

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-19366-01-03 according to DIN EN ISO/IEC 17025:2018

Valid from: 26.07.2019

Date of issue: 26.07.2019

Holder of certificate:

**E & C Testlab GmbH (Engineering & Certification Testlab GmbH)
Industriestraße 8, 78647 Trossingen**

Tests in the fields:

Electrical engineering / Environmental Tests

The testing laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use standards or equivalent testing methods listed here with different issue dates.

The testing laboratory maintains a current list of all testing procedures within the flexible scope of accreditation.

Department	Standard / date of issue In-house method/ version	Title of the Standard or the in-house method (specify any deviations / modifications of standard method)	Test item / Inspection item
Solar simulation	irradiance temperature humidity	800-1200 W/m ² - 10°C...+ 80°C 25%-80% rF	DIN EN 75220:1992-11
Climatic test	temperature humidity	- 40 ... + 130 °C 10 ... 93 % rF	DIN EN 60068-2- 30: 2006-06 DIN EN 60068-2- 38: 2010-06 DIN EN 60068-2- 78: 2014-02

This document is a translation. The definitive version is the original German annex to the accreditation certificate.

Abbreviations used: see last page

*The certificate together with its annex reflects the status at the time of the date of issue. The current status of the scope of accreditation can be found in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH.
<https://www.dakks.de/en/content/accredited-bodies-dakks>*

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Temperature tests	Temperature - cold/warm - Change of temperature - thermal shock - temperature change	- 60 ... + 140 °C - 60 ... + 140 °C - 40 ... + 120 °C +/- 15 K	DIN EN 60068-2-1: 2008-01 DIN EN 60068-2-2: 2008-05 DIN EN 60068-2-14: 2010-04
Vibration with temperature overlay	Force vektor vibration amplitude (peak-peak) rate of vibration frequency range temperature acceleration	Sinus: max. 120 kN Random: max. 120 kN Schock: max. 240 kN max. 51,0 mm max. 2,0 m/s 5 Hz...2000 Hz -40°C...+170°C 5g...100g	DIN EN 60068-2-6: 2008-10 DIN EN 60068-2-64: 2009-04
Schock test			DIN EN 60068-2-27: 2010-02
Degrees of protection provided by enclosures (IP Code)	Water test Rate of flow Dust test Foreign material	0,1 l/min...100 l/min -Arizona -Talkum	DIN EN 60529: 2014-09 ISO 20653: 2013-02-15 Dripping water IPX1,IPX2 Spray IPX3 Splash water IPX4, IPX4K Water jets IPX5, IPX6, IPX6K

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			IP5X, IP6X, IP6KX IP1X – IP6X

Standard / Issued	Title of the standard	Restrictions of the test procedures
DIN 75220:1992-11	Ageing of automotive components in solar simulation units	
DIN EN 60068-2-1: 2008-01	Environmental testing – Part 2-1: Tests – Test A: Cold (IEC 60068-2-1:2007); German version EN 60068-2-1:2007	
DIN EN 60068-2-2: 2008-05	Environmental testing – Part 2-2: Tests – Test B: Dry heat (IEC 60068-2-2:2007); German version EN 60068-2-2:2007	
DIN EN 60068-2-6: 2008-10	Environmental testing – Part 2-6: Tests - Test Fc: Vibration (sinusoidal) (IEC 60068-2-6:2007); German version EN 60068-2-6:2008	
DIN EN 60068-2-14: 2010-04	Environmental testing – Part 2-14: Tests – Test N: Change of temperature (IEC 60068-2-14:2009); German version EN 60068-2-14:2009	Without Nc

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Standard / Issued	Title of the standard	Restrictions of the test procedures
DIN EN 60068-2-27: 2010-02	Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock (IEC 60068-2-27:2008); German version EN 60068-2-27:2009	
DIN EN 60068-2-30: 2006-06	Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle) (IEC 60068-2-30:2005); German version EN 60068-2-30:2005	
DIN EN 60068-2-38: 2010-06	Environmental testing – Part 2-38: Tests – Test Z/AD: Composite temperature /humidity cyclic test (IEC 60068-2-38:2009); German version EN 60068-2-38:2009	
DIN EN 60068-2-64: 2009-04	Environmental testing – Part 2-64: Tests – Test Fh: Vibration, broadband random and guidance (IEC 60068-2-64:2008); German version EN 60068-2-64:2008	
DIN EN 60529: 2014-09	Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989 + A1:1999 + A2:2013); German version EN 60529:1991 + A1:2000 + A2:2013	Without IPX7;IPX8; IPX9
ISO 20653: 2013-02-15	Road vehicles — Degrees of protection (IP code) — Protection of electrical equipment against foreign objects, water and access	Without IPX7; IPX8; IP9K

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