

# Report on the EMC Testing of the Lars Thrane A/S LT-3100 Communication System In accordance with EN 60945

Prepared for: LARS THRANE A/S  
Skovlytoften 33  
Holte  
DK-2840  
DENMARK



Product Service

Choose certainty.  
Add value.

## COMMERCIAL-IN-CONFIDENCE

Date: July 2018

Document Number: 75942068-12 | Issue: 01

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Project Management	Adam Porteous	9 July 2018	
Authorised Signatory	Andy Lawson	9 July 2018	

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

### EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with EN 60945: 2002 C1:2008



#### DISCLAIMER AND COPYRIGHT

This non-binding report has been prepared by TÜV SÜD Product Service with all reasonable skill and care. The document is confidential to the potential Client and TÜV SÜD Product Service. No part of this document may be reproduced without the prior written approval of TÜV SÜD Product Service. © 2018 TÜV SÜD Product Service.

#### ACCREDITATION

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation. Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).

TÜV SÜD Product Service  
is a trading name of TÜV SÜD Ltd  
Registered in Scotland at East Kilbride,  
Glasgow G75 0QF, United Kingdom  
Registered number: SC215164

TÜV SÜD Ltd is a  
TÜV SÜD Group Company

Phone: +44 (0) 1489 558100  
Fax: +44 (0) 1489 558101  
[www.tuv-sud.co.uk](http://www.tuv-sud.co.uk)

TÜV SÜD Product Service  
Octagon House  
Concorde Way  
Fareham  
Hampshire PO15 5RL  
United Kingdom



Contents

**1      Report Summary .....2**

1.1      Report Modification Record.....2

1.2      Introduction.....2

1.3      Brief Summary of Results .....3

1.4      Declaration of Build Status.....4

1.5      Product Information .....5

1.6      Deviations from the Standard.....8

1.7      EUT Modification Record .....8

1.8      Test Location.....9

**2      Test Details .....10**

2.1      Radiated Emissions.....10

2.2      Conducted Emissions .....22

2.3      Immunity to Radiated Radio Frequencies.....28

2.4      Immunity to Conducted Radio Frequency Disturbance .....31

2.5      Immunity to Fast Transients on A.C. Power, Signal and Control Lines .....38

2.6      Immunity to Electrostatic Discharge.....41

2.7      Immunity to Power Supply Failure .....46

2.8      Compass Safe Distance.....49

**3      Measurement Uncertainty .....52**

## 1 Report Summary

### 1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	09 July 2018

**Table 1**

### 1.2 Introduction

Applicant	Lars Thrane A/S
Manufacturer	Lars Thrane A/S
Model Number(s)	LT-3110, LT-3120, LT-3121 and LT-313
Serial Number(s)	00001669, 00001731, 00002078 and 00002282
Hardware Version(s)	Included in the Application software
Software Version(s)	1.01R
Number of Samples Tested	One System
Test Specification/Issue/Date	EN 60945: 2002 C1:2008
Test Plan/Issue/Date	Not Applicable
Order Number	QAF
Date	08-March-2018
Date of Receipt of EUT	16-March-2018
Start of Test	19-March-2018
Finish of Test	18-April-2018
Name of Engineer(s)	Paulo Nabais Rosa and Theodoros Skoulikaritis
Related Document(s)	CISPR 16-1-2: 2006 CISPR 16-1-4: 2007 EN 61000-4-2: 1995 EN 61000-4-3: 1996 EN 61000-4-4: 1995 EN 61000-4-6: 1996 EN 61000-4-11: 1994

### 1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with EN 60945 is shown below.

Section	Specification Clause	Test Description	Result	Comments/Base Standard	Performance Criteria
Configuration and Mode: 12 V DC Powered, Receive Mode					
2.1	9.3	Radiated Emissions	Pass	CISPR 16-1-4	N/A
2.2	9.2	Conducted Emissions	Pass	CISPR 16-1-2	N/A
2.4	10.3	Immunity to Conducted Radio Frequency Disturbance	Pass	EN 61000-4-6	A
2.5	10.5	Immunity to Fast Transients on A.C. Power, Signal and Control Lines	Pass	EN 61000-4-4	B
2.6	10.9	Immunity to Electrostatic Discharge	Pass	EN 61000-4-2	B
2.7	10.8	Immunity to Power Supply Failure	Pass	EN 61000-4-11	C
Configuration and Mode: 24 V DC Powered, Link Mode					
2.1	9.3	Radiated Emissions	Pass	CISPR 16-1-4	N/A
2.2	9.2	Conducted Emissions	Pass	CISPR 16-1-2	N/A
2.3	10.4	Immunity to Radiated Radio Frequencies	Pass	EN 61000-4-3	A
2.4	10.3	Immunity to Conducted Radio Frequency Disturbance	Pass	EN 61000-4-6	A
2.5	10.5	Immunity to Fast Transients on A.C. Power, Signal and Control Lines	Pass	EN 61000-4-4	B
2.6	10.9	Immunity to Electrostatic Discharge	Pass	EN 61000-4-2	B
2.7	10.8	Immunity to Power Supply Failure	Pass	EN 61000-4-11	C

**Table 2**