

FCC Radio Test Report

FCC ID : 2BOYO-SEA-10
Equipment : Wireless Environmental Awareness Sensor
Brand Name : SKS
Model Name : SEA-10-1
Applicant : TAIWAN SHIN KONG SECURITY CO.,LTD
No. 128, Xing'ai Rd., Neihu Dist., Taipei City 114508, Taiwan
Manufacturer : TAIWAN SHIN KONG SECURITY CO.,LTD
No. 128, Xing'ai Rd., Neihu Dist., Taipei City 114508, Taiwan
Standard : 47 CFR FCC Part 15.247

The product was received on Jun. 29, 2026, and testing was started from Jul. 16, 2026 and completed on Aug. 08, 2026. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Hsinhua Laboratory, the test report shall not be reproduced except in full.


Approved by: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



Table of Contents

HISTORY OF THIS TEST REPORT	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Information.....	5
1.2 Testing Applied Standards	7
1.3 Testing Location Information	7
1.4 Measurement Uncertainty	7
2 TEST CONFIGURATION OF EUT.....	8
2.1 Test Condition	8
2.2 Test Channel Mode	8
2.3 The Worst Case Measurement Configuration.....	9
2.4 Support Equipment.....	9
2.5 Test Setup Diagram	10
3 TRANSMITTER TEST RESULT	11
3.1 DTS Bandwidth.....	11
3.2 20dB Bandwidth and Carrier Frequency Separation.....	12
3.3 Maximum Conducted Output Power	13
3.4 Power Spectral Density	15
3.5 Number of Hopping Frequencies and Hopping Bandedge	16
3.6 Time of Occupancy (Dwell Time)	17
3.7 Emissions in Non-restricted Frequency Bands	18
3.8 Emissions in Restricted Frequency Bands.....	19
4 TEST EQUIPMENT AND CALIBRATION DATA	22
APPENDIX A. TEST RESULTS OF 20DB BANDWIDTH AND CARRIER FREQUENCY SEPARATION	
APPENDIX B. TEST RESULTS OF MAXIMUM CONDUCTED OUTPUT POWER	
APPENDIX C. TEST RESULTS OF POWER SPECTRAL DENSITY	
APPENDIX D. NUMBER OF HOPPING FREQUENCIES AND HOPPING OPPBANDEDGE	
APPENDIX E. TEST RESULTS OF EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS	
APPENDIX F. TEST RESULTS OF TIME OF OCCUPANCY (DWELL TIME)	
APPENDIX G. TEST RESULTS OF EMISSIONS IN RESTRICTED FREQUENCY BANDS	
APPENDIX H. TEST PHOTOS	
PHOTOGRAPHS OF EUT V01	

History of this test report

[illegible]

Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
-	15.207	AC Power-line Conducted Emissions	Not Required	Only employ battery power.
3.1	15.247(a)	DTS Bandwidth	PASS	-
3.2	15.247(a)	20dB Bandwidth	PASS	-
3.2	15.247(a)	Carrier Frequency Separation	PASS	-
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-
3.4	15.247(e)	Power Spectral Density	PASS	-
3.5	15.247(a)	Number of Hopping Frequencies and Hopping Bandedge	PASS	-
3.6	15.247(a)	Time of Occupancy (Dwell Time)	PASS	-
3.7	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.8	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

None

Reviewed by: Ryan Hsiao

Report Producer: Amber Chiu

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	Modulation	Ch. Frequency (MHz)	Channel Number
902-928 MHz	LoRa (125kHz)	902.3-914.9	64
902-928 MHz	LoRa (500kHz)	923.3-927.5	8

Band	Mode	BWch (MHz)	Nant
902-928MHz	LoRa (125kHz)	0.2	1TX
902-928MHz	LoRa (500kHz)	0.5	1TX

Note:

- ♦ 902-928 MHz Band uses as a DTS & FHSS.
- ♦ LoRa (125kHz) uses FHSS.
- ♦ LoRa (500kHz) uses DTS.
- ♦ BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Support	Gain (dBi)
1	Shenzhen Feixin Wireless Communication	FX-DS-923-002	spring	N/A	Lora	2.5

For LoRa function:

For LoRa mode (1TX/1RX)

Ant. 1 (port 1) could transmit/receive.

1.1.3 Type of EUT

Operational Condition	
EUT Power Type	From Battery
Type of EUT	
☒	Stand-alone
☐	Combined (EUT where the radio part is fully integrated within another device)
☐	Combined Equipment - Brand Name / Model No.: ...
☐	Plug-in radio (EUT intended for a variety of host systems)
☐	Host System - Brand Name / Model No.: ...
☐	Other:

**1.1.4 Test Signal Duty Cycle**

Mode	DC	DCF (dB)	T (s)	VBW (Hz) 1/T
LoRa (125kHz)	0.543	2.65	627.5m	10
LoRa (500kHz)	0.24	6.2	157.188m	10

Note. If DC < 0.98, the DCF was added while measuring Output power and PSD.

1.1.5 Table for Multiple Listing

The SKU in the following table are all refer to the identical product.

SKU	G-sensor
A	QMI
B	ST

From the above SKUs, SKU A was selected as representative model for the test and its data was recorded in this report.

1.2 Testing Applied Standards

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

- ♦ 47 CFR FCC Part 15
 - ♦ ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024
- The following reference test guidance is not within the scope of accreditation of TAF:
- ♦ KDB 558074 D01 v05r02
 - ♦ KDB 414788 D01 v01r01

1.3 Testing Location Information

Test Lab. : Sporton International Inc. Hsinhua Laboratory				
☒ Hsinhua (TAF: 3785)	ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)			
	TEL: 886-3-327-3456		FAX: 886-3-327-0973	
Test site Designation No. TW3785 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH07-HY	Nicky Lin	22.3~24.3°C / 52~55%	28/Jul/2026~29/Jul/2026
☒ Wenhua 3rd. (TAF: 3785)	ADD: No. 58, Aly. 75, Ln. 564, Wenhua 3rd Rd., Guishan Dist. Taoyuan City 333, Taiwan (R.O.C.)			
	TEL: 886-3-327-0868			
Test site Designation No. TW0036 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
Radiated	03CH24-HY	Jack Tang	20.3~23.1°C / 54~60%	16/Jul/2026~08/Aug/2026

1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Output Power	1.12 dB	Confidence levels of 95%
Bandwidth	0.07 MHz	Confidence levels of 95%
Conducted Emission	1.12 dB	Confidence levels of 95%
Power Spectral Density	1.22 dB	Confidence levels of 95%
Radiated Emission (9 kHz ~ 30 MHz)	1.76 dB	Confidence levels of 95%
Radiated Emission (30 MHz ~ 1 GHz)	5.38 dB	Confidence levels of 95%
Radiated Emission (1 GHz ~ 18 GHz)	4.94 dB	Confidence levels of 95%
Radiated Emission (18 GHz ~ 40 GHz)	4.92 dB	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

RF Conducted	Abbreviation	Remark
TX-DTS	Tnom	20°C
-	Vnom	3V

2.2 Test Channel Mode

Test Software Version	UartAssist.exe v5.0.1.3
-----------------------	-------------------------

Mode	Power Setting
LoRa (125kHz)	-
902.3MHz	20
908.7MHz	20
914.9MHz	20
LoRa (500kHz)	-
923.3MHz	21
927.5MHz	9

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	RF Output Power, 20dB Bandwidth, Carrier Frequency Separation (ChS) Number of Hopping Frequencies (N), Hopping Bandedge Time of Occupancy (Dwell Time) Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains
	☒ Non-adaptive frequency hopping systems (Non-AFH) ☐ adaptive frequency hopping systems (AFH)

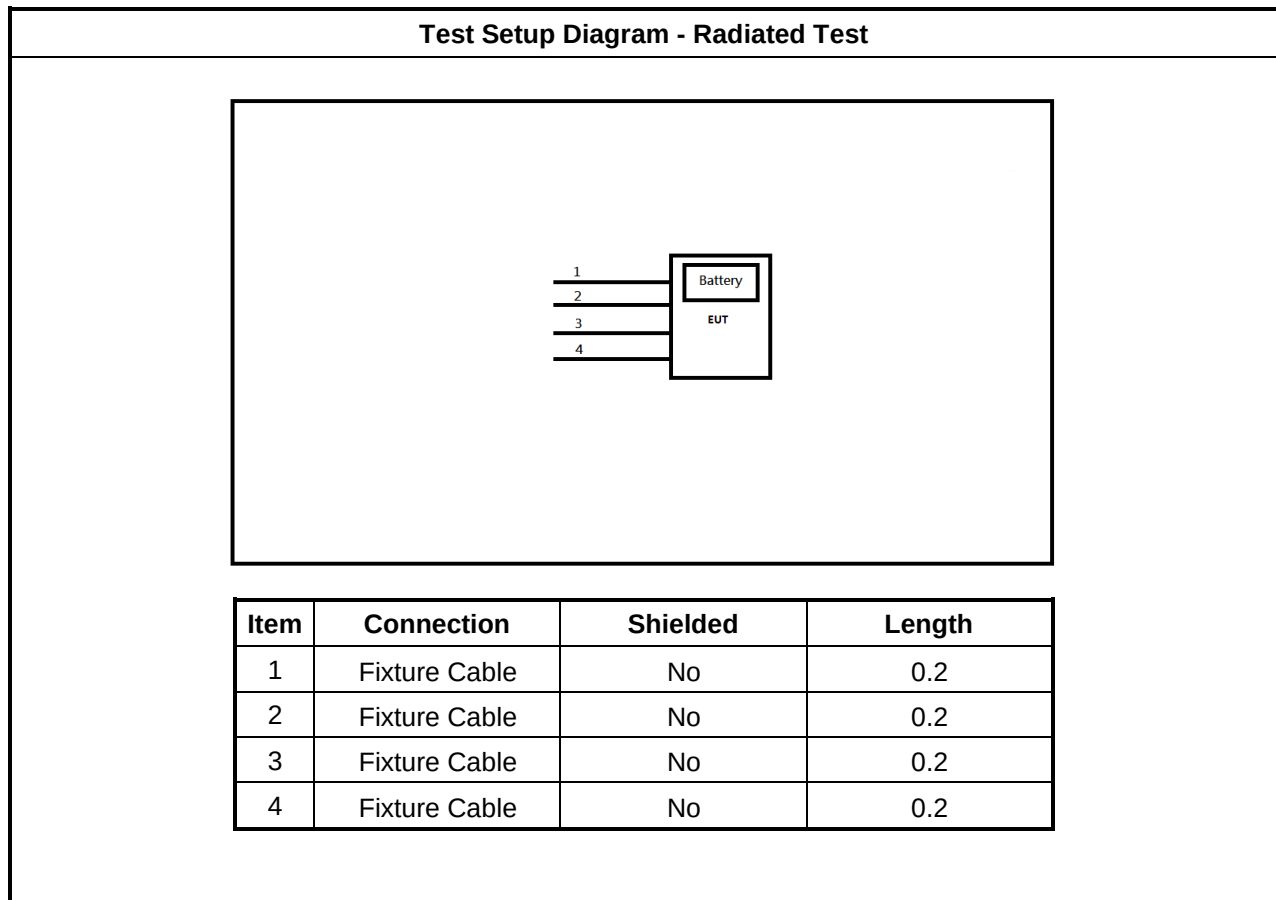
The Worst Case Mode for Following Conformance Tests			
Tests Item	Emissions in Restricted Frequency Bands		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	CTX		
1	Battery Mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT			V

2.4 Support Equipment

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	Notebook	E5410	-	-
2	Adapter for NB	DELL	HA65NM130	-	-

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Fixture Cable *4	HUIJUN	YJV22	-	Provided by Customer
2	Battery	Spider Fire	CR 123A	-	-

2.5 Test Setup Diagram



3 Transmitter Test Result

3.1 DTS Bandwidth

3.1.1 6dB Bandwidth Limit

6dB Bandwidth Limit	
Systems using digital modulation techniques:	
▪	6 dB bandwidth $\geq$ 500 kHz.

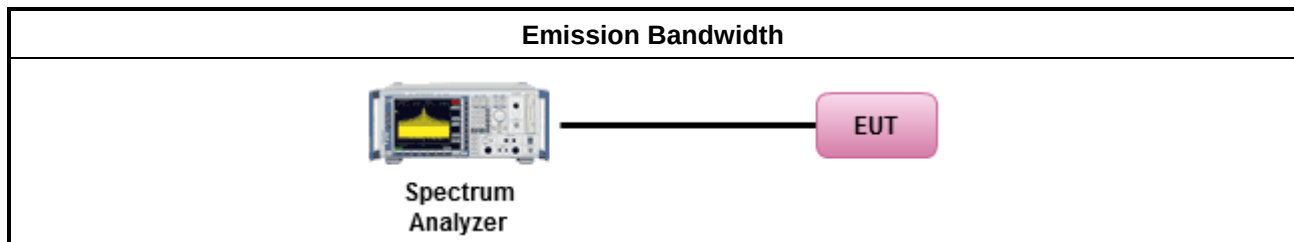
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method	
▪	For the emission bandwidth shall be measured using one of the options below:
☒	Refer as KDB 558074. clause 8.2 (11.8 of ANSI C63.10) DTS bandwidth measurement.
☐	Refer as RSS-Gen, clause 6.7 for occupied bandwidth testing.
☐	Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.

3.1.4 Test Setup



3.1.5 Test Result of Emission Bandwidth

Refer as Appendix A

3.2 20dB Bandwidth and Carrier Frequency Separation

3.2.1 20dB Bandwidth and Carrier Frequency Separation Limit

20dB Bandwidth and Carrier Frequency Separation Limit for Frequency Hopping Systems
902-928 MHz Band:
N: Number of Hopping Frequencies; ChS: Hopping Channel Separation

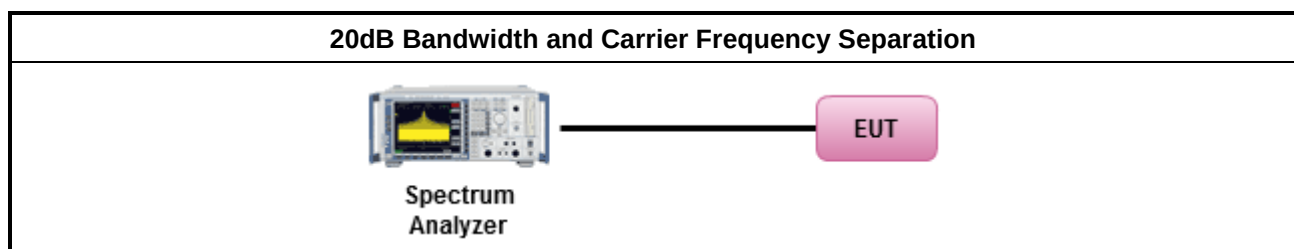
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10, clause 6.9.2 for 20 dB bandwidth measurement.
☒ Refer as ANSI C63.10, clause 7.8.2 for carrier frequency separation measurement.

3.2.4 Test Setup



3.2.5 Test Result of 20dB Bandwidth

Refer as Appendix A

3.2.6 Test Result of Carrier Frequency Separation

Refer as Appendix A

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
902-928 MHz Band:	
	DTS system; Power 30dBm
	$N \geq 50$ and hybrid system; Power 30dBm; EIRP 36dBm
	$50 > N \geq 25$; Power 24dBm; EIRP 30dBm
N: Number of Hopping Frequencies	

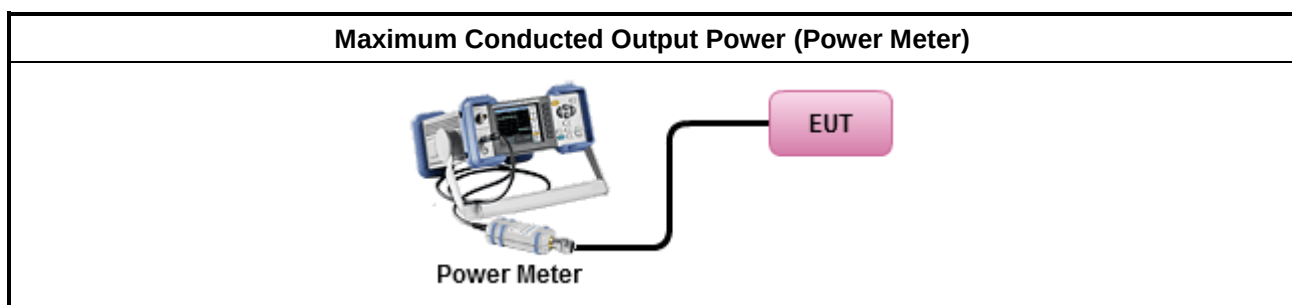
3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method	
Maximum Peak Conducted Output Power	
☐	Refer as KDB 558074, clause 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW $\geq$ EBW method.
☐	Refer as KDB 558074, clause 8.3.1.2 integrated band power method.
☒	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.2 of ANSI C63.10) peak power meter.
Maximum Average Conducted Output Power	
☐	Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
☒	Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a power meter.
For conducted measurement.	
If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.	
If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$	

3.3.4 Test Setup





3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix B

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit	
▪	Power Spectral Density (PSD) ≤ 8 dBm/3kHz

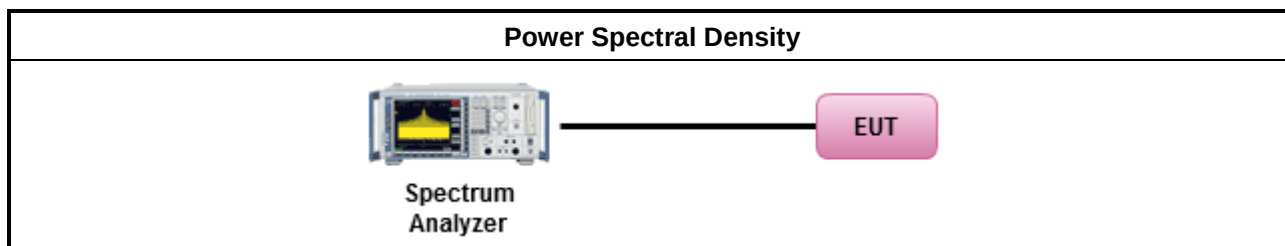
3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method	
▪	Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
☒	Refer as KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Max. PSD.
▪	For conducted measurement.
▪	If The EUT supports multiple transmit chains using options given below:
▪	Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix C

3.5 Number of Hopping Frequencies and Hopping Bandedge

3.5.1 Number of Hopping Frequencies Limit

Number of Hopping Frequencies Limit	
902-928 MHz Band:	
	ChS $\geq$ MAX (20 dB bandwidth, 25 kHz); 20 dB bandwidth $\leq$ 250 kHz.
	ChS $\geq$ MAX (20 dB bandwidth, 25 kHz); 20 dB bandwidth $>$ 250 kHz.
Note : 1. ChS : Hopping Channel Separation 2. There is no minimum number of hopping channels associated with this type of hybrid system.	

3.5.2 Hopping Bandedge Limit

Refer clause 3.7.1 and clause 3.8.1

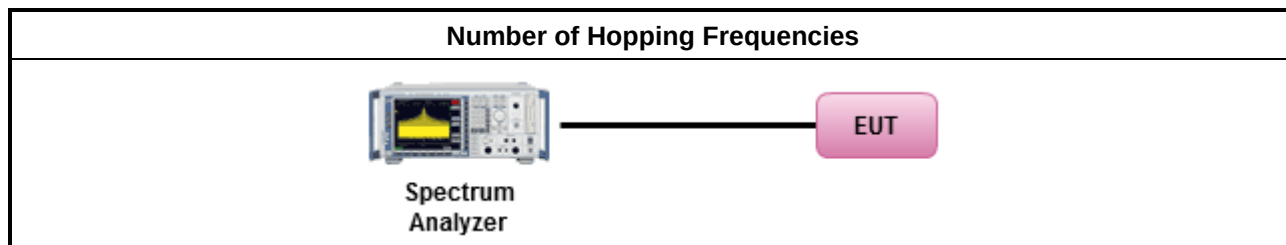
3.5.3 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.5.4 Test Procedures

Test Method
☒ Refer as ANSI C63.10, clause 7.8.3 for number of hopping frequencies measurement.
☒ Refer as ANSI C63.10, clause 7.8.7.2 for hopping frequencies Bandedge measurement.

3.5.5 Test Setup



3.5.6 Test Result of Number of Hopping Frequencies

Refer as Appendix D

3.5.7 Test Result of Number of Hopping Frequencies Bandedge

Refer as Appendix D

3.6 Time of Occupancy (Dwell Time)

3.6.1 Time of Occupancy (Dwell Time) Limit

20dB Bandwidth and Carrier Frequency Separation Limit for Frequency Hopping Systems	
▪ 902-928 MHz Band:	
	▪ $N \geq 50$; 0.4s in 20s period
	▪ $50 > N \geq 25$; 0.4s in 10s period
N: Number of Hopping Frequencies	

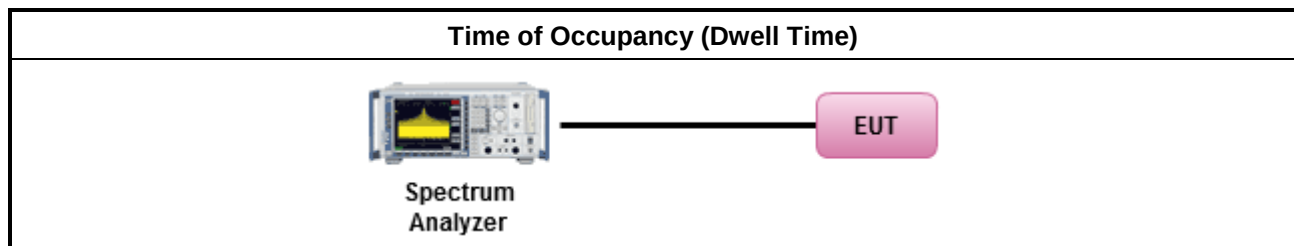
3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method
▪ Refer as ANSI C63.10, clause 7.8.4 for dwell time measurement.

3.6.4 Test Setup



3.6.5 Test Result of Time of Occupancy (Dwell Time)

Refer as Appendix E

3.7 Emissions in Non-restricted Frequency Bands

3.7.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Average output power procedure	30
Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak level. Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average level.	

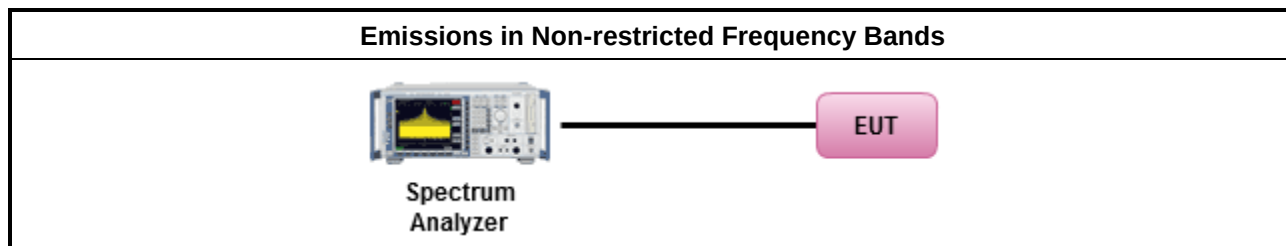
3.7.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.7.3 Test Procedures

Test Method
Refer as ANSI C63.10, clause 7.8.7 for unwanted emissions into non-restricted bands.

3.7.4 Test Setup



3.7.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix F

3.8 Emissions in Restricted Frequency Bands

3.8.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

3.8.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.8.3 Test Procedures

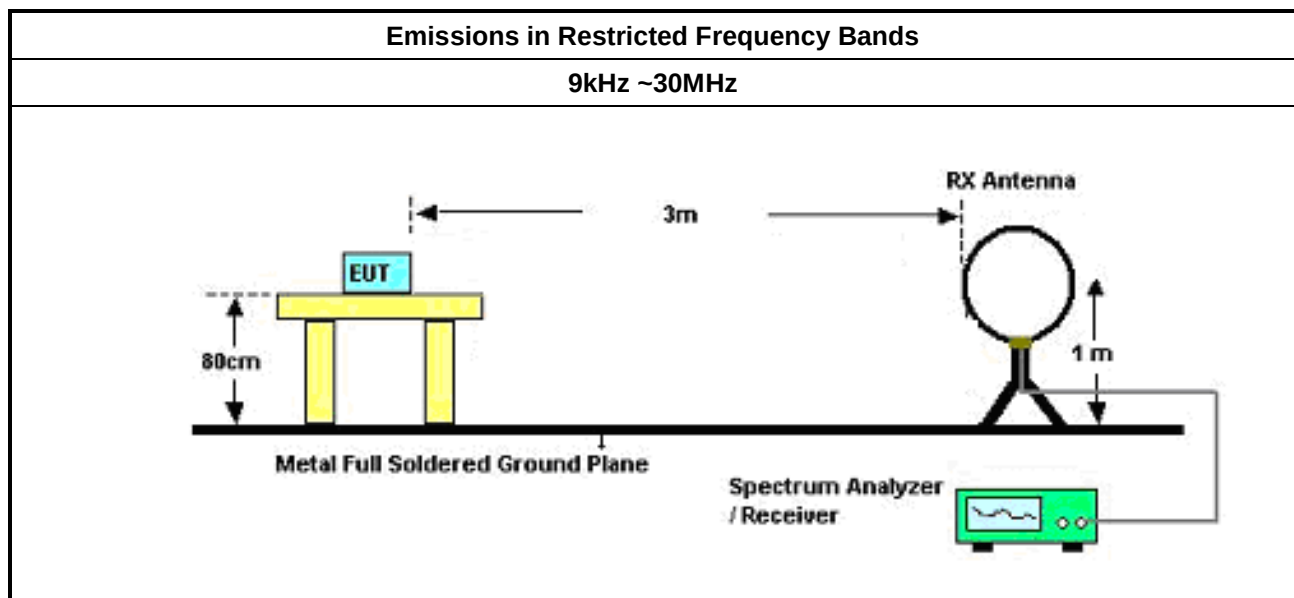
Test Method	
The average emission levels shall be measured in [hopping duty factor].	
Refer as ANSI C63.10; clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as ANSI C63.10, clause 4.1.5.2.1 QP value.
	Refer as ANSI C63.10, clause 4.1.5.2.2 measurement procedure peak.
	Refer as ANSI C63.10, clause 4.1.5.2.5 average value of hopping pulsed emissions.
KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.	
	Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.
	Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

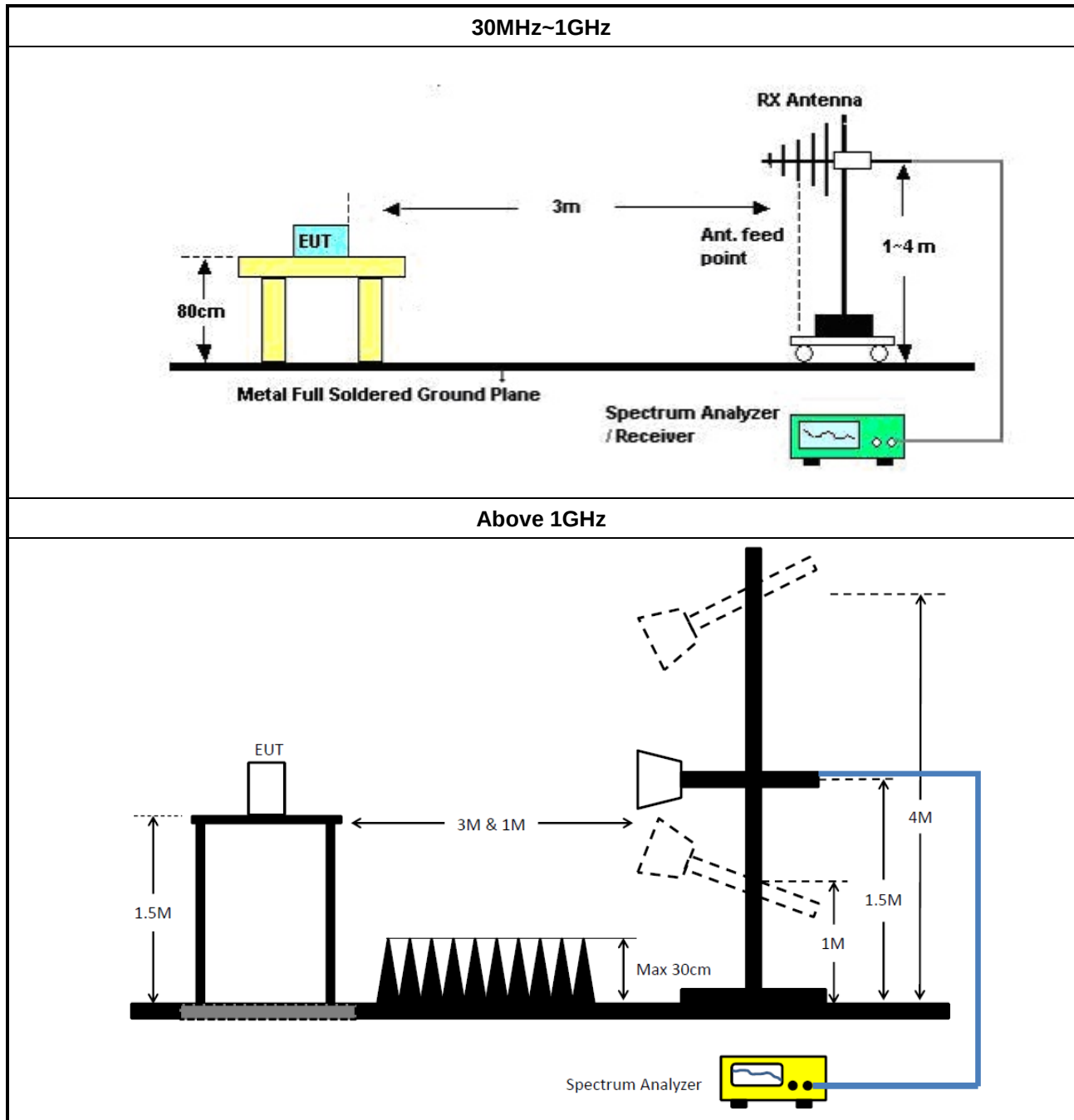
3.8.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamplifier Factor)

3.8.5 Test Setup





3.8.6 Test Result of Emissions in Restricted Frequency Bands (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.8.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix G



4 Test Equipment and Calibration Data

Instrument for Conducted Test

Instrument	Manufacturer/ Brand Name	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101515	10Hz~40GHz	05/Jan/2026	04/Jan/2027
SMB100A Signal Generator	R&S	SMB100A	181147	100kHz~40GHz	29/Oct/2025	28/Oct/2026
Power Meter	Anritsu	ML2495A	1517010	300MHz~40GHz	17/Dec/2025	16/Dec/2026
Pulse Sensor	Anritsu	MA2411B	1339407	300MHz~40GHz	17/Dec/2025	16/Dec/2026
SENSE-15247_FS	Sporton	V5.11.28	N/A	N/A	N/A	N/A

Instrument for Radiated Test

Instrument	Manufacturer/ Brand Name	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH24-HY	30MHz~1GHz 3m	15/Aug/2025	14/Aug/2026
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH24-HY	1GHz~18GHz 3m	29/Jul/2025	28/Jul/2026
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH24-HY	1GHz~18GHz 3m	28/Jul/2026	27/Jul/2027
EMI Test Receiver	ROHDE & SCHWARZ	ESR	102318	9kHz~3.6GHz	08/Dec/2025	07/Dec/2026
Signal Analyzer	ROHDE & SCHWARZ	FSV3044	101345	10Hz~44GHz	26/Aug/2025	25/Aug/2026
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2026	15/Mar/2027
Bilog Antenna & 6dB Attenuator	TESEQ / Woken	CBL 6112D / 00800N1D01N-06	35376 / 02	30MHz~1GHz	12/Apr/2026	11/Apr/2027
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02744	1GHz~18GHz	07/Aug/2025	06/Aug/2026
RF Cable	HUBER+SUHNER	SUOFLEX 104	03CH24-cable-01	9kHz~40GHz	02/Oct/2025	01/Oct/2026
Amplifier	EM	EM01G18G	060870	1GHz ~18GHz	08/Aug/2025	07/Aug/2026
Amplifier	EM	EM01G18G	060870	1GHz ~18GHz	07/Aug/2026	06/Aug/2027
SENSE-15247-FS	Sporton	V5.11.24	NA	NA	NA	NA



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
902-928MHz	-	-	-	-	-
LoRa (125kHz)	143.55k	126.937k	127KF1D	136.95k	124.364k

Max-N dB = Maximum 20dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 20dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
LoRa (125kHz)	-	-	-	-
902.3MHz	Pass	Inf	143.55k	124.364k
908.7MHz	Pass	Inf	140.25k	126.937k
914.9MHz	Pass	Inf	136.95k	125.744k

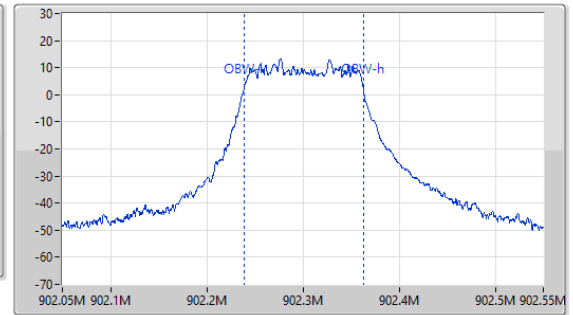
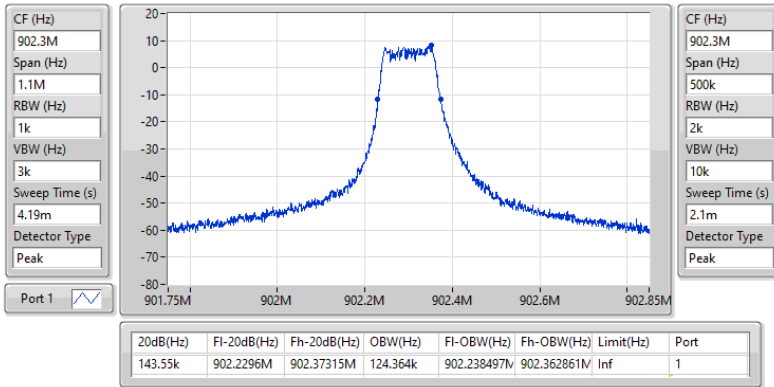
Port X-N dB = Port X 20dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

902-928MHz_LoRa (125kHz)

EBW-FS

902.3MHz

29/07/2026





Summary

Mode	Max-Space (Hz)	Min-Space (Hz)
902-928MHz	-	-
LoRa (125kHz)	213.3k	187.2k

Result

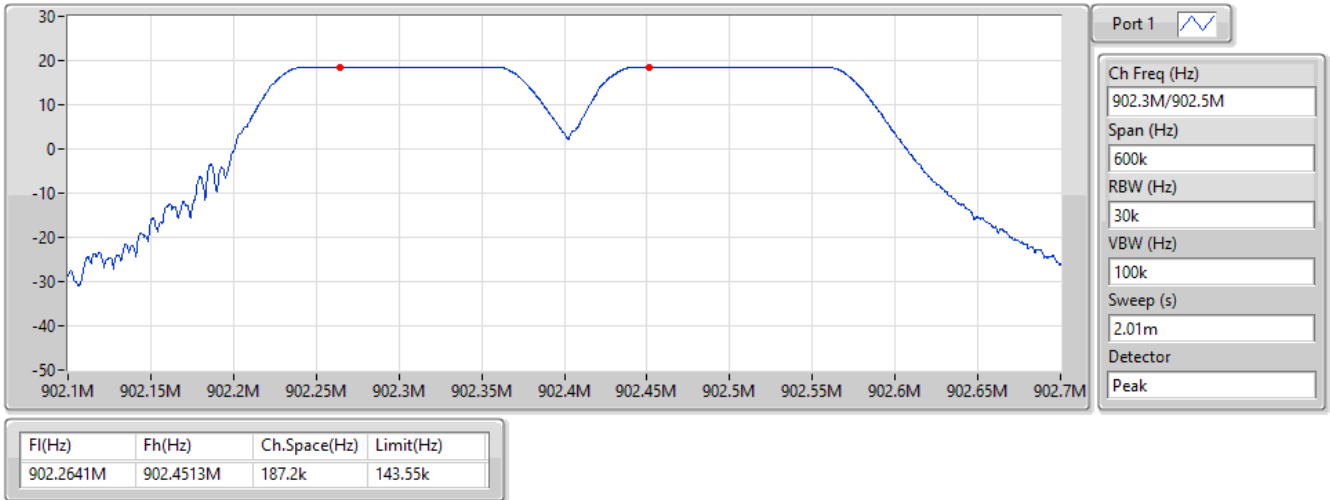
Mode	Result	Fi (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
LoRa (125kHz)	-	-	-	-	-
902.3MHz	Pass	902.2641M	902.4513M	187.2k	143.55k
908.7MHz	Pass	908.6446M	908.8579M	213.3k	140.25k
914.9MHz	Pass	914.6455M	914.8444M	198.9k	136.95k

902-928MHz_LoRa (125kHz)

Channel Separation-FS

902.3M/902.5MHz

29/07/2026





Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
902-928MHz	-	-	-	-	-
LoRa (500kHz)	611.875k	514.278k	514KF1D	610k	511.36k

Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth



Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
LoRa (500kHz)	-	-	-	-
923.3MHz	Pass	500k	610k	511.36k
927.5MHz	Pass	500k	611.875k	514.278k

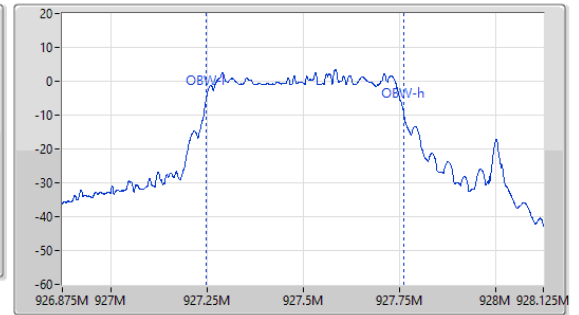
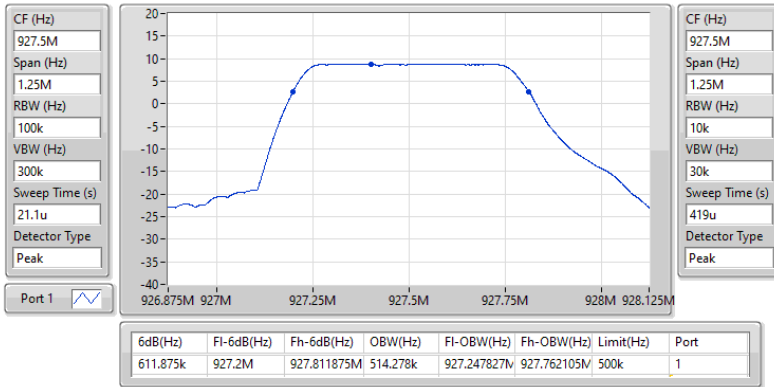
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

902-928MHz_LoRa (500kHz)

EBW-DTS

927.5MHz

29/07/2026





Summary

Mode	Total Power (dBm)	Total Power (W)
902-928MHz	-	-
LoRa (125kHz)	18.45	0.06998



Peak Power-FHSS

Appendix B.1

Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
LoRa (125kHz)	-	-	-	-
902.3MHz	Pass	2.50	18.45	30.00
908.7MHz	Pass	2.50	18.31	30.00
914.9MHz	Pass	2.50	18.18	30.00

DG = Directional Gain; Port X = Port X output power;
Inf = There's no restriction for the limit.



Average Power-FHSS

Appendix B.2

Summary

Mode	Total Power (dBm)	Total Power (W)
902-928MHz	-	-
LoRa (125kHz)	18.39	0.06902



Average Power-FHSS

Appendix B.2

Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
LoRa (125kHz)	-	-	-	-
902.3MHz	Pass	2.50	18.39	30.00
908.7MHz	Pass	2.50	18.22	30.00
914.9MHz	Pass	2.50	18.09	30.00

DG = Directional Gain; Port X = Port X output power;
Inf = There's no restriction for the limit.



Summary

Mode	Total Power (dBm)	Total Power (W)
902-928MHz	-	-
LoRa (500kHz)	18.59	0.07228



Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
LoRa (500kHz)	-	-	-	-
923.3MHz	Pass	2.50	18.59	30.00
927.5MHz	Pass	2.50	8.95	30.00

DG = Directional Gain; Port X = Port X output power;
Inf = There's no restriction for the limit.



Average Power-DTS

Appendix B.4

Summary

Mode	Total Power (dBm)	Total Power (W)
902-928MHz	-	-
LoRa (500kHz)	18.37	0.06871



Average Power-DTS

Appendix B.4

Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
LoRa (500kHz)	-	-	-	-
923.3MHz	Pass	2.50	18.37	30.00
927.5MHz	Pass	2.50	8.76	30.00

DG = Directional Gain; Port X = Port X output power;
Inf = There's no restriction for the limit.



Summary

Mode	PD (dBm/RBW)
902-928MHz	-
LoRa (500kHz)	4.74

RBW = 3kHz;



Result

Mode	Result	DG (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
LoRa (500kHz)	-	-	-	-
923.3MHz	Pass	2.50	4.74	8.00
927.5MHz	Pass	2.50	-5.37	8.00

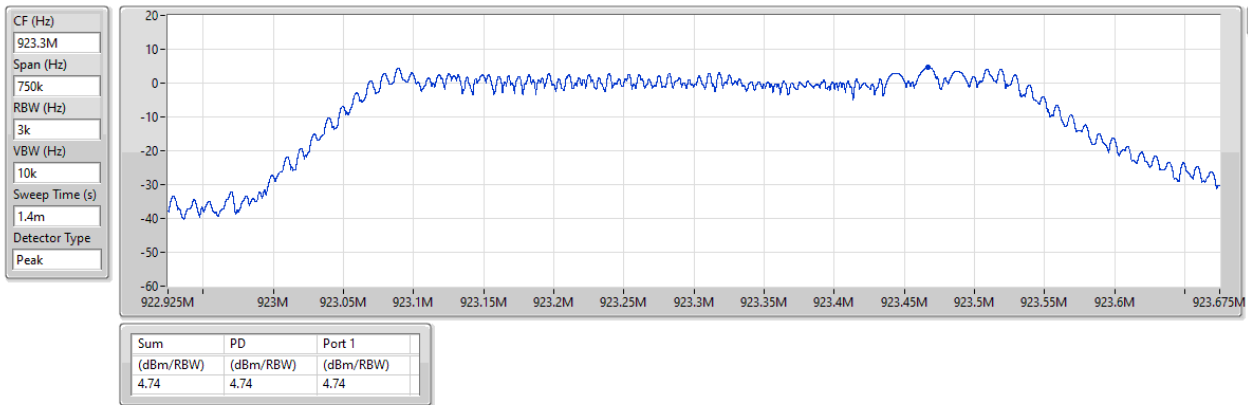
DG = Directional Gain; RBW = 3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;
Inf = There's no restriction for the limit.

902-928MHz_LoRa (500kHz)

PSD

923.3MHz

29/07/2026





Summary

Mode	Max-Hop No
902-928MHz	-
LoRa (125kHz)	64



Result

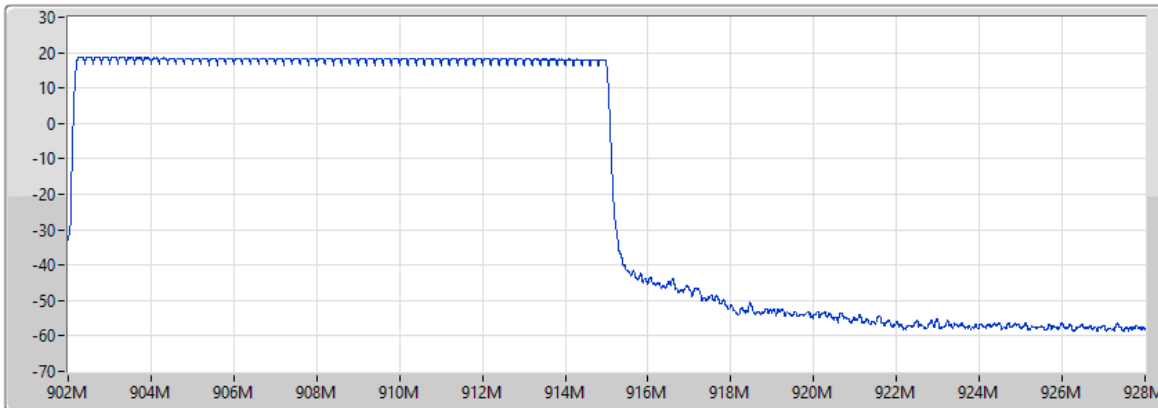
Mode	Result	Hopping No	Limit
LoRa (125kHz)	-	-	-
908.7MHz	Pass	64	50

902-928MHz_LoRa (125kHz)

Hopping-FS

908.7MHz

29/07/2026



Port 1 

Hopping No
64

Span (Hz)
26M

RBW (Hz)
100k

VBW (Hz)
300kHz

Sweep (s)
20.9us

Detector
Peak

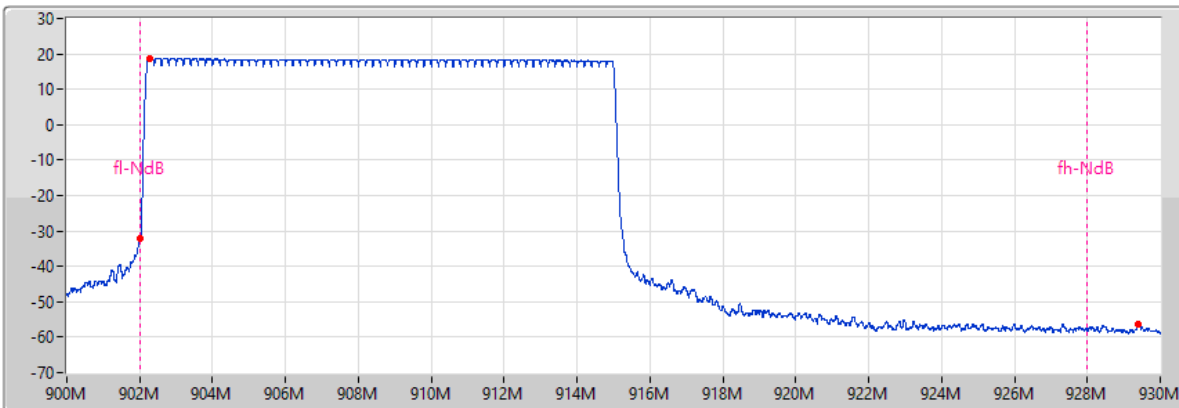
Hopping No	Limit
64	50

902-928MHz_LoRa (125kHz)

908.7MHz

Hopping Ch Bandedge (Non-restricted Band)

29/07/2026



Port 1 

Span (Hz)
30M

RBW (Hz)
100k

VBW (Hz)
300k

Sweep (s)
20.9u

Detector
Peak

Limit(dBm)	Ref(Hz)	Ref(dBm)	BE-l(Hz)	BE-l(dBm)	BE-h(Hz)	BE-h(dBm)
-1.43	902.26875M	18.57	901.99875M	-32.25	929.41125M	-56.39



Summary

Mode	Dwell (s)
LoRa (125kHz)	332.3125m



Result

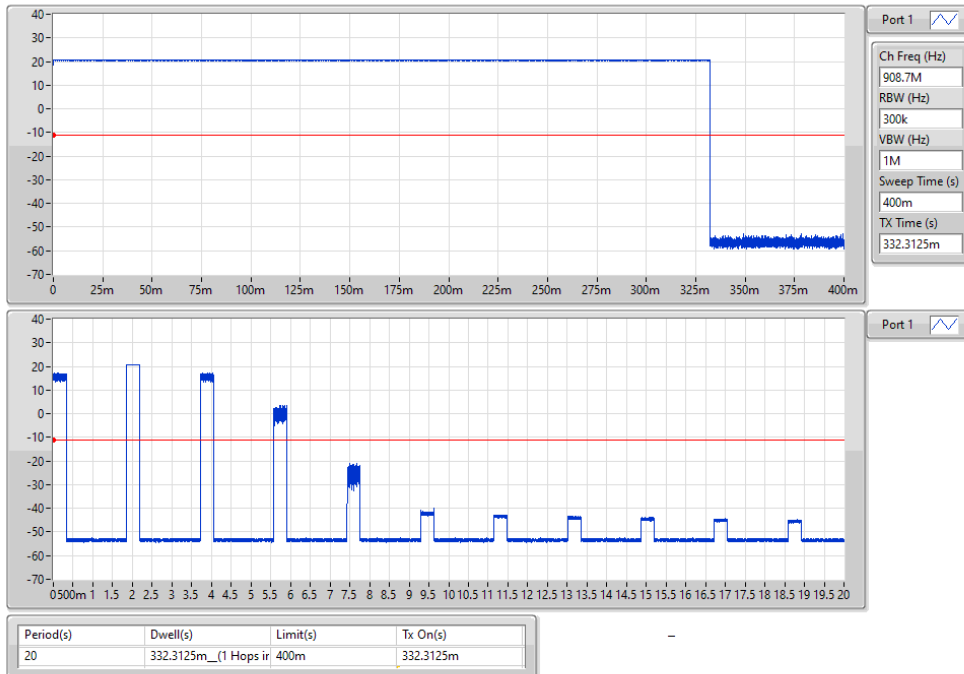
Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
LoRa (125kHz)	-	-	-	-	-
908.7MHz	Pass	20	332.3125m	400m	332.3125m

902-928MHz_LoRa (125kHz)

Dwell-FS

908.7MHz

28/07/2026





Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
902-928MHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LoRa (125kHz)	Pass	902.21M	18.48	-1.52	351.63M	-52.53	902M	-32.76	902M	-21.36	934.28M	-52.75	6.93477G	-46.52	1

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
LoRa (125kHz)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
902.3MHz	Pass	902.21M	18.48	-1.52	351.63M	-52.53	902M	-32.76	902M	-21.36	934.28M	-52.75	6.93477G	-46.52	1
908.7MHz	Pass	908.66M	18.32	-1.68	144.17M	-52.37	892.88M	-52.58	902M	-52.92	928.96M	-53.49	6.92232G	-47.99	1
914.9MHz	Pass	914.9M	18.11	-1.89	187.19M	-52.19	882.88M	-51.96	928M	-55.12	945.44M	-53.44	6.9755G	-47.03	1

902-928MHz LoRa (125kHz)

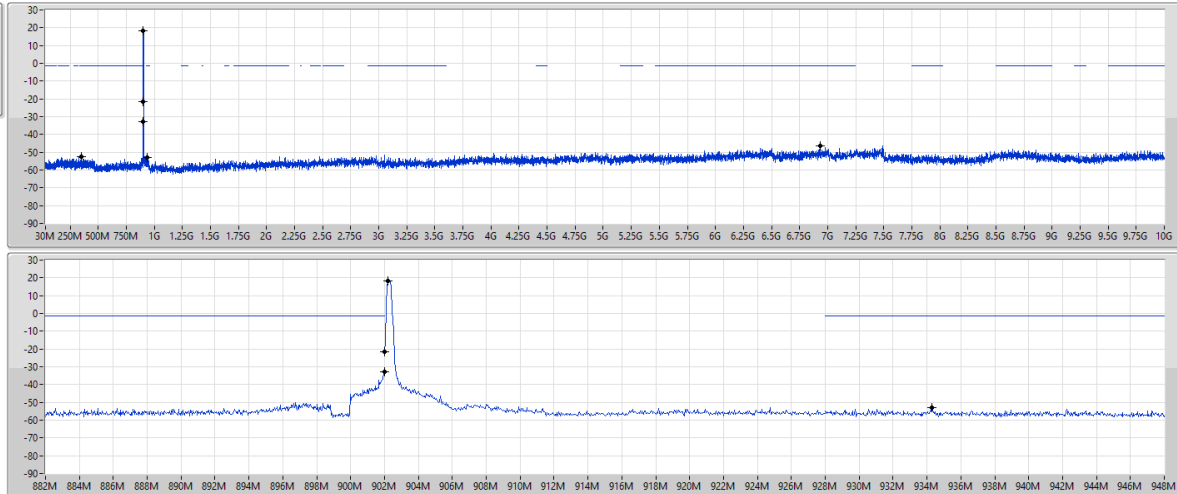
CSEndB-FS

902.3MHz

29/07/2026

RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak

Port 1



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
902.21M	18.48	-1.52	351.63M	-52.53	902M	-32.76	902M	-21.36	934.28M	-52.75	6.93477G	-46.52	1



Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
902-928MHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LoRa (500kHz)	Pass	927.27M	8.70	-11.30	47.47M	-54.09	887.24M	-53.76	928M	-12.23	928M	-14.24	6.93703G	-46.48	1

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
LoRa (500kHz)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
923.3MHz	Pass	923.27M	18.58	-1.42	145.45M	-51.34	891.16M	-50.25	928M	-37.41	928M	-38.23	6.98003G	-46.62	1
927.5MHz	Pass	927.27M	8.70	-11.30	47.47M	-54.09	887.24M	-53.76	928M	-12.23	928M	-14.24	6.93703G	-46.48	1

902-928MHz LoRa (500kHz)

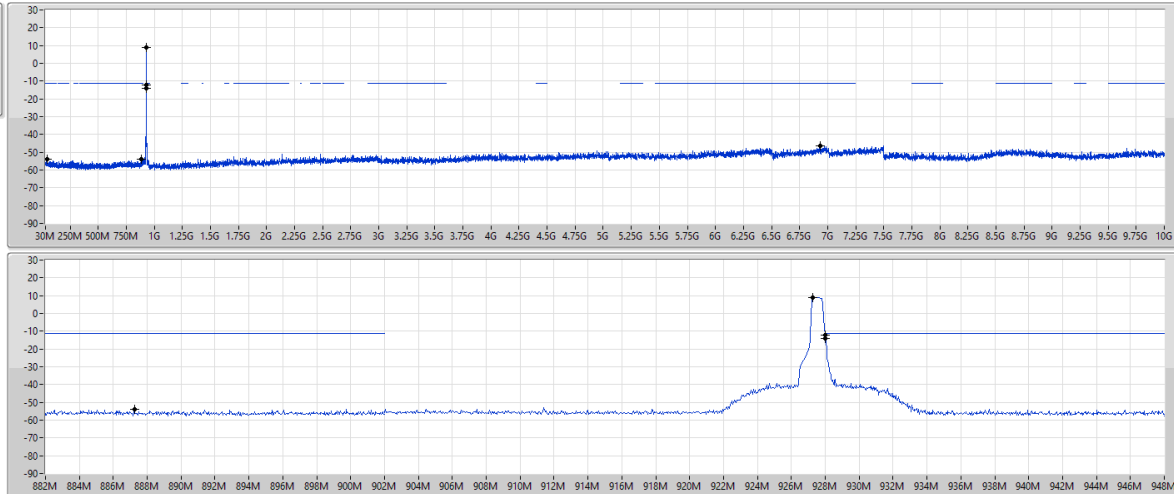
CSEndB-DTS

927.5MHz

29/07/2026

RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak

Port 1



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
927.27M	8.70	-11.30	47.47M	-54.09	887.24M	-53.76	928M	-12.23	928M	-14.24	6.93703G	-46.48	1



Summary

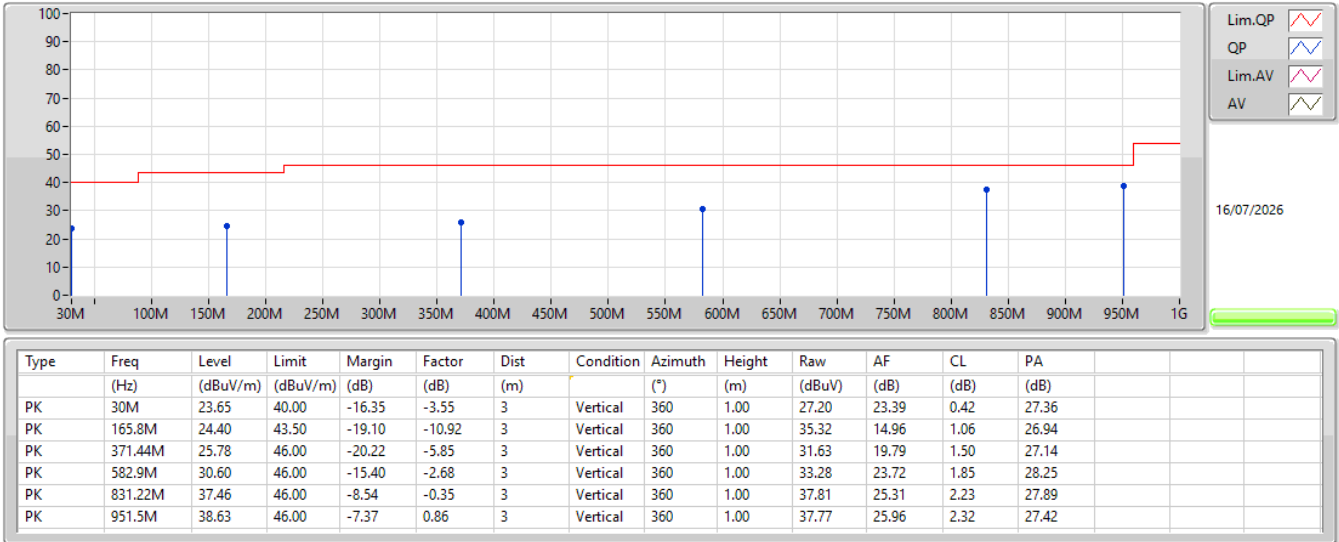
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
902-928MHz	-	-	-	-	-	-	-	-	-	-
LoRa (500kHz)	Pass	PK	831.22M	42.35	46.00	-3.65	3	Horizontal	0	1.00

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
LoRa (500kHz)	-	-	-	-	-	-	-	-	-	-
927.5MHz	Pass	PK	30M	23.65	40.00	-16.35	3	Vertical	360	1.00
927.5MHz	Pass	PK	165.8M	24.40	43.50	-19.10	3	Vertical	360	1.00
927.5MHz	Pass	PK	371.44M	25.78	46.00	-20.22	3	Vertical	360	1.00
927.5MHz	Pass	PK	582.9M	30.60	46.00	-15.40	3	Vertical	360	1.00
927.5MHz	Pass	PK	831.22M	37.46	46.00	-8.54	3	Vertical	360	1.00
927.5MHz	Pass	PK	951.5M	38.63	46.00	-7.37	3	Vertical	360	1.00
927.5MHz	Pass	PK	105.66M	30.25	43.50	-13.25	3	Horizontal	0	1.00
927.5MHz	Pass	PK	177.44M	33.55	43.50	-9.95	3	Horizontal	0	1.00
927.5MHz	Pass	PK	730.34M	42.07	46.00	-3.93	3	Horizontal	0	1.00
927.5MHz	Pass	PK	831.22M	42.35	46.00	-3.65	3	Horizontal	0	1.00
927.5MHz	Pass	PK	988.36M	49.47	54.00	-4.53	3	Horizontal	0	1.00
927.5MHz	Pass	QP	951.53M	32.17	46.00	-13.83	3	Horizontal	348	1.00

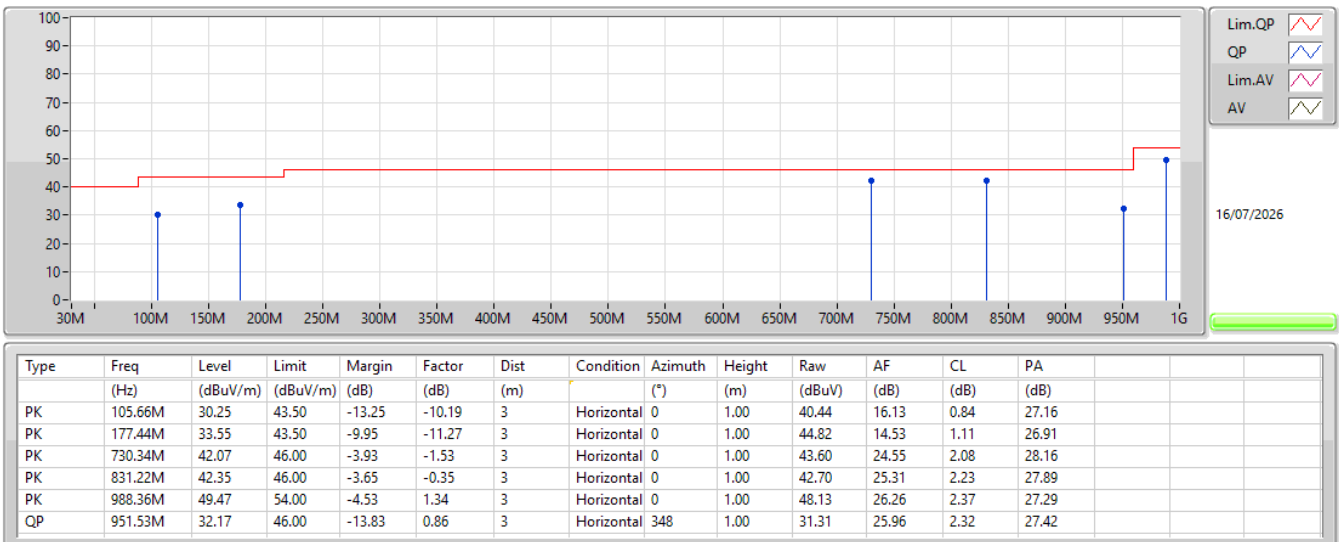
902-928MHz_LoRa (500kHz)

927.5MHz_Battery



902-928MHz_LoRa (500kHz)

927.5MHz_Battery





Summary

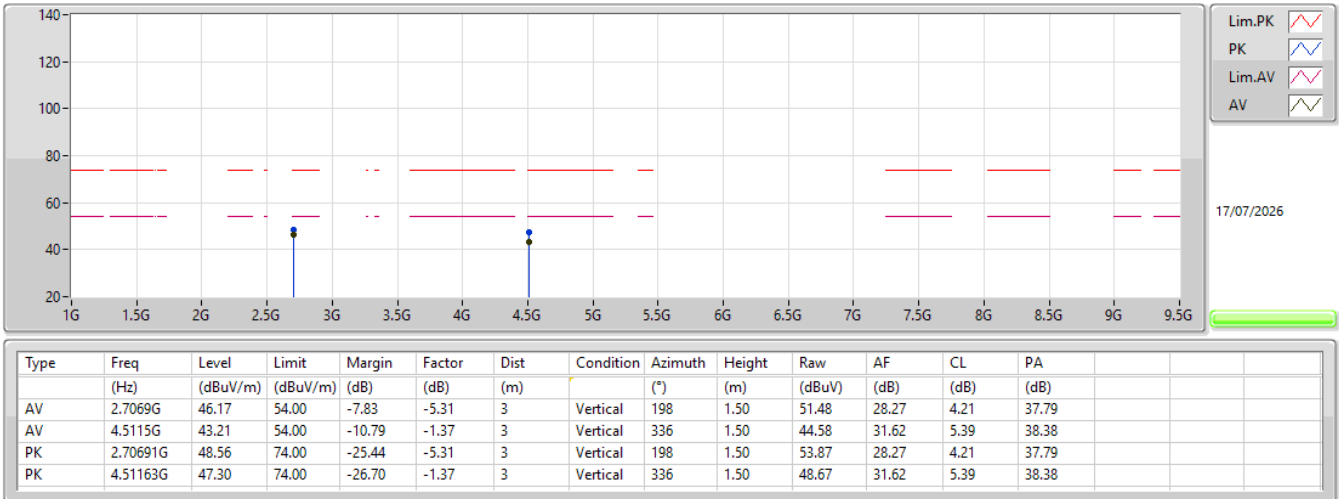
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
902-928MHz	-	-	-	-	-	-	-	-	-	-
LoRa (125kHz)	Pass	AV	4.51148G	48.72	54.00	-5.28	3	Horizontal	201	1.43
LoRa (500kHz)	Pass	AV	4.61649G	45.67	54.00	-8.33	3	Horizontal	207	1.75

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
LoRa (125kHz)	-	-	-	-	-	-	-	-	-	-
902.3MHz	Pass	AV	2.7069G	46.17	54.00	-7.83	3	Vertical	198	1.50
902.3MHz	Pass	AV	4.5115G	43.21	54.00	-10.79	3	Vertical	336	1.50
902.3MHz	Pass	PK	2.70691G	48.56	74.00	-25.44	3	Vertical	198	1.50
902.3MHz	Pass	PK	4.51163G	47.30	74.00	-26.70	3	Vertical	336	1.50
902.3MHz	Pass	AV	2.7069G	47.32	54.00	-6.68	3	Horizontal	156	1.78
902.3MHz	Pass	AV	4.51148G	48.72	54.00	-5.28	3	Horizontal	201	1.43
902.3MHz	Pass	PK	2.70688G	49.44	74.00	-24.56	3	Horizontal	156	1.78
902.3MHz	Pass	PK	4.51155G	50.96	74.00	-23.04	3	Horizontal	201	1.43
908.7MHz	Pass	AV	2.7261G	44.61	54.00	-9.39	3	Vertical	352	1.80
908.7MHz	Pass	AV	4.5435G	42.88	54.00	-11.12	3	Vertical	336	1.50
908.7MHz	Pass	PK	2.72603G	47.76	74.00	-26.24	3	Vertical	352	1.80
908.7MHz	Pass	PK	4.54347G	47.32	74.00	-26.68	3	Vertical	336	1.50
908.7MHz	Pass	AV	2.72609G	47.82	54.00	-6.18	3	Horizontal	156	1.73
908.7MHz	Pass	AV	4.54349G	47.68	54.00	-6.32	3	Horizontal	202	1.34
908.7MHz	Pass	PK	2.72614G	49.87	74.00	-24.13	3	Horizontal	156	1.73
908.7MHz	Pass	PK	4.54354G	50.64	74.00	-23.36	3	Horizontal	202	1.34
914.9MHz	Pass	AV	2.74469G	45.12	54.00	-8.88	3	Vertical	56	1.93
914.9MHz	Pass	AV	4.5745G	42.42	54.00	-11.58	3	Vertical	341	1.48
914.9MHz	Pass	PK	2.74472G	47.85	74.00	-26.15	3	Vertical	56	1.93
914.9MHz	Pass	PK	4.5745G	46.95	74.00	-27.05	3	Vertical	341	1.48
914.9MHz	Pass	AV	2.74469G	46.08	54.00	-7.92	3	Horizontal	155	1.92
914.9MHz	Pass	AV	4.5745G	46.71	54.00	-7.29	3	Horizontal	202	1.83
914.9MHz	Pass	PK	2.74472G	48.62	74.00	-25.38	3	Horizontal	155	1.92
914.9MHz	Pass	PK	4.57441G	49.90	74.00	-24.10	3	Horizontal	202	1.83
LoRa (500kHz)	-	-	-	-	-	-	-	-	-	-
923.3MHz	Pass	AV	2.7699G	42.03	54.00	-11.97	3	Vertical	45	1.46
923.3MHz	Pass	AV	4.6165G	42.34	54.00	-11.66	3	Vertical	342	1.49
923.3MHz	Pass	PK	2.76991G	45.76	74.00	-28.24	3	Vertical	45	1.46
923.3MHz	Pass	PK	4.61647G	46.64	74.00	-27.36	3	Vertical	342	1.49
923.3MHz	Pass	AV	2.7699G	44.98	54.00	-9.02	3	Horizontal	156	1.63
923.3MHz	Pass	AV	4.61649G	45.67	54.00	-8.33	3	Horizontal	207	1.75
923.3MHz	Pass	PK	2.76991G	47.70	74.00	-26.30	3	Horizontal	156	1.63
923.3MHz	Pass	PK	4.61652G	49.02	74.00	-24.98	3	Horizontal	207	1.75
927.5MHz	Pass	AV	2.78249G	39.65	54.00	-14.35	3	Vertical	46	1.42
927.5MHz	Pass	AV	4.63751G	41.92	54.00	-12.08	3	Vertical	343	1.46
927.5MHz	Pass	PK	2.78253G	43.91	74.00	-30.09	3	Vertical	46	1.42
927.5MHz	Pass	PK	4.63758G	46.38	74.00	-27.62	3	Vertical	343	1.46
927.5MHz	Pass	AV	2.7825G	40.79	54.00	-13.21	3	Horizontal	155	1.40
927.5MHz	Pass	AV	4.63751G	44.25	54.00	-9.75	3	Horizontal	206	1.37
927.5MHz	Pass	PK	2.78245G	44.35	74.00	-29.65	3	Horizontal	155	1.40
927.5MHz	Pass	PK	4.63741G	47.97	74.00	-26.03	3	Horizontal	206	1.37

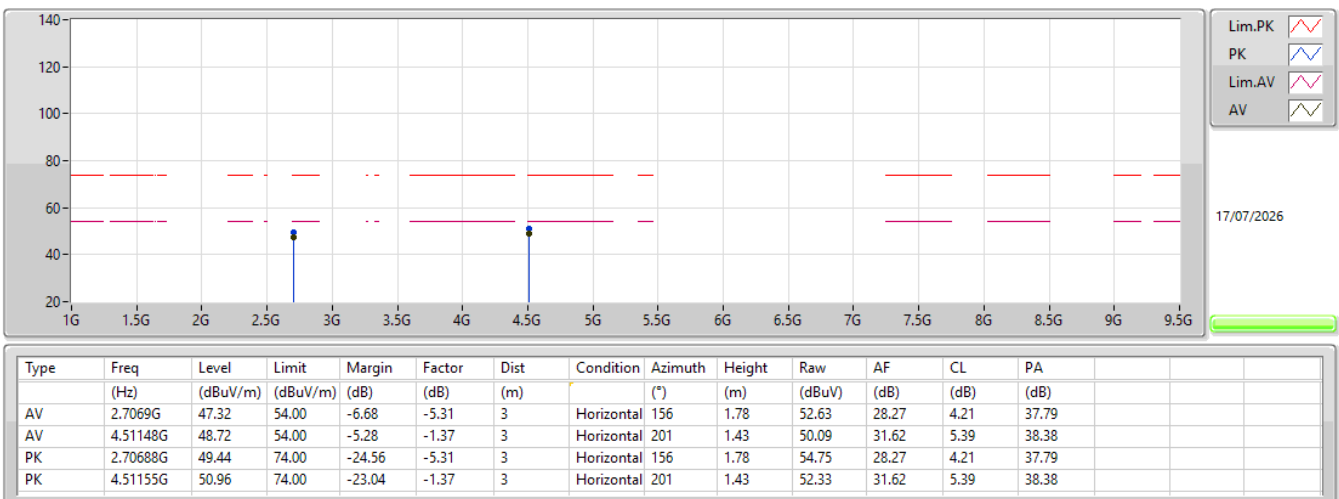
902-928MHz_LoRa (125kHz)

902.3MHz_TX



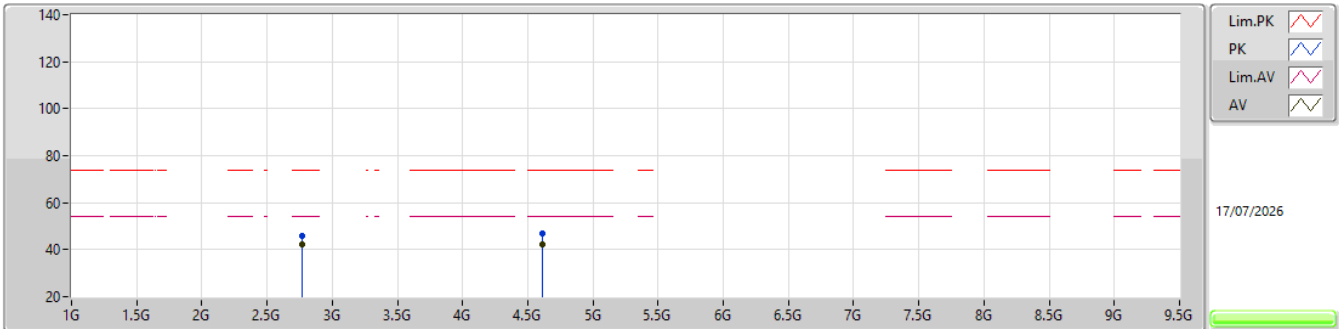
902-928MHz_LoRa (125kHz)

902.3MHz_TX



902-928MHz_LoRa (500kHz)

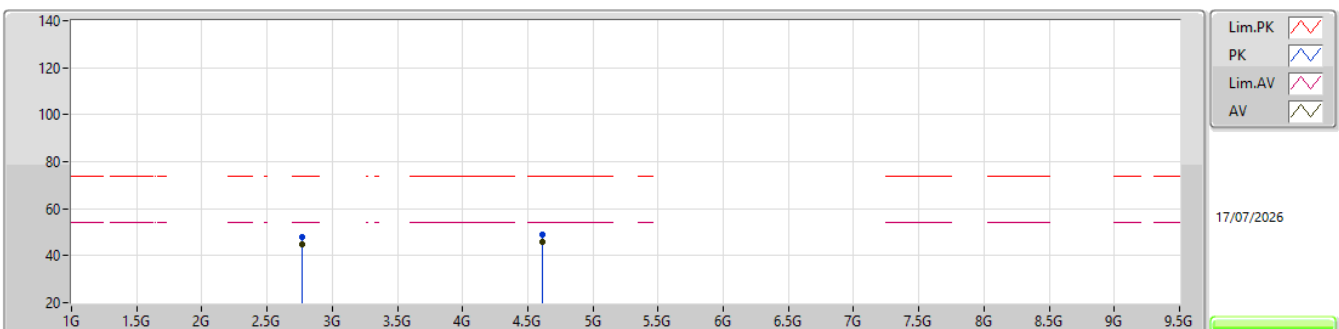
923.3MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.7699G	42.03	54.00	-11.97	-5.24	3	Vertical	45	1.46	47.27	28.30	4.29	37.83
AV	4.6165G	42.34	54.00	-11.66	-1.03	3	Vertical	342	1.49	43.37	31.83	5.46	38.32
PK	2.76991G	45.76	74.00	-28.24	-5.24	3	Vertical	45	1.46	51.00	28.30	4.29	37.83
PK	4.61647G	46.64	74.00	-27.36	-1.03	3	Vertical	342	1.49	47.67	31.83	5.46	38.32

902-928MHz_LoRa (500kHz)

923.3MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.7699G	44.98	54.00	-9.02	-5.24	3	Horizontal	156	1.63	50.22	28.30	4.29	37.83
AV	4.61649G	45.67	54.00	-8.33	-1.03	3	Horizontal	207	1.75	46.70	31.83	5.46	38.32
PK	2.76991G	47.70	74.00	-26.30	-5.24	3	Horizontal	156	1.63	52.94	28.30	4.29	37.83
PK	4.61652G	49.02	74.00	-24.98	-1.03	3	Horizontal	207	1.75	50.05	31.83	5.46	38.32