Development of Standards and Their Harmonization With International Standards as a Necessary Condition of Normative and Technical Support in Construction and Development of Intelligent Transport Systems in Russia

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Abstract

The paper discusses the Russian experience of standardization in the field of satellite navigation and intelligent transport systems for motor vehicles. Work on standardization of technical committees of the Federal Agency on Technical Regulating and Metrology in these fields is described. Directions of work on harmonization of standards with international standards of ISO and CEN are shown. Experience of the Czech Republic on standardization within CEN and ISO is described.

Keywords: satellite navigation; intelligent transport systems; standardization; harmonization of national standards

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1. Introduction

Traffic jams are one of the problems of motorization. The main way of coping with traffic jams is using intelligent transport systems (ITS). In this regard, the current stage of development of motor vehicles in any country is characterized by wide introduction of various elements of ITS [Vlasov et al. (2014)].

Carrying load and passengers by motor vehicles is widely used in international transport. In this regard, the issue of type-design practice and standardization of engineering solutions in the field of ITS design and implementation is very important [Vlasov et al. (2011)].

The paper discusses the experience of developing and harmonizing the standards in the field of ITS and satellite navigation in Russia and the Czech Republic.

2. Main text

2.1. Organization of works on standardization in the field of ITS and satellite navigation on the international level and in Russia

The process of international standardization is the most important means of ensuring compatibility of engineering and organizational solutions in the field of ITS developed in different countries. The standardization at the global level is carried out by ISO, at the European level — by CEN [Pribyl and Svitek (2003)].

The basic principle of operation of these organizations is that each country, which is a member of these organizations, has the right to make proposals for development of new standards and amendment of existing standards in accordance with the international rules.

The work in ISO and CEN is organized so that for each important direction the work is carried out by specialized technical committees. Narrower issues of each direction are addressed by created working groups.

CEN has established Technical Committee TC278 Intelligent Transport Systems, which includes 14 working groups (WG), for performance of works in the ITS field [European Committee for Standardization (el. resource)].

The field of TC278 is telematics applied in the road traffic and transport, including elements that are subject to technical harmonization for operations fulfilled by related types of transport. Developed standards are applicable to vehicles, containers, swap-bodies, and for identification of cars, communication of vehicles and road infrastructure, interface "vehicle-man-machine", traffic and parking management, collecting payments from users, management of public transport, and receiving information about users. The Czech Republic is a member of CEN [Pribyl and Svitek (2003)].

On a world-wide scale, standardization issues are examined by International Organization for Standardization (ISO), which was founded in 1947. International standards developed by ISO are voluntary.

The governing body of ISO is ISO Council, which meets twice a year to discuss important strategic and financial issues. The international standards are developed by technical committees on the basis of consensus.

The standards in the field of intelligent transportation systems are developed by Technical Committee ISO/TC 204 Intelligent Transport Systems. This Committee is responsible for the overall system aspects and infrastructure aspects of intelligent transport systems (ITS), as well as the coordination of the overall ISO work program in this field including the schedule for standards development, taking into account the work of existing international standardization bodies [ISO (el. resource)].

Works on standardization in Russia are carried out in accordance with Federal Law No. 184-FZ On Technical Regulation dated 27 December 2002 [State Duma (2002)].

The federal executive authority rendering state services and managing state property in the sphere of technical regulation and metrology is the Federal Agency for Technical Regulation and Metrology.

The bodies designed to examine and promote standards in the state standardization system of Russia, as well as to interact with organizations concerned, are technical committees.

In the ITS field, since 2012, this work is carried out by Technical Committee (TC) No. 057 Intelligent Transport Systems, comprising seven working groups. The basic organization of this Committee is Moscow Automobile and Road Construction State Technical University (MADI). Members of TC No. 057 are 11 organizations conducting vigorous activity in the ITS field in Russia and abroad.
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