International

ISO 21498-2

Electrically propelled road vehicles — Electrical specifications and tests for voltage class B systems and components —

Part 2: Electrical tests for components

Véhicules à propulsion electrique — Spécifications et essais electriques pour les systèmes et composants de classe B —

Partie 2: Composants et essais electriques

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This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 37, *Electrically propelled vehicles*.

This second edition cancels and replaces the first edition (ISO 21498-2:2021), which has been technically revised.

The main changes are as follows:

— testcase “Short circuit” has been added;

— Annex B “Testing at different temperatures” has been deleted;

— additional values have been added in Tables B.2 and B.3;

— example current limit values have been added to Table B.4;

— Annex C has been revised;

— methods for conversion from time domain to frequency domain for generated ripple have been revised and moved from main body to informative Annex D.

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The requirements for voltage class B electric circuits used for electric power transfer for the propulsion of electric road vehicles and their characteristics are significantly different to those of voltage class A electric circuits. Moreover, the range of voltage class B is too wide to be used for a component design relating to voltage.

The ISO 21498 series divides voltage class B in a set of voltage sub-classes to enable a component design for each voltage sub-class relating to voltage. It provides appropriate descriptions and definitions for requirements and characteristics of voltage class B systems for electrically propelled vehicles.

The voltage sub-class itself and the component characteristics have a large cost impact on the component design and on the overall design of the electric system. Additionally, a high variety of different voltage sub-classes and operating conditions impedes the use of an existing component in different vehicle models. Standardising voltage sub-classes and characteristics and reducing varieties cuts component and system costs. This allows the decoupling of the system or component designs of a voltage class B electric circuit from the design of the electric energy source. Finally, the exchange of components from different suppliers for different customers is facilitated.

ISO 21498-1 provides definitions of and for voltage sub-classes and characteristics for rechargeable energy storage systems (RESS) and electric propulsion systems. It defines specific values for these sub-classes based on maximum working voltage. Voltage sub-classes listed in ISO 21498-1 are used for voltage class B systems of all kinds of current or future electrically propelled road vehicles.

This document provides electrical tests for electric and electronic components at voltage class B used for electrically propelled road vehicles. All relevant characteristics are covered considering usual driving scenarios as well as deviations from normal operation. The descriptions are generalized and include purpose, setup, procedure and requirements for the tests.

The specifications in this document are not intended to restrict the development of component performance or technology. The given definition of sub-classes does not exclude the use of other maximum operating voltages for an individual system design.