Please ensure this form is annexed to the Report to the Standardization Management Board if it has been prepared during a meeting, or sent to the Central Office promptly after its contents have been agreed by the committee.

Title of TC

Electric road vehicles and industrial trucks

A Background

TC69 aims to prepare international standards for road vehicles, totally or partially electrically powered from self-contained power sources, including charging infrastructure for these vehicles, and for electric industrial trucks.

TC69 "Electric Road Vehicles and Industrial Trucks" was established in 1969 to prepare international standards for road vehicles, totally or partially electrically propelled from self-contained power sources, and for electric industrial trucks. TC69 was formed at a time when advancements in technology made electric automobiles a practical alternative to traditional IC vehicles that were under regulatory pressure with respect to environmental and petroleum supply concerns. Initial work was conducted by five working groups in the areas of vehicle performance measurement, motors and motor controllers, onboard electrical energy storage, power supply and chargers (infrastructure), and hybrids. Several standards and technical reports were issued during the 1980s.

During the 1990s, auto industry involvement in TC69 has contributed to the development of charging system architecture standards consistent with auto industry and national demonstration programmes in anticipation of commercialization. This activity has resulted in cooperative standards development with other IEC TC/SC’s and ISO. Informal coordination has also been established with SAE, CENELEC, CEN and JEVA.

New developments for the 21st century, with the advent of hybrid and fuel cell vehicles, create new opportunities for the continuation of the work of TC69, maintaining its published standards and preparing new documents in the areas where such is deemed useful.

B Business Environment

B.1 General

In urban traffic, due to their beneficial effect on environment, electrically propelled vehicles are an important factor for improvement of traffic and more particularly for a healthier living environment. Electrically propelled vehicles (this term encompasses battery-electric, hybrid and fuel cell vehicles) are a key element of the future personal and fleet transportation product offerings of vehicle manufacturers. Growing concern for the environment and for the security of energy supply will necessitate further development of electrically propelled vehicles, with new markets emerging in industrializing countries where energy supply issues are a strong incentive for this technology.

B.2 Market demand

In the near term, the direct customers of the TC69 standardization work will be the automotive, electrical equipment and electric utility industries. The automotive industry and component suppliers will utilize TC69 standards for vehicle hardware and system architecture for future models. The electrical equipment and utility industry will utilize TC69 standards for developing EV charging equipment and planning growth.
Furthermore, the availability of TC69 standards will facilitate regulatory processes by governments and local authorities.

B.3 Trends in technology

Auto manufacturers and national EV demonstration programmes during the past decade have proven the feasibility of electric road vehicle technology. Limited progress in battery performance and limited commercial availability of advanced batteries initially had biased the offer in battery-electric vehicles towards smaller vehicles in specific applications like urban environments where range and speed are consistent with technological capability. Recent interests in battery technology and the emergence of plug-in hybrid vehicles however have led to a new interest in the grid-recharged electric vehicle and its infrastructure.

B.4 Market trends

The electric drive train technology with its on-board components is also used in hybrid vehicles which are now penetrating the market, as well as in fuel cell vehicles which are being developed for the future. Grid connecting infrastructures are also applicable to plug-in hybrids which offer interesting opportunities and which are presenting themselves as a key step towards electrification of transport. There is a strong demand for the development of standardized infrastructures for this application.

Additionally, TC69 standardization work and general EV technology is applicable to electric industrial trucks and electrically propelled buses.

B.5 Ecological environment

Electrically propelled vehicle technology, which encompasses battery-electric, hybrid and fuel cell vehicles, has the potential for improving environmental conditions particularly in congested urban areas through allowing the deployment of zero-emission vehicles, and for enhancing energy security, through diversification of primary energy sources, improved energy efficiency and more effective environmental control techniques.

C System approach aspects

The growing interest for electric vehicles has been reflected in the participation to TC69, with new countries opting for P-status and the number of active experts growing considerably.

The ongoing liaison-cooperation with ISO TC22 SC21 is essential for the realization of efficient vehicle-related standards and needs to continue. The same applies for the collaboration with IEC TC21/SC21A, IEC SC23H and IEC SC23E on relevant matters. Furthermore, work should be coordinated with IEC TC77, CISPR and ACEC where appropriate to ensure compliance with EMC/RFI standards. In view of the development of forthcoming standards for fixed electrical installations for electric vehicles, the establishment of a liaison with TC64 and TC121B is advisable.

The collaboration with ISO TC22 SC21 will be formalized by the signature of a collaboration agreement between the two committees; for all work the most appropriate liaison mode will be pursued.

Furthermore, a coordination between principal technical committees involved in electromobility (including TC64, SC23E, SC23H, TC21, TC121B, ISO TC22 SC21 and SC3) will be sought.

As for the collaboration with IEC TC105, most of the work relevant for TC69 will be treated within the liaison with ISO TC22 SC21 since this ISO committee is now dealing with all automotive fuel cell matters.

D Objectives and strategies (3 to 5 years)

The current work plan of TC69 can be summarized as follows. Activities on vehicle performance, vehicle safety and hybrid vehicles have been transferred to ISO TC22 SC21.

WG2: Motors and motor controllers

Developed several related technical reports during the 1980s. The work programme was changed to inactive status pending review by IEC TC69/ISO TC22 SC21 Steering Group in 1996. Inactive status changed to active by Steering Group in December 1999, but activities as yet unresumed, and WG2 disbanded 2013.
WG3: On-board electrical energy storage system

All work on batteries is now being performed by JWG IEC TC69/TC21/SC21A, who has published the 62660 family of standards on Lithium battery cells, complementing the ISO 12405 series developed in liaison by ISO TC22 SC21 focusing on the battery system level.

A new standard 62576 on EDLC has been published by TC69, due for maintenance and revision in 2014.

WG4: Power supplies and chargers

Three parts of the conductive charging standard 61851 were completed and are now under revision.

The second edition of 61851-1 was published in 2010, but is now proposed for revision, in concordance with the review process of the other parts of the standard.

61851-21 will be concentrating on specific EMC and grid interaction aspects, the other vehicle-related aspects being transferred to a new ISO project 17409; for both IEC 61851-21 and ISO 17409 a Mode 5 collaboration is foreseen.

The parts 61851-23 and 61851-24 pertaining to d.c. charging are now also being drafted.

Standards on communication between vehicle and grid are being prepared in joint working group with ISO TC22 SC3 and ISO TC22 SC21, resulting in the ISO/IEC 15118 series.

Work on inductive charging standards has been started with the IEC 61980 project team. The document ISO/IEC 19363 will cover vehicle-related aspects and will be dealt with the same way as ISO/IEC17409

E Action plan

Future work programme will monitor the effectiveness of existing TC69 standards related to electrically propelled road vehicles. The suitability of the basic standard requirements (for battery-electric vehicles) to other electrically propelled vehicles such as neighbourhood electric vehicles, industrial electric vehicles, electric trucks and buses, hybrid vehicles (including plug-in hybrids) and fuel cell vehicles needs to be carefully monitored for future consideration.

Ongoing work will include the maintenance of existing publications according to the following scheme:

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<th>Review date</th>
<th>Maintenance result date</th>
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F Useful links to IEC web site

TC 69 dashboard giving access to Membership, TC/SC Officers, Scope, Liaisons, WG/MT/PT structure, Publications issued and Work and Maintenance Programmes and similar information for SCs, if any.

Name or signature of the secretary

Van den Bossche Peter