CSA Group

C22.2 No. 282-13

Plugs, receptacles, and couplers for electric vehicles

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NMX-J-678-ANCE-2013
First Edition

CSA Group
CSA C22.2 No. 282-13
First Edition

Underwriters Laboratories Inc.
UL 2251
Third Edition

Standard for Plugs, Receptacles, and Couplers for Electric Vehicles

February 22, 2013

ANSI/UL 2251-2013

Commitment for Amendments

This standard is issued jointly by the Association of Standardization and Certification (ANCE), the Canadian Standards Association (operating as "CSA Group"), and Underwriters Laboratories Inc. (UL). Comments or proposals for revisions on any part of the standard may be submitted to ANCE, CSA Group, or UL at any time. Revisions to this standard will be made only after processing according to the standards development procedures of ANCE, CSA Group, and UL. CSA Group and UL will issue revisions to this standard by means of a new edition or revised or additional pages bearing their date of issue. ANCE will incorporate the same revisions into a new edition of the standard bearing the same date of issue as the CSA Group and UL pages.

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This Standard is subject to periodic review, and suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquires@csagroup.org and include ″Proposal for change″ in the subject line: Standard designation (number); relevant clause, table, and/or figure number; wording of the proposed change; and rationale for the change.

This ANSI/UL Standard for Safety consists of the Third Edition.

The most recent designation of ANSI/UL 2251 as an American National Standard (ANSI) occurred on February 22, 2013. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at http://csds.ul.com.

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Preface

This is the harmonized ANCE, CSA Group, and UL Standard for Plugs, Receptacles, and Couplers for Electric Vehicles. It is the First edition of NMX-J-678-ANCE, the First edition of CSA C22.2 No. 282, and the Third edition of UL 2251.

This harmonized standard was prepared by the Association of Standardization and Certification (ANCE), CSA Group, and Underwriters Laboratories Inc. (UL). The efforts and support of the Technical Harmonization Working Group for Electric Vehicle Couplers are gratefully acknowledged.

This standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

The present Mexican Standard was reviewed and approved by the Comité de Normalización de la Asociación de Normalización y Certificación, A.C., CONANCE.

This standard was reviewed by the CSA Subcommittee on Electrical Vehicle–Safety of Plugs, Receptacles, and Couplers, under the jurisdiction of the CSA Technical Committee on Wiring Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the CSA Technical Committee.

This standard has been approved by the American National Standards Institute (ANSI) as an American National Standard.

Where reference is made to a specific number of specimens to be tested, the specified number is to be considered a minimum quantity.

Note: Although the intended primary application of this standard is stated in its scope, it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose.

Level of harmonization

This standard uses the IEC format but is not based on, nor is considered equivalent to, an IEC standard.

This standard is published as an equivalent standard for ANCE, CSA Group, and UL.

An equivalent standard is a standard that is substantially the same in technical content, except as follows: Technical national differences are allowed for codes and governmental regulations as well as those recognized as being in accordance with NAFTA Article 905, for example, because of fundamental climatic, geographical, technological, or infrastructural factors, scientific justification, or the level of protection that the country considers appropriate. Presentation is word for word except for editorial changes.

Reasons for differences from IEC

This standard provides general requirements for plugs, receptacles, and couplers for electric vehicles in accordance with the electrical installation codes of Canada, Mexico, and the United States. At present there is no IEC standard for these products for use in accordance with these codes. Therefore, this standard does not employ any IEC standard for base requirements.

Interpretations

The interpretation by the standards development organization of an identical or equivalent standard is based on the literal text to determine compliance with the standard in accordance with the procedural rules of the standards development organization. If more than one interpretation of the literal text has been identified, a revision is to be proposed as soon as possible to each of the standards development organizations to more accurately reflect the intent.

ANCE effective date

The effective date for ANCE will be announced through the Diario Oficial de la Federación (Official Gazette) and is indicated on the cover page.

CSA Group effective date

The effective date for CSA Group will be announced through *CSA Informs* or a CSA Group certification notice.

UL effective date

As of February 22, 2013, all products Listed or Recognized by UL must comply with the requirements in this Standard.

A UL effective date is one established by Underwriters Laboratories Inc. and is not part of the ANSI approved standard.

INTRODUCTION

1 Scope

1.1 These requirements cover plugs, receptacles, vehicle inlets, vehicle connectors, and breakaway couplings, rated up to 800 amperes and up to 600 volts ac or dc, intended for conductive connection systems, for use with electric vehicles. These devices are for use in either indoor or outdoor nonhazardous locations in accordance with Annex A, Ref. No. 1.

1.2 This Standard does not directly apply to the following:

a) Devices produced integrally with flexible cord or cable that are covered by Annex A, Ref. No. 2;

b) Devices solely intended for direct connection to the branch circuit in accordance with Annex A, Ref. No. 1 such as attachment plugs, cord connectors, and receptacles, which can include 3 or more pilot contacts, that are covered by Annex A, Ref. No. 3;

c) Single and multi-pole connectors, intended for connection to copper conductors, for use in data, signal, control, and power applications within and between electrical equipment, where exposed, for use in accordance with national electrical codes, that are covered by Annex A, Ref. No. 4;

d) Devices of the pin and sleeve type construction, intended to provide power from branch circuits to utilization equipment, or for direct connection of utilization equipment to the branch circuit, that are covered by Annex A, Ref. No. 5;

e) Devices intended for use in hazardous locations that are covered by Annex A, Ref. No. 6;

f) Devices consisting of wiring terminals and supporting blocks intended for the connection of wiring that are covered by Annex A, Ref. No. 7;

g) Devices such as modular jacks and plugs that are intended for use with telecommunications networks, that are covered by Annex A, Ref. Nos. 8 and 9;

h) Devices such as wire connectors and soldering lugs that are covered by Annex A, Ref. Nos. 10 – 12;

i) Devices such as quick-connect terminals that are covered by Annex A, Ref. No. 13;

j) Products such as power outlet assemblies that are covered by Annex A, Ref. No. 14;

k) Products such as switched interlocks that are covered by Annex A, Ref. No. 15.

1.3 In the text of this Standard, the term ″device″ refers to any product covered by this Standard. The letters ″EV″ refer to an electric vehicle, including plug-in hybrid vehicles, hybrid vehicles, electric vehicles, battery electric vehicles, and similar vehicles.

2 Definitions

2.1 For the purposes of this Standard, the following definitions apply.