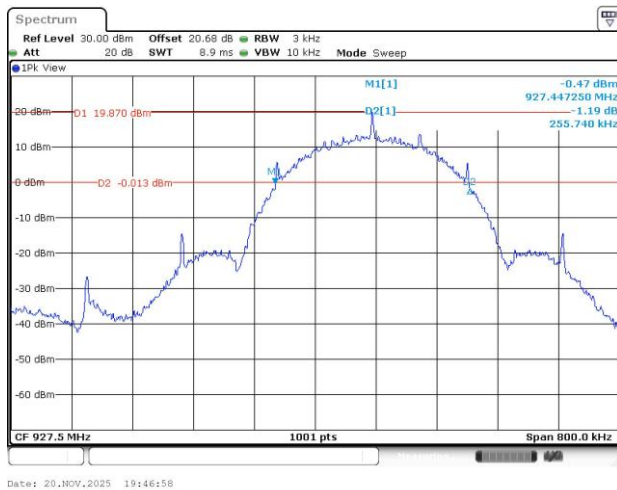
Number of Hopping Frequency



**Hopping Channel Separation****Channel Separation Plot on 902.5MHz****Channel Separation Plot on Channel 915MHz****Channel Separation Plot on Channel 927.5MHz**

Dwell Time


Remark: Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time
 = 1 x 0.389s = 0.389s

**20dB Bandwidth****20 dB Bandwidth Plot in 902.5MHz****20 dB Bandwidth Plot in 915MHz****20 dB Bandwidth Plot in 927.5MHz**

99% Occupied Bandwidth

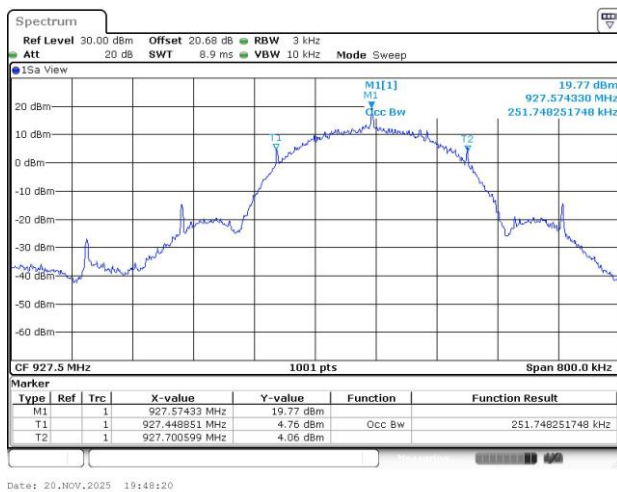
99% Occupied Bandwidth on 902.5MHz



99% Occupied Bandwidth on 915MHz



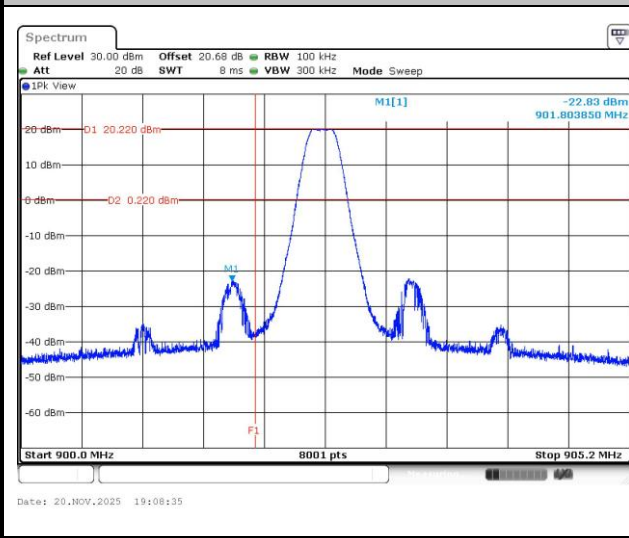
99% Occupied Bandwidth on 927.5MHz



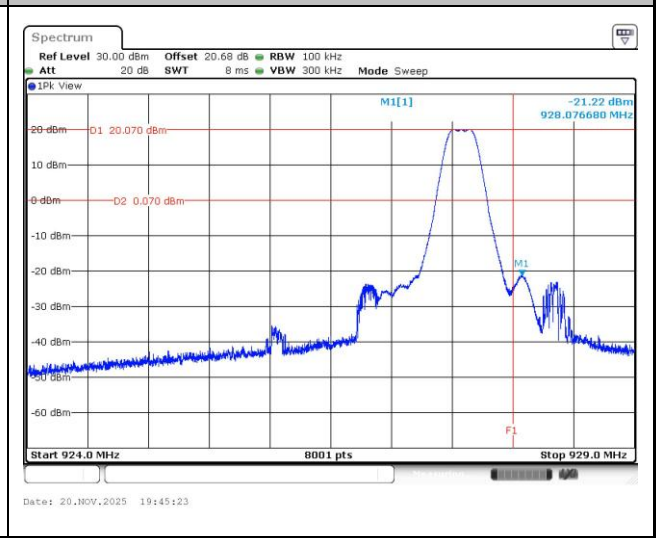


Band Edges

Low Band Edge Plot on 902.5MHz



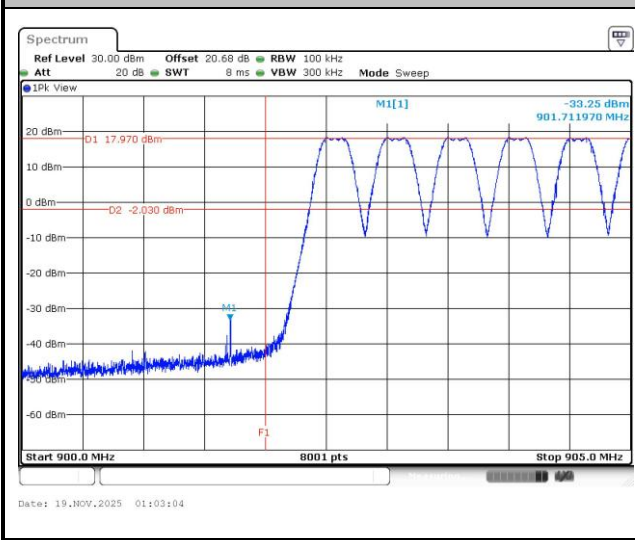
High Band Edge Plot on 927.5MHz



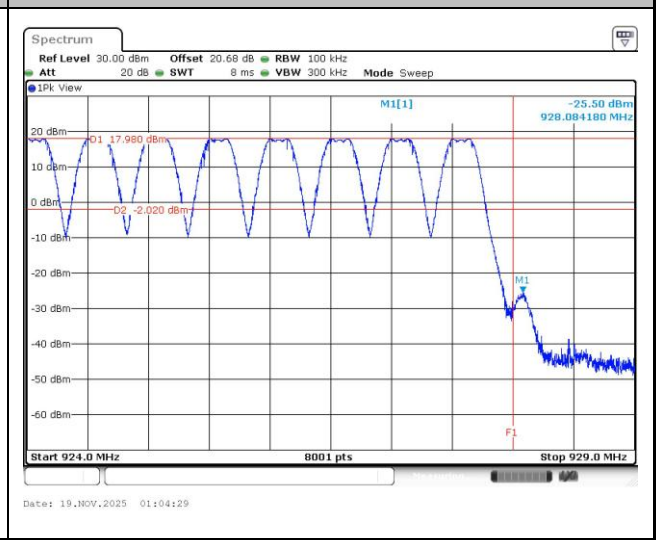


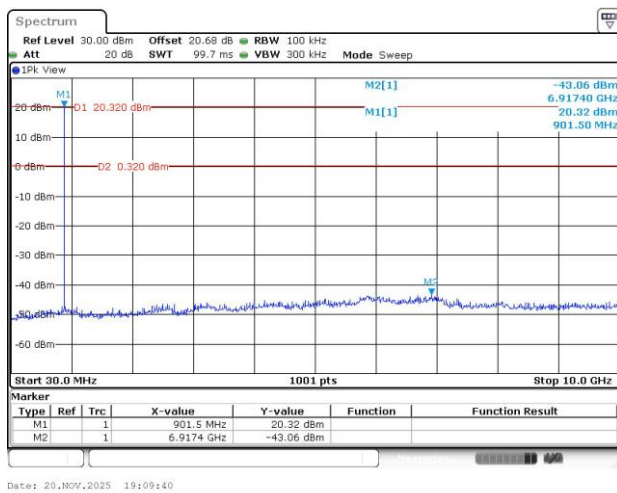
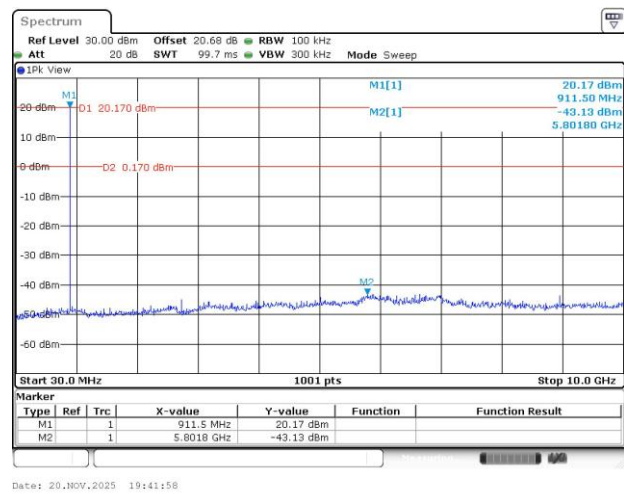
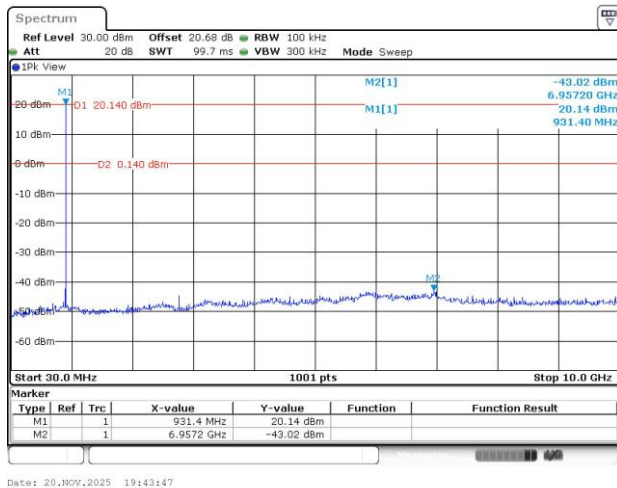
Hopping Mode Band Edges

Hopping Mode Low Band Edge Plot



Hopping Mode High Band Edge Plot



**Conducted Spurious Emission****CSE Plot on Low Ch from 30MHz to 10GHz****CSE Plot on Mid Ch from 30MHz to 10GHz****CSE Plot on High Ch from 30MHz to 10GHz**



Appendix B. Radiated Spurious Emission Test Data

Test Engineer :	Jesse Fan and Kevin Hsu	Relative Humidity :	46.7 ~ 60.2%
		Temperature :	18.5 ~ 23.8°C

B1. Radiated Spurious Emission Test Modes

Mode	Band (MHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 7	902-928	SISO	LoRa_FHSS	1	902.2	125kbps	-	SF7
Mode 8	902-928	SISO	LoRa_FHSS	65	915	125kbps	-	SF7
Mode 9	902-928	SISO	LoRa_FHSS	128	927.6	125kbps	-	SF7
Mode 10	902-928	SISO	LoRa_FSK	1	902.2	50kbps	-	-
Mode 11	902-928	SISO	LoRa_FSK	65	915	50kbps	-	-
Mode 12	902-928	SISO	LoRa_FSK	128	927.6	50kbps	-	-
Mode 13	902-928	SISO	LoRa_FSK	1	902.4	150kbps	-	-
Mode 14	902-928	SISO	LoRa_FSK	33	915.2	150kbps	-	-
Mode 15	902-928	SISO	LoRa_FSK	64	927.6	150kbps	-	-
Mode 16	902-928	SISO	LoRa_FSK	1	902.5	250kbps	-	-
Mode 17	902-928	SISO	LoRa_FSK	26	915	250kbps	-	-

**FCC RADIO TEST REPORT**

Report No. : FR251103002C

Mode	Band (MHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 18	902-928	SISO	LoRa_FSK	51	927.5	250kbps	-	-
Mode 13	902-928	SISO	LoRa_FSK	1	902.4	150kbps	-	-
Mode 14	902-928	SISO	LoRa_FSK	33	915.2	150kbps	-	-
Mode 15	902-928	SISO	LoRa_FSK	64	927.6	150kbps	-	-
Mode 16	902-928	SISO	LoRa_FSK	1	902.5	250kbps	-	-
Mode 17	902-928	SISO	LoRa_FSK	26	915	250kbps	-	-
Mode 18	902-928	SISO	LoRa_FSK	51	927.5	250kbps	-	-

B2. Summary of each worse mode

Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	RU	Remark
7	LoRa_FHSS	1	625.58	37.44	46.00	-8.56	H	Peak	Pass	-	LF
	LoRa_FHSS	1	2706.60	40.03	54.00	-13.97	H	Avg.	Pass	-	Harmonic
8	LoRa_FHSS	65	629.46	38.74	46.00	-7.26	V	Peak	Pass	-	LF
	LoRa_FHSS	65	2745.00	40.12	54.00	-13.88	H	Avg.	Pass	-	Harmonic
9	LoRa_FHSS	128	627.52	37.94	46.00	-8.06	V	Peak	Pass	-	LF
	LoRa_FHSS	128	2782.80	39.25	54.00	-14.75	H	Avg.	Pass	-	Harmonic
10	LoRa_FSK	1	627.52	38.26	46.00	-7.74	V	Peak	Pass	-	LF
	LoRa_FSK	1	2706.60	37.99	54.00	-16.01	V	Avg.	Pass	-	Harmonic
11	LoRa_FSK	65	71.71	32.03	40.00	-7.97	V	Peak	Pass	-	LF
	LoRa_FSK	65	2745.00	38.62	54.00	-15.38	V	Avg.	Pass	-	Harmonic
12	LoRa_FSK	128	114.39	36.34	43.50	-7.16	V	Peak	Pass	-	LF

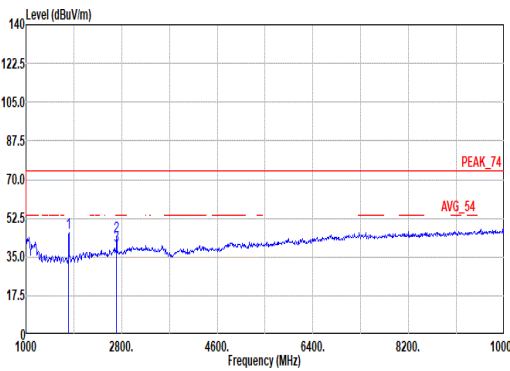
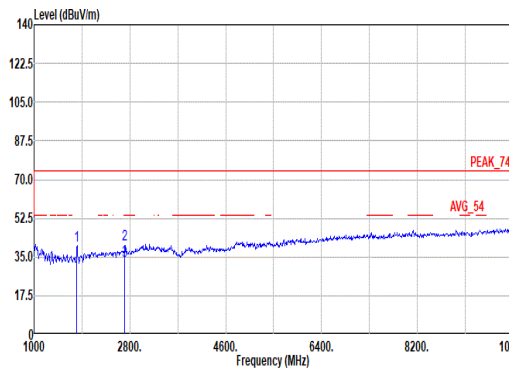
Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	RU	Remark
12	LoRa_FSK	128	2783.40	38.71	54.00	-15.29	V	Avg.	Pass	-	Harmonic
13	LoRa_FSK	1	72.68	32.34	40.00	-7.66	V	Peak	Pass	-	LF
	LoRa_FSK	1	2707.20	37.98	54.00	-16.02	V	Avg.	Pass	-	Harmonic
14	LoRa_FSK	33	754.59	39.14	46.00	-6.86	V	Peak	Pass	-	LF
	LoRa_FSK	33	2745.60	38.86	54.00	-15.14	V	Avg.	Pass	-	Harmonic
15	LoRa_FSK	64	796.30	38.87	46.00	-7.13	V	Peak	Pass	-	LF
	LoRa_FSK	64	2782.80	39.14	54.00	-14.86	V	Avg.	Pass	-	Harmonic
16	LoRa_FSK	1	805.03	39.61	46.00	-6.39	H	Peak	Pass	-	LF
	LoRa_FSK	1	2707.50	39.29	54.00	-14.71	V	Avg.	Pass	-	Harmonic
17	LoRa_FSK	26	628.49	38.61	46.00	-7.39	V	Peak	Pass	-	LF
	LoRa_FSK	26	2745.00	36.69	54.00	-17.31	V	Avg.	Pass	-	Harmonic

**FCC RADIO TEST REPORT**

Report No. : FR251103002C

Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	RU	Remark
18	LoRa_FSK	51	626.55	37.36	46.00	-8.64	V	Peak	Pass	-	LF
	LoRa_FSK	51	2782.5	41.01	54.00	-12.99	V	Avg.	Pass	-	Harmonic



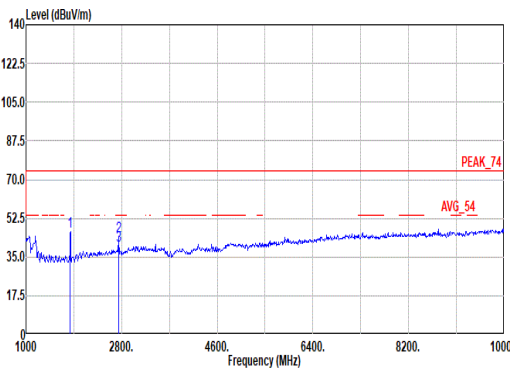
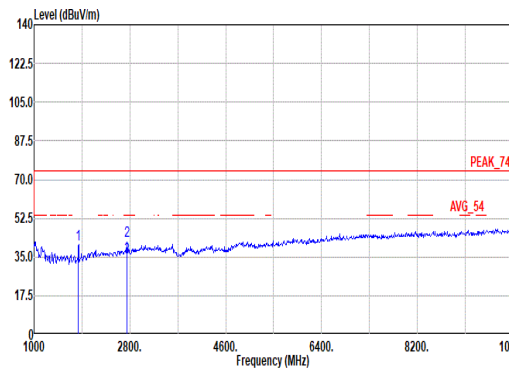
Mode	7																																																																																																																																							
	Harmonic																																																																																																																																							
	LoRa_FHSS SF7 Ch1																																																																																																																																							
ANT	SISO																																																																																																																																							
Pol.	Horizontal	Vertical																																																																																																																																						
Peak Avg	 Site : 03CH02-CA Condition: PEAK_74 3m HORN_02140_250207 HORIZONTAL <table><tr><th></th><th>Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line</th><th>Margin</th><th>Level</th><th>Factor</th><th>Loss</th><th>Factor</th><th>Factor</th><th></th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>1804.40</td><td>45.96</td><td>74.00</td><td>-28.04</td><td>81.43</td><td>25.27</td><td>6.55</td><td>67.71</td><td>0.42</td><td>--</td><td>Peak</td></tr><tr><td>2</td><td>2706.60</td><td>44.12</td><td>74.00</td><td>-29.88</td><td>74.69</td><td>28.35</td><td>7.94</td><td>67.24</td><td>0.38</td><td>106</td><td>244 Peak</td></tr><tr><td>3</td><td>2706.60</td><td>40.03</td><td>54.00</td><td>-13.97</td><td>70.60</td><td>28.35</td><td>7.94</td><td>67.24</td><td>0.38</td><td>106</td><td>244 Average</td></tr></table>		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark	Freq	Level	Line	Margin	Level	Factor	Loss	Factor	Factor			MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	1	1804.40	45.96	74.00	-28.04	81.43	25.27	6.55	67.71	0.42	--	Peak	2	2706.60	44.12	74.00	-29.88	74.69	28.35	7.94	67.24	0.38	106	244 Peak	3	2706.60	40.03	54.00	-13.97	70.60	28.35	7.94	67.24	0.38	106	244 Average	 Site : 03CH02-CA Condition: PEAK_74 3m HORN_02140_250207 VERTICAL <table><tr><th></th><th>Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line</th><th>Margin</th><th>Level</th><th>Factor</th><th>Loss</th><th>Factor</th><th>Factor</th><th></th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>1804.40</td><td>40.34</td><td>74.00</td><td>-33.66</td><td>75.74</td><td>25.34</td><td>6.55</td><td>67.71</td><td>0.42</td><td>--</td><td>Peak</td></tr><tr><td>2</td><td>2706.60</td><td>40.58</td><td>74.00</td><td>-33.42</td><td>71.18</td><td>28.32</td><td>7.94</td><td>67.24</td><td>0.38</td><td>130</td><td>107 Peak</td></tr><tr><td>3</td><td>2706.60</td><td>33.27</td><td>54.00</td><td>-20.73</td><td>63.87</td><td>28.32</td><td>7.94</td><td>67.24</td><td>0.38</td><td>130</td><td>107 Average</td></tr></table>		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark	Freq	Level	Line	Margin	Level	Factor	Loss	Factor	Factor			MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	1	1804.40	40.34	74.00	-33.66	75.74	25.34	6.55	67.71	0.42	--	Peak	2	2706.60	40.58	74.00	-33.42	71.18	28.32	7.94	67.24	0.38	130	107 Peak	3	2706.60	33.27	54.00	-20.73	63.87	28.32	7.94	67.24	0.38	130	107 Average
		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark																																																																																																																														
Freq	Level	Line	Margin	Level	Factor	Loss	Factor	Factor																																																																																																																																
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg																																																																																																																														
1	1804.40	45.96	74.00	-28.04	81.43	25.27	6.55	67.71	0.42	--	Peak																																																																																																																													
2	2706.60	44.12	74.00	-29.88	74.69	28.35	7.94	67.24	0.38	106	244 Peak																																																																																																																													
3	2706.60	40.03	54.00	-13.97	70.60	28.35	7.94	67.24	0.38	106	244 Average																																																																																																																													
	Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark																																																																																																																															
Freq	Level	Line	Margin	Level	Factor	Loss	Factor	Factor																																																																																																																																
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg																																																																																																																														
1	1804.40	40.34	74.00	-33.66	75.74	25.34	6.55	67.71	0.42	--	Peak																																																																																																																													
2	2706.60	40.58	74.00	-33.42	71.18	28.32	7.94	67.24	0.38	130	107 Peak																																																																																																																													
3	2706.60	33.27	54.00	-20.73	63.87	28.32	7.94	67.24	0.38	130	107 Average																																																																																																																													



Mode	7																																																																																																																																																																																																																																							
	LF																																																																																																																																																																																																																																							
	LoRa_FHSS SF7 Ch1																																																																																																																																																																																																																																							
ANT	SISO																																																																																																																																																																																																																																							
Pol.	Horizontal	Vertical																																																																																																																																																																																																																																						
QPI Peak	Site : 03CH02-CA Condition: QP 3m B1L06_50392_250825 HORIZONTAL <table><tr><th></th><th>Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line</th><th>Margin</th><th>Level</th><th>Factor</th><th>Loss</th><th>Factor</th><th>Factor</th><th></th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>71.71</td><td>27.99</td><td>40.00</td><td>-12.01</td><td>35.08</td><td>14.03</td><td>1.26</td><td>32.47</td><td>0.11</td><td>--</td><td>Peak</td></tr><tr><td>2</td><td>120.21</td><td>28.75</td><td>43.50</td><td>-14.75</td><td>29.77</td><td>19.74</td><td>1.62</td><td>32.45</td><td>0.11</td><td>--</td><td>Peak</td></tr><tr><td>3</td><td>223.03</td><td>24.79</td><td>46.00</td><td>-21.21</td><td>28.39</td><td>16.56</td><td>2.22</td><td>32.48</td><td>0.15</td><td>--</td><td>Peak</td></tr><tr><td>4</td><td>417.03</td><td>29.93</td><td>46.00</td><td>-16.07</td><td>27.38</td><td>21.86</td><td>3.02</td><td>32.61</td><td>0.29</td><td>--</td><td>Peak</td></tr><tr><td>5</td><td>625.58</td><td>37.44</td><td>46.00</td><td>-8.56</td><td>30.92</td><td>25.22</td><td>3.73</td><td>32.70</td><td>0.27</td><td>--</td><td>Peak</td></tr><tr><td>6</td><td>902.20</td><td>103.25</td><td>-----</td><td>-----</td><td>92.14</td><td>27.96</td><td>4.49</td><td>31.72</td><td>0.38</td><td>--</td><td>Peak</td></tr><tr><td>7</td><td>961.20</td><td>40.01</td><td>54.00</td><td>-13.99</td><td>27.68</td><td>28.54</td><td>4.63</td><td>31.27</td><td>0.44</td><td>--</td><td>Peak</td></tr></table>		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark	Freq	Level	Line	Margin	Level	Factor	Loss	Factor	Factor			MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	1	71.71	27.99	40.00	-12.01	35.08	14.03	1.26	32.47	0.11	--	Peak	2	120.21	28.75	43.50	-14.75	29.77	19.74	1.62	32.45	0.11	--	Peak	3	223.03	24.79	46.00	-21.21	28.39	16.56	2.22	32.48	0.15	--	Peak	4	417.03	29.93	46.00	-16.07	27.38	21.86	3.02	32.61	0.29	--	Peak	5	625.58	37.44	46.00	-8.56	30.92	25.22	3.73	32.70	0.27	--	Peak	6	902.20	103.25	-----	-----	92.14	27.96	4.49	31.72	0.38	--	Peak	7	961.20	40.01	54.00	-13.99	27.68	28.54	4.63	31.27	0.44	--	Peak	Site : 03CH02-CA Condition: QP 3m B1L06_50392_250825 VERTICAL <table><tr><th></th><th>Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line</th><th>Margin</th><th>Level</th><th>Factor</th><th>Loss</th><th>Factor</th><th>Factor</th><th></th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>72.68</td><td>28.73</td><td>40.00</td><td>-11.27</td><td>35.84</td><td>14.00</td><td>1.27</td><td>32.47</td><td>0.11</td><td>--</td><td>Peak</td></tr><tr><td>2</td><td>120.21</td><td>30.05</td><td>43.50</td><td>-13.45</td><td>31.07</td><td>19.74</td><td>1.62</td><td>32.45</td><td>0.11</td><td>--</td><td>Peak</td></tr><tr><td>3</td><td>218.18</td><td>26.03</td><td>46.00</td><td>-19.97</td><td>29.77</td><td>16.45</td><td>2.19</td><td>32.48</td><td>0.15</td><td>--</td><td>Peak</td></tr><tr><td>4</td><td>409.27</td><td>31.00</td><td>46.00</td><td>-15.00</td><td>28.68</td><td>21.67</td><td>2.98</td><td>32.61</td><td>0.29</td><td>--</td><td>Peak</td></tr><tr><td>5</td><td>611.03</td><td>35.48</td><td>46.00</td><td>-10.52</td><td>29.64</td><td>24.60</td><td>3.68</td><td>32.71</td><td>0.28</td><td>--</td><td>Peak</td></tr><tr><td>6</td><td>902.20</td><td>103.25</td><td>-----</td><td>-----</td><td>92.14</td><td>27.96</td><td>4.49</td><td>31.72</td><td>0.38</td><td>--</td><td>Peak</td></tr><tr><td>7</td><td>980.00</td><td>41.66</td><td>54.00</td><td>-12.34</td><td>28.70</td><td>28.87</td><td>4.69</td><td>31.06</td><td>0.47</td><td>--</td><td>Peak</td></tr></table>		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark	Freq	Level	Line	Margin	Level	Factor	Loss	Factor	Factor			MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	1	72.68	28.73	40.00	-11.27	35.84	14.00	1.27	32.47	0.11	--	Peak	2	120.21	30.05	43.50	-13.45	31.07	19.74	1.62	32.45	0.11	--	Peak	3	218.18	26.03	46.00	-19.97	29.77	16.45	2.19	32.48	0.15	--	Peak	4	409.27	31.00	46.00	-15.00	28.68	21.67	2.98	32.61	0.29	--	Peak	5	611.03	35.48	46.00	-10.52	29.64	24.60	3.68	32.71	0.28	--	Peak	6	902.20	103.25	-----	-----	92.14	27.96	4.49	31.72	0.38	--	Peak	7	980.00	41.66	54.00	-12.34	28.70	28.87	4.69	31.06	0.47	--	Peak
		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark																																																																																																																																																																																																																														
Freq	Level	Line	Margin	Level	Factor	Loss	Factor	Factor																																																																																																																																																																																																																																
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg																																																																																																																																																																																																																														
1	71.71	27.99	40.00	-12.01	35.08	14.03	1.26	32.47	0.11	--	Peak																																																																																																																																																																																																																													
2	120.21	28.75	43.50	-14.75	29.77	19.74	1.62	32.45	0.11	--	Peak																																																																																																																																																																																																																													
3	223.03	24.79	46.00	-21.21	28.39	16.56	2.22	32.48	0.15	--	Peak																																																																																																																																																																																																																													
4	417.03	29.93	46.00	-16.07	27.38	21.86	3.02	32.61	0.29	--	Peak																																																																																																																																																																																																																													
5	625.58	37.44	46.00	-8.56	30.92	25.22	3.73	32.70	0.27	--	Peak																																																																																																																																																																																																																													
6	902.20	103.25	-----	-----	92.14	27.96	4.49	31.72	0.38	--	Peak																																																																																																																																																																																																																													
7	961.20	40.01	54.00	-13.99	27.68	28.54	4.63	31.27	0.44	--	Peak																																																																																																																																																																																																																													
	Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark																																																																																																																																																																																																																															
Freq	Level	Line	Margin	Level	Factor	Loss	Factor	Factor																																																																																																																																																																																																																																
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg																																																																																																																																																																																																																														
1	72.68	28.73	40.00	-11.27	35.84	14.00	1.27	32.47	0.11	--	Peak																																																																																																																																																																																																																													
2	120.21	30.05	43.50	-13.45	31.07	19.74	1.62	32.45	0.11	--	Peak																																																																																																																																																																																																																													
3	218.18	26.03	46.00	-19.97	29.77	16.45	2.19	32.48	0.15	--	Peak																																																																																																																																																																																																																													
4	409.27	31.00	46.00	-15.00	28.68	21.67	2.98	32.61	0.29	--	Peak																																																																																																																																																																																																																													
5	611.03	35.48	46.00	-10.52	29.64	24.60	3.68	32.71	0.28	--	Peak																																																																																																																																																																																																																													
6	902.20	103.25	-----	-----	92.14	27.96	4.49	31.72	0.38	--	Peak																																																																																																																																																																																																																													
7	980.00	41.66	54.00	-12.34	28.70	28.87	4.69	31.06	0.47	--	Peak																																																																																																																																																																																																																													

Remark: The unwanted signals can be ignored since they fall within the non-restricted band and meet the requirements of 15.247 (d).



Mode	8																																																																																		
	Harmonic																																																																																		
	LoRa_FHSS SF7 Ch65																																																																																		
ANT	SISO																																																																																		
Pol.	Horizontal						Vertical																																																																												
Peak Avg																																																																																			
	Site : 03CH02-CA Condition: PEAK_74 3m HORN_02140_250207 HORIZONTAL						Site : 03CH02-CA Condition: PEAK_74 3m HORN_02140_250207 VERTICAL																																																																												
<table><tr><th></th><th></th><th>Limit</th><th></th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th></th></tr><tr><th>Freq</th><th>Level</th><th>Line</th><th>Margin</th><th>Level</th><th>Factor</th><th>Loss</th><th>Factor</th><th>Factor</th><th></th><th></th><th>Remark</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>1830.00</td><td>46.45</td><td>74.00</td><td>-27.55</td><td>81.66</td><td>25.37</td><td>6.60</td><td>67.59</td><td>0.41</td><td>--</td><td>Peak</td></tr><tr><td>2</td><td>2745.00</td><td>44.24</td><td>74.00</td><td>-29.76</td><td>74.62</td><td>28.31</td><td>8.00</td><td>67.09</td><td>0.40</td><td>110</td><td>253 Peak</td></tr><tr><td>3</td><td>2745.00</td><td>40.12</td><td>54.00</td><td>-13.88</td><td>70.50</td><td>28.31</td><td>8.00</td><td>67.09</td><td>0.40</td><td>110</td><td>253 Average</td></tr></table>														Limit		Read	Ant	Cable	Preamp	Aux	APos	TPos		Freq	Level	Line	Margin	Level	Factor	Loss	Factor	Factor			Remark		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	1	1830.00	46.45	74.00	-27.55	81.66	25.37	6.60	67.59	0.41	--	Peak	2	2745.00	44.24	74.00	-29.76	74.62	28.31	8.00	67.09	0.40	110	253 Peak	3	2745.00	40.12	54.00	-13.88	70.50	28.31	8.00	67.09	0.40	110	253 Average
		Limit		Read	Ant	Cable	Preamp	Aux	APos	TPos																																																																									
Freq	Level	Line	Margin	Level	Factor	Loss	Factor	Factor			Remark																																																																								
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg																																																																								
1	1830.00	46.45	74.00	-27.55	81.66	25.37	6.60	67.59	0.41	--	Peak																																																																								
2	2745.00	44.24	74.00	-29.76	74.62	28.31	8.00	67.09	0.40	110	253 Peak																																																																								
3	2745.00	40.12	54.00	-13.88	70.50	28.31	8.00	67.09	0.40	110	253 Average																																																																								