

FCC Radio Test Report

FCC ID : 2BOYO-SGW-10
Contains FCC ID : XMR2021EM05G
Equipment : Wireless Security Gateway
Brand Name : SKS
Model Name : SGW-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 Mar. 17, 2025, and testing was started from Apr. 02, 2025 and completed on Apr. 30, 2025. 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 C63.10-2013 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 Accessories	10
2.5 Support Equipment.....	10
2.6 Test Setup Diagram	11
3 TRANSMITTER TEST RESULT	12
3.1 AC Power-line Conducted Emissions	12
3.2 20dB Bandwidth and Carrier Frequency Separation.....	14
3.3 Maximum Conducted Output Power	15
3.4 Power Spectral Density	16
3.5 Number of Hopping Frequencies and Hopping Bandedge	17
3.6 Time of Occupancy (Dwell Time)	18
3.7 Emissions in Non-restricted Frequency Bands	19
3.8 Emissions in Restricted Frequency Bands.....	20
4 TEST EQUIPMENT AND CALIBRATION DATA	23
APPENDIX A. TEST RESULTS OF AC POWER-LINE CONDUCTED EMISSIONS	
APPENDIX B. TEST RESULTS OF 20DB BANDWIDTH AND CARRIER FREQUENCY SEPARATION	
APPENDIX C. TEST RESULTS OF MAXIMUM CONDUCTED OUTPUT POWER	
APPENDIX D. TEST RESULTS OF POWER SPECTRAL DENSITY	
APPENDIX E. NUMBER OF HOPPING FREQUENCIES AND HOPPING OPPBANDEDGE	
APPENDIX F. TEST RESULTS OF TIME OF OCCUPANCY (DWELL TIME)	
APPENDIX G. TEST RESULTS OF EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS	
APPENDIX H. TEST RESULTS OF EMISSIONS IN RESTRICTED FREQUENCY BANDS	
APPENDIX I. TEST RESULTS OF RADIATED EMISSION CO-LOCATION	
APPENDIX J. 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	-
3.1	15.207	AC Power-line Conducted Emissions	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: Sam Tsai

Report Producer: Michelle Tsai

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 hybrid system using 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
1	Dusun	DSGW-750-wifi1	PCB	N/A	WiFi 2.4G
2	Dusun	DSGW-750-wifi2	PCB	N/A	WiFi 2.4G
3	Dusun	DSM-04B	PCB	N/A	Matter
4	JESONcom	5Q004U	Dipole	I-Pex	Lora
5	JESONcom	32L008A	LDS	N/A	LTE

Ant.	Port	Gain (dBi)		
		2.4G	Matter	LoRa
1	1	1.42	-	-
2	2	1.54	-	-
3	1	-	2.41	-
4	1	-	-	2.48

Ant.	Port	WWAN antenna Gain (dBi)					
		LTE					
		Band 2	Band 4	Band 5	Band 7	Band 12	Band 13
5	1	1.89	2.8	0.43	2.88	4.3	0.76



Ant.	Port	WWAN antenna Gain (dBi)						
		LTE						
		Band 14	Band 25	Band 26	Band 38	Band 41	Band 66	Band 71
5	1	0.76	1.89	0.25	4.16	4.16	2.8	4.3

Note 1: The EUT has five antennas.

For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ax/be mode (1TX/1RX)

Ant. 1 (port 1), Ant. 2 (port 2) could transmit/receive.

Support diversity function and pre-tested on each single chain, the worst case was Ant. 1 (port 1) and it was recorded in this test report.

For Matter function:

For IEEE 802.15.4 mode (1TX/1RX)

Ant. 3 (port 1) could transmit/receive.

For LoRa function:

For LoRa mode (1TX/1RX)

Ant. 4 (port 1) could transmit/receive.

For WWAN 4G function:

For WWAN 4G mode (1TX/1RX)

Ant. 5 (port 1) could transmit/receive.

1.1.3 Type of EUT

Operational Condition	
EUT Power Type	From Adapter
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)	0.799	0.97	51.537m	20
LoRa (500kHz)	0.722	1.41	41.219m	30

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

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 C63.10-2013

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 Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Lego Lin	21.8~23.9°C / 53~57%	11/Apr/2025
RF Conducted	TH07-HY	Xun Hsieh	22.9~23.5°C / 48~54%	07/Apr/2025~08/Apr/2025
Radiated	03CH02-HY	Daniel Lin	22.4~23.9°C / 50~52%	02/Apr/2025~09/Apr/2025
Radiated (Co-Location)	03CH02-HY	Daniel Lin	22.4~23.9°C / 50~52%	30/Apr/2025
☒ 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			

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
AC Power-line Conducted Emissions	4.53 dB	Confidence levels of 95%
Bandwidth	3 MHz	Confidence levels of 95%
Maximum Conducted Output Power	2 dB	Confidence levels of 95%
Power Spectral Density	2 dB	Confidence levels of 95%
Emissions in Non-restricted Frequency Bands	0.14 dB	Confidence levels of 95%
Emissions in Restricted Frequency Bands	4.8 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

RF Conducted-DTS	Abbreviation	Remark
TX-DTS	Tnom	20°C
-	Vnom	120V

2.2 Test Channel Mode

Test Software Version	PuTTY Release 0.62
-----------------------	--------------------

Mode	Power Setting
LoRa (125kHz)	-
902.3MHz	8
908.5MHz	8
914.9MHz	9
LoRa (500kHz)	-
923.3MHz	8.5
927.5MHz	8.5

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	CTX
1	Adapter mode

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	Adapter mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT	V		

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Test Condition	Radiated measurement
Operating Mode	CTX
1	WLAN 2.4GHz+LoRa+Matter+LTE
Refer to Sporton Test Report No.: FA531001 for Co-location RF Exposure Evaluation and Appendix I for Radiated Emission Co-location.	

2.4 Accessories

Accessories				
AC Adapter 1 (TAIWAN Plug)	Brand Name	Sunun	Model Name	SA182V-050300U
	Manufacturer	Dongguan Sunun Power Co., Ltd	SN	-
	Power Rating	I/P: 100 - 240Vac, 0.4A, O/P: 90-264Vdc, 3A		
	Power Cord	1.5 meter, non-shielded cable, w/o ferrite core		
Battery	Brand Name	EVE	Model Name	ICR18650/26V
	Manufacturer	EVE Energy CO., LTD	SN	-
	Power Rating	3.6Vdc, 2550mAh	Type	Li-ion, Yes
RJ45 Cable	Brand Name	DONGGUAN AOC ELECTRONICSCO., LTD	Model Name	CON-C-984
	Signal Line	1.5 meter, shielded cable		

Reminder: Regarding to more detail and other information, please refer to user manual.

2.5 Support Equipment

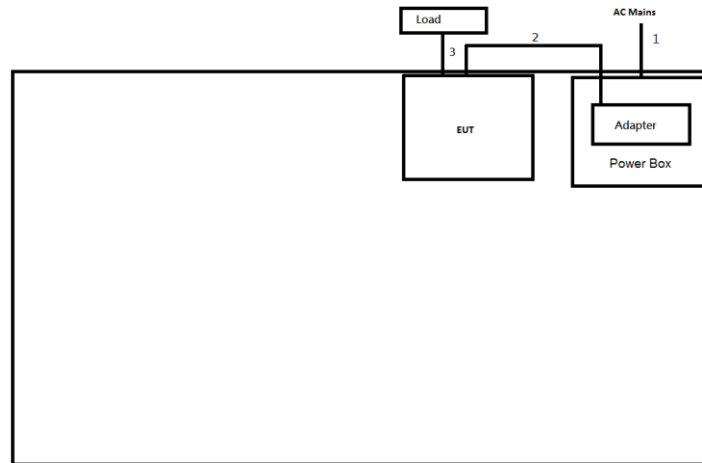
Support Equipment –AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Load	Sporton	Sporton	-	-

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

Support Equipment –Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Load	Sporton	Sporton	-	-

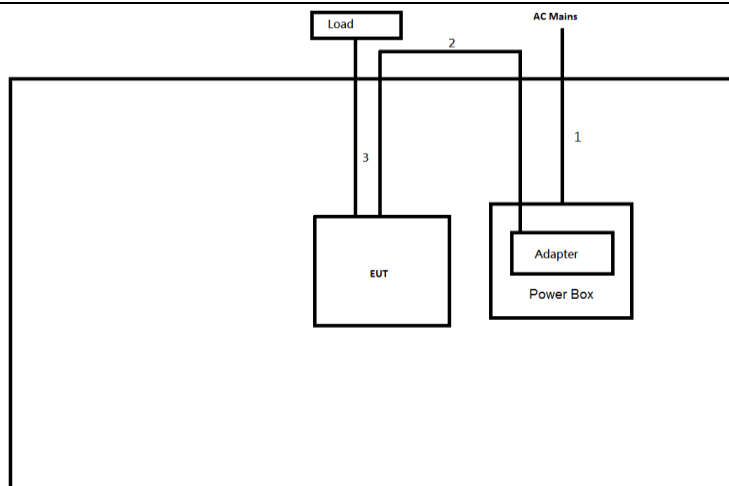
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power Cable	No	1.8	-
2	DC Power Cable	No	1.5	-
3	RJ45 Cable	Yes	1.5	-

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power Cable	No	1.8	-
2	DC Power Cable	No	1.5	-
3	RJ45 Cable	Yes	1.5	-

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

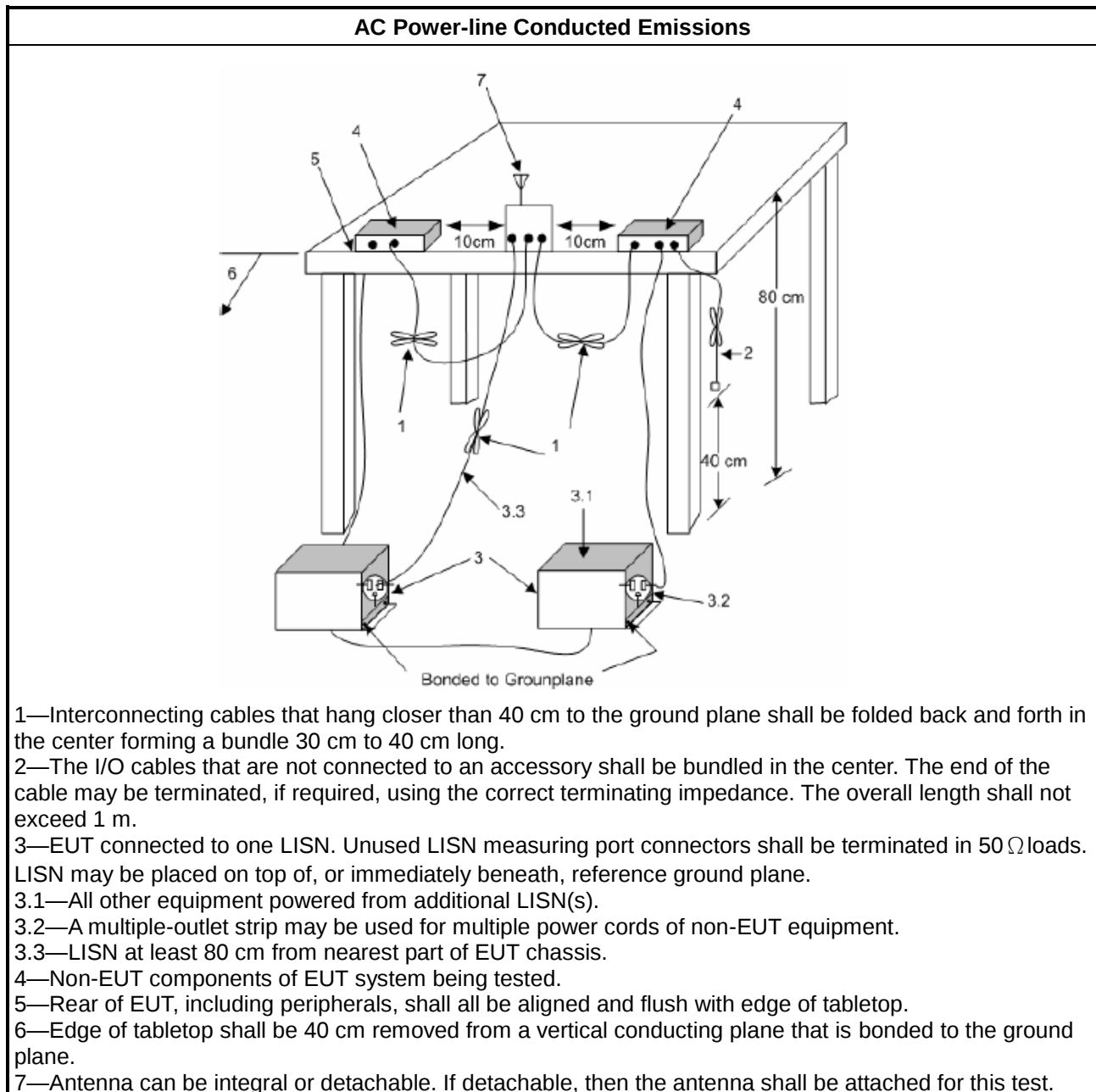
Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + LISN(LISN Factor) + CL(Cable Loss) + AT(Attenuator).

3.1.5 Test Setup



3.1.6 Test Result of AC Power-line Conducted Emissions

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

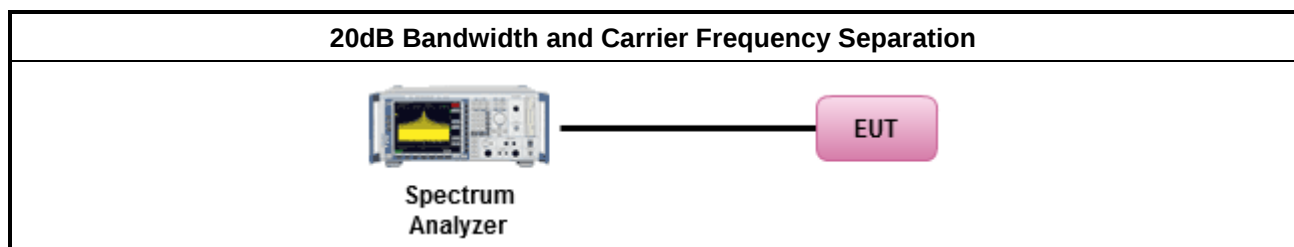
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10-2013, clause 6.9.2 for 20 dB bandwidth measurement.
☒ Refer as ANSI C63.10-2013, 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 B

3.2.6 Test Result of Carrier Frequency Separation

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

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

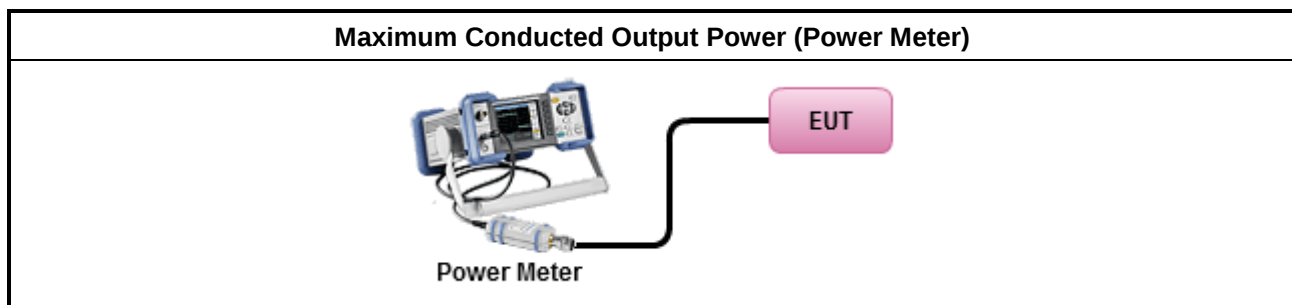
3.3.2 Measuring Instruments

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 (11.9.1.2 of ANSI C63.10) integrated band power method.
☒	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 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 C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

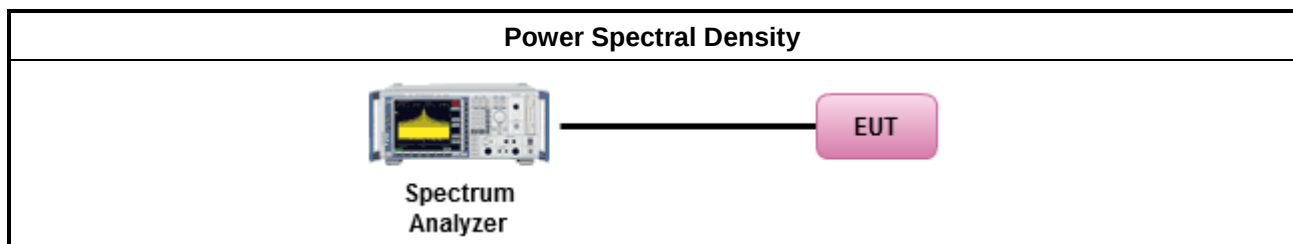
3.4.2 Measuring Instruments

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 D

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

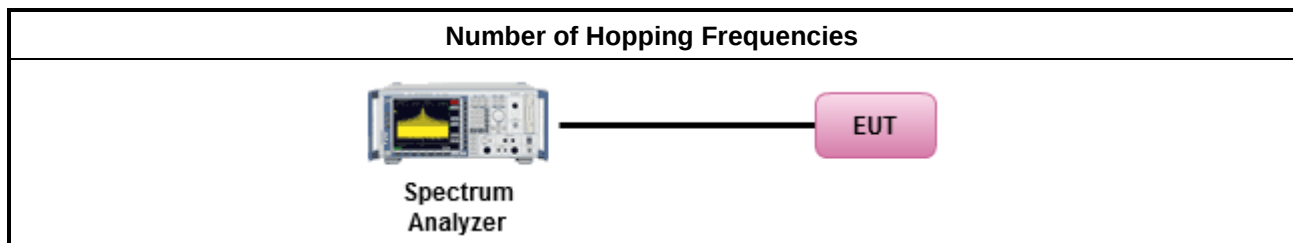
3.5.3 Measuring Instruments

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

3.5.4 Test Procedures

Test Method
☒ Refer as ANSI C63.10-2013, clause 7.8.3 for number of hopping frequencies measurement.
☒ Refer as ANSI C63.10-2013, clause 7.8.6 for hopping frequencies Bandedge measurement.

3.5.5 Test Setup



3.5.6 Test Result of Number of Hopping Frequencies

Refer as Appendix E

3.5.7 Test Result of Number of Hopping Frequencies Bandedge

Refer as Appendix E

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	

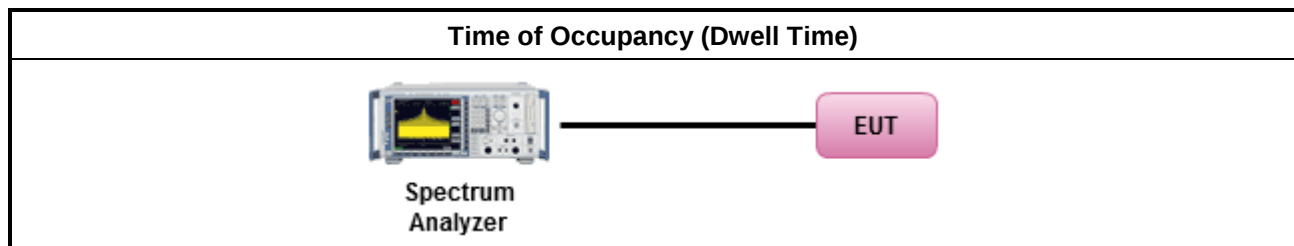
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, 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 F

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.	

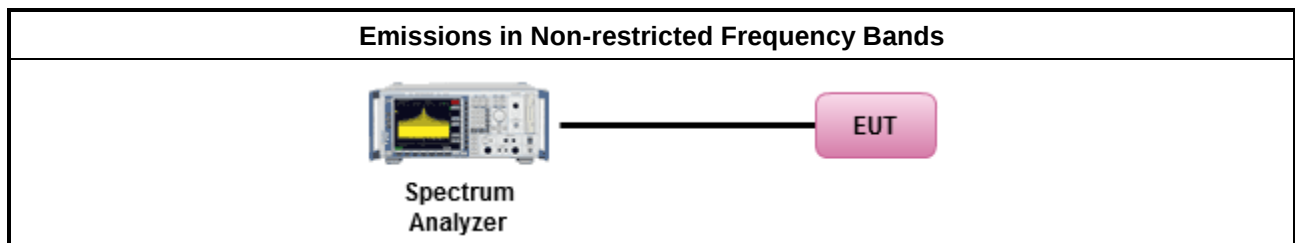
3.7.2 Measuring Instruments

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

3.7.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 7.8.8 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 G

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

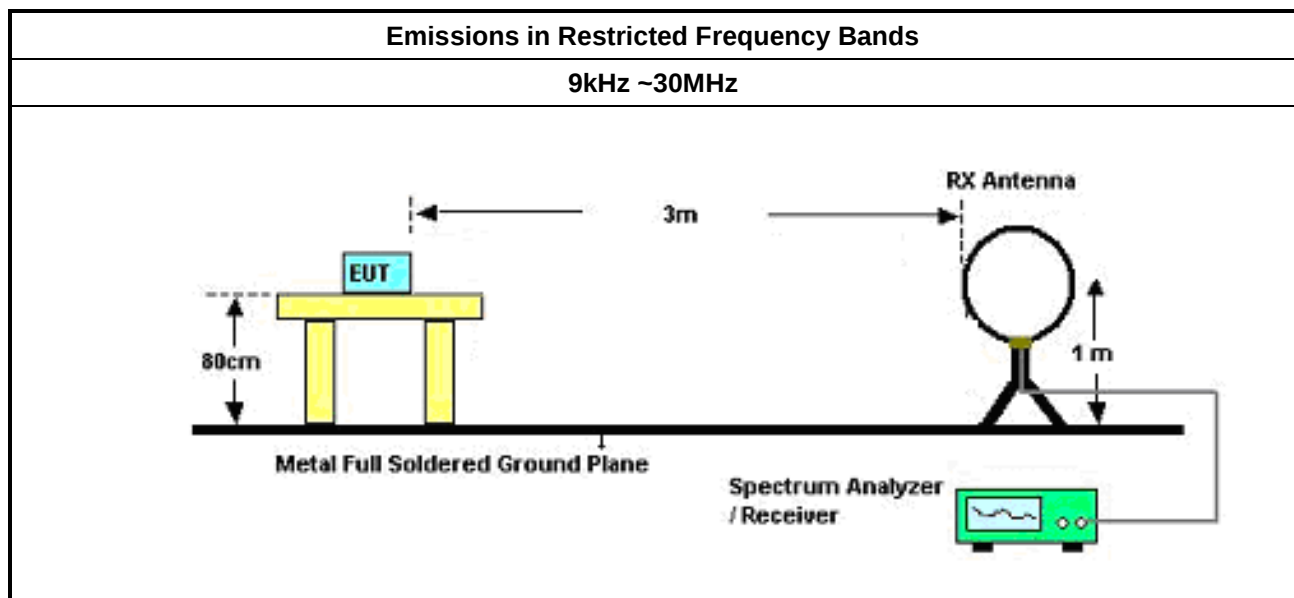
Test Method	
The average emission levels shall be measured in [hopping duty factor].	
Refer as ANSI C63.10; clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as ANSI C63.10, clause 4.1.4.2.1 QP value.
	Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak.
	Refer as ANSI C63.10, clause 4.1.4.2.4 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.

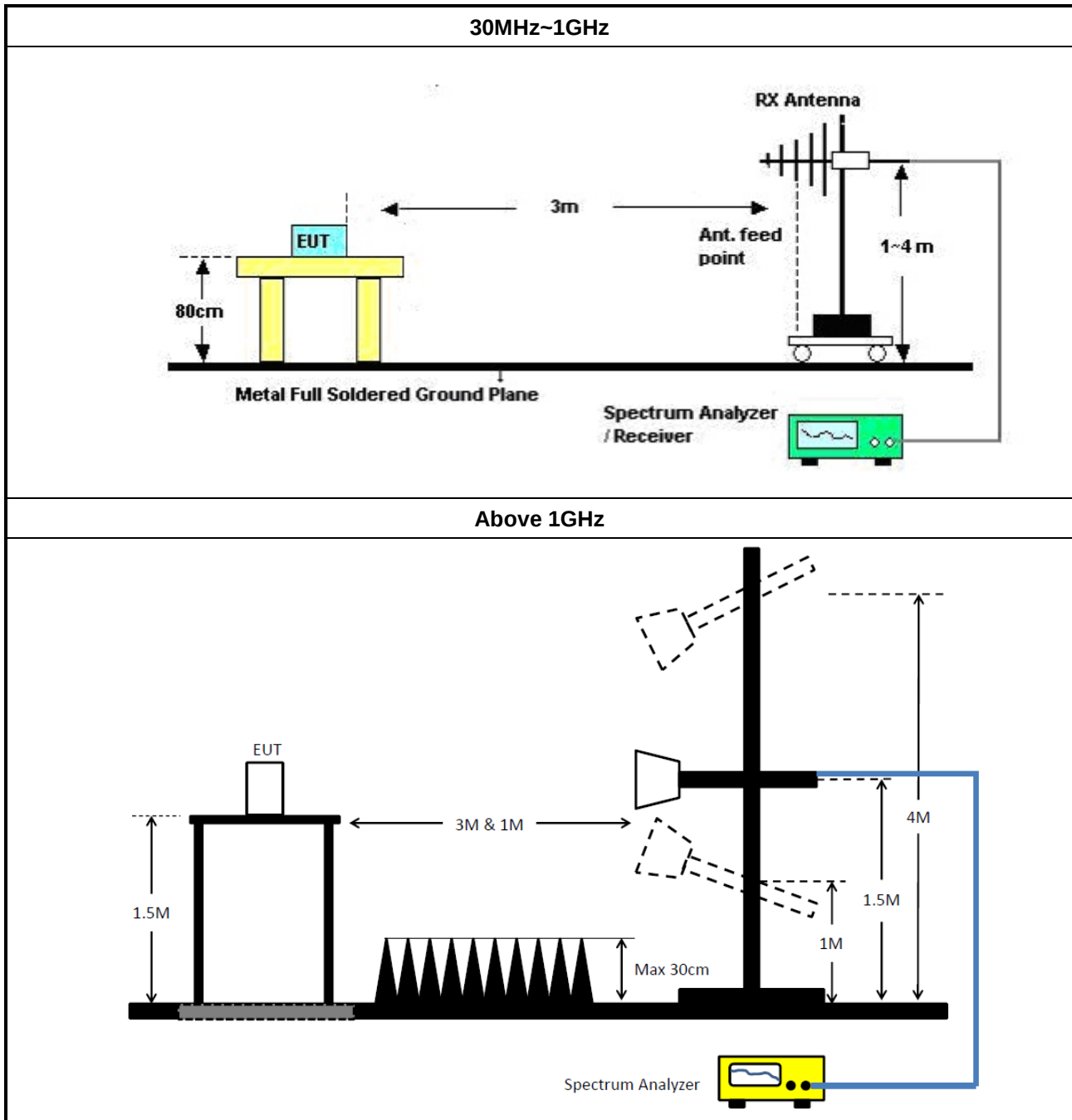
3.8.4 Measurement Results Calculation

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 H



4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer/ Brand Name	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMI Test Receiver	ROHDE & SCHWARZ	ESR3	102051	9kHz ~ 3.6GHz	17/May/2024	16/May/2025
Two-Line V-Network	ROHDE & SCHWARZ	ENV 216	101578	9kHz ~ 30MHz	11/Oct/2024	10/Oct/2025
RF Cable 5m	TITAN	TITAN	CO04-cable-01	9 kHz~200MHz	26/Feb/2025	25/Feb/2026
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	17/Oct/2024	16/Oct/2025
Software	Sporton	SENSE-EMI	V5.11.3	-	NCR	NCR

NCR: No Calibration Required.

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	23/Jan/2025	22/Jan/2026
SMB100A Signal Generator	R&S	SMB100A	181147	100kHz~40GHz	16/Oct/2024	15/Oct/2025
Power Meter	Anritsu	ML2495A	1517010	300MHz~40GHz	18/Dec/2024	17/Dec/2025
Pulse Sensor	Anritsu	MA2411B	1339407	300MHz~40GHz	18/Dec/2024	17/Dec/2025
SENSE-15247_FS	Sporton	V5.11.23	N/A	N/A	N/A	N/A

Instrument for Radiated Test (Co-Location)

Instrument	Manufacturer/ Brand Name	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Site V.S.W.R	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz~18GHz 3M	14/Jul/2024	13/Jul/2025
Signal Analyzer	R&S	FSP 40	100305	9kHz~40GHz	18/Mar/2025	17/Mar/2026
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02268	1GHz~18GHz	23/Sep/2024	22/Sep/2025
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	18GHz~40GHz	04/Jun/2024	03/Jun/2025
RF Cable-R03m	HUBER+SUHNER	SUCOFLEX 104	03CH02-cable-01	1GHz~40GHz	13/Feb/2025	12/Feb/2026
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz~26.5GHz	01/Oct/2024	30/Sep/2025
Amplifier	EM	EM18G40GA	060874	18GHz ~40GHz	18/Apr/2025	17/Apr/2026
SENSE-EMI	Sporton	V5.11.9	N/A	N/A	N/A	N/A

**Instrument for Radiated Test (03CH02-HY)**

Instrument	Manufacturer/ Brand Name	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
N.S.A. Measurement	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz~1GHz 3M	14/Jul/2024	13/Jul/2025
Site V.S.W.R	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz~18GHz 3M	14/Jul/2024	13/Jul/2025
EMI Test Receiver	R&S	ESR	102052	9kHz~3.6GHz	03/May/2024	02/May/2025
Signal Analyzer	R&S	FSP 40	100305	9kHz~40GHz	18/Mar/2025	17/Mar/2026
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	20/Mar/2025	19/Mar/2026
Bilog Antenna & 5dB Attenuator	SCHAFFNER / MTJ	CBL 6112B / MTJ6102-05	2723/2	30MHz~1GHz	26/Aug/2024	25/Aug/2025
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02268	1GHz~18GHz	23/Sep/2024	22/Sep/2025
RF Cable	MVE	400LL+SN 200207	03CH02-cable-02	9kHz~30MHz	26/Nov/2024	25/Nov/2025
RF Cable	MVE	400LL+SN 200207	03CH02-cable-02	30MHz~1GHz	26/Nov/2024	25/Nov/2025
RF Cable-R03m	HUBER+ SUHNER	SUCOFLEX 104	03CH02-cable-01	1GHz~40GHz	13/Feb/2025	12/Feb/2026
Amplifier	Agilent	8447D	2944A11149	100kHz~1.3GHz	29/Jun/2024	28/Jun/2025
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz~26.5GHz	01/Oct/2024	30/Sep/2025
SENSE-15247-FS	Sporton	V5.11.23	N/A	N/A	N/A	N/A



Conducted Emissions at Powerline

Appendix A

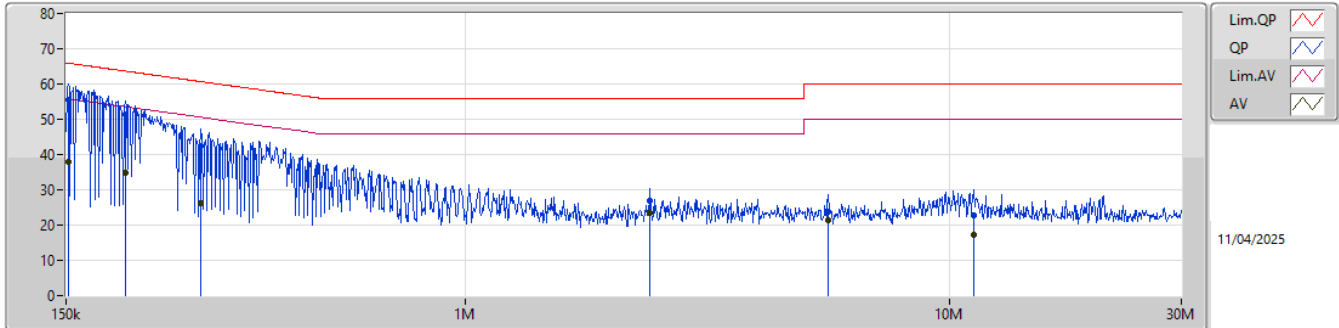
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	151.807k	55.62	65.90	-10.28	Line

Result

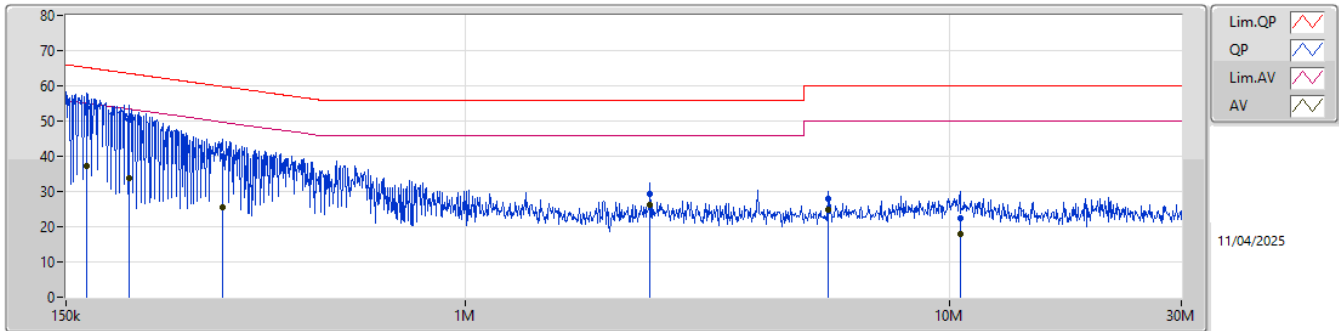
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	151.807k	55.62	65.90	-10.28	Line
Mode 1	Pass	AV	151.807k	37.99	55.90	-17.91	Line
Mode 1	Pass	QP	199.152k	51.41	63.65	-12.24	Line
Mode 1	Pass	AV	199.152k	34.77	53.65	-18.88	Line
Mode 1	Pass	QP	285.246k	42.34	60.67	-18.33	Line
Mode 1	Pass	AV	285.246k	26.34	50.67	-24.33	Line
Mode 1	Pass	QP	2.404M	26.73	56.00	-29.27	Line
Mode 1	Pass	AV	2.404M	23.39	46.00	-22.61	Line
Mode 1	Pass	QP	5.605M	23.91	60.00	-36.09	Line
Mode 1	Pass	AV	5.605M	21.27	50.00	-28.73	Line
Mode 1	Pass	QP	11.182M	22.83	60.00	-37.17	Line
Mode 1	Pass	AV	11.182M	17.15	50.00	-32.85	Line
Mode 1	Pass	QP	165.082k	53.89	65.20	-11.31	Neutral
Mode 1	Pass	AV	165.082k	37.27	55.20	-17.93	Neutral
Mode 1	Pass	QP	202.358k	50.36	63.51	-13.15	Neutral
Mode 1	Pass	AV	202.358k	33.83	53.51	-19.68	Neutral
Mode 1	Pass	QP	316.443k	40.01	59.80	-19.79	Neutral
Mode 1	Pass	AV	316.443k	25.68	49.80	-24.12	Neutral
Mode 1	Pass	QP	2.404M	29.39	56.00	-26.61	Neutral
Mode 1	Pass	AV	2.404M	26.13	46.00	-19.87	Neutral
Mode 1	Pass	QP	5.605M	27.90	60.00	-32.10	Neutral
Mode 1	Pass	AV	5.605M	24.92	50.00	-25.08	Neutral
Mode 1	Pass	QP	10.49M	22.43	60.00	-37.57	Neutral
Mode 1	Pass	AV	10.49M	17.97	50.00	-32.03	Neutral

Conducted Emissions at Powerline_Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	151.807k	55.62	65.90	-10.28	19.92	Line	-	35.70	9.94	0.01	9.97						
AV	151.807k	37.99	55.90	-17.91	19.92	Line	-	18.07	9.94	0.01	9.97						
QP	199.152k	51.41	63.65	-12.24	19.94	Line	-	31.47	9.96	0.01	9.97						
AV	199.152k	34.77	53.65	-18.88	19.94	Line	-	14.83	9.96	0.01	9.97						
QP	285.246k	42.34	60.67	-18.33	19.77	Line	-	22.57	9.77	0.02	9.98						
AV	285.246k	26.34	50.67	-24.33	19.77	Line	-	6.57	9.77	0.02	9.98						
QP	2.404M	26.73	56.00	-29.27	19.71	Line	-	7.02	9.70	0.04	9.97						
AV	2.404M	23.39	46.00	-22.61	19.71	Line	-	3.68	9.70	0.04	9.97						
QP	5.605M	23.91	60.00	-36.09	19.77	Line	-	4.14	9.67	0.12	9.98						
AV	5.605M	21.27	50.00	-28.73	19.77	Line	-	1.50	9.67	0.12	9.98						
QP	11.182M	22.83	60.00	-37.17	19.93	Line	-	2.90	9.70	0.25	9.98						
AV	11.182M	17.15	50.00	-32.85	19.93	Line	-	-2.78	9.70	0.25	9.98						

Conducted Emissions at Powerline_Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	165.082k	53.89	65.20	-11.31	20.20	Neutral	-	33.69	10.22	0.01	9.97						
AV	165.082k	37.27	55.20	-17.93	20.20	Neutral	-	17.07	10.22	0.01	9.97						
QP	202.358k	50.36	63.51	-13.15	19.93	Neutral	-	30.43	9.95	0.01	9.97						
AV	202.358k	33.83	53.51	-19.68	19.93	Neutral	-	13.90	9.95	0.01	9.97						
QP	316.443k	40.01	59.80	-19.79	19.86	Neutral	-	20.15	9.86	0.02	9.98						
AV	316.443k	25.68	49.80	-24.12	19.86	Neutral	-	5.82	9.86	0.02	9.98						
QP	2.404M	29.39	56.00	-26.61	19.71	Neutral	-	9.68	9.70	0.04	9.97						
AV	2.404M	26.13	46.00	-19.87	19.71	Neutral	-	6.42	9.70	0.04	9.97						
QP	5.605M	27.90	60.00	-32.10	19.79	Neutral	-	8.11	9.69	0.12	9.98						
AV	5.605M	24.92	50.00	-25.08	19.79	Neutral	-	5.13	9.69	0.12	9.98						
QP	10.49M	22.43	60.00	-37.57	19.94	Neutral	-	2.49	9.72	0.24	9.98						
AV	10.49M	17.97	50.00	-32.03	19.94	Neutral	-	-1.97	9.72	0.24	9.98						



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
902-928MHz	-	-	-	-	-
LoRa (125kHz)	140.8k	120.44k	120KF1D	136.4k	120.19k

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	136.4k	120.19k
908.5MHz	Pass	Inf	136.95k	120.44k
914.9MHz	Pass	Inf	140.8k	120.19k

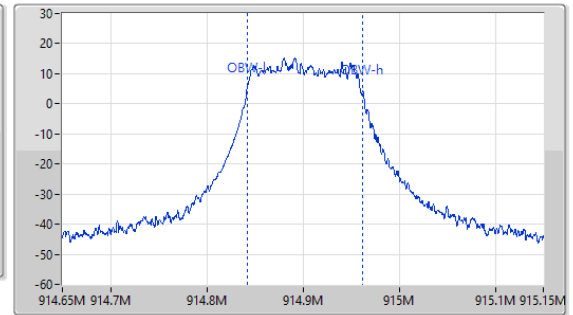
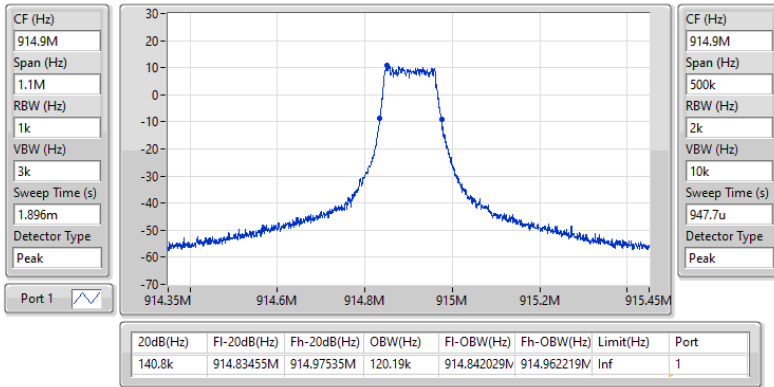
Port X-N dB = Port X 20dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

902-928MHz_LoRa (125kHz)

EBW-FS

914.9MHz

07/04/2025





Summary

Mode	Max-Space (Hz)	Min-Space (Hz)
902-928MHz	-	-
LoRa (125kHz)	261.9k	211.2k

Result

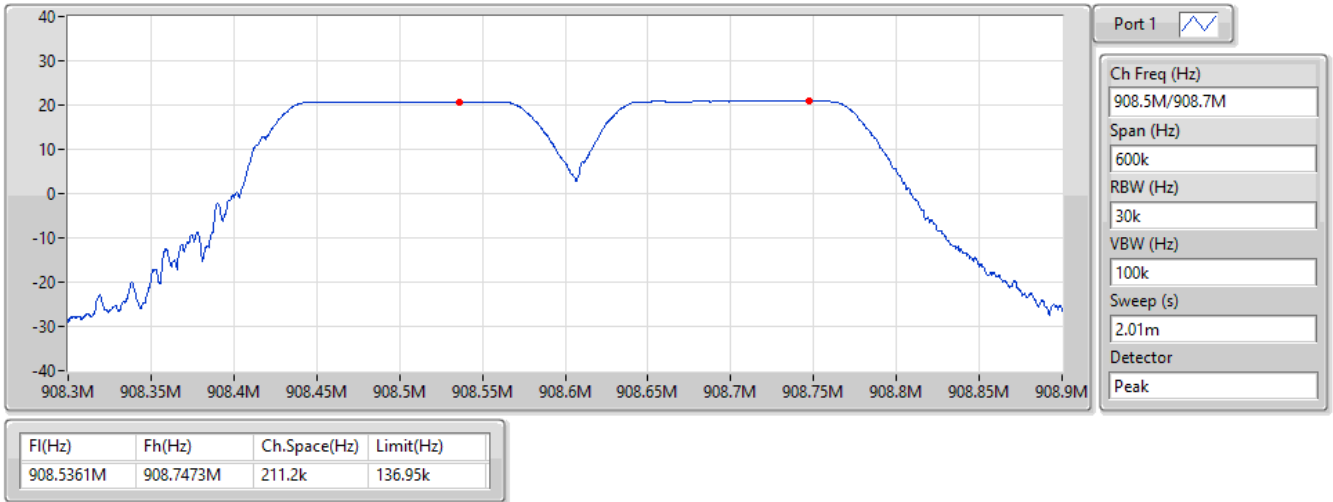
Mode	Result	Fi (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
LoRa (125kHz)	-	-	-	-	-
902.3MHz	Pass	902.2512M	902.5131M	261.9k	136.4k
908.5MHz	Pass	908.5361M	908.7473M	211.2k	136.95k
914.9MHz	Pass	914.6602M	914.8846M	224.4k	140.8k

902-928MHz_LoRa (125kHz)

Channel Separation-FS

908.5M/908.7MHz

07/04/2025





Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
902-928MHz	-	-	-	-	-
LoRa (500kHz)	663.75k	526.612k	527KF1D	615.625k	491.004k

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	663.75k	526.612k
927.5MHz	Pass	500k	615.625k	491.004k

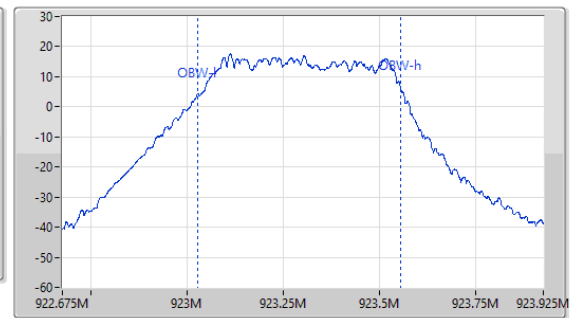
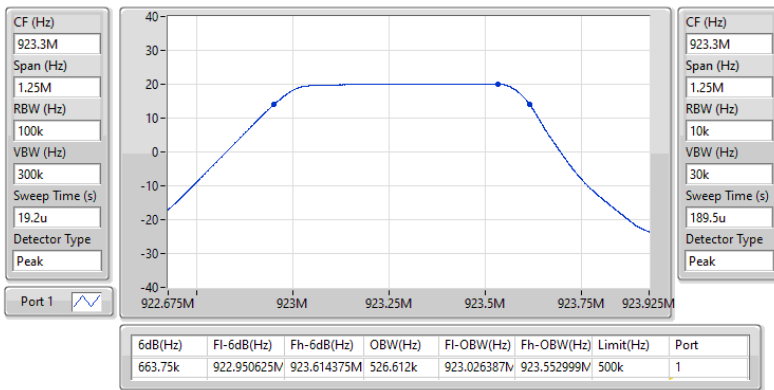
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

902-928MHz_LoRa (500kHz)

EBW-DTS

923.3MHz

07/04/2025





Summary

Mode	Total Power (dBm)	Total Power (W)
902-928MHz	-	-
LoRa (125kHz)	20.55	0.11350



Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
LoRa (125kHz)	-	-	-	-
902.3MHz	Pass	2.48	19.67	30.00
908.5MHz	Pass	2.48	20.55	30.00
914.9MHz	Pass	2.48	20.41	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 (125kHz)	20.44	0.11066



Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
LoRa (125kHz)	-	-	-	-
902.3MHz	Pass	2.48	19.56	30.00
908.5MHz	Pass	2.48	20.44	30.00
914.9MHz	Pass	2.48	20.32	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)	20.04	0.10093



Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
LoRa (500kHz)	-	-	-	-
923.3MHz	Pass	2.48	19.97	30.00
927.5MHz	Pass	2.48	20.04	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)	19.90	0.09772



Average Power-DTS

Appendix C.4

Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
LoRa (500kHz)	-	-	-	-
923.3MHz	Pass	2.48	19.90	30.00
927.5MHz	Pass	2.48	19.87	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)	7.42

RBW = 3kHz;



Result

Mode	Result	DG (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
LoRa (500kHz)	-	-	-	-
923.3MHz	Pass	2.48	7.42	8.00
927.5MHz	Pass	2.48	6.61	8.00

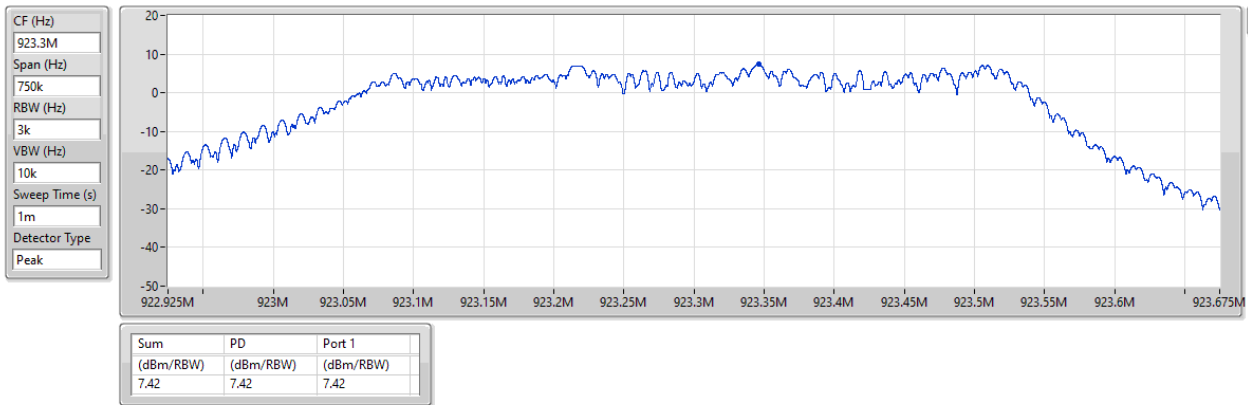
DG = Directional Gain; RBW = 3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;
Inf = There's no restriction for the limit.

902-928MHz_LoRa (500kHz)

PSD

923.3MHz

07/04/2025





Summary

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



Result

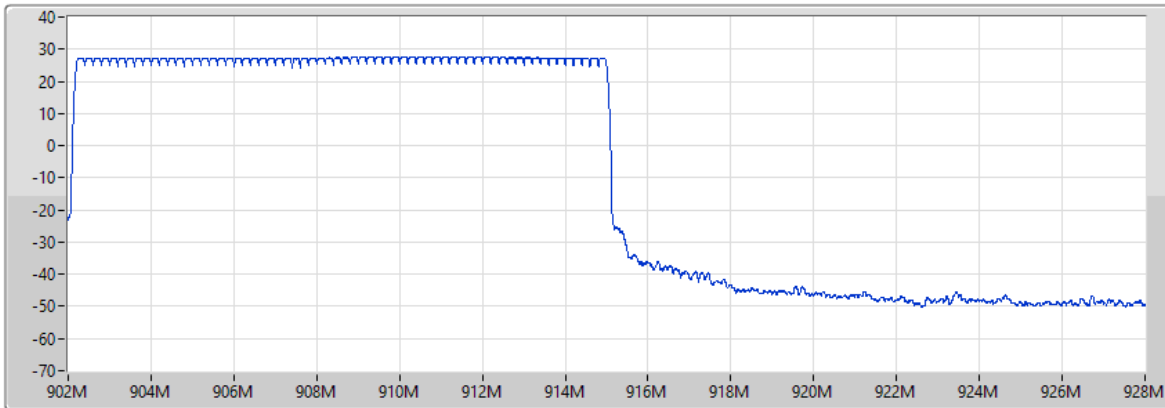
Mode	Result	Hopping No	Limit
LoRa (125kHz)	-	-	-
908.5MHz	Pass	64	50

902-928MHz_LoRa (125kHz)

Hopping-FS

908.5MHz

07/04/2025



Port 1 

Hopping No
64

Span (Hz)
26M

RBW (Hz)
100k

VBW (Hz)
300kHz

Sweep (s)
75.8us

Detector
Peak

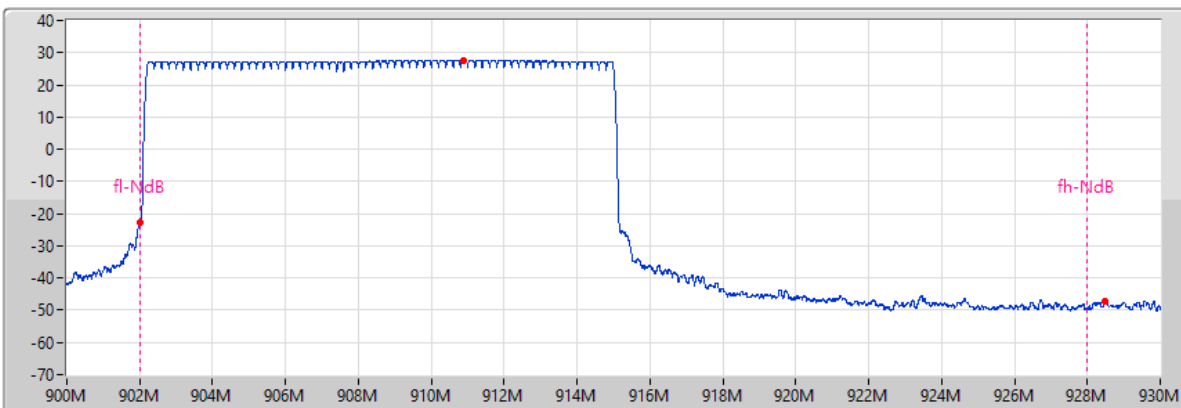
Hopping No	Limit
64	50

902-928MHz_LoRa (125kHz)

908.5MHz

Hopping Ch Bandedge (Non-restricted Band)

07/04/2025



Port 1 

Span (Hz)
30M

RBW (Hz)
100k

VBW (Hz)
300k

Sweep (s)
75.8u

Detector
Peak

Limit(dBm)	Ref(Hz)	Ref(dBm)	BE-l(Hz)	BE-l(dBm)	BE-h(Hz)	BE-h(dBm)
7.53	910.8675M	27.53	901.99875M	-22.72	928.5M	-47.03



Summary

Mode	Dwell (s)
902-928MHz	-
LoRa (125kHz)	241.125m



Result

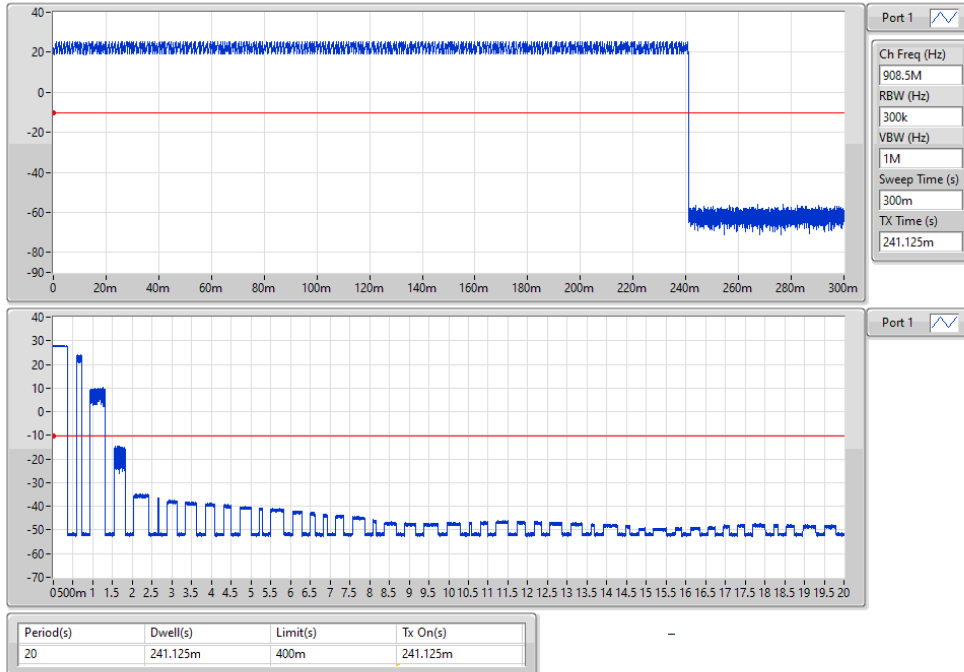
Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
LoRa (125kHz)	-	-	-	-	-
908.5MHz	Pass	20	241.125m	400m	241.125m

902-928MHz_LoRa (125kHz)

Dwell-FS

908.5MHz

08/04/2025



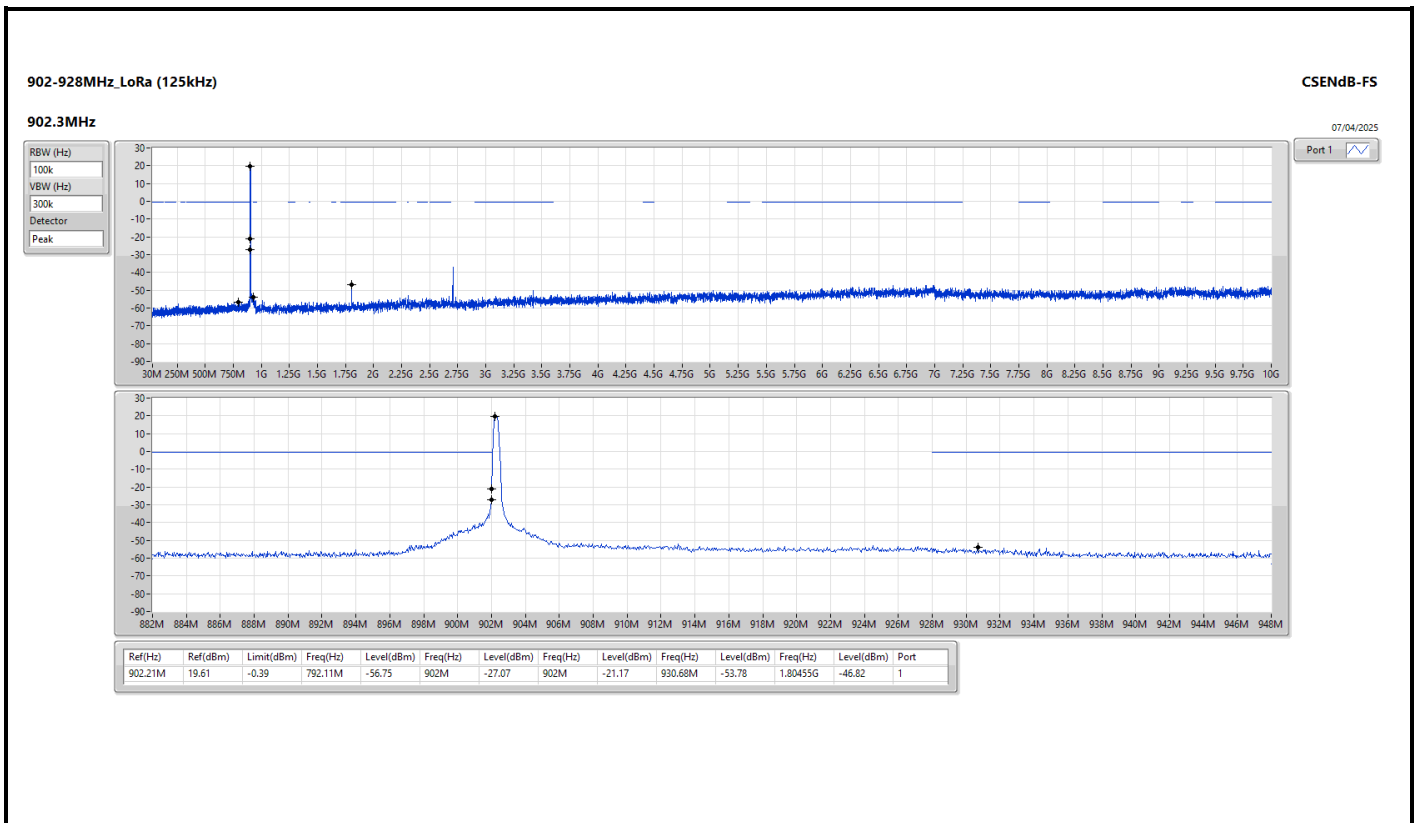


Summary

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	19.61	-0.39	792.11M	-56.75	902M	-27.07	902M	-21.17	930.68M	-53.78	1.80455G	-46.82	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	19.61	-0.39	792.11M	-56.75	902M	-27.07	902M	-21.17	930.68M	-53.78	1.80455G	-46.82	1
908.5MHz	Pass	908.55M	20.59	0.59	772.52M	-56.58	901.36M	-49.79	902M	-52.86	928.44M	-53.32	1.81699G	-44.66	1
914.9MHz	Pass	914.84M	20.36	0.36	732.47M	-56.54	901.64M	-52.55	902M	-54.22	928.04M	-54.20	1.82944G	-45.33	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	927.32M	20.07	0.07	812.14M	-57.19	901.04M	-53.69	928M	-8.82	928M	-13.03	7.00039G	-46.53	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	923.53M	20.01	0.01	882M	-57.16	899.64M	-53.10	928M	-50.48	928.32M	-48.24	6.34865G	-47.21	1
927.5MHz	Pass	927.32M	20.07	0.07	812.14M	-57.19	901.04M	-53.69	928M	-8.82	928M	-13.03	7.00039G	-46.53	1

902-928MHz LoRa (500kHz)

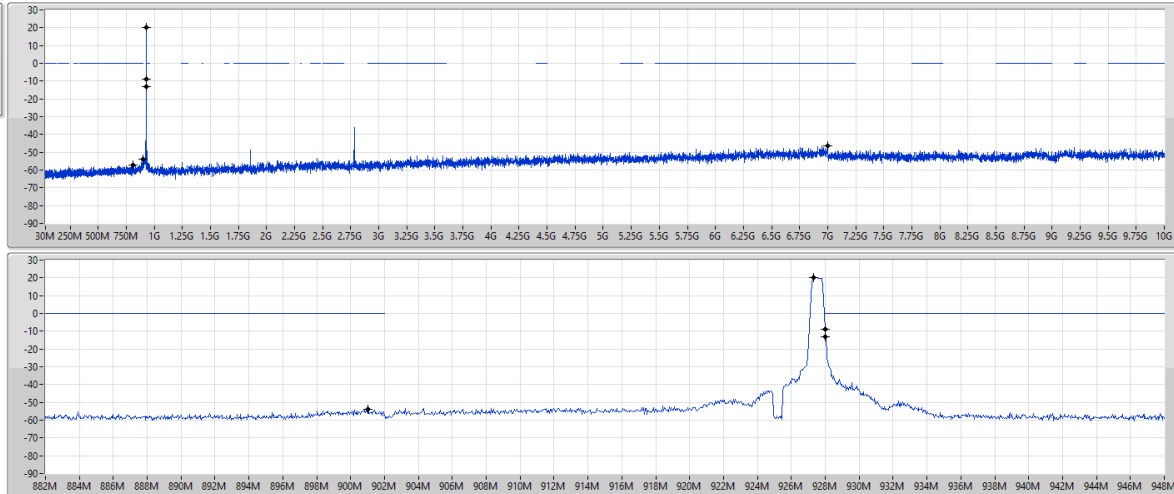
CSEndB-DTS

927.5MHz

07/04/2025

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
927.32M	20.07	0.07	812.14M	-57.19	901.04M	-53.69	928M	-8.82	928M	-13.03	7.00039G	-46.53	1



Summary

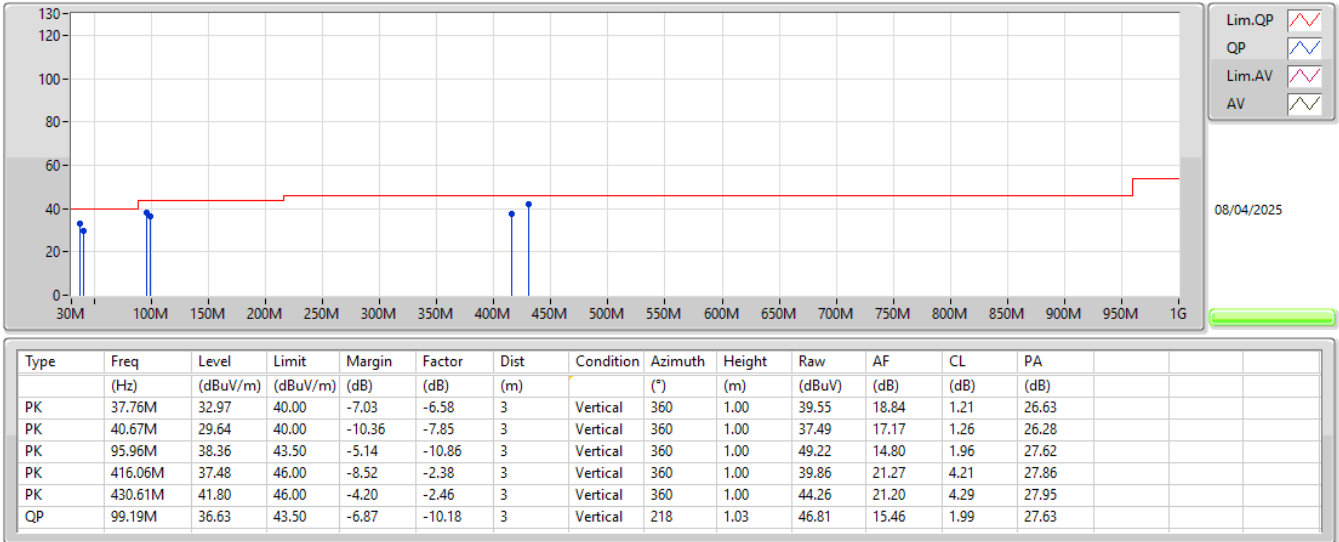
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
902-928MHz	-	-	-	-	-	-	-	-	-	-	-
LoRa (125kHz)	Pass	PK	430.61M	41.80	46.00	-4.20	3	Vertical	360	1.00	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
LoRa (125kHz)	-	-	-	-	-	-	-	-	-	-	-
902.3MHz_Adapter	Pass	PK	37.76M	32.97	40.00	-7.03	3	Vertical	360	1.00	-
902.3MHz_Adapter	Pass	PK	40.67M	29.64	40.00	-10.36	3	Vertical	360	1.00	-
902.3MHz_Adapter	Pass	PK	95.96M	38.36	43.50	-5.14	3	Vertical	360	1.00	-
902.3MHz_Adapter	Pass	PK	416.06M	37.48	46.00	-8.52	3	Vertical	360	1.00	-
902.3MHz_Adapter	Pass	PK	430.61M	41.80	46.00	-4.20	3	Vertical	360	1.00	-
902.3MHz_Adapter	Pass	QP	99.19M	36.63	43.50	-6.87	3	Vertical	218	1.03	-
902.3MHz_Adapter	Pass	PK	95.96M	33.75	43.50	-9.75	3	Horizontal	0	1.00	-
902.3MHz_Adapter	Pass	PK	98.87M	37.13	43.50	-6.37	3	Horizontal	0	1.00	-
902.3MHz_Adapter	Pass	PK	181.32M	29.55	43.50	-13.95	3	Horizontal	0	1.00	-
902.3MHz_Adapter	Pass	PK	405.39M	37.29	46.00	-8.71	3	Horizontal	0	1.00	-
902.3MHz_Adapter	Pass	PK	500.45M	38.46	46.00	-7.54	3	Horizontal	0	1.00	-
902.3MHz_Adapter	Pass	PK	750.71M	32.66	46.00	-13.34	3	Horizontal	0	1.00	-

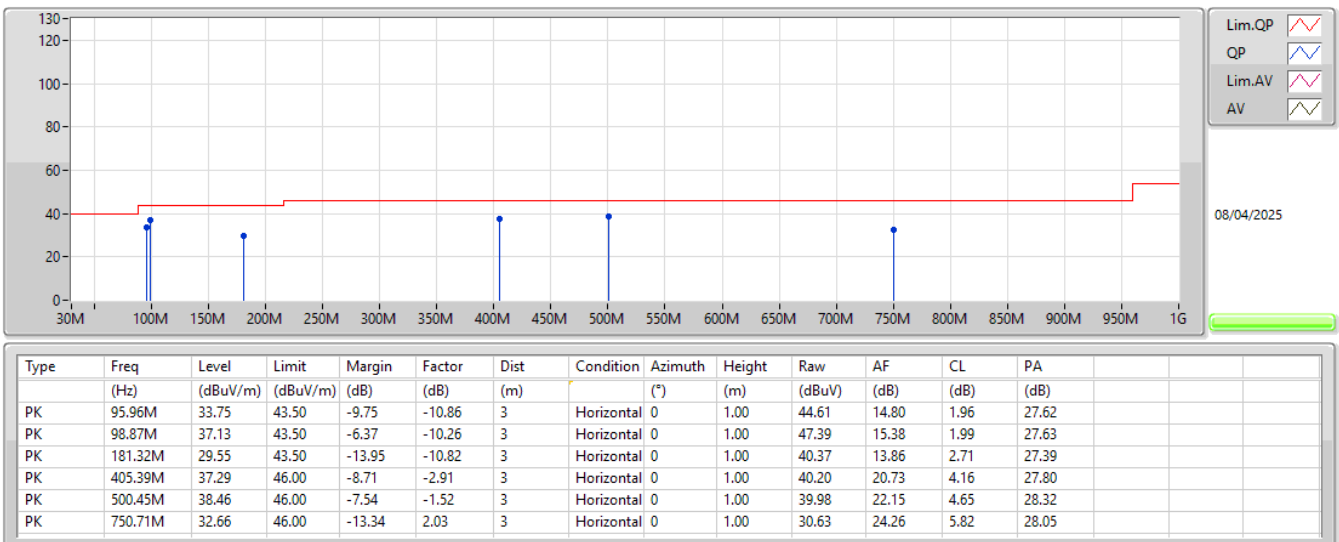
902-928MHz_LoRa (125kHz)

902.3MHz_Adapter



902-928MHz_LoRa (125kHz)

902.3MHz_Adapter





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	9.08499G	51.45	54.00	-2.55	3	Vertical	24	1.50
LoRa (500kHz)	Pass	AV	8.34705G	37.52	54.00	-16.48	3	Vertical	0	1.45

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	35.01	54.00	-18.99	3	Vertical	325	1.70
902.3MHz	Pass	AV	8.12071G	45.62	54.00	-8.38	3	Vertical	13	1.57
902.3MHz	Pass	PK	2.70702G	41.23	74.00	-32.77	3	Vertical	325	1.70
902.3MHz	Pass	PK	8.12126G	52.58	74.00	-21.42	3	Vertical	13	1.57
902.3MHz	Pass	AV	2.7069G	36.11	54.00	-17.89	3	Horizontal	98	1.11
902.3MHz	Pass	AV	8.1208G	43.77	54.00	-10.23	3	Horizontal	19	2.93
902.3MHz	Pass	PK	2.707G	41.46	74.00	-32.54	3	Horizontal	98	1.11
902.3MHz	Pass	PK	8.12112G	51.19	74.00	-22.81	3	Horizontal	19	2.93
908.5MHz	Pass	AV	2.72549G	37.07	54.00	-16.93	3	Vertical	204	1.19
908.5MHz	Pass	AV	8.17651G	46.79	54.00	-7.21	3	Vertical	6	1.45
908.5MHz	Pass	AV	9.08499G	51.45	54.00	-2.55	3	Vertical	24	1.50
908.5MHz	Pass	PK	2.72536G	42.54	74.00	-31.46	3	Vertical	204	1.19
908.5MHz	Pass	PK	8.17682G	53.02	74.00	-20.98	3	Vertical	6	1.45
908.5MHz	Pass	PK	9.08494G	57.42	74.00	-16.58	3	Vertical	24	1.50
908.5MHz	Pass	AV	2.72548G	40.20	54.00	-13.80	3	Horizontal	69	2.28
908.5MHz	Pass	AV	8.17653G	45.57	54.00	-8.43	3	Horizontal	15	3.00
908.5MHz	Pass	AV	9.08503G	47.85	54.00	-6.15	3	Horizontal	18	1.68
908.5MHz	Pass	PK	2.72566G	43.89	74.00	-30.11	3	Horizontal	69	2.28
908.5MHz	Pass	PK	8.17708G	52.36	74.00	-21.64	3	Horizontal	15	3.00
908.5MHz	Pass	PK	9.08476G	54.83	74.00	-19.17	3	Horizontal	18	1.68
914.9MHz	Pass	AV	2.7447G	32.16	54.00	-21.84	3	Vertical	202	1.18
914.9MHz	Pass	AV	7.31921G	45.17	54.00	-8.83	3	Vertical	30	1.34
914.9MHz	Pass	AV	8.2341G	43.67	54.00	-10.33	3	Vertical	2	1.49
914.9MHz	Pass	AV	9.14911G	48.15	54.00	-5.85	3	Vertical	27	1.62
914.9MHz	Pass	PK	2.74432G	40.52	74.00	-33.48	3	Vertical	202	1.18
914.9MHz	Pass	PK	7.31958G	51.82	74.00	-22.18	3	Vertical	30	1.34
914.9MHz	Pass	PK	8.23462G	51.47	74.00	-22.53	3	Vertical	2	1.49
914.9MHz	Pass	PK	9.14885G	55.20	74.00	-18.80	3	Vertical	27	1.62
914.9MHz	Pass	AV	2.7447G	37.32	54.00	-16.68	3	Horizontal	315	1.93
914.9MHz	Pass	AV	7.31923G	45.44	54.00	-8.56	3	Horizontal	16	2.91
914.9MHz	Pass	AV	8.23413G	41.19	54.00	-12.81	3	Horizontal	12	2.96
914.9MHz	Pass	AV	9.14906G	44.50	54.00	-9.50	3	Horizontal	15	1.63
914.9MHz	Pass	PK	2.7445G	42.48	74.00	-31.52	3	Horizontal	315	1.93
914.9MHz	Pass	PK	7.31965G	52.20	74.00	-21.80	3	Horizontal	16	2.91
914.9MHz	Pass	PK	8.2341G	50.76	74.00	-23.24	3	Horizontal	12	2.96
914.9MHz	Pass	PK	9.14914G	52.60	74.00	-21.40	3	Horizontal	15	1.63
LoRa (500kHz)	-	-	-	-	-	-	-	-	-	-
923.3MHz	Pass	AV	2.7699G	31.85	54.00	-22.15	3	Vertical	202	1.13
923.3MHz	Pass	AV	7.38578G	36.03	54.00	-17.97	3	Vertical	14	1.50
923.3MHz	Pass	AV	8.30907G	36.88	54.00	-17.12	3	Vertical	351	1.40
923.3MHz	Pass	PK	2.77055G	41.27	74.00	-32.73	3	Vertical	202	1.13
923.3MHz	Pass	PK	7.38618G	51.40	74.00	-22.60	3	Vertical	14	1.50
923.3MHz	Pass	PK	8.31027G	52.65	74.00	-21.35	3	Vertical	351	1.40
923.3MHz	Pass	AV	2.76992G	36.75	54.00	-17.25	3	Horizontal	316	1.73
923.3MHz	Pass	AV	7.3873G	35.28	54.00	-18.72	3	Horizontal	174	1.60
923.3MHz	Pass	AV	8.30904G	35.75	54.00	-18.25	3	Horizontal	9	2.95
923.3MHz	Pass	PK	2.76949G	44.63	74.00	-29.37	3	Horizontal	316	1.73
923.3MHz	Pass	PK	7.38719G	50.22	74.00	-23.78	3	Horizontal	174	1.60
923.3MHz	Pass	PK	8.31036G	50.86	74.00	-23.14	3	Horizontal	9	2.95



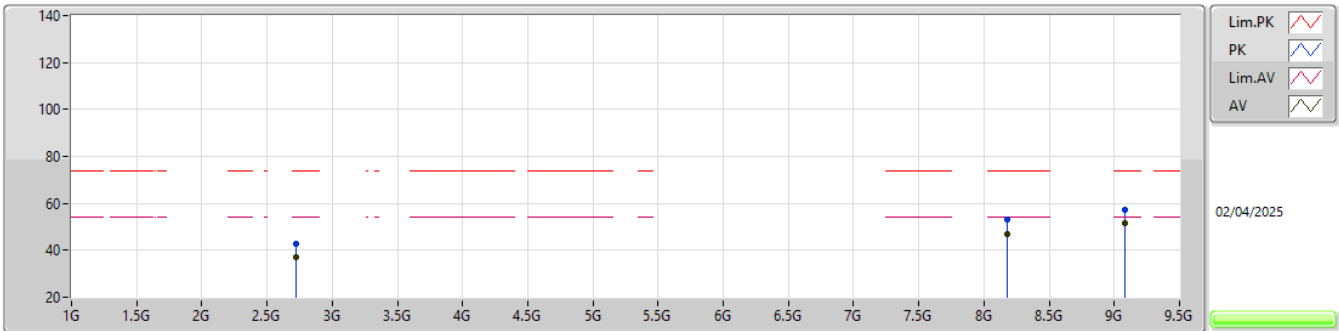
RSE TX above 1GHz

Appendix H.2

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
927.5MHz	Pass	AV	2.78246G	29.16	54.00	-24.84	3	Vertical	197	1.00
927.5MHz	Pass	AV	7.41918G	34.01	54.00	-19.99	3	Vertical	15	1.50
927.5MHz	Pass	AV	8.34705G	37.52	54.00	-16.48	3	Vertical	0	1.45
927.5MHz	Pass	PK	2.78226G	39.58	74.00	-34.42	3	Vertical	197	1.00
927.5MHz	Pass	PK	7.41998G	50.18	74.00	-23.82	3	Vertical	15	1.50
927.5MHz	Pass	PK	8.34689G	53.64	74.00	-20.36	3	Vertical	0	1.45
927.5MHz	Pass	AV	2.7825G	33.19	54.00	-20.81	3	Horizontal	316	1.72
927.5MHz	Pass	AV	7.41901G	34.15	54.00	-19.85	3	Horizontal	174	1.74
927.5MHz	Pass	AV	8.34847G	35.89	54.00	-18.11	3	Horizontal	19	2.92
927.5MHz	Pass	PK	2.78206G	42.69	74.00	-31.31	3	Horizontal	316	1.72
927.5MHz	Pass	PK	7.41966G	48.87	74.00	-25.13	3	Horizontal	174	1.74
927.5MHz	Pass	PK	8.34847G	51.35	74.00	-22.65	3	Horizontal	19	2.92

902-928MHz_LoRa (125kHz)

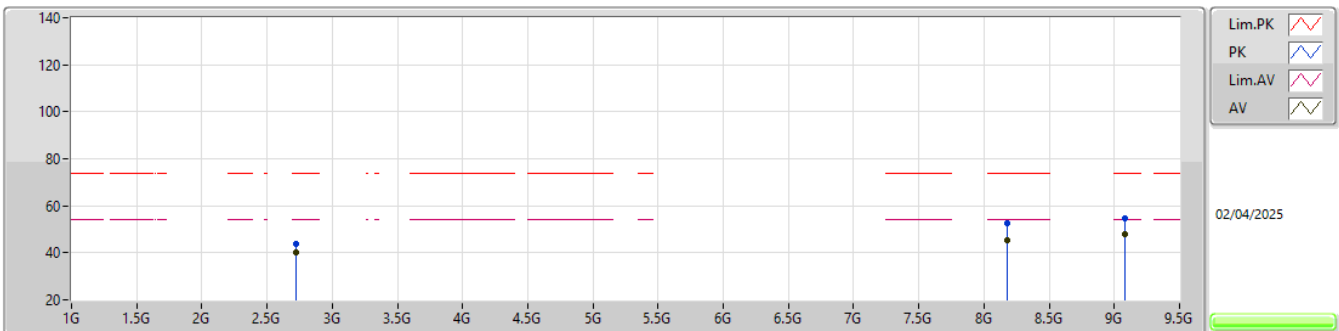
908.5MHz_TX



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	2.72549G	37.07	54.00	-16.93	-1.54	3	Vertical	204	1.19	38.61	28.35	5.28	35.17
AV	8.17651G	46.79	54.00	-7.21	11.12	3	Vertical	6	1.45	35.67	36.95	9.20	35.03
AV	9.08499G	51.45	54.00	-2.55	13.04	3	Vertical	24	1.50	38.41	38.00	9.77	34.73
PK	2.72536G	42.54	74.00	-31.46	-1.54	3	Vertical	204	1.19	44.08	28.35	5.28	35.17
PK	8.17682G	53.02	74.00	-20.98	11.12	3	Vertical	6	1.45	41.90	36.95	9.20	35.03
PK	9.08494G	57.42	74.00	-16.58	13.04	3	Vertical	24	1.50	44.38	38.00	9.77	34.73

902-928MHz_LoRa (125kHz)

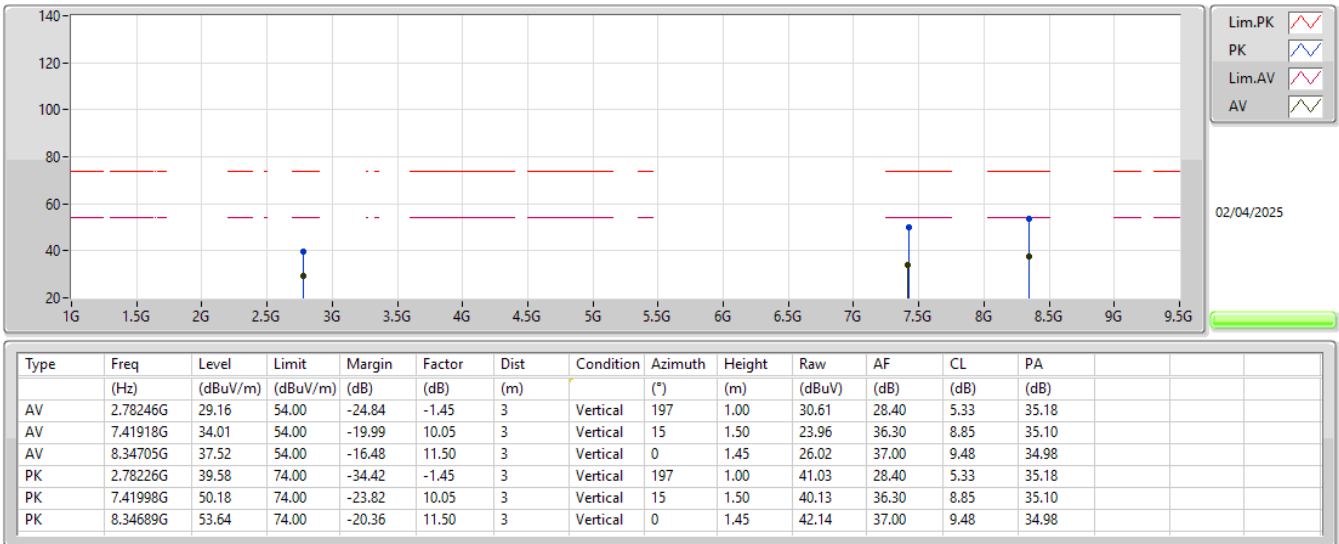
908.5MHz_TX



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	2.72548G	40.20	54.00	-13.80	-1.54	3	Horizontal	69	2.28	41.74	28.35	5.28	35.17
AV	8.17653G	45.57	54.00	-8.43	11.12	3	Horizontal	15	3.00	34.45	36.95	9.20	35.03
AV	9.08503G	47.85	54.00	-6.15	13.04	3	Horizontal	18	1.68	34.81	38.00	9.77	34.73
PK	2.72566G	43.89	74.00	-30.11	-1.55	3	Horizontal	69	2.28	45.44	28.34	5.28	35.17
PK	8.17708G	52.36	74.00	-21.64	11.12	3	Horizontal	15	3.00	41.24	36.95	9.20	35.03
PK	9.08476G	54.83	74.00	-19.17	13.04	3	Horizontal	18	1.68	41.79	38.00	9.77	34.73

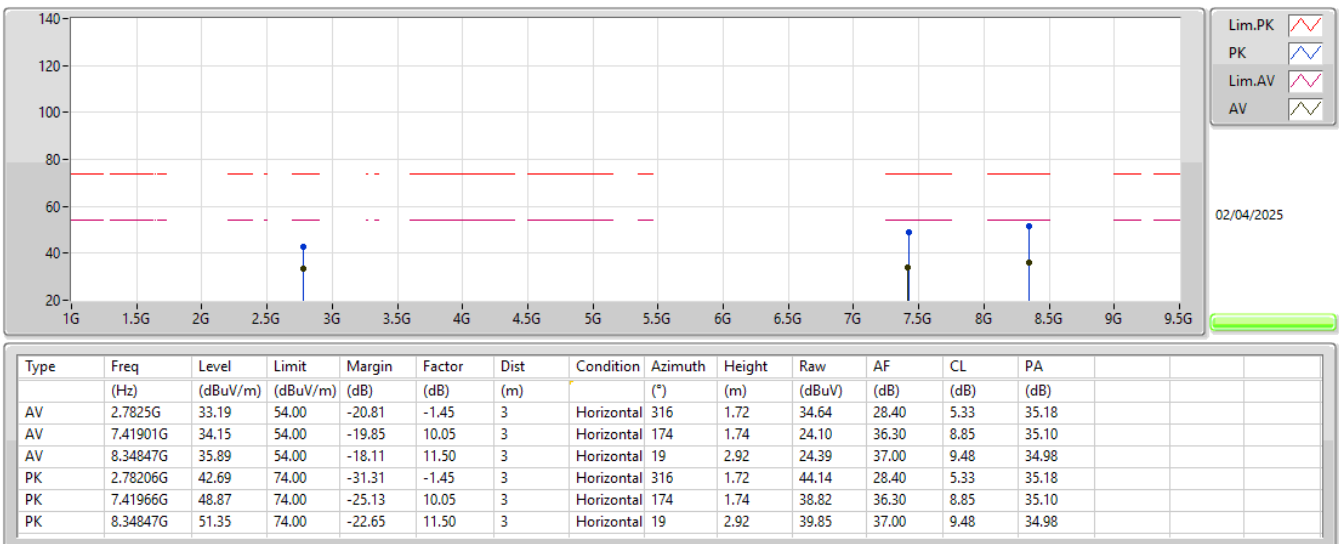
902-928MHz_LoRa (500kHz)

927.5MHz_TX



902-928MHz_LoRa (500kHz)

927.5MHz_TX





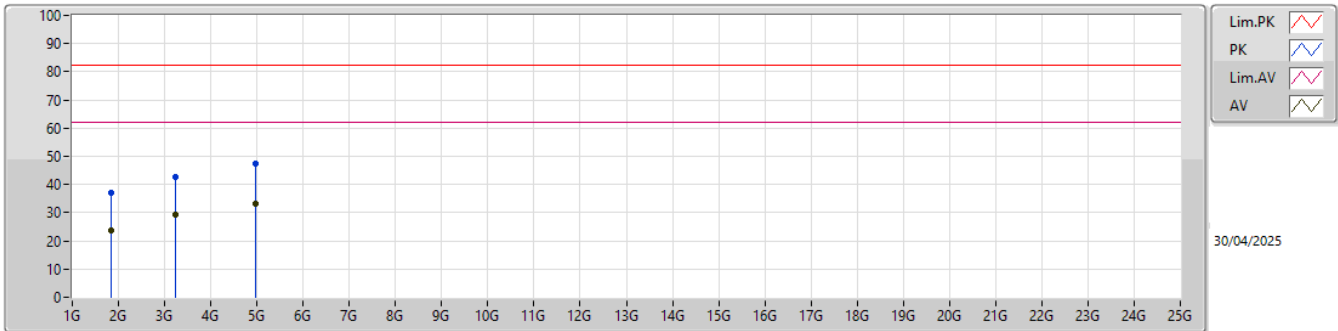
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	AV	4.97899G	33.39	62.20	-28.81	Vertical

Result

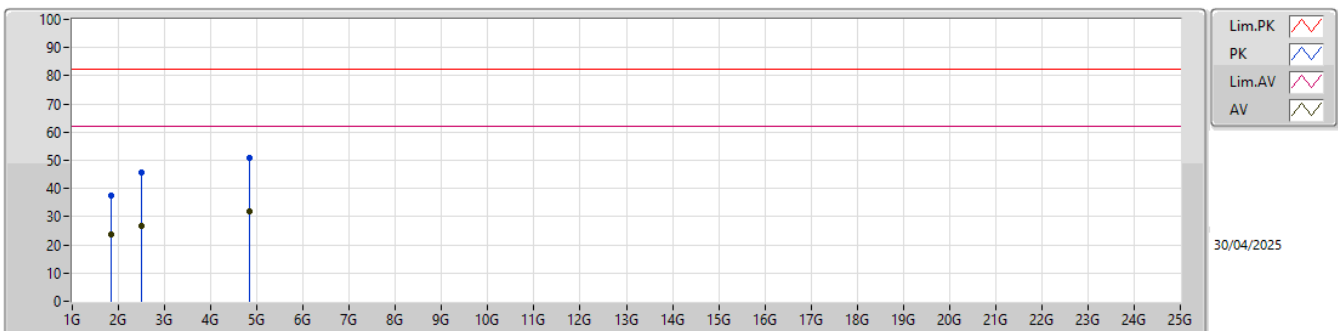
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Mode 1	Pass	AV	1.84334G	23.70	62.20	-38.50	3	Vertical	34	1.50	-
Mode 1	Pass	AV	3.22145G	29.31	62.20	-32.89	3	Vertical	48	2.00	-
Mode 1	Pass	AV	4.97899G	33.39	62.20	-28.81	3	Vertical	159	1.81	-
Mode 1	Pass	PK	1.84334G	36.97	82.20	-45.23	3	Vertical	34	1.50	-
Mode 1	Pass	PK	3.22145G	42.64	82.20	-39.56	3	Vertical	48	2.00	-
Mode 1	Pass	PK	4.97899G	47.45	82.20	-34.75	3	Vertical	159	1.81	-
Mode 1	Pass	AV	1.84746G	23.80	62.20	-38.40	3	Horizontal	262	1.50	-
Mode 1	Pass	AV	2.49739G	26.62	62.20	-35.58	3	Horizontal	300	1.50	-
Mode 1	Pass	AV	4.82645G	32.04	62.20	-30.16	3	Horizontal	219	1.19	-
Mode 1	Pass	PK	1.84746G	37.57	82.20	-44.63	3	Horizontal	262	1.50	-
Mode 1	Pass	PK	2.49739G	45.48	82.20	-36.72	3	Horizontal	300	1.50	-
Mode 1	Pass	PK	4.82645G	50.72	82.20	-31.48	3	Horizontal	219	1.19	-

Radiated Emissions above 1GHz_Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB/m)	CL (dB)	PA (dB)		
AV	1.84334G	23.70	62.20	-38.50	-5.41	3	Vertical	34	1.50	-	29.11	25.33	4.28	35.02		
AV	3.22145G	29.31	62.20	-32.89	0.21	3	Vertical	48	2.00	-	29.10	29.66	5.78	35.23		
AV	4.97899G	33.39	62.20	-28.81	5.29	3	Vertical	159	1.81	-	28.10	33.12	7.24	35.07		
PK	1.84334G	36.97	82.20	-45.23	-5.41	3	Vertical	34	1.50	-	42.38	25.33	4.28	35.02		
PK	3.22145G	42.64	82.20	-39.56	0.21	3	Vertical	48	2.00	-	42.43	29.66	5.78	35.23		
PK	4.97899G	47.45	82.20	-34.75	5.29	3	Vertical	159	1.81	-	42.16	33.12	7.24	35.07		

Radiated Emissions above 1GHz_Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB/m)	CL (dB)	PA (dB)		
AV	1.84746G	23.80	62.20	-38.40	-5.37	3	Horizontal	262	1.50	-	29.17	25.37	4.28	35.02		
AV	2.49739G	26.62	62.20	-35.58	-2.21	3	Horizontal	300	1.50	-	28.83	27.90	5.02	35.13		
AV	4.82645G	32.04	62.20	-30.16	4.34	3	Horizontal	219	1.19	-	27.70	32.41	6.99	35.06		
PK	1.84746G	37.57	82.20	-44.63	-5.37	3	Horizontal	262	1.50	-	42.94	25.37	4.28	35.02		
PK	2.49739G	45.48	82.20	-36.72	-2.21	3	Horizontal	300	1.50	-	47.69	27.90	5.02	35.13		
PK	4.82645G	50.72	82.20	-31.48	4.34	3	Horizontal	219	1.19	-	46.38	32.41	6.99	35.06		