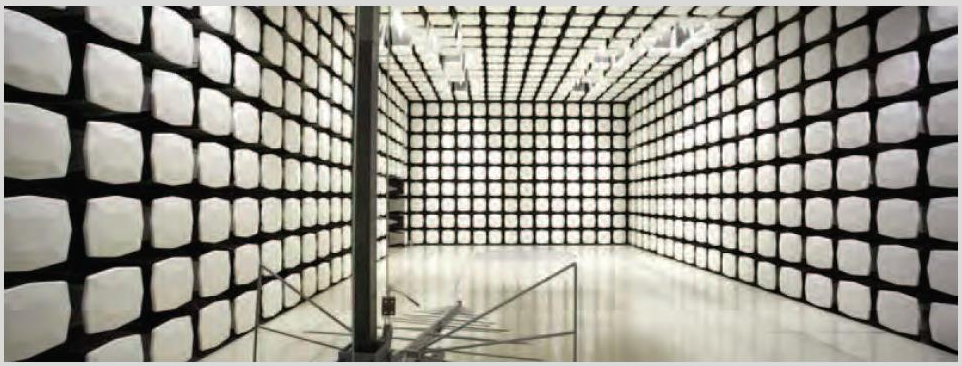
Descartes Systems (USA) LLC

PLT003

EN IEC 62311: 2020

Bluetooth Low Energy Radio

Report: DESC0001.3, Issue Date: July 11, 2022



CERT #3310.05

CERTIFICATE OF EVALUATION

Last Date of Evaluation: July 6, 2022
Descartes Systems (USA) LLC
EUT: PLT003

RF Exposure Evaluation

Standards

Specification	Method
EN IEC 62311: 2020	EN IEC 62311: 2020 EN 62479: 2010

Results

Method Clause	Description	Applied	Results	Comments
4.2	Assessment of RF Exposure for Low Power Equipment	Yes	Pass	None

Deviations From Evaluation Standards

None

Approved By:

Donald Facteau, Process Architect

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	Page Number
00	None		

ACCREDITATIONS AND AUTHORIZATIONS

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Each laboratory is accredited by A2LA to ISO / IEC 17025, and as a product certifier to ISO / IEC 17065 which allows Element to certify transmitters to FCC and IC specifications.

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

European Union

European Commission – Recognized as an EU Notified Body validated for the EMCD and RED Directives.

United Kingdom

BEIS – Recognized by the UK as an Approved Body under the UK Radio Equipment and UK EMC Regulations.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

MSIT / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFCA – Recognized by OFCA as a CAB for the acceptance of test data.

Vietnam

MIC – Recognized by MIC as a CAB for the acceptance of test data.

SCOPE

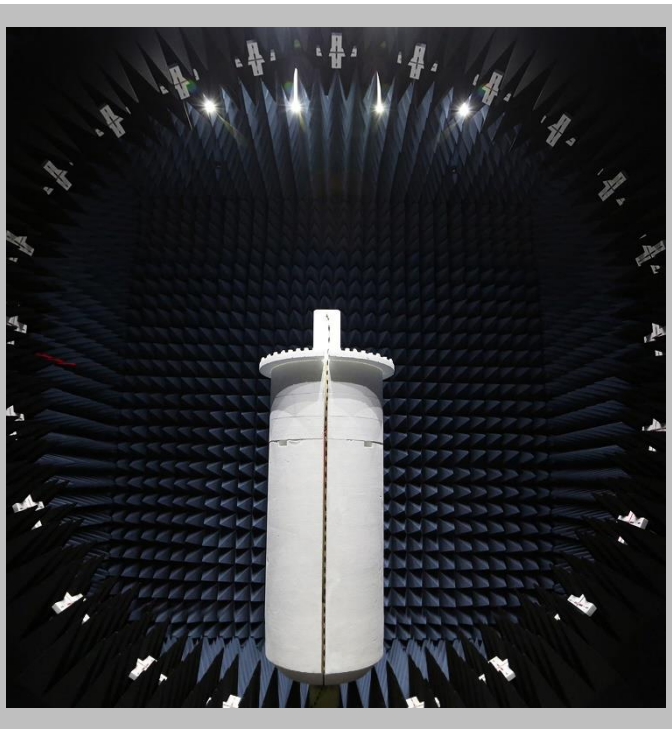
For details on the Scopes of our Accreditations, please visit:

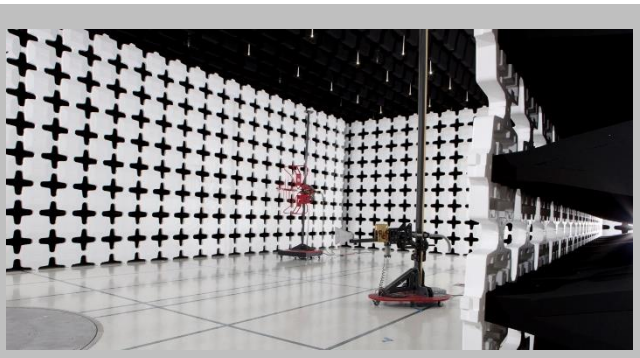
California Minnesota Oregon Texas Washington

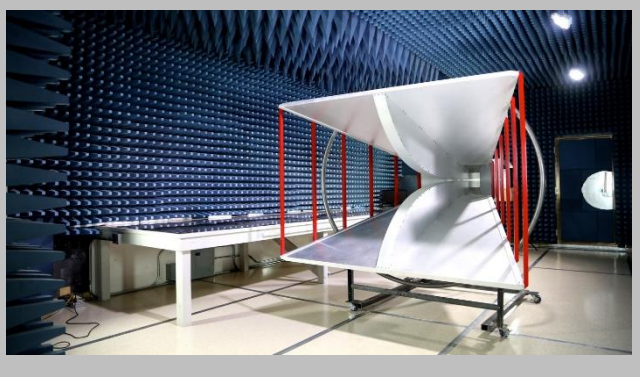
FACILITIES

element
2020.12.15

California	Minnesota	Oregon	Texas	Washington
Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-11 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 98011 (425)984-6600
A2LA				
Lab Code: 3310.04	Lab Code: 3310.05	Lab Code: 3310.02	Lab Code: 3310.03	Lab Code: 3310.06
Innovation, Science and Economic Development Canada				
2834B-1, 2834B-3	2834E-1, 2834E-3	2834D-1	2834G-1	2834F-1
BSMI				
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI				
A-0029	A-0109	A-0108	A-0201	A-0110
Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA				
US0158	US0175	US0017	US0191	US0157







PRODUCT DESCRIPTION

Client and Equipment Under Evaluation Information

Company Name:	Descartes Systems (USA) LLC
Address:	37 N Orange Ave #500
City, State, Zip:	Orlando, FL 32801
Evaluation Requested By:	Maria Vivas
EUT:	PLT003
Date of Evaluation:	July 6, 2022

Information Provided by the Party Requesting the Evaluation

Functional Description of the Equipment:

Bluetooth Low Energy (BLE) tag used to monitor movement of goods and equipment. Each tag is made up of a Nordic nRF5810 module encased in a housing. Also included are three lithium metal cell batteries.

The COREInsight BLE Beacon tag is an active BLE beacon. The COREInsight Beacon tag advertises at a consistent rate of 7 times every 60seconds. COREInsight® Readers listen for special (custom) adverts from the Beacon Tag and when it is in range (approx. 60 meters), the Reader logs these detections. The COREInsight Beacon tag is classed as an always active device but its adverts are “non-connectable”, therefore, don’t allow any “pairing” to be established with the tag. Between advertisements the Tag goes into sleep mode (neither listens nor transmits).

The device always advertises 7 times every 60 seconds. Therefore the maximum and minimum possible advertising rate is 7 times every 60 seconds (each lasting 20ms. Total 140ms/minute). 140ms / 60000ms = 0.23% duty cycle. Duty cycle information provided by Rorie McPherson.

Objective:

To demonstrate compliance with EU RF Exposure requirements.

RF EXPOSURE CONDITION

The following RF Exposure conditions were used for the assessment documented in this report:	
Intended Use	Mobile
Location on Body (if applicable)	NA
How is the Device Used	The PLT003 is used at a distance of granter than 20 cm from the user.
Radios Contained in the Same Host Device	Bluetooth Low Energy
Simultaneous Transmitting Radios	None
Body Worn Accessories	N/A
Environment	General Population/Uncontrolled Exposure

ASSESSMENT OF RF EXPOSURE FOR LOW POWER EQUIPMENT

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OVERVIEW

Council Recommendation 1999/519/EC requires the assessment of human exposure to electromagnetic fields from RF devices for the purposes of limiting the exposure to the general public.

Compliance with EN IEC 62311:2020

EN IEC 62311:2020 applies to electronic and electrical equipment for which no dedicated product- or product family standard regarding human exposure to electromagnetic fields applies. The frequency range covered is 0 Hz to 300 GHz.

The compliance criteria as stated in Section 4 of EN IEC 62311:2020,

> "In general, the basic restrictions shall be used as exposure limits for the assessment of compliance. However, in most cases reference levels are used as limits. Such reference levels for exposure to electric, magnetic and electromagnetic fields are derived from the basic restrictions using realistic worst-case assumptions about exposure. If the reference levels are met, then the basic restrictions will also be met;…"

Table 1 of EN IEC 62311: 2020 provides a simplified assessment method for low power equipment based upon maximum output power:

Assessment method	Subject of assessment		Applicability area and limitations	Applicable standard, for example
Simplified assessment (possible for particular cases)	Maximum out power (only applicable for f > 10 MHz)	SAR	Presumption of local/whole body SAR assessment by low power exclusion level	IEC 62479

Low power equipment are defined as those falling under the scope of EN 62479 (both intentional and unintentional transmitters). Annex A of EN 62479 list the low power exclusion levels for various exposure conditions. When the antenna is used greater than 20 cm from the user's head or torso, power density is the basic restriction. A conservative exclusion level is defined as:

> "When power density is the basic restriction, a conservative minimum value for P_{max} can be derived, equal to the power density limit (S) multiplied by the averaging area (a):
>
> $$P_{max} = S \cdot a \qquad (A.2)$$
>
> Example values of P_{max} according to Equation (A.2) are provided in Table A.1 .."

Table A.1 shows that for a general population exposure P_{max} = 20 mW. Therefore, compliance with the low power exclusion level of 20 mW deems a device inherently compliant.

As shown in the table below, the devices are deemed inherently compliant with all the applicable RF Exposure requirements in the EU; including the basic restriction as specified in Council Recommendation 1999/519/EC.

ASSESSMENT OF RF EXPOSURE FOR LOW POWER EQUIPMENT

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ASSESSMENT PER EN 62479:2010

Radio	Transmit Frequency (MHz)	Radiated Output Power	Duty Cycle	Minimum Separation Distance (cm)	Calculated Radiated Exposure Power (mW) EIRP	Calculated Conducted Exposure Power (mW)	Limit (mW)	Compliant
Bluetooth Low Energy	2402-2480	4 dBm EIRP	0.2%	20	0.01	0.01	20.0	Yes

The information in the table above was obtained from:

The rated value was used in these calculations. From client supplied information and Element test report # DESC0001.4.

Evaluator: Jody House

End of Test Report