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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Electric double-layer capacitors for use in hybrid electric vehicles – Test methods for electrical characteristics

Condensateurs électriques à double couche pour véhicules électriques hybrides – Méthodes d'essai des caractéristiques électriques

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ELECTRIC DOUBLE-LAYER CAPACITORS FOR USE IN HYBRID ELECTRIC VEHICLES – TEST METHODS FOR ELECTRICAL CHARACTERISTICS

FOREWORD

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International Standard IEC 62576 has been prepared by IEC technical committee 69: Electric road vehicles and electric industrial trucks.

The text of this standard is based on the following documents:

CDV	Report on voting
69/158/CDV	69/162/RVC

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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- withdrawn,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

The Electric double-layer capacitor (EDLC) is a promising energy storage system for hybrid electric vehicles (HEVs), and EDLC-installed HEVs have begun to be commercialized with an eye to improving fuel economy by recovering regenerative energy. Although a standards series (IEC 62391 series) for EDLC already exists, those for HEVs involve patterns of use, usage environment, and values of current that are quite different from those assumed in the existing standards. Standard evaluation and test methods will be useful for both the auto manufacturers and capacitor suppliers to speed up the development and lower the costs of such EDLCs. With these points in mind, this standard aims to provide basic and minimum specifications in terms of the methods for testing electrical characteristics, and to create an environment that supports expanding market of HEVs and large capacity EDLCs. Additional practical test items to be standardized should be reconsidered after technology and market stabilization of EDLCs for HEVs. In terms of endurance that is important in practical use, just basic concept is set forth in the informative annexes.

ELECTRIC DOUBLE-LAYER CAPACITORS FOR USE IN HYBRID ELECTRIC VEHICLES – TEST METHODS FOR ELECTRICAL CHARACTERISTICS

1 Scope

This standard describes the methods for testing electrical characteristics of electric double-layer capacitor cells (hereinafter referred to as capacitor) to be used for peak power assistance in hybrid electric vehicles.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*

Amendment 1(1992)

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
reference temperature
reference temperature (°C) to be used in the test

3.2
ambient temperature
ambient temperature of the surrounding space in which a capacitor is placed

3.3
upper category temperature
highest ambient temperature that a capacitor is designed to operate continuously

3.4
lower category temperature
lowest ambient temperature that a capacitor is designed to operate continuously

3.5
applied voltage
voltage (V) applied between the terminals of a capacitor

3.6
rated voltage
U_R
maximum d.c. voltage (V) that may be applied continuously for a certain time under the upper category temperature to a capacitor so that a capacitor can exhibit specified demand characteristics. This voltage is the setting voltage in capacitor design

NOTE The endurance test using the rated voltage is described in Annex A.