Report on the FCC and IC Testing of the LDL Technology 17109 In accordance with FCC 47 CFR Part 15C, ISED Canada RSS-210 and ISED Canada RSS-GEN

Product Service

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Prepared for: LDL Technology
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France

FCC ID: T4517109
IC: 6450A-17109

COMMERCIAL-IN-CONFIDENCE

Date: 2019-05-22
Document Number: TR-55559-55182-05 | Issue: 01

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Project Management	Alex Fink	2019-05-22	
Authorised Signatory	Matthias Stumpe	2019-05-22	

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

ENGINEERING STATEMENT
The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 15C, ISED Canada RSS-210 and ISED Canada RSS-GEN. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	Alex Fink	2019-05-22	

Laboratory Accreditation	Laboratory recognition	ISED Canada test site registration
DAkkS Reg. No. D-PL-11321-11-02	Registration No. BNetzA-CAB-16/21-15	3050A-2

EXECUTIVE SUMMARY
A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15C, ISED Canada RSS-210 and ISED Canada RSS-GEN:2016, Issue 09 (08-2016), Issue 04 (11-2014).

Trade Register Munich
HRB 85742
VAT ID No. DE129484267
Information pursuant to Section 2(1) DL-InfoV (Germany) at www.tuev-sued.com/imprint

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Germany

Product Service

Contents

Product Service

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	2019-05-22

Table 1

1.2 Introduction

Applicant	LDL Technology
Manufacturer	LDL Technology
Model Number(s)	17109
Serial Number(s)	C5A3F065
Hardware Version(s)	---
Software Version(s)	---
Number of Samples Tested	1
Test Specification/Issue/Date	FCC 47 CFR Part 15C, ISED Canada RSS-210 and ISED Canada RSS-GEN:2016, Issue 09 (08-2016), Issue 04 (11-2014)
Test Plan/Issue/Date	---
Order Number Date	CD-19170 2019-03-11
Date of Receipt of EUT	2019-04-25
Start of Test	2019-05-13
Finish of Test	2019-05-20
Name of Engineer(s)	Alex Fink
Related Document(s)	ANSI C63.10 (2013) ANSI C63.4: 2014

Product Service

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15C, ISED Canada RSS-210 and ISED Canada RSS-GEN is shown below.

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: Transmitting continuously on 433.92 MHz - Transmit-every-second test mode				
2.1	15.231 (c), A1.3 and N/A	Bandwidth Requirement	Pass	ANSI C63.10 (2013)
2.2	15.231 (e), A.1.4 and 6.13	Field Strength of Emissions	Pass	ANSI C63.10 (2013)
2.4	N/A, N/A and 6.11	Transmitter Frequency stability	Pass	---
2.3	15.205, 4.1 and 8.10	Restricted Band Edges	Pass	ANSI C63.10 (2013)
2.5	2.1091, 2.1093, N/A and 3.2	Exposure of Humans to RF Fields	Pass	ANSI C63.4: 2014

Table 2

Product Service

1.4 Product Information

1.4.1 Technical Description

Tire Pressure Monitoring System (TPMS)

For radio testing relevant information:

Value	Notes
Nominal Operating Frequency or Frequencies	433.92 MHz
Operating Channel Width(s)	100 kHz
Duty Cycle	< 10 %
Temperature range	min. - 20°C, max. + 105°C
Voltage range	min. 1.9 V DC, max. 3.6 V DC
Transmitting on 433,92 MHz; Receiving on 125 kHz	

1.5 EUT Modification Record

The table below details modifications made to the EUT during the test programme.
The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
0	As supplied by the customer, S/N: C5A3F065	Not Applicable	Not Applicable

Table 3

1.6 Test Location

TÜV SÜD Product Service conducted the following tests at our Straubing Test Laboratory.

Test Name	Name of Engineer(s)
Configuration and Mode: Transmitting continuously on 433.92 MHz - Transmit-every-second test mode	
Bandwidth Requirement	Alex Fink
Field Strength of Emissions	Alex Fink
Transmitter Frequency stability	Alex Fink
Restricted Band Edges	Alex Fink
Exposure of Humans to RF Fields	Alex Fink

Table 4

Office Address:

Äußere Frühlingstraße 45
94315 Straubing
Germany

Product Service

2 Test Details

2.1 Bandwidth Requirement

2.1.1 Specification Reference

FCC 47 CFR Part 15C, ISED Canada RSS-210 and ISED Canada RSS-GEN, Clause 15.231(c), N/A and 6.11

2.1.2 Equipment Under Test and Modification State

17109, S/N: C5A3F065 - Modification State 0

2.1.3 Date of Test

2019-05-15

2.1.4 Test Method

Test according to FCC title 47 part 15 §15.231(c) and ANSI C63.10-2013

2.1.5 Environmental Conditions

Ambient Temperature	21.0 °C
Relative Humidity	37.0 %

2.1.6 Test Results

Transmitting continuously on 433.92 MHz - Transmit-every-second test mode

Test Conditions	433.92 MHz		
	F_{Lower} (MHz)	F_{Upper} (MHz)	Occupied Bandwidth (kHz)
20 dB Bandwidth	433.892	433.948	56
99 % Bandwidth	433.893	433.947	54

Table 5

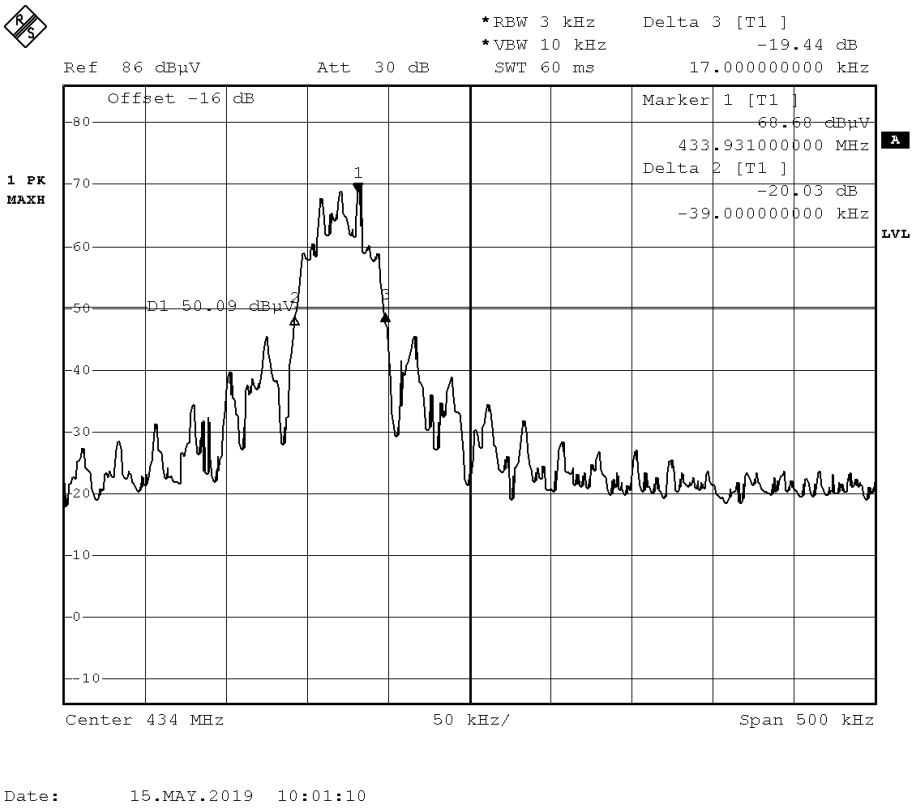


Figure 1: 20 dB Occupied Bandwidth

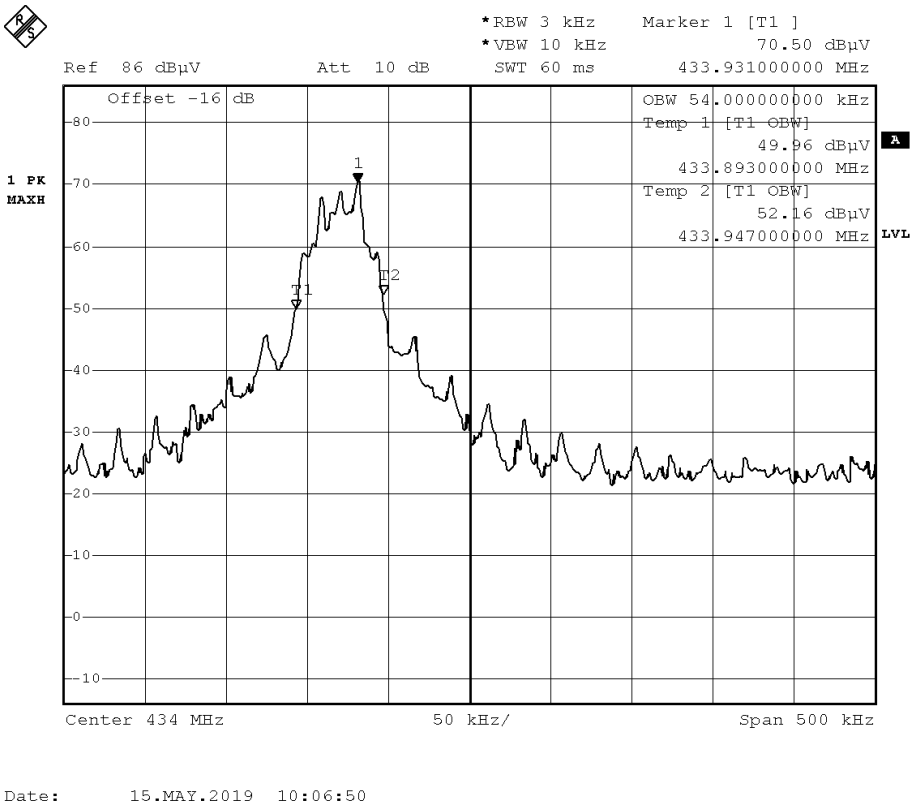


Figure 2: 99% Occupied Bandwidth

FCC 47 CFR Part 15, Limit Clause 15.231(c) and ISED Canada RSS-210, Clause A.1.3

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz.

2.1.7 Test Location and Test Equipment Used

This test was carried out in Fully anechoic room - cabin no. 2.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
ULTRALOG Antenna	Rohde & Schwarz	HL562E	38401	36	2021-05-31
Spectrum Analyzer	Rohde & Schwarz	FSP30	19533	18	2020-08-31

Table 6

TU - Traceability Unscheduled
O/P Mon – Output Monitored using calibrated equipment
N/A - Not Applicable

Product Service

2.2 Field Strength of Emissions

2.2.1 Specification Reference

FCC 47 CFR Part 15C, ISED Canada RSS-210 and ISED Canada RSS-GEN, Clause 15.231(b), 4.3 and 6.13

2.2.2 Equipment Under Test and Modification State

17109, S/N: C5A3F065 - Modification State 0

2.2.3 Date of Test

2019-05-13

2.2.4 Test Method

This test was performed in accordance with ANSI C63.10, clause 6.3, 6.4 and 6.5. and ISED Canada RSS-Gen clause 6.13.
Measurements were made at a distance of 3 m. The limit lines shown on the plot were extrapolated from either 300 m or 30 m to the measurement distance of 3 m in accordance with ANSI C63.10 Clause 6.4.4.2.
For any emissions detected within 20 dB of the limit, a final measurement was made and recorded in the table below. The detector used for these measurements was a quasi-peak detector except for emissions within the bands 9 kHz to 90 kHz and 110 kHz to 490 kHz where a CISPR average detector was used.

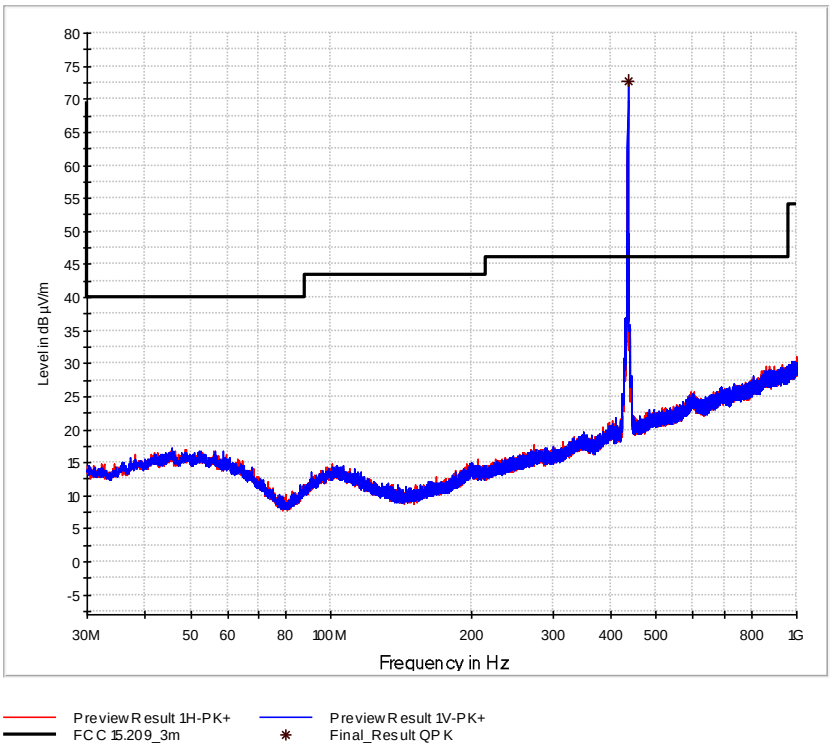
2.2.5 Environmental Conditions

Ambient Temperature	22.0 °C
Relative Humidity	25.0 %

Product Service

2.2.6 Test Results

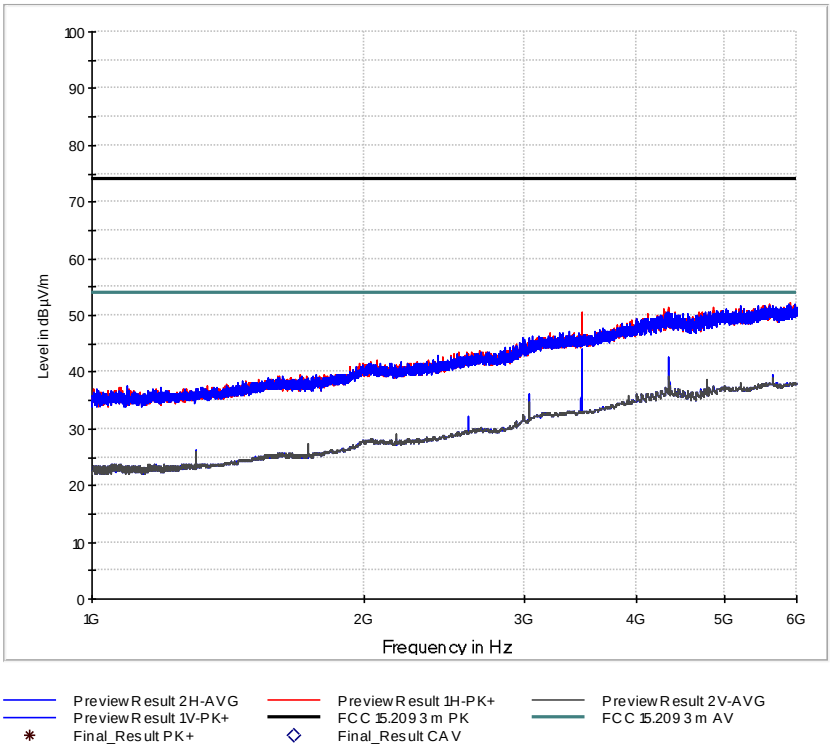
Transmitting continuously on 433.92 MHz - Transmit-every-second test mode



Final Results:

Frequency MHz	*QuasiPeak dBµV/m*	*Limit dBµV/m*	*Margin dB*	*Meas. Time ms*	*Bandwidth kHz*	*Height cm*	*Pol*	*Azimuth deg*	*Corr. dB*
433.920000	72.64	#1	#1	1000.0	120.000	114.0	V	132.0	18.4

Note: 1. Intentional radiation


100
90
80
70
60
50
40
30
20
10
0
Level in dBµV/m
1G
2G
3G
4G
5G
6G
Frequency in Hz
Preview Result 2H-AVG
Preview Result 1V-PK+
Final_Result PK+
Preview Result 1H-PK+
FCC 15.209 3 m PK
Final_Result CAV
Preview Result 2V-AVG
FCC 15.209 3 m AV

FCC 47 CFR Part 15, Limit Clause 15.209

Frequency (MHz)	Field Strength (µV/m)	Measurement Distance (m)
0.009 to 0.490	2400/F (kHz)	300
0.490 to 1.705	24000/F (kHz)	30
1.705 to 30	30	30
30 to 88	100**	3
88 to 216	150**	3
216 to 960	200**	3
Above 960	500	3

Table 7 - FCC Limit

NOTE: The level of any unwanted emissions from an intentional radiator operating under these general provisions shall not exceed the level of the fundamental emission.

ISED Canada RSS-210, Limit Clause 4.4

Under no circumstance shall the level of any unwanted emissions exceed the level of the fundamental emissions.

ISED Canada RSS-Gen, Limit Clause 8.9

Frequency (MHz)	Field Strength (µV/m)	Measurement Distance (m)
0.009 to 0.490	2400/F (kHz)	300
0.490 to 1.705	24000/F (kHz)	30
1705 to 30	30	30

Table 8 - IC Limit, Below 30 MHz

Frequency (MHz)	Field Strength (µV/m at 3 metres)
30 to 88	100
88 to 216	150
216 to 960	200
Above 960	500

Table 9 - IC Limit, Above 30 MHz

Product Service

2.2.7 Test Location and Test Equipment Used

This test was carried out in Semi anechoic room - cabin no. 8.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Double ridged horn antenna	Rohde & Schwarz	HF907	19933	24	2019-06-30
TRILOG Antenna	Schwarzbeck	VULB 9163	19691	24	2020-12-31
EMI test receiver	Rohde & Schwarz	ESW26	28268	12	2019-05-31
EMC measurement software	Rohde & Schwarz	EMC32-ME+	19719	N/A	N/A

Table 10

TU - Traceability Unscheduled
O/P Mon – Output Monitored using calibrated equipment
N/A - Not Applicable

Product Service

2.3 Transmitter Frequency stability

2.3.1 Specification Reference

RSS-Gen, Issue 5, April 2018 (General Requirements for Compliance of Radio Apparatus)

2.3.2 Equipment Under Test and Modification State

17109, S/N: C5A3F065 - Modification State 0

2.3.3 Date of Test

2019-05-20

2.3.4 Test Method

RSS-Gen, Issue 5, April 2018, chapter 6.11.

2.3.5 Environmental Conditions

Ambient Temperature 21.0 °C
Relative Humidity 49.0 %

2.3.6 Test Results

Temperature (°C)	Voltage (V)	Tested Centre Frequency (MHz)	Frequency Error (kHz)
+ 20.0	3.0	433.9221330	+ 2.1330
+ 20.0	1.9	433.9221330	+ 2.1330
+ 20.0	3.6	433.9221330	+ 2.1330
- 20.0	3.0	433.9220490	+ 0.0490
+ 105.0	3.0	433.9217060	+ 1.7060

Note: - Measured Frequency Error does not affect any band edge requirements.
- Measurement was performed with modulated transmitter signal

Product Service

2.3.7 Test Location and Test Equipment Used

Conducted test was carried out in Non-shielded room with Test system TS8997.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Spectrum Analyzer	Rohde&Schwarz	FSV40	20219	12	2020-01-31
Vector Signal Generator	Rohde&Schwarz	SMBV100A	20238	24	2019-10-31
Signal Generator	Rohde&Schwarz	SMB100A	20215	36	2021-03-31
Switching Device	Rohde&Schwarz	OSP120 I	20248	24	2020-01-31
Switching Device	Rohde&Schwarz	OSP120 II	38807	24	2020-09-30
Radio Communication Tester	Rohde&Schwarz	CMW500	38845	12	2019-09-30
EMC Measurement Software	Rohde&Schwarz	EMC32	19719	---	---

Table 11

TU - Traceability Unscheduled
O/P Mon – Output Monitored using calibrated equipment
N/A - Not Applicable

Product Service

2.4 Restricted Band Edges

2.4.1 Specification Reference

FCC 47 CFR Part 15C, ISED Canada RSS-210 and ISED Canada RSS-GEN, Clause 15.205, 4.1 and 8.10

2.4.2 Equipment Under Test and Modification State

17109, S/N: C5A3F065 - Modification State 0

2.4.3 Date of Test

2019-05-13

2.4.4 Test Method

This test was performed in accordance with ANSI C63.10, clause 11.13.1.

Plots for average measurements were taken in accordance with ANSI C63.10 clause 4.1.4.2.3.

Final average measurements were taken in accordance with ANSI C63.10 clause 4.1.4.2.2.

2.4.5 Environmental Conditions

Ambient Temperature	22.0 °C
Relative Humidity	25.0 %

2.4.6 Test Results

See chapter 2.2 for results.

FCC 47 CFR Part 15, Limit Clause 15.205

	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

Table 12

ISED Canada RSS-GEN, Limit Clause 8.9

Frequency (MHz)	Field Strength (µV/m at 3 metres)
30-88	100
88-216	150
216-960	200
Above 960*	500

Table 13

*Unless otherwise specified, for all frequencies greater than 1 GHz, the radiated emission limits for licence-exempt radio apparatus stated in applicable RSSs (including RSS-Gen) are based on measurements using a linear average detector function having a minimum resolution bandwidth of 1 MHz. If an average limit is specified for the EUT, then the peak emission shall also be measured with instrumentation properly adjusted for such factors as pulse desensitization to ensure the peak emission is less than 20 dB above the average limit.

2.4.7 Test Location and Test Equipment Used

This test was carried out in Semi anechoic room - cabin no. 8.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Double ridged horn antenna	Rohde & Schwarz	HF907	19933	24	2019-06-30
TRILOG Antenna	Schwarzbeck	VULB 9163	19691	24	2020-12-31
EMI test receiver	Rohde & Schwarz	ESW26	28268	12	2019-05-31
EMC measurement software	Rohde & Schwarz	EMC32-ME+	19719	N/A	N/A

Table 14

TU - Traceability Unscheduled
O/P Mon – Output Monitored using calibrated equipment
N/A - Not Applicable

Product Service

2.5 Exposure of Humans to RF Fields

2.5.1 Specification Reference

IC RSS-GEN Issue 4, section 3.2 and
IC RSS-102, Issue 5, section 2.5
KDB 447498 D01 General RF Exposure Guidance v06, chapter 4.3.1

2.5.2 Guide

IC RSS-102 Issue 5, section 2.5

2.5.3 Equipment Under Test and Modification State

17109, S/N: C5A3F065 - Modification State 0

2.5.4 Date of Test

2019-05-13

2.5.5 Test Results

Exposure of Humans to RF Fields	Applicable	Declared by applicant	Measured	Exemption
The antenna is				
☐ detachable				
The conducted output power (CP in watts) is measured at the antenna connector: CP = ... **W**			☐	
The effective isotropic radiated power (EIRP in watts) is calculated using				
☐ the numerical antenna gain: G = ... $EIRP = G \cdot CP \Rightarrow EIRP$ = ... **W**		☐		
☐ the field strength[1] in V/m: FS = ... **V/m** $EIRP = \frac{(FS \cdot D)^2}{30} \Rightarrow EIRP$ = ... **W**			☐	
with: Distance between the antennas in m: D = ... **m**			☐	
☒ not detachable				

[1] The conversion formula is valid only for properly matched antennas. In other cases the transmitter output power may have to be measured by a terminated measurement when applying the exemption clauses.
If an open area test site is used for field strength measurement, the effect due to the metal ground reflecting plane should be subtracted from the maximum field strength value in order to reference it to free space, before calculating TP.

Product Service

A field strength measurement is used to determine the effective isotropic radiated power (EIRP in watts) given by: $EIRP = \frac{(FS \cdot D)^2}{30} \Rightarrow EIRP$ = **5.510 µW** with: Field strength in V/m: FS = **72.64 dBµV/m = 4.29 mV/m** Distance between the two antennas in m: D = **3**			☒ ☒	
Selection of output power				
The output power TP is the higher of the conducted or effective isotropic radiated power (e.i.r.p.): TP = **5.510 µW**				

Exposure of Humans to RF Fields (continued)		Applicable	Declared by applicant	Measured	Exemption
Separation distance between the user and the transmitting device is					
☒ less than or equal to 20 cm	☐ greater than 20 cm		☒		
Transmitting device is					
☐ in the vicinity of the human head	☐ body-worn		☐		

Product Service

SAR evaluation

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in the table.

For controlled use devices where the 8 W/kg for 1 gram of tissue applies, the exemption limits for routine evaluation in the table are multiplied by a factor of 5. For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in the table are multiplied by a factor of 2.5. If the operating frequency of the device is between two frequencies located in the table, linear interpolation shall be applied for the applicable separation distance. For test separation distance less than 5 mm, the exemption limits for a separation distance of 5 mm can be applied to determine if a routine evaluation is required.

For medical implants devices, the exemption limit for routine evaluation is set at 1 mW. The output power of a medical implants device is defined as the higher of the conducted or e.i.r.p to determine whether the device is exempt from the SAR evaluation.

Frequency (MHz)	Exemption limits (mW)[2] at separation distance of									
	≤5 mm	10 mm	15 mm	20 mm	25 mm	30 mm	35 mm	40 mm	45 mm	≥50 mm
≤300 [3]	71	101	132	162	193	223	254	284	315	345
450	52	70	88	106	123	141	159	177	195	213
835	17	30	42	55	67	80	92	105	117	130
1900	7	10	18	34	60	99	153	225	316	431
2450	4	7	15	30	52	83	123	173	235	309
3500	2	6	16	32	55	86	124	170	225	290
5800	1	6	15	27	41	56	71	85	97	106

Carrier frequency:	f	=	**433.92 MHz**
Distance:	d	=	**5 mm**
Transmitter output power:	TP	=	**5.510 µW**
Limit:	TP_{limit}	=	**71 mW**

☐ SAR evaluation is documented in test report no. …

[2] The exemption limit in the table are based on measurements and simulations on half-wave dipole antennas at separaton distances of 5 mm to 25 mm from a flat phantom, providing a SAR value of approximately 0.4 W/kg for 1 g of tissue. For low frequencies (300 MHz to 835 MHz), the exemption limits are derived from alinear fit. For high frequencies (1900 MHz and above), the exemption limits are derived from athird order polynomial fit.

[3] Transmitters operating between 3 kHz and 10 MHz, meeting the exemption from routine SAR evaluation, shall demonstrate compliance to the instantaneous limits in IC RSS-102, issue 5, section 4.

Product Service

Rules and specifications:	KDB 447498 D1 V06, section 4.3.1
Guide:	47 CFR Sections 2.1091 and 2.1093

Exposure of Humans to RF Fields	Applicable	Declared by applicant	Measured	Exemption
The antenna is				
☐ detachable				
The conducted output power (CP in watts) is measured at the antenna connector: CP = **..... W**			☐	
The effective isotropic radiated power (EIRP in watts) is calculated using				
☐ the numerical antenna gain: G = **.....** $EIRP = G \cdot CP \Rightarrow EIRP$ = **..... W**		☐		
☐ the field strength[4] in V/m: FS = **..... V/m**			☐	
$EIRP = \frac{(FS \cdot D)^2}{30} \Rightarrow EIRP$ = **..... W**				
with:				
Distance between the antennas in m: D = **..... m**			☐	
☒ not detachable				
A field strength measurement is used to determine the effective isotropic radiated power (EIRP in watts) given by1:				
$EIRP = \frac{(FS \cdot D)^2}{30} \Rightarrow EIRP$ = **5.510 µW**				
with:				
Field strength in V/m: FS = **72.64 dBµV/m** = **0.0042855**			☒	
Distance between the two antennas in m: D = **3 m**			☒	
Selection of output power				
The output power TP is the higher of the conducted or effective isotropic radiated power (e.i.r.p.):				
TP = **5.510 µW**				

General standalone SAR evaluation				
Unless specified otherwise, standalone 1 g head or body and 10 g extremity SAR evaluation for general population exposure conditions is not required when the corresponding *SAR Test Exclusion Thres*hold condition(s) is (are) satisfied:				

[4] The conversion formula is valid only for properly matched antennas. In other cases the transmitter output power may have to be measured by a terminated measurement when applying the exemption clauses.
If an open area test site is used for field strength measurement, the effect due to the metal ground reflecting plane should be subtracted from the maximum field strength value in order to reference it to free space, before calculating TP.

Product Service

☒	a) For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1 g and 10 g SAR test exclusion thresholds are determined by the following: $\frac{\max power\ of\ channel,incl.tune-up\ tolerance\ [mW]}{min.test\ separation\ distance\ [mm]} \times \sqrt{f\ [GHz]} \leq 3.0$ for 1 g SAR and ≤ 7.5 for 10 g SAR.			☒			
☐	b) For 100 MHz to 6 GHz and test separation distances > 50 mm, the 1 g and 10 g SAR test exclusion thresholds are determined by the following:						
	☐	For 100 MHz to 1500 MHz: $\left((Powerallowed\ at\ numeric\ threshold\ for\ 50\ mm) + (test\ separation\ distance - 50\ mm) \times \left(\frac{f[MHz]}{150}\right)\right)[mW]$		☐			
	☐	For 1500 MHz to 6 GHz: $\left((Powerallowed\ at\ numeric\ threshold\ for\ 50\ mm) + (test\ separation\ distance - 50\ mm) \times 10\right)[mW]$		☐			
☐	c) For frequencies below 100 MHz						
	☐	1) For test separation distances > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by $1 + \log(100/f[MHz])$		☐			
	☐	2) For test separation distances ≤ 50 mm, the power threshold determined by the equation in c)1) for 50 mm and 100 MHz is multiplied by ½.		☐			
	☐	3)		☐			
	Carrier frequency:	*f*	= **433.92 MHz = 0.43392 GHz**			☒	
	Distance:	*d*	= **5 mm**		☒		
	Transmitter output power:	*TP*	= **0.00551 mW**			☒	
		STET	= **(0.00551 [mW] / 5 [mm]) √(0.43392 [GHz])**				
			= **0.000478**				
	Limit:	$STET_{limit}$	= **3.0**				☒
☐	SAR evaluation is documented in test report no.						

2.5.6 Test Location and Test Equipment Used

This test was carried out in Semi anechoic room - cabin no. 8.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Double ridged horn antenna	Rohde & Schwarz	HF907	19933	24	2019-06-30
TRILOG Antenna	Schwarzbeck	VULB 9163	19691	24	2020-12-31
EMI test receiver	Rohde & Schwarz	ESW26	28268	12	2019-05-31
EMC measurement software	Rohde & Schwarz	EMC32-ME+	19719	N/A	N/A

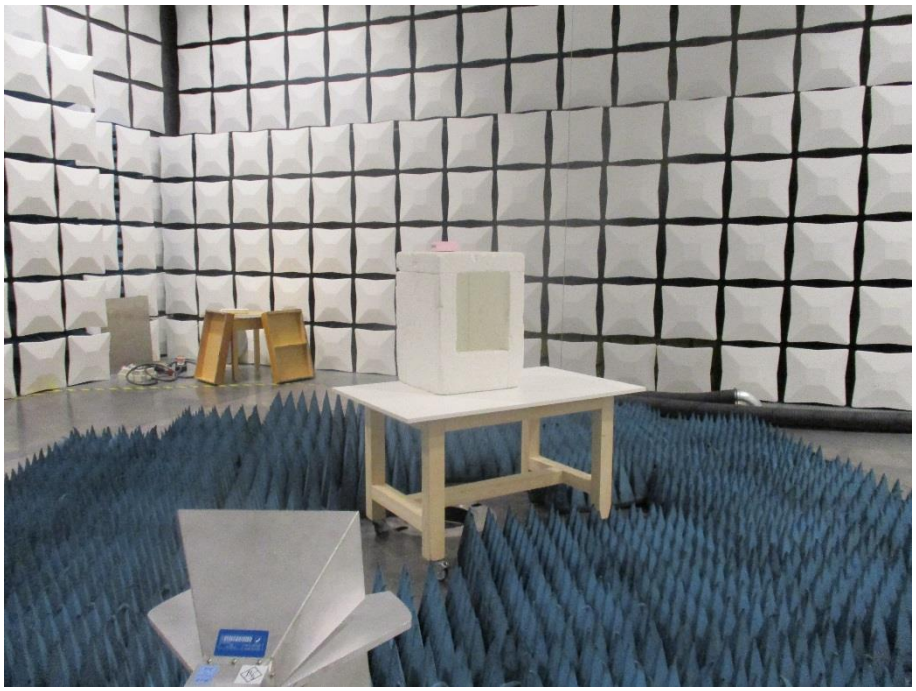
Table 15

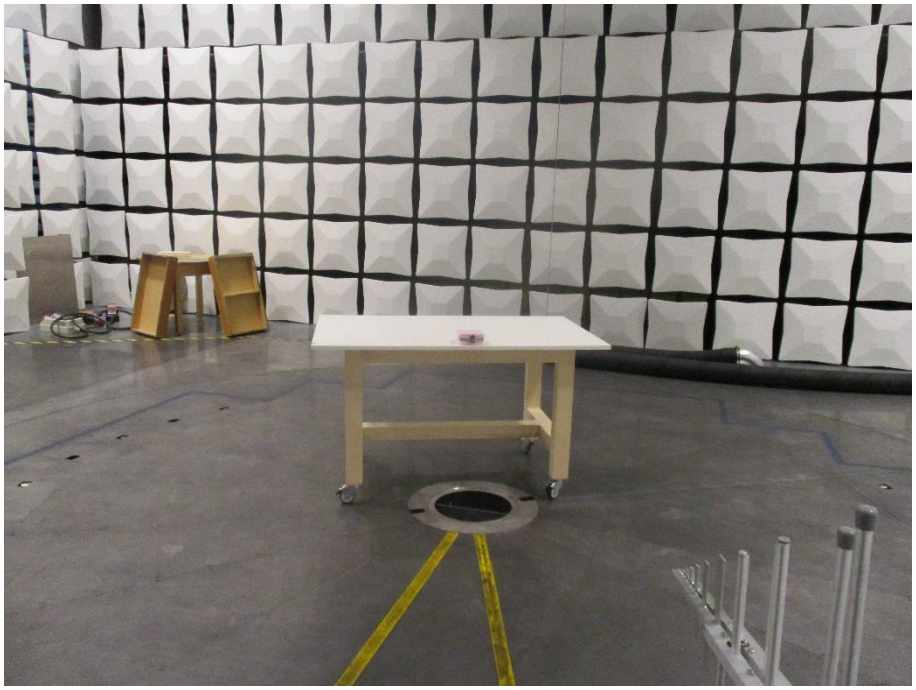
Product Service

3 Photographs

3.1 Equipment Under Test (EUT)

Product Service





Product Service

4 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Radio Testing			
Test Name	kp	Expanded Uncertainty	Note
Occupied Bandwidth	2.0	±1.14 %	2
RF-Frequency error	1.96	±1 · 10-7	7
RF-Power, conducted carrier	2	±0.079 dB	2
RF-Power uncertainty for given BER	1.96	+0.94 dB / -1.05	7
RF power, conducted, spurious emissions	1.96	+1.4 dB / -1.6 dB	7
RF power, radiated			
25 MHz – 4 GHz	1.96	+3.6 dB / -5.2 dB	8
1 GHz – 18 GHz	1.96	+3.8 dB / -5.6 dB	8
18 GHz – 26.5 GHz	1.96	+3.4 dB / -4.5 dB	8
40 GHz – 170 GHz	1.96	+4.2 dB / -7.1 dB	8
Spectral Power Density, conducted	2.0	±0.53 dB	2
Maximum frequency deviation			
300 Hz – 6 kHz	2	±2,89 %	2
6 kHz – 25 kHz	2	±0.2 dB	2
Maximum frequency deviation for FM	2	±2,89 %	2
Adjacent channel power 25 MHz – 1 GHz	2	±2.31 %	2
Temperature	2	±0.39 K	4
(Relative) Humidity	2	±2.28 %	2
DC- and low frequency AC voltage			
DC voltage	2	±0.01 %	2
AC voltage up to 1 kHz	2	±1.2 %	2
Time	2	±0.6 %	2

Table 16

Product Service

Radio Interference Emission Testing			
Test Name	kp	Expanded Uncertainty	Note
Conducted Voltage Emission			
9 kHz to 150 kHz (50Ω/50µH AMN)	2	± 3.8 dB	1
150 kHz to 30 MHz (50Ω/50µH AMN)	2	± 3.4 dB	1
100 kHz to 200 MHz (50Ω/5µH AMN)	2	± 3.6 dB	1
Discontinuous Conducted Emission			
9 kHz to 150 kHz (50Ω/50µH AMN)	2	± 3.8 dB	1
150 kHz to 30 MHz (50Ω/50µH AMN)	2	± 3.4 dB	1
Conducted Current Emission			
9 kHz to 200 MHz	2	± 3.5 dB	1
Magnetic Fieldstrength			
9 kHz to 30 MHz (with loop antenna)	2	± 3.9 dB	1
9 kHz to 30 MHz (large-loop antenna 2 m)	2	± 3.5 dB	1
Radiated Emission			
Test distance 1 m (ALSE)			
9 kHz to 150 kHz	2	± 4.6 dB	1
150 kHz to 30 MHz	2	± 4.1 dB	1
30 MHz to 200 MHz	2	± 5.2 dB	1
200 MHz to 2 GHz	2	± 4.4 dB	1
2 GHz to 3 GHz	2	± 4.6 dB	1
Test distance 3 m			
30 MHz to 300 MHz	2	± 4.9 dB	1
300 MHz to 1 GHz	2	± 5.0 dB	1
1 GHz to 6 GHz	2	± 4.6 dB	1
Test distance 10 m			
30 MHz to 300 MHz	2	± 4.9 dB	1
300 MHz to 1 GHz	2	± 4.9 dB	1
Radio Interference Power			
30 MHz to 300 MHz	2	± 3.5 dB	1
Harmonic Current Emissions			4
Voltage Changes, Voltage Fluctuations and Flicker			4

Table 17

Immunity Testing			
Test Name	kp	Expanded Uncertainty	Note
Electrostatic Discharges			4
Radiated RF-Field			
Pre-calibrated field level	2	+32.2 / -24.3 %	5
Dynamic feedback field level	2.05	+21.2 / -17.5 %	3
Electrical Fast Transients (EFT) / Bursts			4
Surges			4
Conducted Disturbances, induced by RF-Fields			
via CDN	2	+15.1 / -13.1 %	6
via EM clamp	2	+42.6 / -29.9 %	6
via current clamp	2	+43.9 / -30.5 %	6
Power Frequency Magnetic Field	2	+20.7 / -17.1 %	2
Pulse Magnetic Field			4
Voltage Dips, Short Interruptions and Voltage Variations			4
Oscillatory Waves			4
Conducted Low Frequency Disturbances			
Voltage setting	2	± 0.9 %	2
Frequency setting	2	± 0.1 %	2
Electrical Transient Transmission in Road Vehicles			4

Table 18

Note 1:
The expanded uncertainty reported according to CISPR 16-4-2:2003-11 is based on a standard uncertainty multiplied by a coverage factor of kp = 2, providing a level of confidence of p = 95.45%
Note 2:
The expanded uncertainty reported according to UKAS Lab 34 (Edition 1, 2002-08) is based on a standard uncertainty multiplied by a coverage factor of kp = 2, providing a level of confidence of p = 95.45%
Note 3:
The expanded uncertainty reported according to UKAS Lab 34 (Edition 1, 2002-08) is based on a standard uncertainty multiplied by a coverage factor of kp = 2.05, providing a level of confidence of p = 95.45%
Note 4:
It has been demonstrated that the used test equipment meets the specified requirements in the standard with at least a 95%confidence.
Note 5:
The expanded uncertainty reported according to IEC 61000-4-3 is based on a standard uncertainty multiplied by a coverage factor of kp = 2, providing a level of confidence of p = 95.45%
Note 6:
The expanded uncertainty reported according to IEC 61000-4-6 is based on a standard uncertainty multiplied by a coverage factor of kp = 2, providing a level of confidence of p = 95.45%
Note 7:
The expanded uncertainty reported according ETSI TR 100 028 V1.4.1 (all parts) to is based on a standard uncertainty multiplied by a coverage factor of kp = 1.96, providing a level of confidence of p = 95.45%
Note 8:
The expanded uncertainty reported according to ETSI TR 102 273 V1.2.1 (all parts) is based on a standard uncertainty multiplied by a coverage factor of kp = 1.96, providing a level of confidence of p = 95.45%