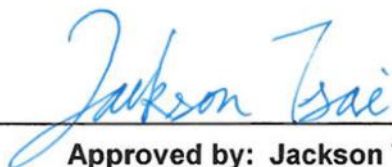


FCC Radio Test Report

Contains FCC ID : RI7ME910G1WW, 2A8O9-EM2050
FCC ID : 2BAH4SBG-3
Equipment : Silvanet Border Gateway
Brand Name :  **Dryad** 
Model Name : SBG-3X
(Where X = "empty" or "S" that represents satellite variant)
Applicant : Dryad Networks GmbH
Eisenbahnstr. 37, 16225 Eberswalde, Germany
Manufacturer : Dryad Networks GmbH
Eisenbahnstr. 37, 16225 Eberswalde, Germany
Standard : 47 CFR FCC Part 15.247

The product was received on Oct. 28, 2024, and testing was started from Nov. 12, 2024 and completed on Dec. 11, 2024. 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.)



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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: Ryan Hsiao

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)	903-914.2	8
902-928 MHz	LoRa (500kHz)	923.3-926.9	7

Band	Mode	BWch (MHz)	Nant
902-928MHz	LoRa (125kHz)	0.125	1TX
902-928MHz	LoRa (500kHz)	0.5	1TX
902-928MHz	LoRa (500kHz)	0.5	1TX

Note:

- ♦ 902-928 MHz Band uses as a hybrid system.
- ♦ 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	Gain (dBi)
1	Dryad	LORA01Gen-3	PCB Antenna	N/A	0.75

1.1.3 Type of EUT

Operational Condition	
EUT Power Type	From PoE
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 Table for Multiple Listing

Model Name	Description
SBG-3X (Where X = "empty" or "S" that represents satellite variant)	SBG-3 without satellite
	SBG-3S with satellite

Note: The model SBG-3S was measured during the test.

**1.1.5 Test Signal Duty Cycle**

Mode	DC	DCF (dB)	T (s)	VBW (Hz)_1/T
LoRa (125kHz)	0.139	8.57	144.063m	10
LoRa (500kHz)	0.036	14.44	36.25m	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 site Designation No. TW3785 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Lego Lin	20.5~22.1℃ / 57~61%	20/Nov/2024
RF Conducted	TH07-HY	Xun Hsieh	22.7~23.4℃ / 54~59%	12/Nov/2024
☒ 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	03CH26-HY	Ivan Chung	22.2~23.1℃ / 50~52%	12/Nov/2024~13/Nov/2024
Radiated (Co-Location)	03CH25-HY	Ivan Chung	20.2~21.8℃ / 50~54%	11/Dec/2024

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	Abbreviation	Remark
TX	Tnom	20°C
-	Vnom	120V

2.2 Test Channel Mode

Test Software Version	Tera Term Version 4.76
-----------------------	------------------------

Mode	Power Setting
LoRa (500kHz)	-
903MHz	22
909.4MHz	22
914.2MHz	22
LoRa (500kHz)	-
923.3MHz	22
926.9MHz	22
LoRa (125kHz)	-
902.3MHz	22
908.7MHz	22
914.9MHz	22

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	PoE 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)
Non-AFH Mode configuration was found to be the worst case and measured during the test.	

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	PoE 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	Normal Link
1	WWAN Cat M1 + Lora + Satellite
2	WWAN NB-IoT + Lora + Satellite
3	WWAN 2G + Lora + Satellite
Refer to Sporton Test Report No.: FA481416 for Co-location RF Exposure Evaluation and Appendix H for Radiated Emission Co-location.	

2.4 Support Equipment

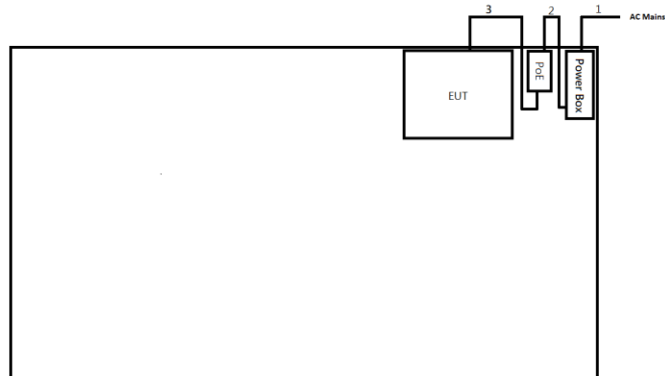
Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	RJ45 cable	N/A	N/A	-	Provided by Customer
2	Power cord	N/A	N/A	-	Provided by Customer
3	PoE Injector	Ubiquiti	GP-V480-032G	-	Provided by Customer

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	RJ45 cable	N/A	N/A	-	Provided by Customer
2	Power cord	N/A	N/A	-	Provided by Customer
3	PoE Injector	Ubiquiti	GP-V480-032G	-	Provided by Customer

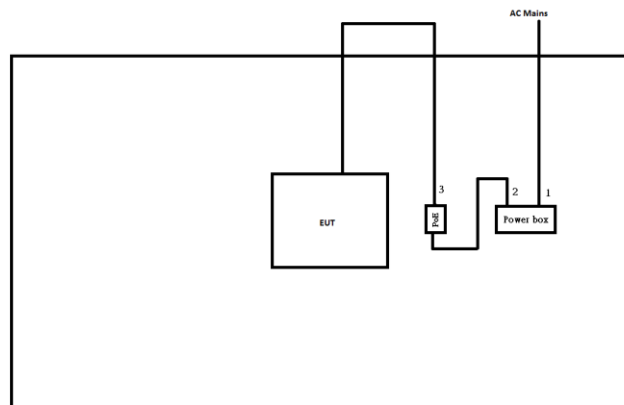
2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	AC Power cable	No	0.6	-
3	RJ45 Cable	Yes	20.15	-

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	AC Power cable	No	0.6	-
3	RJ45 Cable	Yes	20.15	-

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

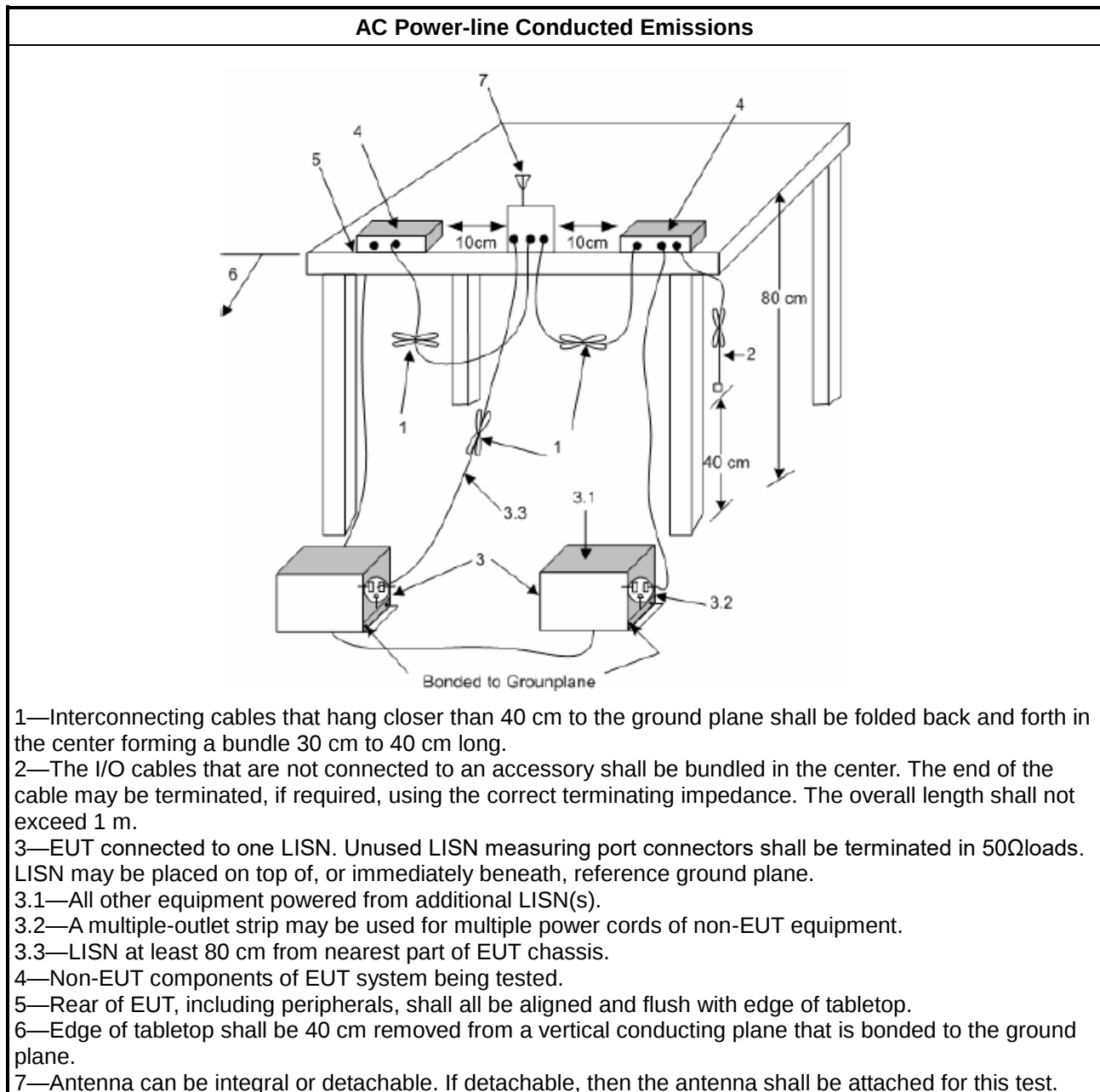
Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

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

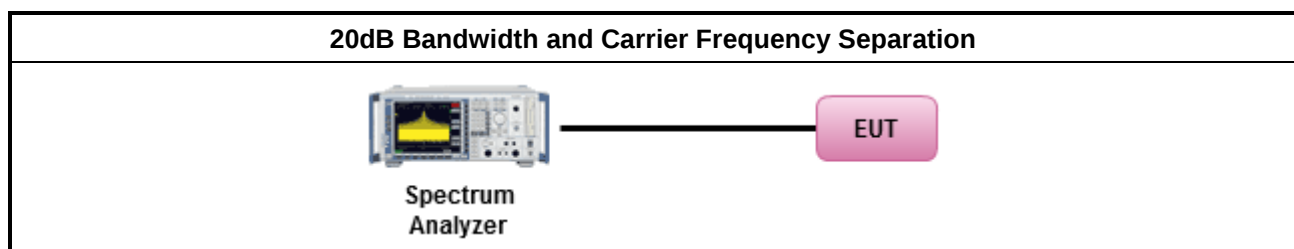
3.2.2 Measuring Instruments

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 ≥ 50 and hybrid system; Power 30dBm; EIRP 36dBm
	50 > N ≥ 25; Power 24dBm; EIRP 30dBm
N: Number of Hopping Frequencies	

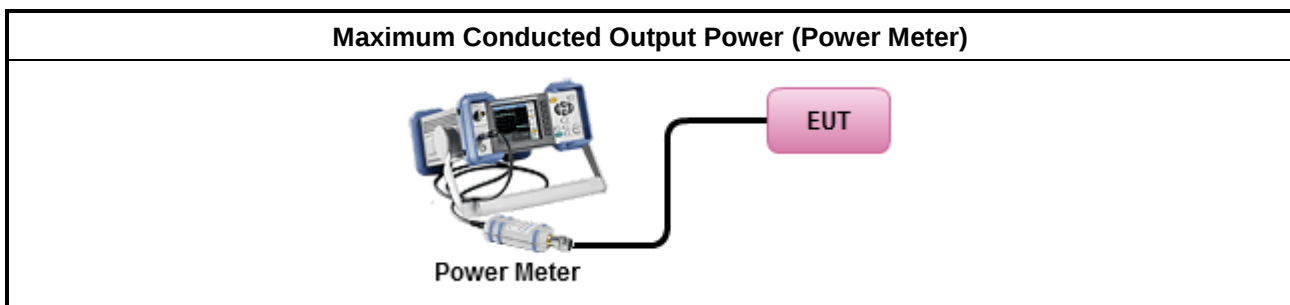
3.3.2 Measuring Instruments

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 ≥ 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

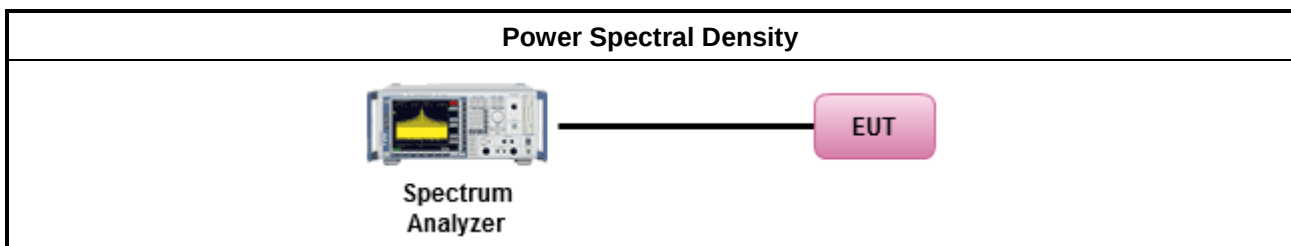
3.4.2 Measuring Instruments

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

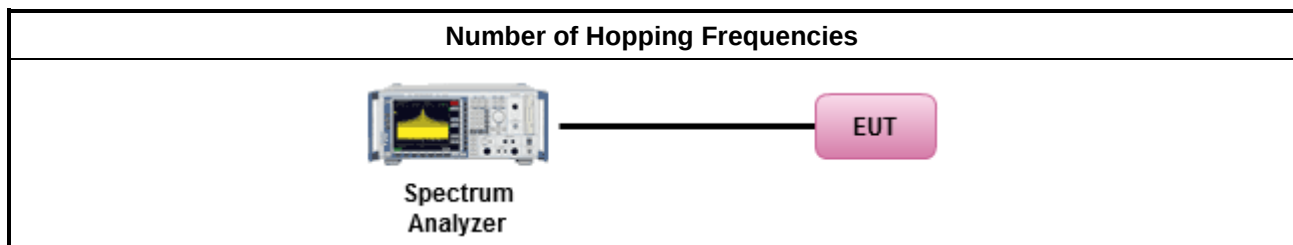
3.5.3 Measuring Instruments

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	

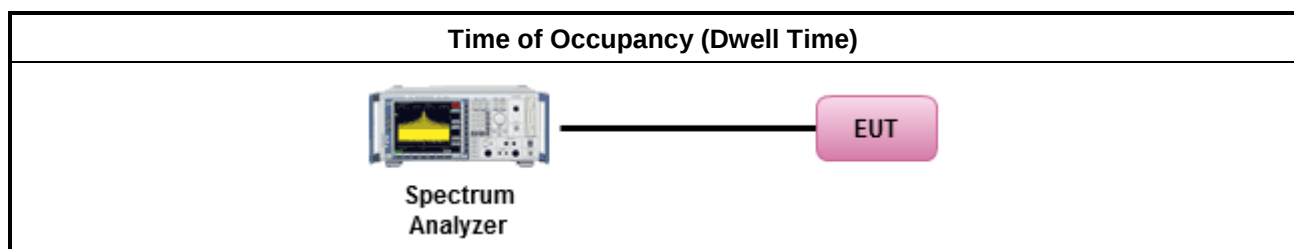
3.6.2 Measuring Instruments

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.	

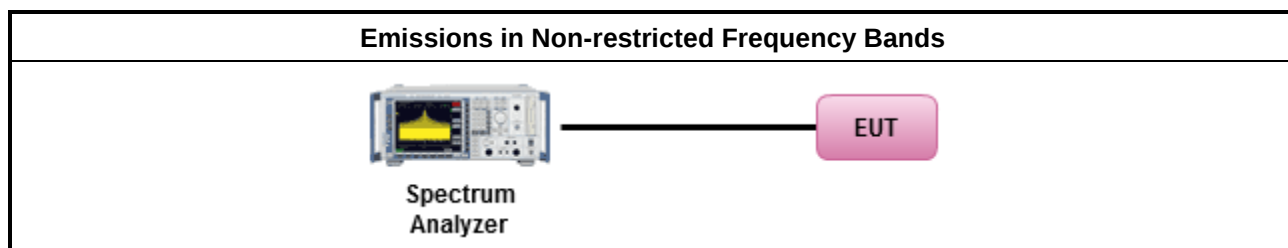
3.7.2 Measuring Instruments

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

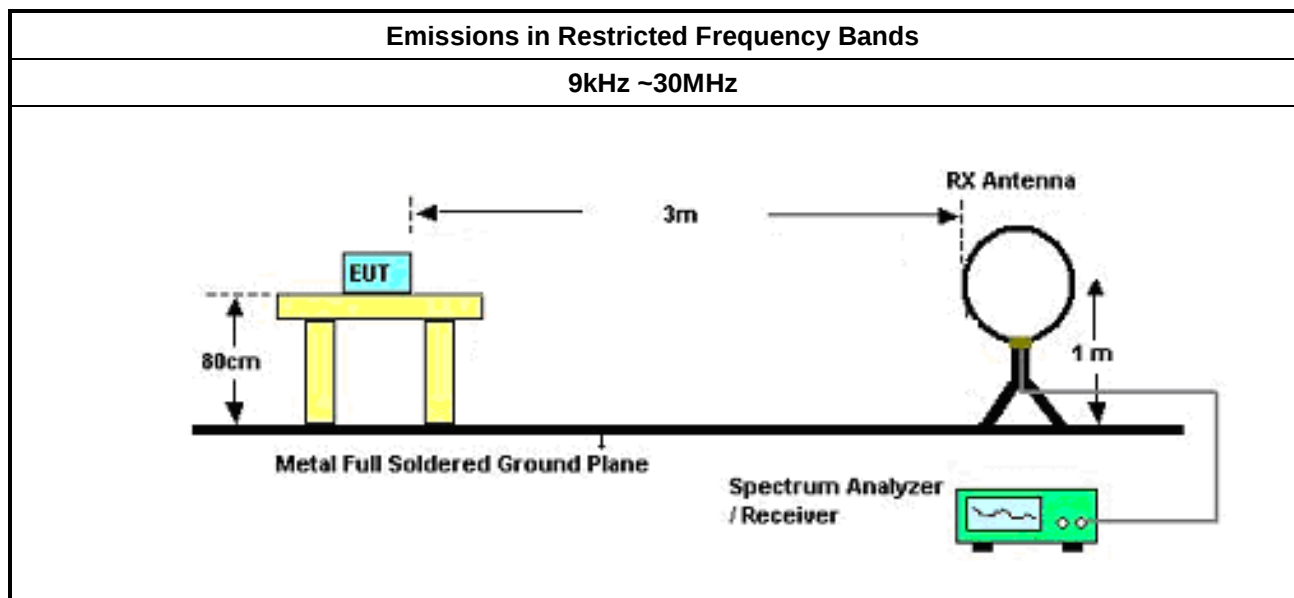
Test Method	
The average emission levels shall be measured in [hopping duty factor].	
Refer as ANSI C63.10; clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
For the transmitter unwanted emissions shall 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.

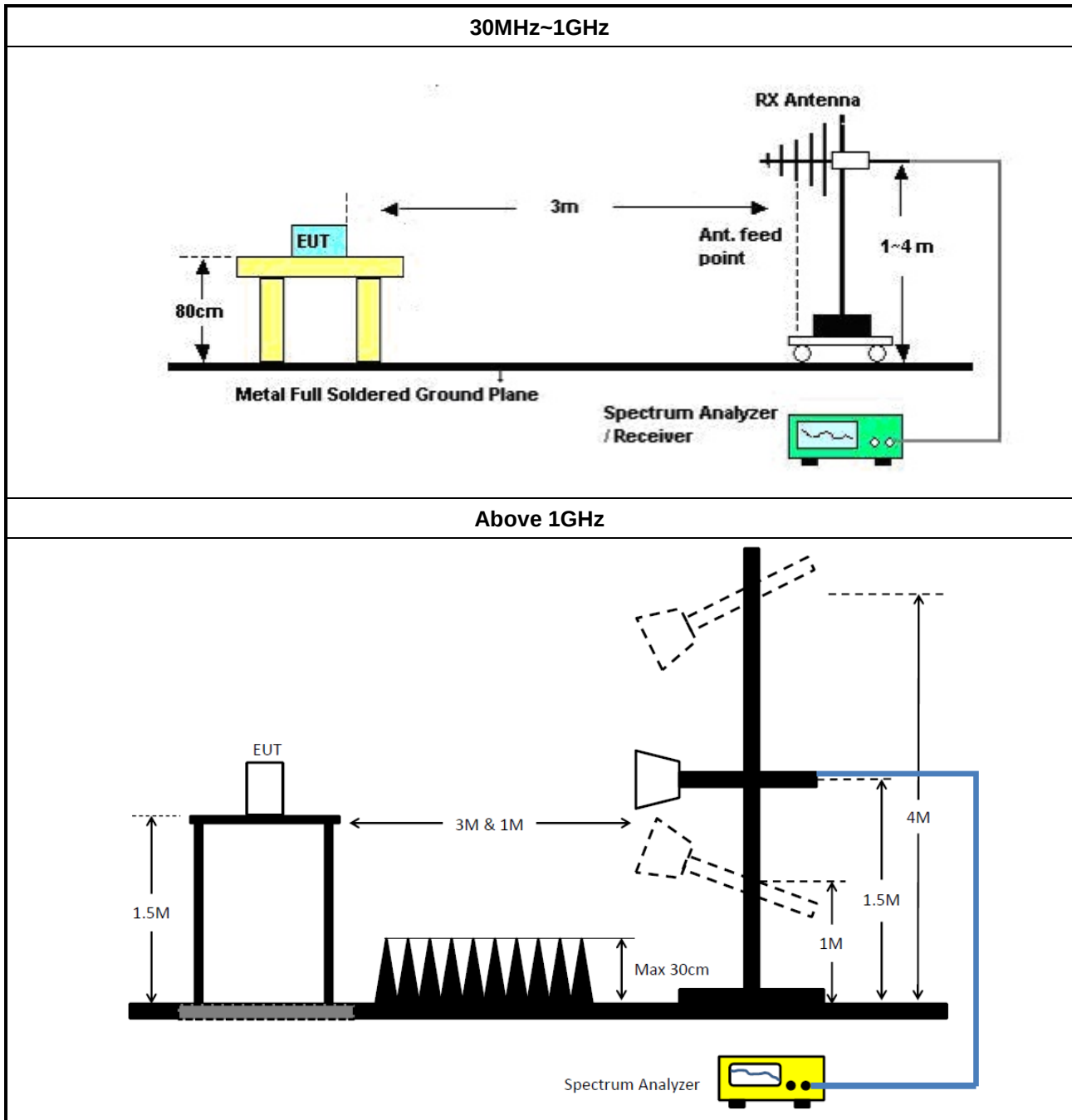
3.8.4 Measurement Results Calculation

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	101274	9kHz ~ 30MHz	18/Jun/2024	17/Jun/2025
LISN(Artificial Mains Network)	SCHWARZBECK	NSLK 8127	8127477	9kHz ~ 30MHz	12/Apr/2024	11/Apr/2025
RF Cable 5m	TITAN	TITAN	CO04-cable-01	9 kHz~200MHz	27/Feb/2024	26/Feb/2025
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	17/Oct/2024	16/Oct/2025
SENSE-EMI	Sporton	V5.11.3	N/A	N/A	N/A	N/A

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	9kHz~40GHz	02/Feb/2024	01/Feb/2025
SMB100A Signal Generator	R&S	SMB100A	181147	100kHz~40GHz	16/Oct/2024	15/Oct/2025
Power Meter	Anritsu	ML2495A	1517010	300MHz~40GHz	15/Dec/2023	14/Dec/2024
Pulse Sensor	Anritsu	MA2411B	1339407	300MHz~40GHz	15/Dec/2023	14/Dec/2024
SENSE-15247_ FS	Sporton	V5.11.18	N/A	N/A	N/A	N/A

**Instrument for Radiated Test (03CH26-HY)**

Instrument	Manufacturer/ Brand Name	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH26-HY	30MHz~1GHz 3m	07/Aug/2024	06/Aug/2025
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH26-HY	1GHz~18GHz 3m	07/Aug/2024	06/Aug/2025
EMI Test Receiver	ROHDE & SCHWARZ	ESR	102318	9kHz~3.6GHz	27/Dec/2023	26/Dec/2024
Signal Analyzer	ROHDE&SCHWARZ	FSV3044	101411	10Hz~44GHz	09/Oct/2024	08/Oct/2025
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	19/Mar/2024	18/Mar/2025
Bilog Antenna & 6dB Attenuator	TESEQ & VGT	CBL 6111D & VFA 04002-06	63540/002	30MHz~1GHz	05/Jun/2024	04/Jun/2025
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02877	1GHz~18GHz	11/Jul/2024	10/Jul/2025
RF Cable	HUBER+SUHNER	SUOFLEX 104	CB009	9kHz~1GHz	21/Oct/2024	20/Oct/2025
RF Cable	HUBER+SUHNER	SUOFLEX 104	CB009	1GHz~40GHz	21/Oct/2024	20/Oct/2025
Preamplifier	SGH	PRAMP 903	20230515-2	25MHz~3GHz	24/May/2024	23/May/2025
Preamplifier	SGH	PRAMP 118-H	20230515-4	1GHz ~18GHz	24/May/2024	23/May/2025
SENSE-15247-FS	Sporton	V5.11.18	NA	NA	NA	NA

Instrument for Radiated Test (03CH025-HY)

Instrument	Manufacturer/ Brand Name	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH25-HY	1GHz~18GHz 3m	08/Aug/2024	07/Aug/2025
Signal Analyzer	ROHDE&SCHWARZ	FSV3044	101410	10Hz~44GHz	18/Nov/2024	17/Nov/2025
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02876	1GHz~18GHz	11/Jul/2024	10/Jul/2025
RF Cable	HUBER+SUHNER	SUOFLEX 104	CB007	1GHz~40GHz	23/Apr/2024	22/Apr/2025
Preamplifier	EMCI	EM01G18G	060940	1GHz~18GHz	22/Oct/2024	21/Oct/2025
SENSE-EMI	Sporton	V5.11.6	NA	NA	NA	NA



Conducted Emissions at Powerline

Appendix A

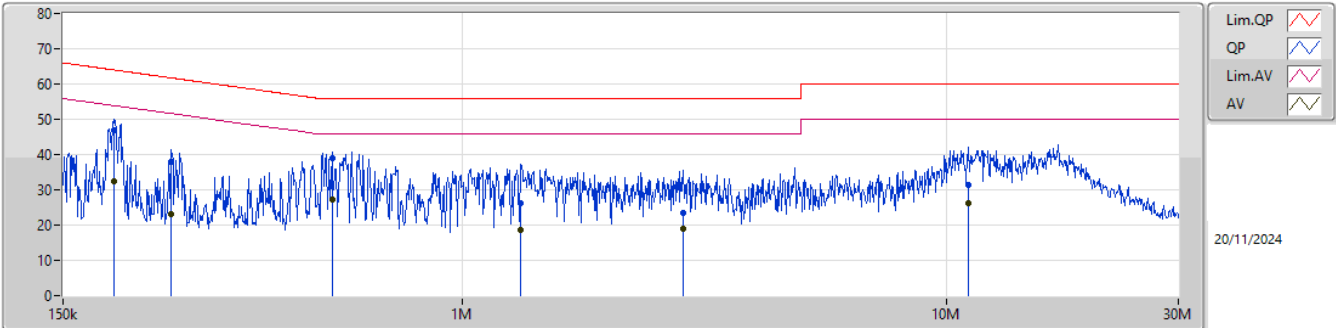
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	538.12k	38.95	56.00	-17.05	Line

Result

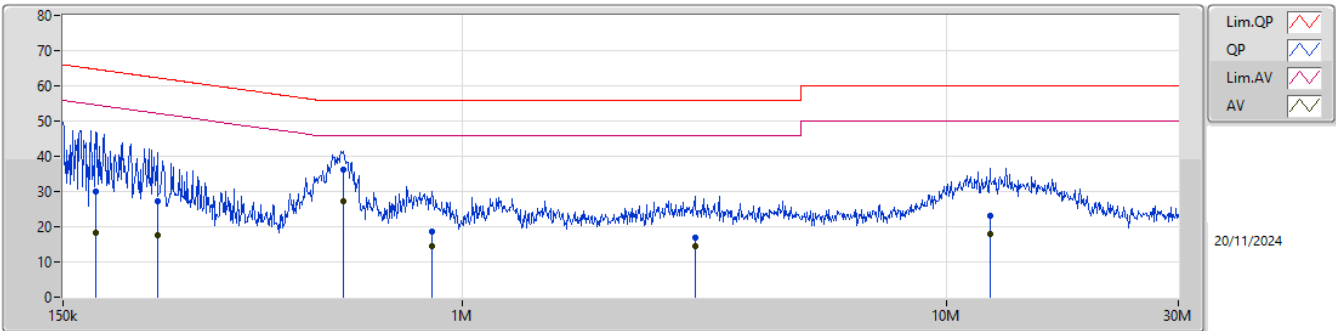
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	190.596k	46.77	64.01	-17.24	Line
Mode 1	Pass	AV	190.596k	32.38	54.01	-21.63	Line
Mode 1	Pass	QP	250.038k	38.08	61.76	-23.68	Line
Mode 1	Pass	AV	250.038k	23.03	51.76	-28.73	Line
Mode 1	Pass	QP	538.12k	38.95	56.00	-17.05	Line
Mode 1	Pass	AV	538.12k	27.26	46.00	-18.74	Line
Mode 1	Pass	QP	1.316M	26.19	56.00	-29.81	Line
Mode 1	Pass	AV	1.316M	18.46	46.00	-27.54	Line
Mode 1	Pass	QP	2.855M	23.33	56.00	-32.67	Line
Mode 1	Pass	AV	2.855M	19.09	46.00	-26.91	Line
Mode 1	Pass	QP	11.093M	31.41	60.00	-28.59	Line
Mode 1	Pass	AV	11.093M	26.36	50.00	-23.64	Line
Mode 1	Pass	QP	175.269k	29.91	64.70	-34.79	Neutral
Mode 1	Pass	AV	175.269k	18.39	54.70	-36.31	Neutral
Mode 1	Pass	QP	234.567k	27.23	62.29	-35.06	Neutral
Mode 1	Pass	AV	234.567k	17.58	52.29	-34.71	Neutral
Mode 1	Pass	QP	566.784k	36.35	56.00	-19.65	Neutral
Mode 1	Pass	AV	566.784k	27.27	46.00	-18.73	Neutral
Mode 1	Pass	QP	865.349k	18.75	56.00	-37.25	Neutral
Mode 1	Pass	AV	865.349k	14.58	46.00	-31.42	Neutral
Mode 1	Pass	QP	3.019M	16.77	56.00	-39.23	Neutral
Mode 1	Pass	AV	3.019M	14.53	46.00	-31.47	Neutral
Mode 1	Pass	QP	12.257M	22.94	60.00	-37.06	Neutral
Mode 1	Pass	AV	12.257M	17.94	50.00	-32.06	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	190.596k	46.77	64.01	-17.24	19.71	Line	-	27.06	9.65	0.09	9.97								
AV	190.596k	32.38	54.01	-21.63	19.71	Line	-	12.67	9.65	0.09	9.97								
QP	250.038k	38.08	61.76	-23.68	19.72	Line	-	18.36	9.65	0.10	9.97								
AV	250.038k	23.03	51.76	-28.73	19.72	Line	-	3.31	9.65	0.10	9.97								
QP	538.12k	38.95	56.00	-17.05	19.74	Line	-	19.21	9.65	0.11	9.98								
AV	538.12k	27.26	46.00	-18.74	19.74	Line	-	7.52	9.65	0.11	9.98								
QP	1.316M	26.19	56.00	-29.81	19.74	Line	-	6.45	9.66	0.10	9.98								
AV	1.316M	18.46	46.00	-27.54	19.74	Line	-	-1.28	9.66	0.10	9.98								
QP	2.855M	23.33	56.00	-32.67	19.75	Line	-	3.58	9.68	0.09	9.98								
AV	2.855M	19.09	46.00	-26.91	19.75	Line	-	-0.66	9.68	0.09	9.98								
QP	11.093M	31.41	60.00	-28.59	19.75	Line	-	11.66	9.71	0.06	9.98								
AV	11.093M	26.36	50.00	-23.64	19.75	Line	-	6.61	9.71	0.06	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	175.269k	29.91	64.70	-34.79	19.65	Neutral	-	10.26	9.60	0.08	9.97								
AV	175.269k	18.39	54.70	-36.31	19.65	Neutral	-	-1.26	9.60	0.08	9.97								
QP	234.567k	27.23	62.29	-35.06	19.67	Neutral	-	7.56	9.60	0.10	9.97								
AV	234.567k	17.58	52.29	-34.71	19.67	Neutral	-	-2.09	9.60	0.10	9.97								
QP	566.784k	36.35	56.00	-19.65	19.69	Neutral	-	16.66	9.60	0.11	9.98								
AV	566.784k	27.27	46.00	-18.73	19.69	Neutral	-	7.58	9.60	0.11	9.98								
QP	865.349k	18.75	56.00	-37.25	19.68	Neutral	-	-0.93	9.61	0.09	9.98								
AV	865.349k	14.58	46.00	-31.42	19.68	Neutral	-	-5.10	9.61	0.09	9.98								
QP	3.019M	16.77	56.00	-39.23	19.69	Neutral	-	-2.92	9.62	0.09	9.98								
AV	3.019M	14.53	46.00	-31.47	19.69	Neutral	-	-5.16	9.62	0.09	9.98								
QP	12.257M	22.94	60.00	-37.06	19.71	Neutral	-	3.23	9.66	0.07	9.98								
AV	12.257M	17.94	50.00	-32.06	19.71	Neutral	-	-1.77	9.66	0.07	9.98								



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
902-928MHz	-	-	-	-	-
LoRa (125kHz)	137.5k	120.19k	120KF1D	134.2k	119.94k

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	137.5k	119.94k
908.7MHz	Pass	Inf	136.95k	120.19k
914.9MHz	Pass	Inf	134.2k	120.19k

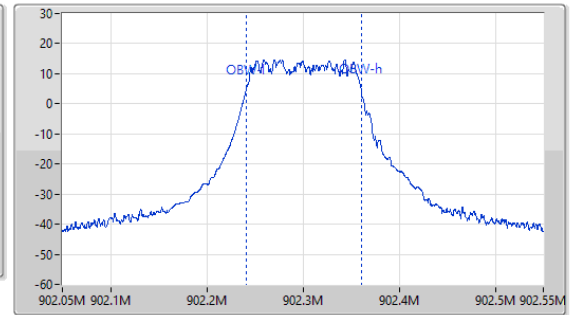
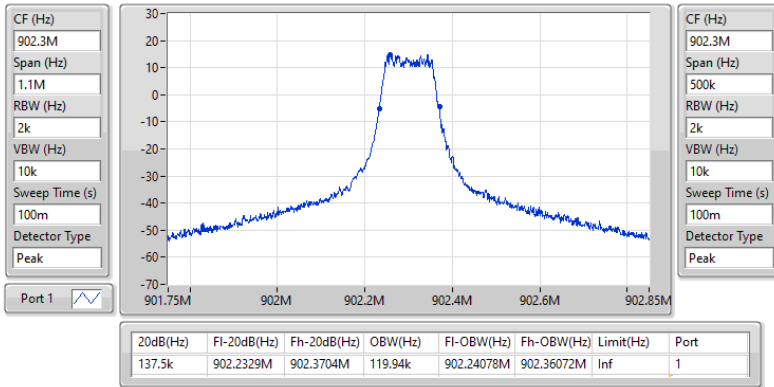
Port X-N dB = Port X 20dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

902-928MHz_LoRa (125kHz)

EBW-FS

902.3MHz

12/11/2024





Summary

Mode	Max-Space (Hz)	Min-Space (Hz)
902-928MHz	-	-
LoRa (125kHz)	204.9k	161.1k

Result

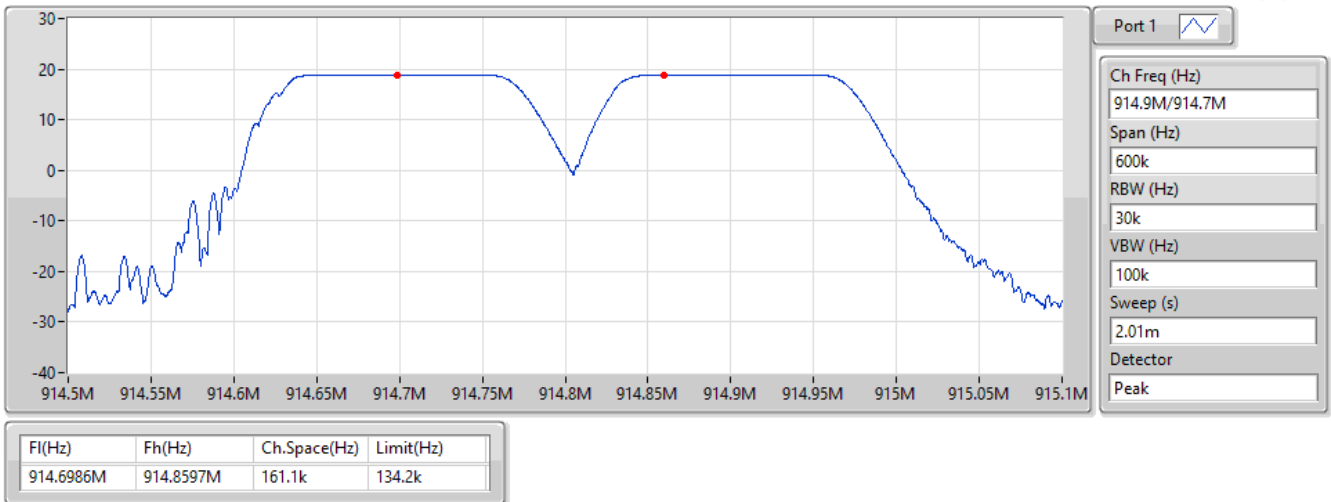
Mode	Result	Fi (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
LoRa (125kHz)	-	-	-	-	-
902.3MHz	Pass	902.2584M	902.4633M	204.9k	137.5k
908.7MHz	Pass	908.6578M	908.8438M	186k	136.95k
914.9MHz	Pass	914.6986M	914.8597M	161.1k	134.2k

902-928MHz_LoRa (125kHz)

Channel Separation-FS

914.9M/914.7MHz

12/11/2024



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
902-928MHz	-	-	-	-	-
LoRa (500kHz)	639.375k	502.874k	503KF1D	615k	491.004k
902-928MHz	-	-	-	-	-
LoRa (500kHz)	616.25k	483.508k	484KF1D	616.25k	481.009k

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)	-	-	-	-
903MHz	Pass	500k	621.25k	492.254k
909.4MHz	Pass	500k	639.375k	502.874k
914.2MHz	Pass	500k	615k	491.004k
LoRa (500kHz)				
923.3MHz	Pass	500k	616.25k	481.009k
926.9MHz	Pass	500k	616.25k	483.508k

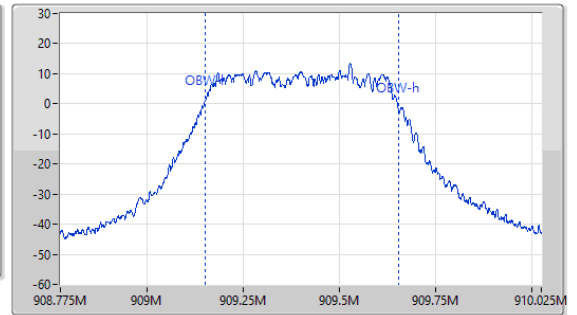
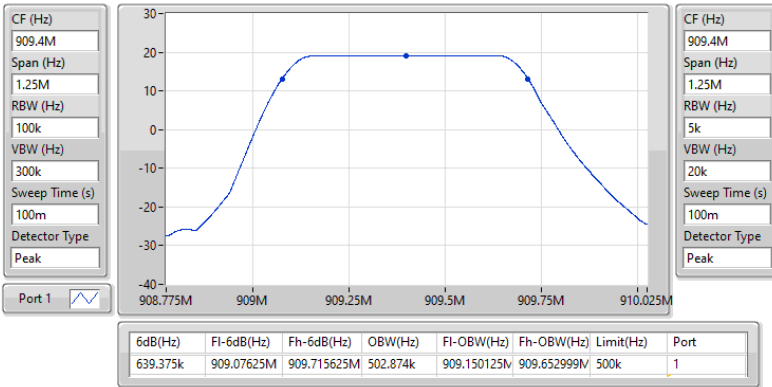
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

902-928MHz_LoRa (500kHz)

EBW-DTS

909.4MHz

12/11/2024

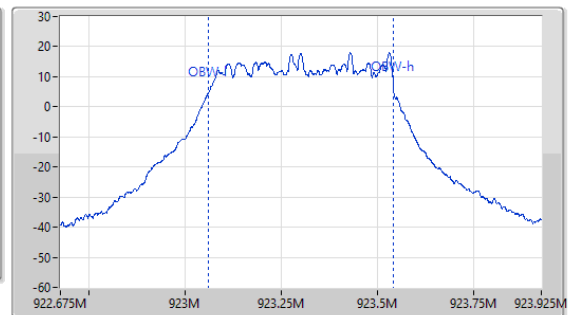
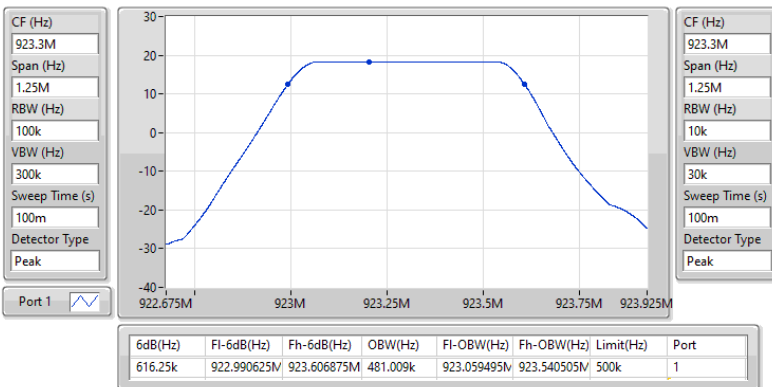


902-928MHz_LoRa (500kHz)

EBW-DTS

923.3MHz

12/11/2024





Summary

Mode	Total Power (dBm)	Total Power (W)
902-928MHz	-	-
LoRa (125kHz)	19.68	0.09290



Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
LoRa (125kHz)	-	-	-	-
902.3MHz	Pass	0.75	19.68	30.00
908.7MHz	Pass	0.75	19.24	30.00
914.9MHz	Pass	0.75	18.69	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)	19.35	0.08610



Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
LoRa (125kHz)	-	-	-	-
902.3MHz	Pass	0.75	19.35	30.00
908.7MHz	Pass	0.75	18.88	30.00
914.9MHz	Pass	0.75	18.37	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)	19.67	0.09268
902-928MHz	-	-
LoRa (500kHz)	18.55	0.07161



Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
LoRa (500kHz)	-	-	-	-
903MHz	Pass	0.75	19.67	30.00
909.4MHz	Pass	0.75	19.24	30.00
914.2MHz	Pass	0.75	18.76	30.00
LoRa (500kHz)	-	-	-	-
923.3MHz	Pass	0.75	18.55	30.00
926.9MHz	Pass	0.75	18.44	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)	18.27	0.06714
902-928MHz	-	-
LoRa (500kHz)	17.62	0.05781



Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
LoRa (500kHz)	-	-	-	-
903MHz	Pass	0.75	18.21	30.00
909.4MHz	Pass	0.75	18.27	30.00
914.2MHz	Pass	0.75	17.57	30.00
LoRa (500kHz)	-	-	-	-
923.3MHz	Pass	0.75	17.62	30.00
926.9MHz	Pass	0.75	17.52	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)	7.25
902-928MHz	-
LoRa (500kHz)	7.42

RBW = 3kHz;



Result

Mode	Result	DG (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
LoRa (500kHz)	-	-	-	-
903MHz	Pass	0.75	7.08	8.00
909.4MHz	Pass	0.75	7.25	8.00
914.2MHz	Pass	0.75	6.29	8.00
LoRa (500kHz)				
923.3MHz	Pass	0.75	7.42	8.00
926.9MHz	Pass	0.75	7.03	8.00

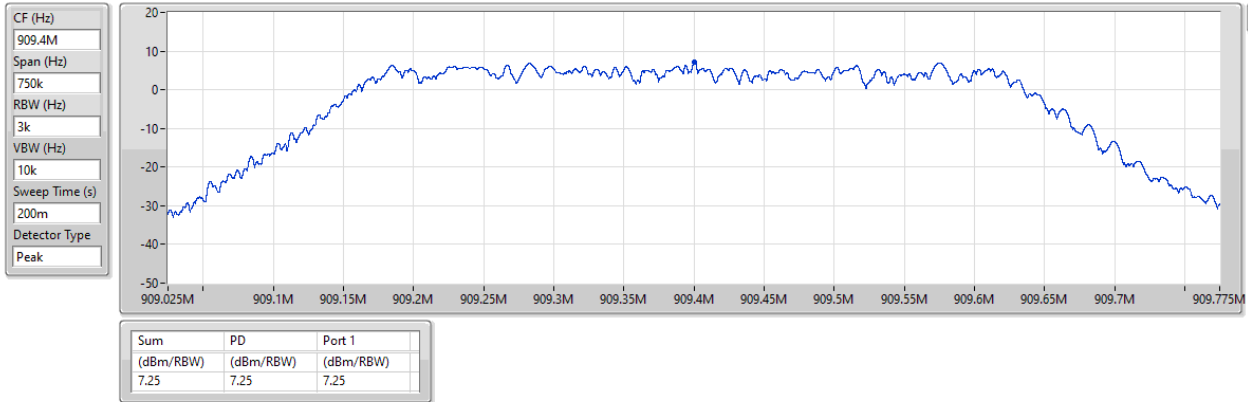
DG = Directional Gain; RBW = 3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;
Inf = There's no restriction for the limit.

902-928MHz_LoRa (500kHz)

PSD

909.4MHz

12/11/2024

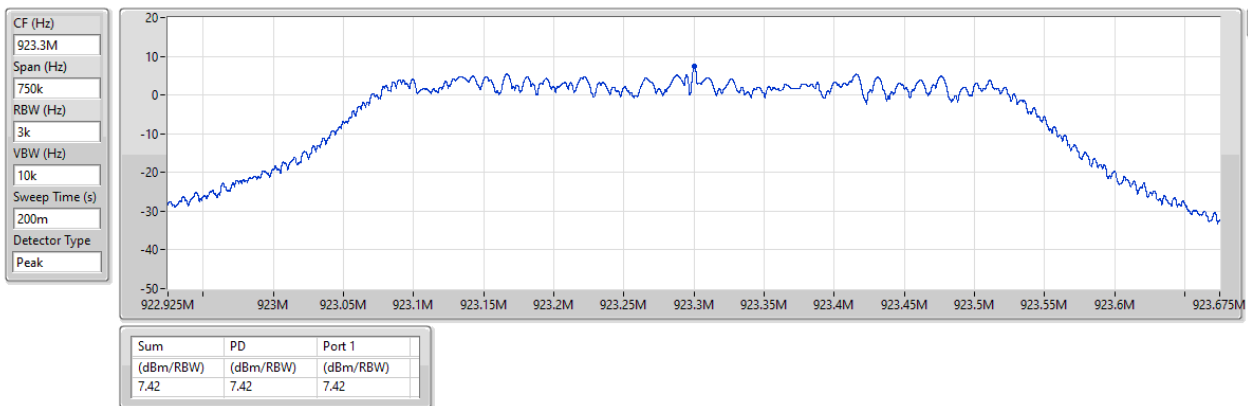


902-928MHz_LoRa (500kHz)

PSD

923.3MHz

12/11/2024





Summary

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



Result

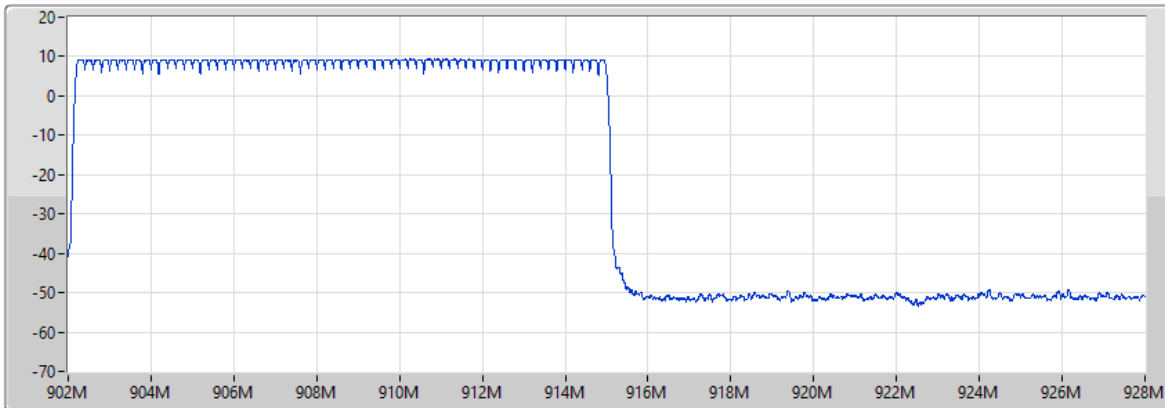
Mode	Result	Hopping No	Limit
LoRa (125kHz)	-	-	-
908.7MHz	Pass	64	50

902-928MHz_LoRa (125kHz)

Hopping-FS

908.7MHz

12/11/2024



Port 1 

Hopping No
64

Span (Hz)
26M

RBW (Hz)
100k

VBW (Hz)
300kHz

Sweep (s)
75.8us

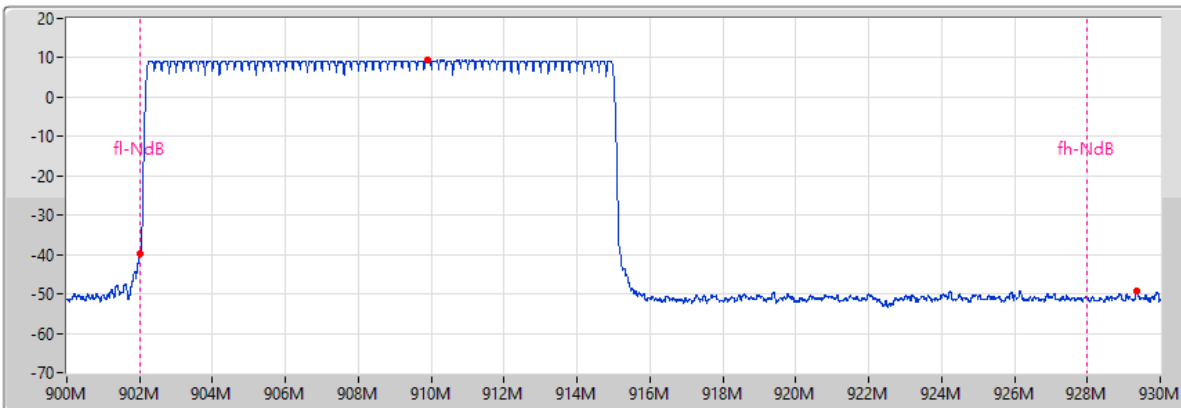
Detector
Peak

902-928MHz_LoRa (125kHz)

908.7MHz

Hopping Ch Bandedge (Non-restricted Band)

12/11/2024



Port 1 

Span (Hz)
30M

RBW (Hz)
100k

VBW (Hz)
300k

Sweep (s)
75.8u

Detector
Peak



Summary

Mode	Dwell (s)
902-928MHz	
LoRa (125kHz)	143.9m



Result

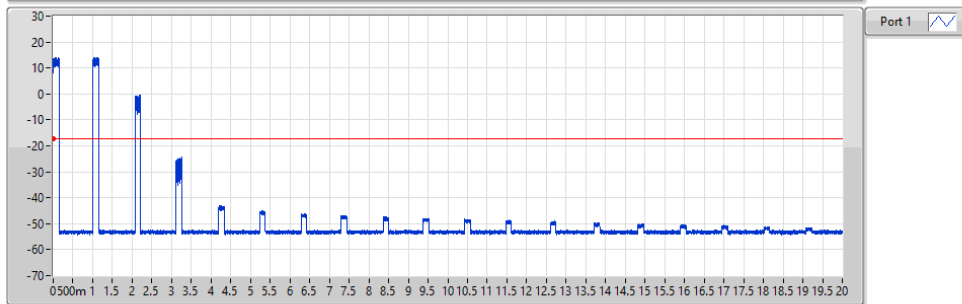
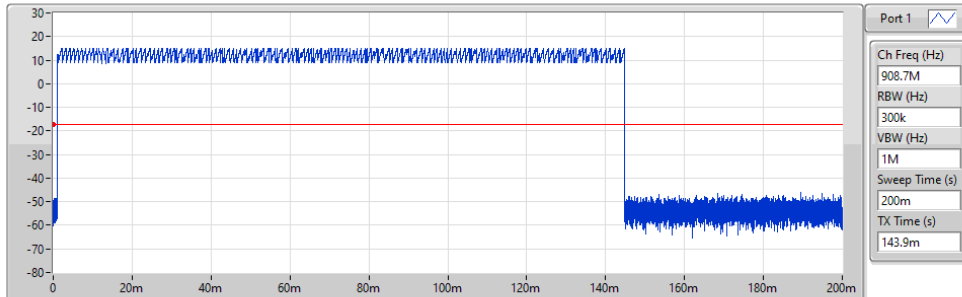
Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
LoRa (125kHz)	-	-	-	-	-
908.7MHz	Pass	20	143.9m	400m	143.9m

902-928MHz_LoRa (125kHz)

Dwell-FS

908.7MHz

12/11/2024



Period(s)	Dwell(s)	Limit(s)	Tx On(s)
20	143.9m	400m	143.9m



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	902.26M	19.57	-0.43	655.79M	-55.56	902M	-26.68	902M	-19.92	944.88M	-53.67	8.87982G	-45.48	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 (125kHz)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
902.3MHz	Pass	902.26M	19.57	-0.43	655.79M	-55.56	902M	-26.68	902M	-19.92	944.88M	-53.67	8.87982G	-45.48	1
908.7MHz	Pass	908.71M	19.13	-0.87	877.31M	-55.38	889.48M	-53.96	928M	-55.96	942.6M	-54.30	6.93024G	-44.66	1
914.9MHz	Pass	914.84M	18.68	-1.32	836.84M	-55.37	882.08M	-54.86	902M	-56.68	933.96M	-54.72	6.97437G	-45.59	1

902-928MHz LoRa (125kHz)

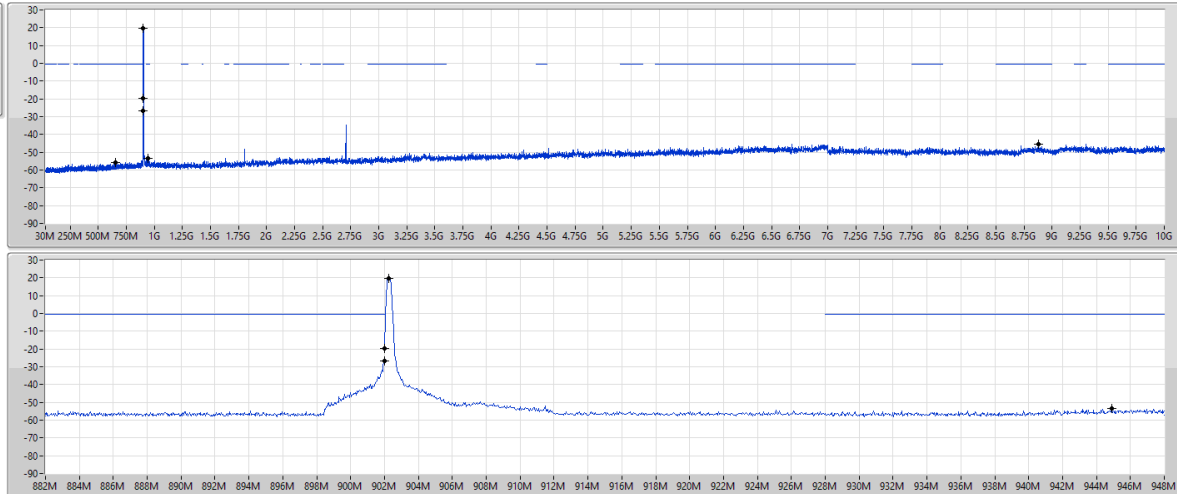
CSEndB-FS

902.3MHz

12/11/2024

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
902.26M	19.57	-0.43	655.79M	-55.56	902M	-26.68	902M	-19.92	944.88M	-53.67	8.87982G	-45.48	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	902.78M	19.49	-0.51	871.35M	-54.12	902M	-37.18	902M	-36.23	933.28M	-53.36	6.94834G	-44.89	1
902-928MHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LoRa (500kHz)	Pass	926.8M	18.35	-1.65	737.59M	-52.70	900.72M	-53.66	928M	-27.13	928M	-28.42	6.98568G	-43.77	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)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
903MHz	Pass	902.78M	19.49	-0.51	871.35M	-54.12	902M	-37.18	902M	-36.23	933.28M	-53.36	6.94834G	-44.89	1
909.4MHz	Pass	909.18M	19.10	-0.90	873.91M	-54.83	883.04M	-52.61	902M	-53.83	943.16M	-52.93	9.2385G	-45.24	1
914.2MHz	Pass	913.96M	18.68	-1.32	735.46M	-53.00	899.84M	-53.26	928M	-54.57	937.6M	-53.79	6.997G	-45.12	1
923.3MHz	Pass	923.27M	18.40	-1.60	730.77M	-52.97	891.04M	-53.63	928M	-50.99	929.2M	-49.51	6.9755G	-45.06	1
926.9MHz	Pass	926.8M	18.35	-1.65	737.59M	-52.70	900.72M	-53.66	928M	-27.13	928M	-28.42	6.98568G	-43.77	1

902-928MHz LoRa (500kHz)

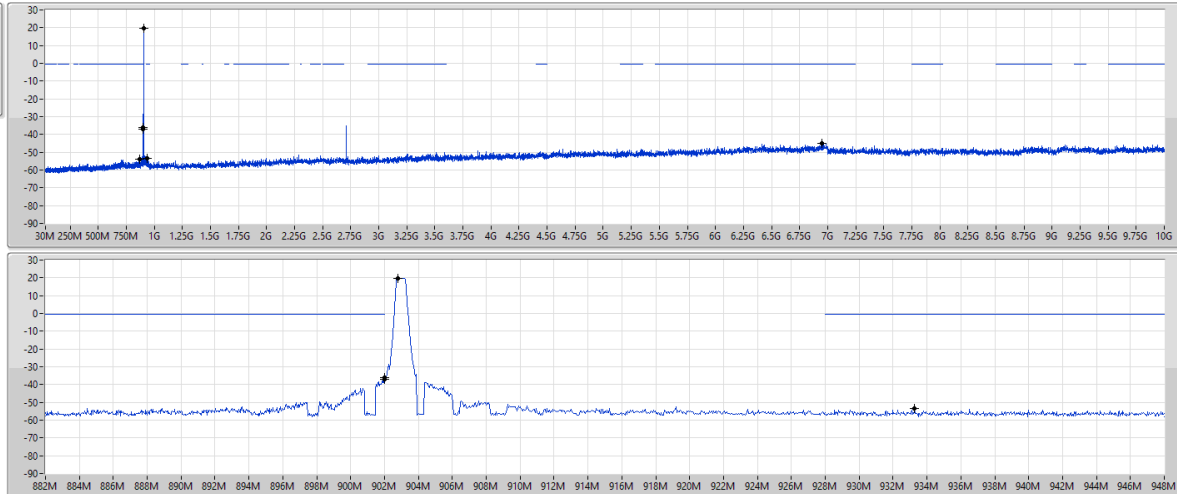
CSEndB-DTS

903MHz

12/11/2024

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
902.78M	19.49	-0.51	871.35M	-54.12	902M	-37.18	902M	-36.23	933.28M	-53.36	6.94834G	-44.89	1

902-928MHz LoRa (500kHz)

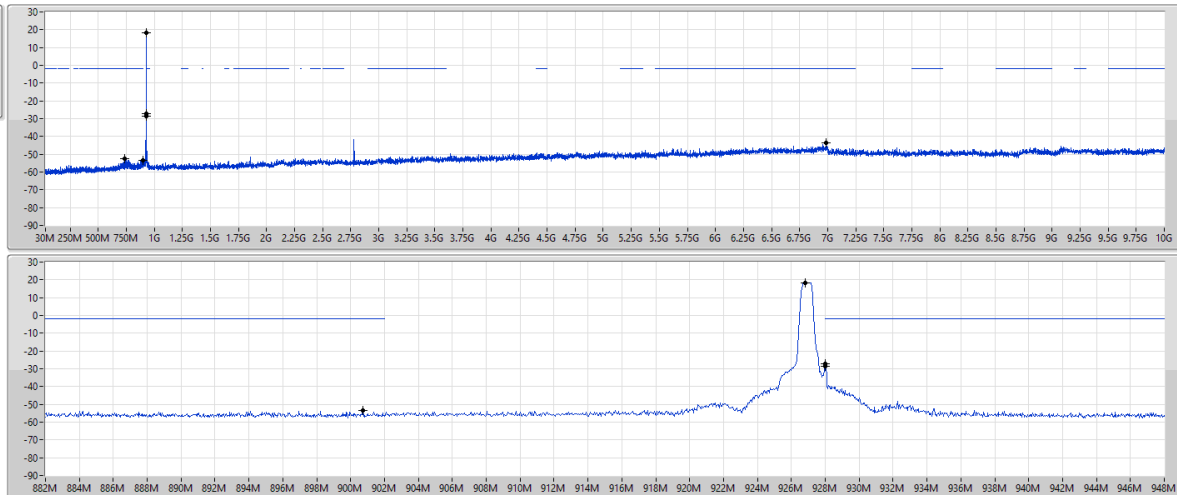
CSEndB-DTS

926.9MHz

12/11/2024

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
926.8M	18.35	-1.65	737.59M	-52.70	900.72M	-53.66	928M	-27.13	928M	-28.42	6.96568G	-43.77	1



Summary

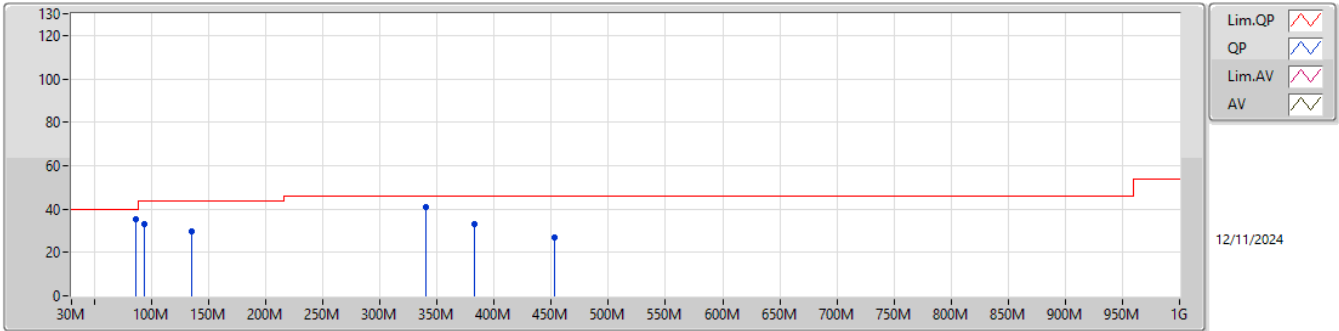
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
902-928MHz	-	-	-	-	-	-	-	-	-	-
LoRa (500kHz)	Pass	PK	84.32M	36.72	40.00	-3.28	3	Vertical	0	1.00

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
LoRa (500kHz)	-	-	-	-	-	-	-	-	-	-
923.3MHz_PoE	Pass	PK	84.32M	36.72	40.00	-3.28	3	Vertical	0	1.00
923.3MHz_PoE	Pass	PK	94.02M	36.88	43.50	-6.62	3	Vertical	0	1.00
923.3MHz_PoE	Pass	PK	136.7M	27.50	43.50	-16.00	3	Vertical	0	1.00
923.3MHz_PoE	Pass	PK	340.4M	35.10	46.00	-10.90	3	Vertical	0	1.00
923.3MHz_PoE	Pass	PK	381.14M	31.84	46.00	-14.16	3	Vertical	0	1.00
923.3MHz_PoE	Pass	QP	30.96M	32.83	40.00	-7.17	3	Vertical	357	1.00
923.3MHz_PoE	Pass	PK	86.26M	35.18	40.00	-4.82	3	Horizontal	0	1.00
923.3MHz_PoE	Pass	PK	94.02M	33.05	43.50	-10.45	3	Horizontal	0	1.00
923.3MHz_PoE	Pass	PK	134.76M	29.74	43.50	-13.76	3	Horizontal	0	1.00
923.3MHz_PoE	Pass	PK	340.4M	40.67	46.00	-5.33	3	Horizontal	0	1.00
923.3MHz_PoE	Pass	PK	383.08M	32.99	46.00	-13.01	3	Horizontal	0	1.00
923.3MHz_PoE	Pass	PK	452.92M	26.65	46.00	-19.35	3	Horizontal	0	1.00

902-928MHz_LoRa (500kHz)

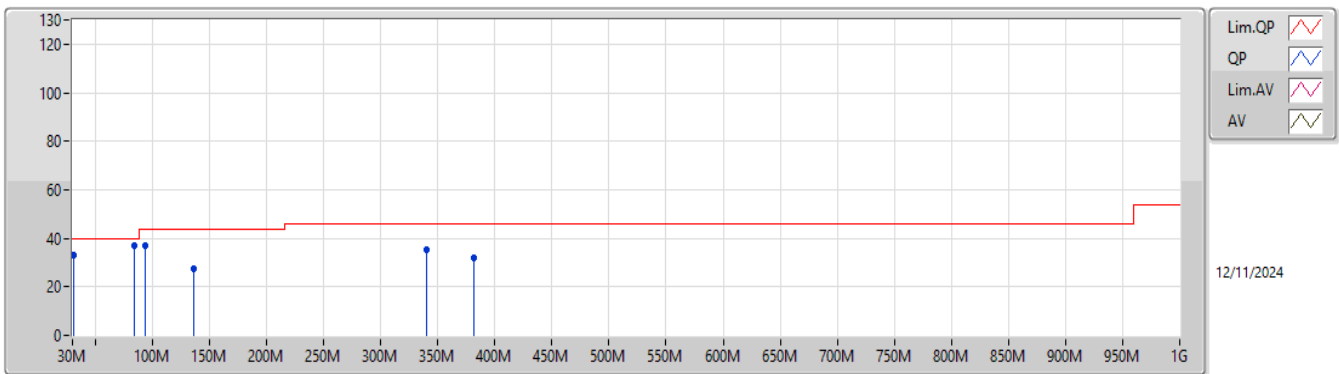
923.3MHz_PoE



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)
PK	86.26M	35.18	40.00	-4.82	-29.09	3	Horizontal	0	1.00	64.27	14.48	1.10	44.67
PK	94.02M	33.05	43.50	-10.45	-28.13	3	Horizontal	0	1.00	61.18	15.38	1.13	44.64
PK	134.76M	29.74	43.50	-13.76	-25.61	3	Horizontal	0	1.00	55.35	17.69	1.34	44.64
PK	340.4M	40.67	46.00	-5.33	-21.71	3	Horizontal	0	1.00	62.38	20.37	2.16	44.24
PK	383.08M	32.99	46.00	-13.01	-20.55	3	Horizontal	0	1.00	53.54	21.35	2.24	44.14
PK	452.92M	26.65	46.00	-19.35	-18.37	3	Horizontal	0	1.00	45.02	23.25	2.41	44.03

902-928MHz_LoRa (500kHz)

923.3MHz_PoE



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)
PK	84.32M	36.72	40.00	-3.28	-29.50	3	Vertical	0	1.00	66.22	14.10	1.08	44.68
PK	94.02M	36.88	43.50	-6.62	-28.13	3	Vertical	0	1.00	65.01	15.38	1.13	44.64
PK	136.7M	27.50	43.50	-16.00	-25.67	3	Vertical	0	1.00	53.17	17.63	1.35	44.65
PK	340.4M	35.10	46.00	-10.90	-21.71	3	Vertical	0	1.00	56.81	20.37	2.16	44.24
PK	381.14M	31.84	46.00	-14.16	-20.60	3	Vertical	0	1.00	52.44	21.31	2.24	44.15
QP	30.96M	32.83	40.00	-7.17	-19.41	3	Vertical	357	1.00	52.24	24.15	0.78	44.34



Summary

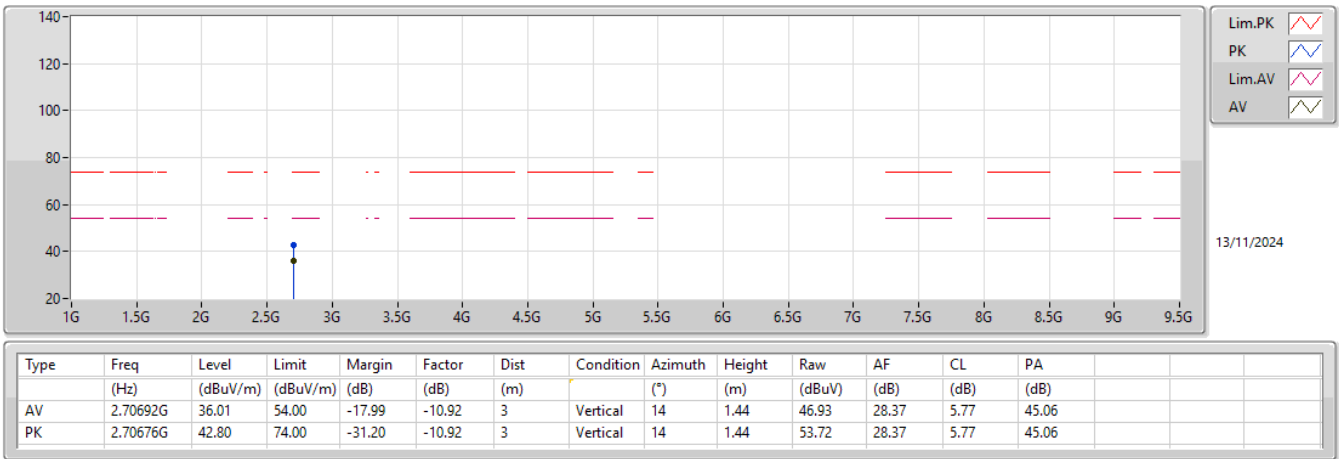
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
902-928MHz	-	-	-	-	-	-	-	-	-	-
LoRa (125kHz)	Pass	AV	2.70692G	36.01	54.00	-17.99	3	Vertical	14	1.44
LoRa (500kHz)	Pass	AV	2.78074G	32.47	54.00	-21.53	3	Vertical	17	1.39
LoRa (500kHz)	Pass	AV	2.70904G	33.25	54.00	-20.75	3	Vertical	14	1.44

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	2.70692G	36.01	54.00	-17.99	3	Vertical	14	1.44
902.3MHz	Pass	PK	2.70676G	42.80	74.00	-31.20	3	Vertical	14	1.44
902.3MHz	Pass	AV	2.70685G	30.75	54.00	-23.25	3	Horizontal	353	1.41
902.3MHz	Pass	PK	2.70658G	40.33	74.00	-33.67	3	Horizontal	353	1.41
908.7MHz	Pass	AV	2.72608G	34.84	54.00	-19.16	3	Vertical	16	1.00
908.7MHz	Pass	PK	2.72576G	41.80	74.00	-32.20	3	Vertical	16	1.00
908.7MHz	Pass	AV	2.72611G	29.68	54.00	-24.32	3	Horizontal	355	1.34
908.7MHz	Pass	PK	2.72608G	39.60	74.00	-34.40	3	Horizontal	355	1.34
914.9MHz	Pass	AV	2.74468G	33.96	54.00	-20.04	3	Vertical	21	1.03
914.9MHz	Pass	PK	2.74483G	41.70	74.00	-32.30	3	Vertical	21	1.03
914.9MHz	Pass	AV	2.74469G	31.06	54.00	-22.94	3	Horizontal	266	3.00
914.9MHz	Pass	PK	2.74469G	40.05	74.00	-33.95	3	Horizontal	266	3.00
LoRa (500kHz)	-	-	-	-	-	-	-	-	-	-
903MHz	Pass	AV	2.70904G	33.25	54.00	-20.75	3	Vertical	14	1.44
903MHz	Pass	PK	2.70891G	42.03	74.00	-31.97	3	Vertical	14	1.44
903MHz	Pass	AV	2.70794G	25.69	54.00	-28.31	3	Horizontal	271	1.50
903MHz	Pass	PK	2.70831G	39.47	74.00	-34.53	3	Horizontal	271	1.50
909.4MHz	Pass	AV	2.72809G	31.84	54.00	-22.16	3	Vertical	14	1.00
909.4MHz	Pass	PK	2.72775G	41.41	74.00	-32.59	3	Vertical	14	1.00
909.4MHz	Pass	AV	2.72922G	25.56	54.00	-28.44	3	Horizontal	3	1.50
909.4MHz	Pass	PK	2.72801G	39.25	74.00	-34.75	3	Horizontal	3	1.50
914.2MHz	Pass	AV	2.74014G	25.61	54.00	-28.39	3	Vertical	18	1.09
914.2MHz	Pass	PK	2.74201G	41.36	74.00	-32.64	3	Vertical	18	1.09
914.2MHz	Pass	AV	2.74068G	25.52	54.00	-28.48	3	Horizontal	360	1.57
914.2MHz	Pass	PK	2.74439G	39.18	74.00	-34.82	3	Horizontal	360	1.57
LoRa (500kHz)	-	-	-	-	-	-	-	-	-	-
923.3MHz	Pass	AV	2.77125G	25.75	54.00	-28.25	3	Vertical	9	2.97
923.3MHz	Pass	PK	2.77025G	41.68	74.00	-32.32	3	Vertical	9	2.97
923.3MHz	Pass	AV	2.7708G	26.79	54.00	-27.21	3	Horizontal	270	2.84
923.3MHz	Pass	PK	2.76988G	40.61	74.00	-33.39	3	Horizontal	270	2.84
926.9MHz	Pass	AV	2.78074G	32.47	54.00	-21.53	3	Vertical	17	1.39
926.9MHz	Pass	PK	2.77988G	41.80	74.00	-32.20	3	Vertical	17	1.39
926.9MHz	Pass	AV	2.78067G	30.90	54.00	-23.10	3	Horizontal	269	2.85
926.9MHz	Pass	PK	2.78098G	40.63	74.00	-33.37	3	Horizontal	269	2.85

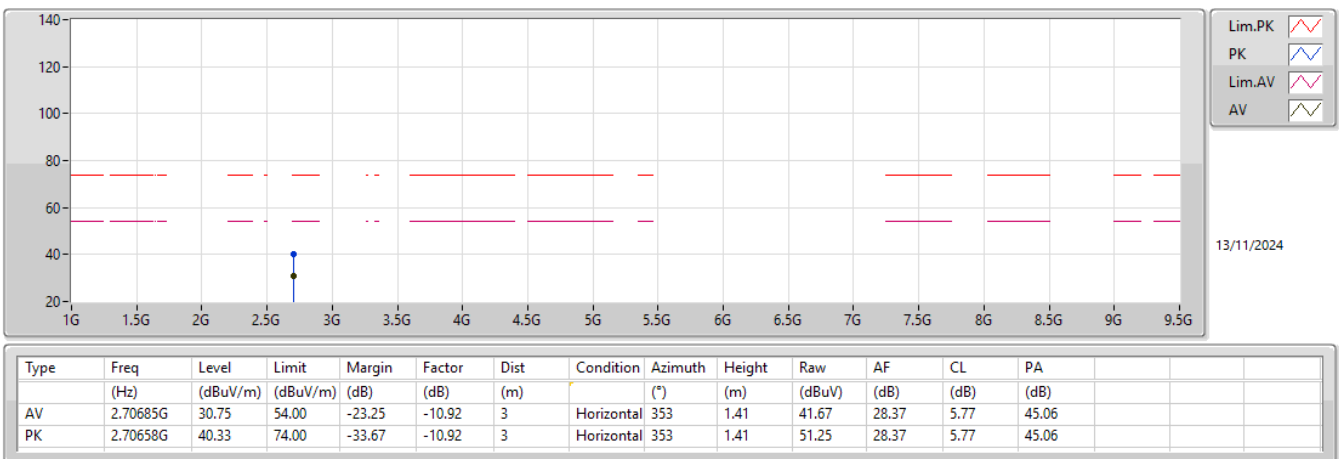
902-928MHz_LoRa (125kHz)

902.3MHz_TX



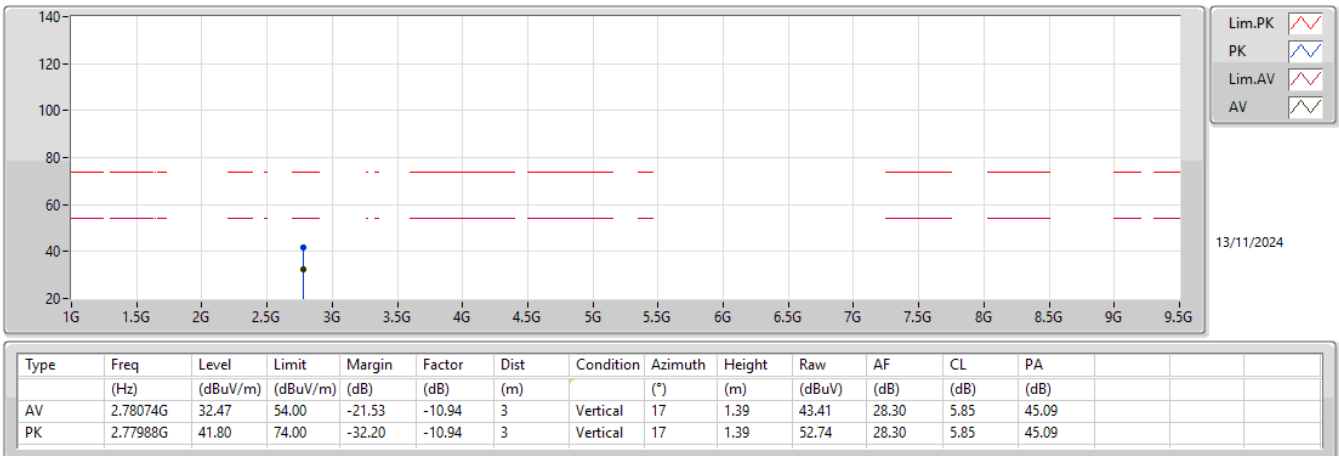
902-928MHz_LoRa (125kHz)

902.3MHz_TX



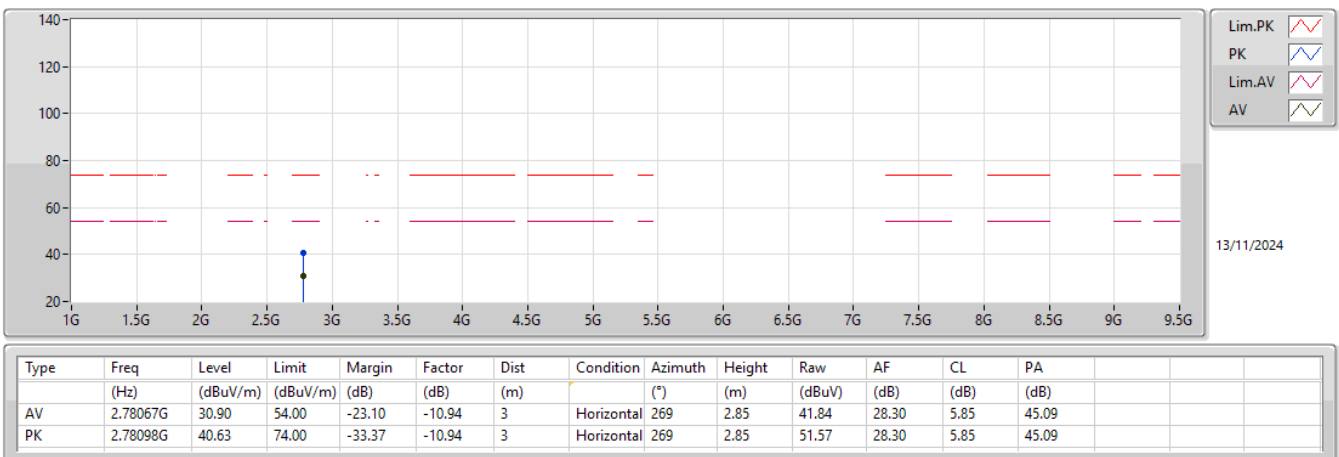
902-928MHz_LoRa (500kHz)

926.9MHz_TX



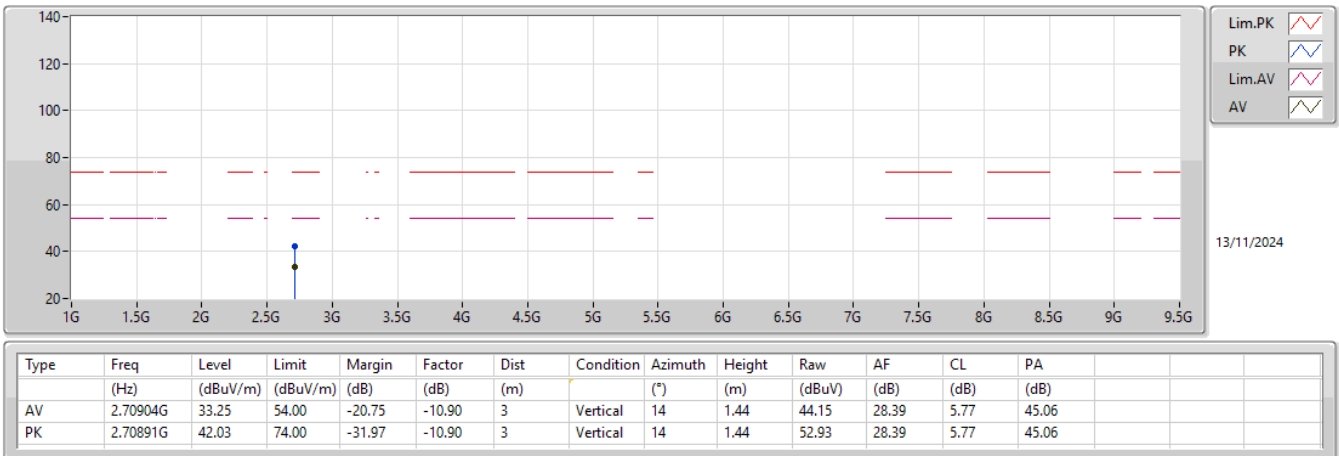
902-928MHz_LoRa (500kHz)

926.9MHz_TX



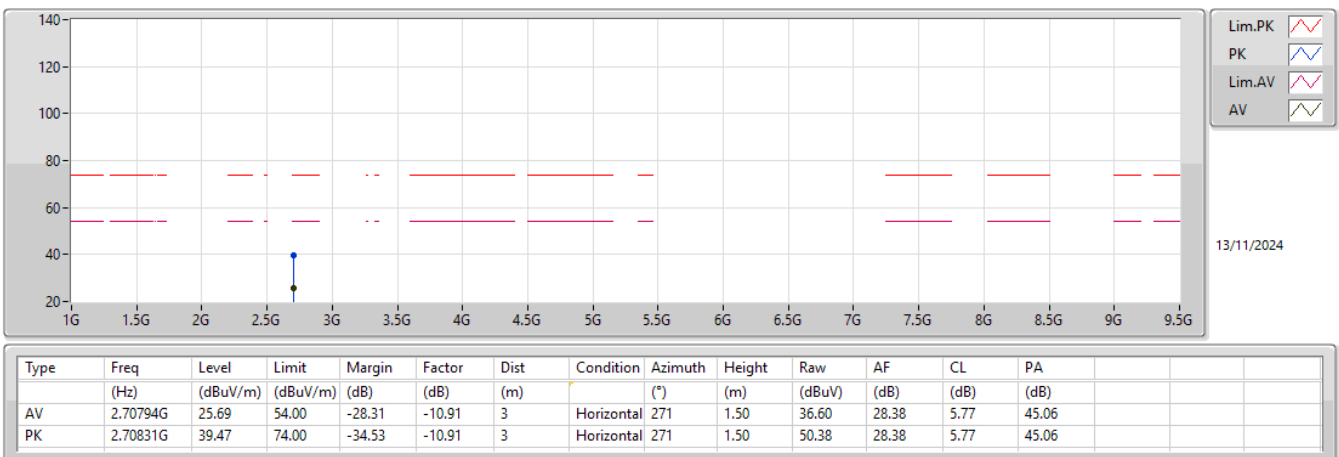
902-928MHz_LoRa (500kHz)

903MHz_TX



902-928MHz_LoRa (500kHz)

903MHz_TX





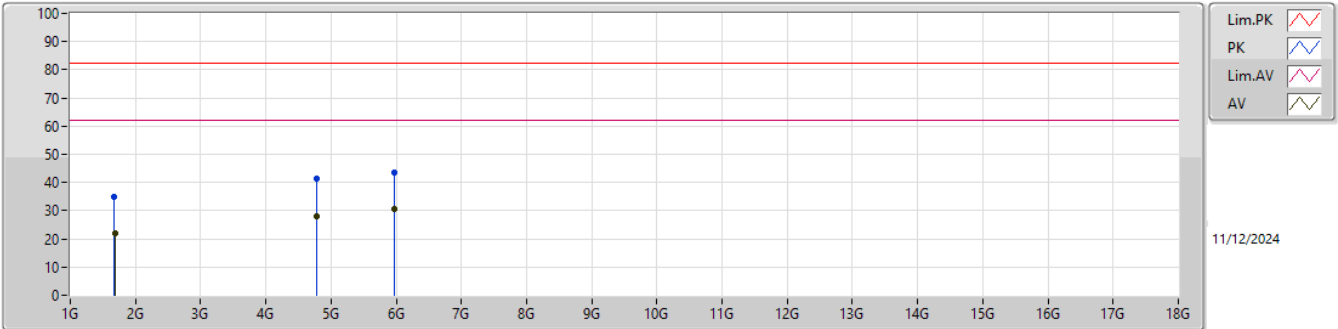
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	AV	5.97601G	30.64	62.20	-31.56	Vertical
Mode 2	Pass	AV	5.87423G	30.63	62.20	-31.57	Vertical
Mode 3	Pass	AV	5.19346G	33.99	62.20	-28.21	Horizontal

Result

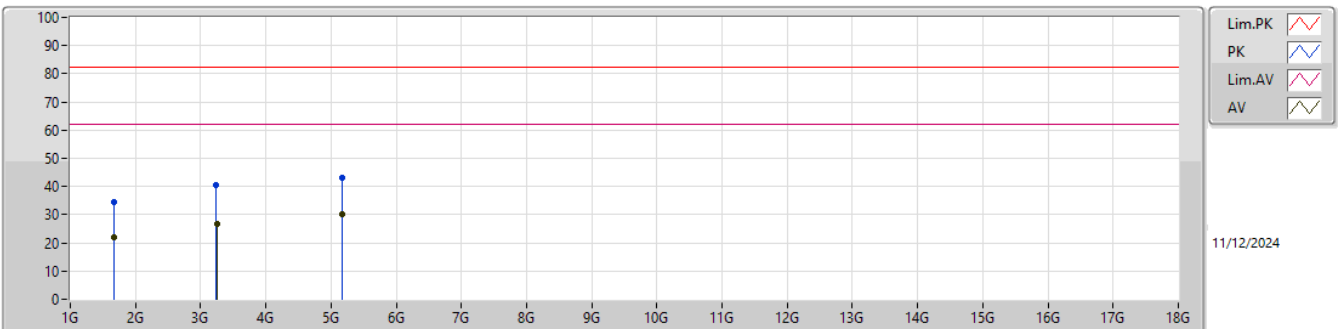
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Mode 1	Pass	AV	1.6817G	22.09	62.20	-40.11	3	Vertical	236	2.89	-
Mode 1	Pass	AV	4.77967G	28.14	62.20	-34.06	3	Vertical	342	2.11	-
Mode 1	Pass	AV	5.97601G	30.64	62.20	-31.56	3	Vertical	211	2.31	-
Mode 1	Pass	PK	1.66529G	35.07	82.20	-47.13	3	Vertical	236	2.89	-
Mode 1	Pass	PK	4.78529G	41.42	82.20	-40.78	3	Vertical	342	2.11	-
Mode 1	Pass	PK	5.97981G	43.74	82.20	-38.46	3	Vertical	211	2.31	-
Mode 1	Pass	AV	1.67838G	21.94	62.20	-40.26	3	Horizontal	104	2.36	-
Mode 1	Pass	AV	3.24425G	26.77	62.20	-35.43	3	Horizontal	202	2.89	-
Mode 1	Pass	AV	5.17813G	30.06	62.20	-32.14	3	Horizontal	230	1.86	-
Mode 1	Pass	PK	1.67616G	34.54	82.20	-47.66	3	Horizontal	104	2.36	-
Mode 1	Pass	PK	3.24339G	40.50	82.20	-41.70	3	Horizontal	202	2.89	-
Mode 1	Pass	PK	5.17418G	43.25	82.20	-38.95	3	Horizontal	230	1.86	-
Mode 2	Pass	AV	1.67306G	28.98	62.20	-33.22	3	Vertical	352	1.08	-
Mode 2	Pass	AV	3.6766G	27.09	62.20	-35.11	3	Vertical	50	2.58	-
Mode 2	Pass	AV	5.87423G	30.63	62.20	-31.57	3	Vertical	149	2.52	-
Mode 2	Pass	PK	1.6731G	40.37	82.20	-41.83	3	Vertical	352	1.08	-
Mode 2	Pass	PK	3.68935G	40.26	82.20	-41.94	3	Vertical	50	2.58	-
Mode 2	Pass	PK	5.877G	43.47	82.20	-38.73	3	Vertical	0	2.50	-
Mode 2	Pass	PK	5.88365G	43.51	82.20	-38.69	3	Vertical	149	2.52	-
Mode 2	Pass	AV	1.67286G	24.23	62.20	-37.97	3	Horizontal	217	1.04	-
Mode 2	Pass	AV	3.12376G	27.47	62.20	-34.73	3	Horizontal	160	1.18	-
Mode 2	Pass	AV	5.75047G	30.61	62.20	-31.59	3	Horizontal	358	1.05	-
Mode 2	Pass	PK	1.67249G	36.93	82.20	-45.27	3	Horizontal	217	1.04	-
Mode 2	Pass	PK	3.12464G	41.04	82.20	-41.16	3	Horizontal	160	1.18	-
Mode 2	Pass	PK	5.77435G	43.98	82.20	-38.22	3	Horizontal	358	1.05	-
Mode 3	Pass	AV	1.19655G	27.32	62.20	-34.88	3	Vertical	142	2.59	-
Mode 3	Pass	AV	2.654G	25.87	62.20	-36.33	3	Vertical	348	1.12	-
Mode 3	Pass	AV	4.34923G	28.44	62.20	-33.76	3	Vertical	193	2.14	-
Mode 3	Pass	PK	1.19983G	41.21	82.20	-40.99	3	Vertical	142	2.59	-
Mode 3	Pass	PK	2.66462G	38.86	82.20	-43.34	3	Vertical	348	1.12	-
Mode 3	Pass	PK	4.34996G	41.32	82.20	-40.88	3	Vertical	193	2.14	-
Mode 3	Pass	AV	1.19714G	26.80	62.20	-35.40	3	Horizontal	121	2.16	-
Mode 3	Pass	AV	3.51177G	25.03	62.20	-37.17	3	Horizontal	187	2.28	-
Mode 3	Pass	AV	5.19346G	33.99	62.20	-28.21	3	Horizontal	218	1.40	-
Mode 3	Pass	PK	1.19844G	44.00	82.20	-38.20	3	Horizontal	121	2.16	-
Mode 3	Pass	PK	3.51703G	37.93	82.20	-44.27	3	Horizontal	187	2.28	-
Mode 3	Pass	PK	5.19317G	45.49	82.20	-36.71	3	Horizontal	218	1.40	-

Radiated Emissions above 1GHz_Mode 1



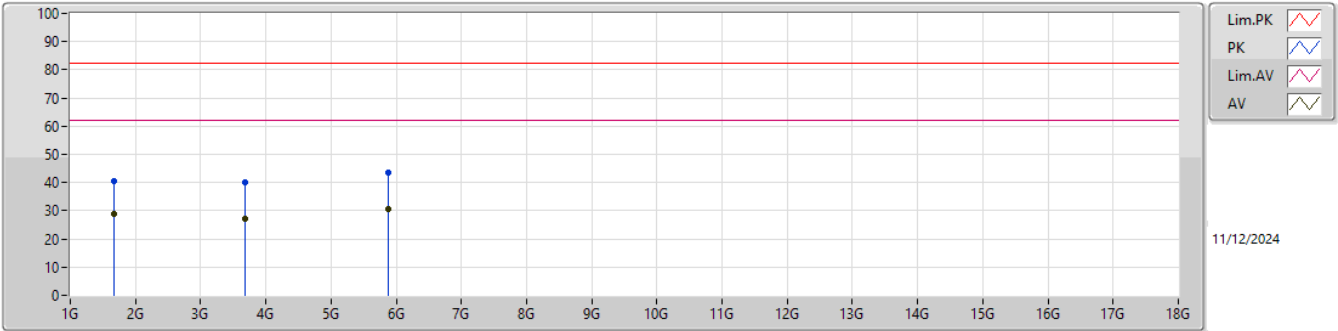
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
AV	1.6817G	22.09	62.20	-40.11	-8.91	3	Vertical	236	2.89	-	31.00	25.18	2.67	36.76
AV	4.77967G	28.14	62.20	-34.06	-0.35	3	Vertical	342	2.11	-	28.49	32.38	4.56	37.29
AV	5.97601G	30.64	62.20	-31.56	2.31	3	Vertical	211	2.31	-	28.33	34.40	5.08	37.17
PK	1.66529G	35.07	82.20	-47.13	-8.96	3	Vertical	236	2.89	-	44.03	25.15	2.65	36.76
PK	4.78529G	41.42	82.20	-40.78	-0.32	3	Vertical	342	2.11	-	41.74	32.41	4.56	37.29
PK	5.97981G	43.74	82.20	-38.46	2.31	3	Vertical	211	2.31	-	41.43	34.40	5.08	37.17

Radiated Emissions above 1GHz_Mode 1



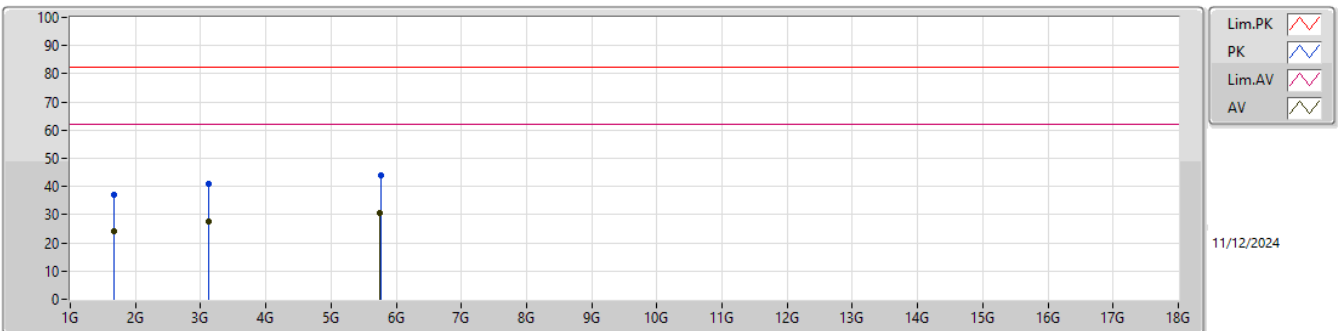
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
AV	1.67838G	21.94	62.20	-40.26	-8.89	3	Horizontal	104	2.36	-	30.83	25.20	2.67	36.76
AV	3.24425G	26.77	62.20	-35.43	-3.31	3	Horizontal	202	2.89	-	30.08	29.89	3.71	36.91
AV	5.17813G	30.06	62.20	-32.14	0.92	3	Horizontal	230	1.86	-	29.14	33.39	4.83	37.30
PK	1.67616G	34.54	82.20	-47.66	-8.90	3	Horizontal	104	2.36	-	43.44	25.20	2.66	36.76
PK	3.24339G	40.50	82.20	-41.70	-3.31	3	Horizontal	202	2.89	-	43.81	29.89	3.71	36.91
PK	5.17418G	43.25	82.20	-38.95	0.93	3	Horizontal	230	1.86	-	42.32	33.40	4.83	37.30

Radiated Emissions above 1GHz_Mode 2



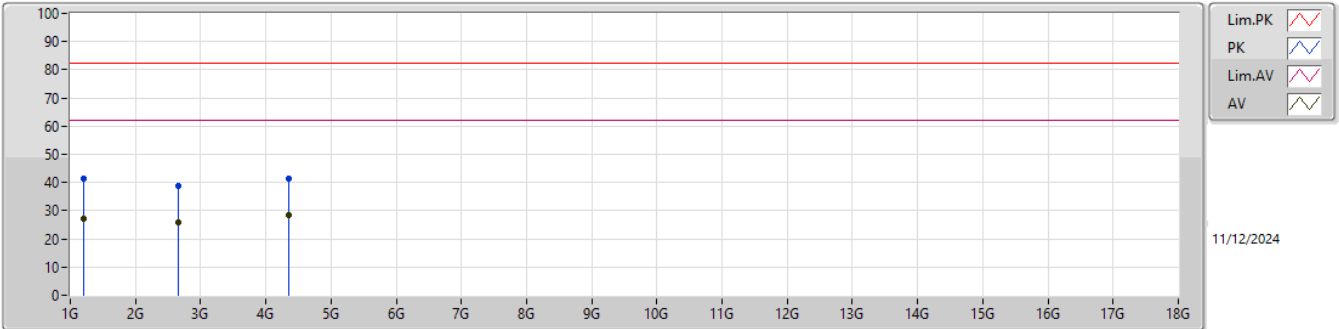
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
AV	1.67306G	28.98	62.20	-33.22	-8.90	3	Vertical	352	1.08	-	37.88	25.20	2.66	36.76
AV	3.6766G	27.09	62.20	-35.11	-3.10	3	Vertical	50	2.58	-	30.19	29.85	3.95	36.90
AV	5.87423G	30.63	62.20	-31.57	2.33	3	Vertical	149	2.52	-	28.30	34.40	5.14	37.21
PK	1.6731G	40.37	82.20	-41.83	-8.90	3	Vertical	352	1.08	-	49.27	25.20	2.66	36.76
PK	3.68935G	40.26	82.20	-41.94	-3.06	3	Vertical	50	2.58	-	43.32	29.88	3.96	36.90
PK	5.877G	43.47	82.20	-38.73	2.34	3	Vertical	0	2.50	-	41.13	34.41	5.14	37.21
PK	5.88365G	43.51	82.20	-38.69	2.35	3	Vertical	149	2.52	-	41.16	34.43	5.13	37.21

Radiated Emissions above 1GHz_Mode 2



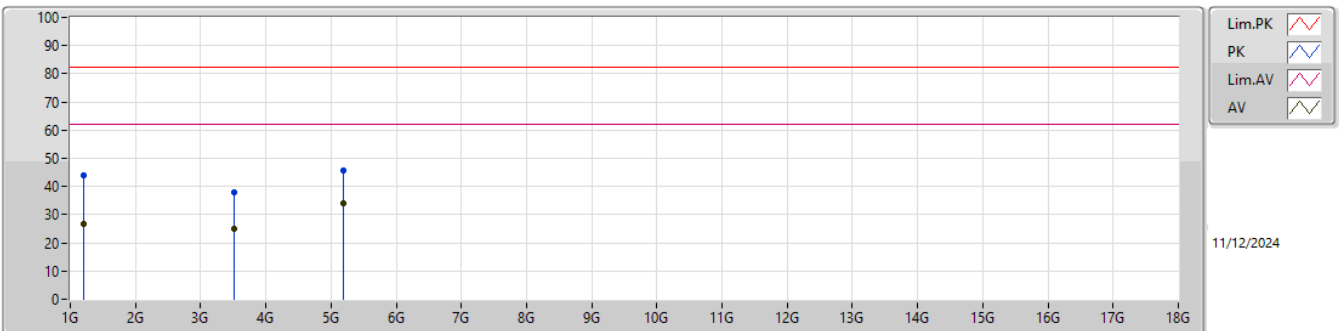
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
AV	1.67286G	24.23	62.20	-37.97	-8.90	3	Horizontal	217	1.04	-	33.13	25.20	2.66	36.76
AV	3.12376G	27.47	62.20	-34.73	-3.44	3	Horizontal	160	1.18	-	30.91	29.85	3.64	36.93
AV	5.75047G	30.61	62.20	-31.59	1.87	3	Horizontal	358	1.05	-	28.74	34.00	5.13	37.26
PK	1.67249G	36.93	82.20	-45.27	-8.90	3	Horizontal	217	1.04	-	45.83	25.20	2.66	36.76
PK	3.12464G	41.04	82.20	-41.16	-3.44	3	Horizontal	160	1.18	-	44.48	29.85	3.64	36.93
PK	5.77435G	43.98	82.20	-38.22	2.00	3	Horizontal	358	1.05	-	41.98	34.10	5.15	37.25

Radiated Emissions above 1GHz_Mode 3



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
AV	1.19655G	27.32	62.20	-34.88	-8.44	3	Vertical	142	2.59	-	35.76	25.83	2.32	36.59
AV	2.654G	25.87	62.20	-36.33	-5.35	3	Vertical	348	1.12	-	31.22	28.30	3.31	36.96
AV	4.34923G	28.44	62.20	-33.76	-1.06	3	Vertical	193	2.14	-	29.50	31.80	4.36	37.22
PK	1.19983G	41.21	82.20	-40.99	-8.48	3	Vertical	142	2.59	-	49.69	25.80	2.32	36.60
PK	2.66462G	38.86	82.20	-43.34	-5.20	3	Vertical	348	1.12	-	44.06	28.44	3.32	36.96
PK	4.34996G	41.32	82.20	-40.88	-1.06	3	Vertical	193	2.14	-	42.38	31.80	4.36	37.22

Radiated Emissions above 1GHz_Mode 3



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
AV	1.19714G	26.80	62.20	-35.40	-8.44	3	Horizontal	121	2.16	-	35.24	25.83	2.32	36.59
AV	3.51177G	25.03	62.20	-37.17	-3.50	3	Horizontal	187	2.28	-	28.53	29.50	3.86	36.86
AV	5.19346G	33.99	62.20	-28.21	0.87	3	Horizontal	218	1.40	-	33.12	33.33	4.84	37.30
PK	1.19844G	44.00	82.20	-38.20	-8.46	3	Horizontal	121	2.16	-	52.46	25.82	2.32	36.60
PK	3.51703G	37.93	82.20	-44.27	-3.50	3	Horizontal	187	2.28	-	41.43	29.50	3.86	36.86
PK	5.19317G	45.49	82.20	-36.71	0.87	3	Horizontal	218	1.40	-	44.62	33.33	4.84	37.30