



FCC LISTED, REGISTRATION
 NUMBER: 2764.01

ISED LISTED REGISTRATION
 NUMBER: 23595-1

Test report No:
3128ERM.005A1

Test report

FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-20 Edition) & ICES-003 ISSUE 7 – October (2020)

(*) Identification of item tested	LCD display unit for Rearseat entertainment
(*) Trademark	Innolux
(*) Model and /or type reference tested	Padi 31.3
Other identification of the product	FCC ID: 2AQPW-DD313BZ-01C ISED ID: 27960-DD313BZ01C
(*) Features	Bluetooth Classic
Manufacturer	CARUX TECHNOLOGY INC. No. 12, Building B, Nanke 8 th Road, Shanhua District, Tainan City, 74144
Test method requested, standard	FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-20 Edition) ICES-003 ISSUE 7 – October (2020)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager
Date of issue	02-18-2022
Report template No	FDT08_23 (*) "Data provided by the client"

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Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Certification at the time of performance of the test.

DEKRA Certification Inc. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Certification Inc.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Certification internal document PODT000.

	Frequency (MHz)	U(k=2)	Units
Radiated emission	30 - 1000	5.94	dB
	1000-18000	5.89	dB

Data provided by the client

Automotive Rear Seat Entertainment LCD Display mounted on the Ceiling.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples used for testing have been selected by **The Client**.

Sample S/01 is composed of the following elements:

Control N°	Description	Model	Serial N°	Date of reception
3128/107	EMC sample	Padi 31.3	0407211206	08/30/2021
3128/21	Padi power plug	-	-	08/30/2021
3128/09	AC/DC Adapter	SW3477D	-	08/30/2021

Following accessory items were used with Sample S/01 to perform testing:

Control N°	Description	Model	Serial N°	Date of reception
3128/54	Port Hub	AB-50001-1	2021010960	08/30/2021
3128/54.1	USB Dongle	Verbatim	-	08/30/2021
3128/04	Ghidorra	-	-	08/30/2021
3128/36	Cable USB type A male to Mini B	-	-	08/30/2021
3128/12	AC/DC Adapter	SW4380-C	-	08/30/2021
3128/37	Cable USB type A male to Mini B	-	-	08/30/2021
3128/110	Cable Radmoon to OABR	-	-	09/29/2021

Sample S/01 is composed of the following auxiliary elements

Control N°	Description	Model	Serial N°
Dekra 01	Laptop DELL	Latitude 5400	89J57Y2
Dekra 15	USB 3.0 to Ethernet adapter Tp-link	UE300	218A440002349
1302	Media converter	Rad moon	12813
Dekra 20	Headphone	-	-
Dekra 21	Earphone	-	-
Dekra 26	HDMI cable	-	-
Dekra 27	USB Dongle	Kingstone	-
1200	Transceiver	optoLAN-Gb	17-009456
1201	Transceiver	optoLAN-100-MAX	21-023300

1. Sample S/01 was used for the following test(s): All tests indicated in appendix A

Test sample description

Ports..... :	Port name and description		Cable				
			Specified length [m]	Attached during test	Shielded	Coupled to patient	
	USB-C		2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	HDMI		2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Headphone jacks		2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	OABR		2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Power Supply		2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Supplementary information to the ports..... :	No Data Provided						
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	<input type="checkbox"/>	AC:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	AC:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	DC: 13 Vdc					
<input type="checkbox"/>	DC:						
Rated Power	110 Watts						
Clock frequencies..... :	No Data Provided						
Other parameters	No Data Provided						
Software version	11						
Hardware version	11						
Dimensions in cm (W x H x D)	82.5 X 26 X 4.6						
Mounting position	<input type="checkbox"/>	Table top equipment					
	<input checked="" type="checkbox"/>	Wall/Ceiling mounted equipment					
	<input type="checkbox"/>	Floor standing equipment					
	<input type="checkbox"/>	Hand-held equipment					
	<input type="checkbox"/>	Other:					
Modules/parts..... :	Module/parts of test item		Type		Manufacturer		
	I430 China, 5A44AC5-01, GDD313IA0120S		China		CarUX		
	I430 ROW, 5A44AC6-01, GDD313IA0130S		ROW		CarUX		

Accessories (not part of the test item)	Description	Type	Manufacturer
	No Data Provided		
Documents as provided by the applicant	Description	File name	Issue date
	Declaration Equipment Data	FDT30_18 Declaration Equipment Data_Signed	12/16/2021

Copy of marking plate:



Identification of the client

InnoLux Europe BV
Stationsstraat 39G, 6411NK, Heerlen
Netherlands

Testing period and place

Test Location	DEKRA Certification Inc.
Date (start)	10-11-2021
Date (finish)	10-11-2021

Document history

Report number	Date	Description
3128ERM.005	01-05-2022	First release
3128ERM.005A1	02-18-2022	Second release

Modifications to the reference test report

It was introduced the following modifications in respect to the test report number 3128ERM.005 related with the same samples:

Clauses/ Sub-Clauses	Modification	Justification
Page 1: Cover	Manufacturer information	Updating requested by the customer

This modification test report cancels and replaces the test report 3128ERM.005

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the semi-anechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Remarks and comments

1. The tests have been performed by the technical personnel: Koji Nishimoto, Nasir Khan and Lourdes Valverde.

Testing verdicts

Not applicable :	N/A
Pass :	P
Fail :	F
Not measured :	N/M

Summary

Emission Test			
Report Section	Requirement – Test case	Verdict	Remark
A.1	Radiated emission test (30 MHz – 1000 MHz)	P	N/A
A.1	Radiated emission test (1 GHz – 18 GHz)	P	N/A
-	Radiated emission test (18 GHz – 40 GHz)	N/A	Refer 1
-	Conducted emission test (150 kHz to 30 MHz)	N/A	Refer 2
<p><u>Supplementary information and remarks:</u></p> <ol style="list-style-type: none"> 1) According with the requirements of FCC Rules and Regulations, title 47, Chapter I, Subchapter A, Part 15, Subpart A, §15.33 Frequency range of radiated measurements, (b) for unintentional radiators, (1) due to The Highest frequency generated or used in the device above 1000MHz, The Upper frequency of measurement range is up to 5th harmonic of the highest frequency or 40GHz, whichever is lower. 2) According with the requirements of FCC Rules and Regulations, title 47, Chapter I, Subchapter A, Part 15, Subpart B, §15.107 Conducted limits, (d) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provision for, the use of battery chargers which permit operating while charging, AC adaptors or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits. 			

List of equipment used during the test

Radiated Emission Equipment

CONTROL NUMBER	DESCRIPTION	MANUFACTURER	MODEL	LAST CALIBRATION	NEXT CALIBRATION
981	RF pre-amplifier 1-18 GHz	Bonn Elektronik	BLMA 0118-2A	2020/11	2022/11
1012	EMI Test Receiver	Rohde & Schwarz	ESR26	2019/12	2021/12
1058	Double-ridge Waveguide Horn antenna	ETS Lindgren	3115	2020/05	2023/05
1065	Biconical log Antenna	ETS Lindgren	3142E	2020/08	2023/08
1108	Ethernet SNMP Thermometer- CR Room	HW Group	HWg-STE Plain	2020/08	2022/08
1111	Ethernet SNMP Thermometer- SAC	HW Group	HWg-STE Plain	2020/08	2022/08
1179	Semi-Anechoic Chamber	Frankonia	SAC 3plus 'L'	N/A	N/A
1217	Frankonia Transparent Test Table 1	Frankonia	FFT-Square	N/A	N/A
1314	Wireless measurement software EMC 32	Rohde & Schwarz	-	N/A	N/A

Appendix A: Test results

Appendix A Content

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DESCRIPTION OF THE OPERATION MODES

The operation modes described in this paragraph represent functionalities of the sample under test.

The following operation modes of the samples were used during the test executions:

OPERATION MODE (*)	DESCRIPTION
OM#01	DUT ON. Power supply. 13 Vdc. <ul style="list-style-type: none">• Wi-Fi and BT in IDLE mode.

*Worst configuration detected

A.1. RADIATED EMISSION ELECTROMAGNETIC FIELD

LIMITS:	Product standard:	FCC CFR 47, Part 15, Subpart B (10-1-20 Edition), Secs. 15.109 & ICES-003 Issue 7 – October (2020)
	Test standard:	FCC CFR 47, Part 15, Subpart B (10-1-20 Edition), Secs. 15.109 & ICES-003 Issue 7 – October (2020); ANSI C63.4 (2014)

Limits of interference Class B

The applied limit for radiated emissions, 3 m distance, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-01-20 Edition), Secs. 15.109 & ICES-003 Issue 7 – October (2020) in the frequency range 30 MHz to 40 GHz for class B equipment.

Frequency range (MHz)	QP Limit for 3 m	
	(μ V/m)	(dB μ V/m)
30 to 88	100	40
88 to 216	150	43.5
216 to 960	200	46
Above 960	500	54

Frequency range (MHz)	AVG Limit for 3 m		PK Limit for 3 m (1)
	(μ V/m)	(dB μ V/m)	(dB μ V/m)
Above 1000	500	54	74

(1) Frequencies above 1 GHz, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test, as per §15.35(b)

TEST SETUP

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m for the frequency range 30-100 MHz (Bilog antenna) and 1-18 GHz (Double ridge horn antenna).

The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

TEST SETUP (CONT.)

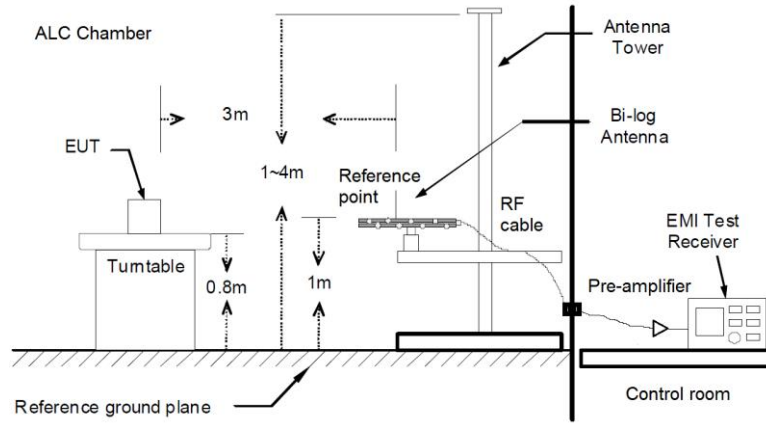


Fig A1: Generic setup for measurements from 30 to 1000MHz

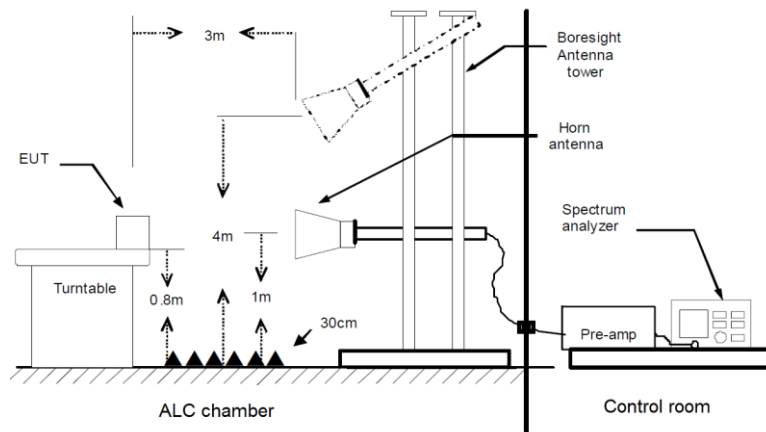


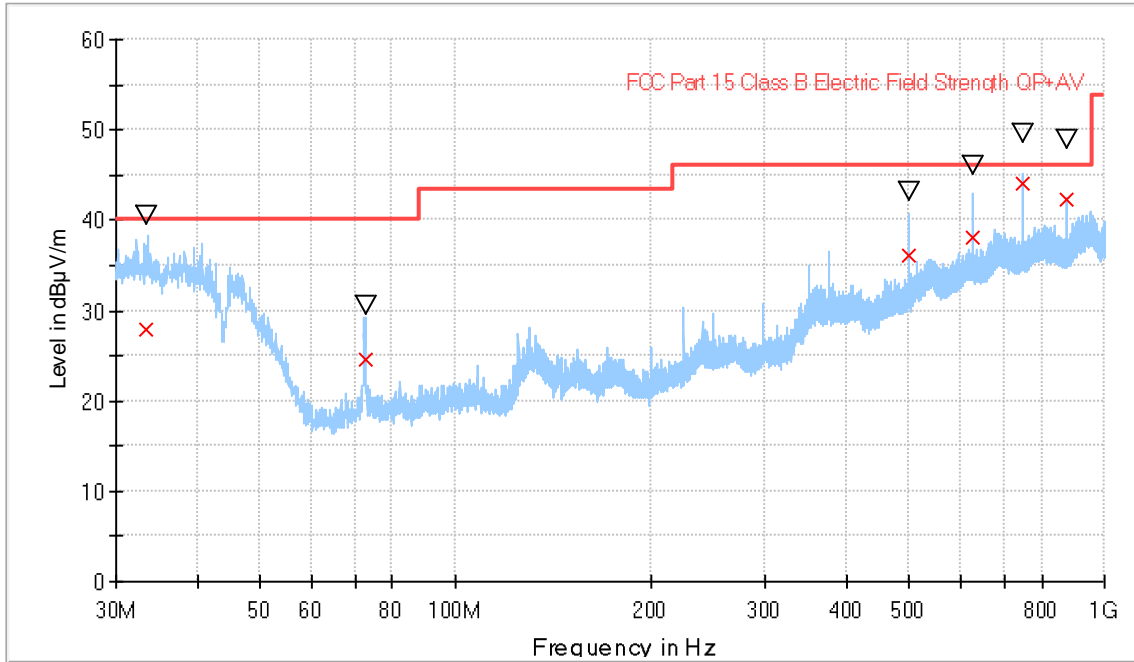
Fig A2: Generic setup for measurements from 1 to 18GHz

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	OM#01
TEST RESULTS:	CRmmnxx: CR: Radiation Condition, mm: Sample number, nn: Operation mode, xx: Frequency Range

CRmmnxx	Description	Result
CR0101LR	Range: 30 MHz - 1000 MHz Horizontal and Vertical Polarization	P
CR0101HR	Range: 1GHz - 18 GHz Horizontal and Vertical Polarization	P

TEST RESULTS (Cont.):

CR0101LR

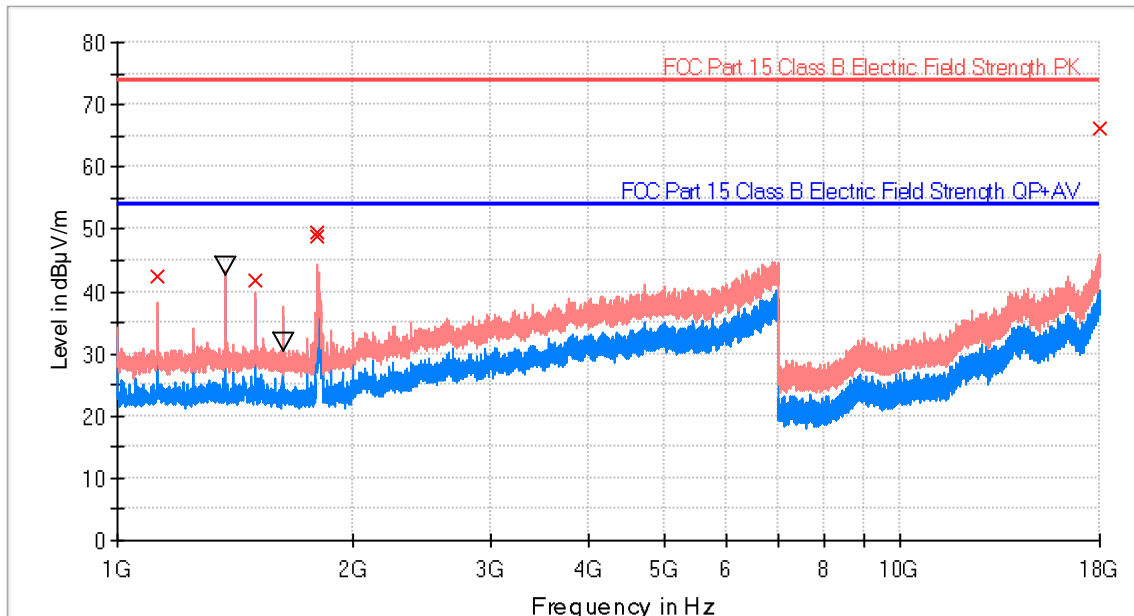


- Preview Result 1-PK+
- FCC Part 15 Class B Electric Field Strength QP+AV
- x Final_Result QPK
- ▽ Final_Result PK+

Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
33.320500	27.89	40.53	40.00	12.11	128.0	V	-124.0
72.505000	24.54	30.52	40.00	15.46	100.0	V	-146.0
500.033500	36.02	43.16	46.00	9.98	122.0	V	-118.0
625.058000	38.04	46.16	46.00	7.96	235.0	H	75.0
750.001000	44.03	49.65	46.00	1.97	117.0	H	-48.0
875.015500	42.39	48.91	46.00	3.61	100.0	H	47.0

TEST RESULTS (Cont.):

CR0101HR



- Preview Result 2-AVG
- Preview Result 1-PK+
- FCC Part 15 Class B Electric Field Strength PK
- FCC Part 15 Class B Electric Field Strength QP+AV
- x Final_Result PK+
- ▽ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
1124.900000	42.33	---	73.90	31.57	211.0	H	-48.0
1375.000000	---	43.94	53.90	9.96	145.0	V	33.0
1500.000000	41.90	---	73.90	32.00	100.0	V	-141.0
1625.100000	---	31.89	53.90	22.01	114.0	V	-6.0
1802.400000	48.96	---	73.90	24.94	100.0	V	-161.0
1803.500000	49.52	---	73.90	24.38	116.0	V	15.0
17990.500000	66.07	---	73.90	7.83	163.0	V	128.0