

Proposal to contribute to a Special Session about In-Vehicle ITS
at the 14th ITS World Congress in Beijing 2007
(Transmitted by the representative of Japan)

MLIT Japan has been requested by ITS-Japan as one of the organizers of the ITS world congress to organize a Special Session about International Harmonization of Safety Regulation on In-Vehicle ITS at its 14th World Congress held in Beijing from 9 to 13 October, 2007. MLIT regards it appropriate to respond to this request by having the session organized by the WP.29/ITS informal Group with necessary assistance from MLIT.

According to the situation above, MLIT would like to propose WP.29 that the WP.29/ITS informal Group will contribute to the ITS World Congress Beijing 2007 through following plan.

Title of the special session

International Harmonization of Safety Regulation on In-Vehicle ITS

Time and Date (planned)

From 1:30 p.m. 12th October 2007, (1.5 hours)

Speakers and Contents (Tentative)

Mr. Kenji Wani, chairman of WP.29/ITS Informal

About activities of ITS Informal Group by the speech attached

Mr. Kaneo Hiramatsu, JARI Japan

About the report of the ITS Informal Group; ECE/TRANS/WP.29/1060

Mr. Peter Burns, Transport Canada

About activities of IHRA/ITS WG

TBD, from NDSC or CATARC, China

About China's view on WP.29, vehicle safety policy and future technologies

TBD, from industry

About Industries' view

International Harmonization of Safety Regulation on In-Vehicle ITS

By Chairman of UN/ECE/WP.29/ITS Informal Group

At Special Session of
14th World Congress on Intelligent Transport System,
Beijing 2007 October

<Introduction>

Motor vehicles have become the primary means of transportation all over the world, partly because of continuous technological innovation. In particular, enhanced safety and environmental performance have helped overcome many social issues caused by the growth in the number of vehicles as well as by various demands of users. In this regard, motor vehicles must continue to evolve, and are expected to do so. Technological innovation is thus essential for the sustainable development of the automobile society, and the role of technical regulations in this innovation cannot be ignored. This can be easily understood when we look at the roles that have been played by regulations on environmental protection, passive safety performance standard and so on.

These technical regulations need to be expanded while striving to prevent traffic accidents and protect the environment. As a forum aiming to achieve global harmonization through tremendous efforts by governments of the Contracting Parties, industries and other stakeholders, UN/ECE/WP.29 is working to respond to the rapid development of motor vehicle technologies and expansion of the global market.

The potentials and challenges of ITS technologies are expected to be effective not only in enhancing the convenience of motor vehicles but also in reducing human error, which is the main cause of traffic accidents worldwide, or in mitigating the damages also caused by human error. On the other hand, the new functions that these technologies provide to drivers may have adverse effects. What regulatory approaches should we take in this field so that regulations can be developed to deliver sustainable outcomes for society while also delivering technological innovation to the marketplace? The challenge for WP.29/ITS Informal Group is to achieve creative solutions to this task while taking global harmonization into account.

<Explanation about WP.29 as a background>

(1) Organization of WP.29 and its members

- * Organizational chart and explanation of Contracting Parties to the 1958 & the 1998 Agreements, NGO members, etc.
- * Relationship between ITS technologies-related regulations and GRs (AFS, brakes, etc.)
- * About ITS Informal Group

(2) About gtrs/ECE Regulations

- * List of ECE Regulations based on the 1958 Agreement
- * List of established gtrs and items under development based on the 1998 Agreement

<Discussion>

(1) Approaches taken by WP.29/ITS Informal Group

To date, WP.29 has contributed to the development of In-Vehicle ITS technologies by amending the existing regulations for lamps and brakes so that new technologies can be accepted or by creating new regulations. This will remain important in the future. In addition to this regulatory approach, however, strategic discussions are necessary to address new aspects of In-Vehicle ITS technologies. ITS Informal Group was established for this purpose, and for the past two years, has been discussing the following approaches and summarized the results as a report.

Firstly, with regard to In-Vehicle ITS technologies, we have actively gathered the views of industries and stakeholder organizations, as various countries are promoting the development and widespread use of such technologies. Secondly, to collaborate with research activities in this field, we have built a partnership with IHRA's ITS/WG, which is an international research group seeking regulatory harmonization in various motor vehicle-related fields. Lastly, we have exchanged opinions on driver assistance system for safety, which is a new functional element for enhancing motor vehicle safety among various functions of In-Vehicle ITS.

The report made based on these approaches is a step towards more specific actions to be taken by WP.29 in the future through further discussions while obtaining the latest input.

(2) Driver assistance technologies

ITS Informal Group has discussed driver assistance technologies as follows. The process of recognition-judgment-operation by the driver will be partially taken care of by the latest electronic and information processing technologies through: (1) obtaining

surrounding information from sensors or external information via communications, (2) processing this information and then communicating it to the driver through an appropriate Human Machine Interface (HMI) to assist the driver, or (3) assisting the driving by directly controlling the vehicle. This has great potential in preventing accidents by compensating for human error, which is the cause of many accidents.

From discussions on these functions, it has been agreed that although these systems assist the driver, the driver should be responsible for driving the vehicle, and that driver should be able to override the systems, thus stressing the responsibility of the driver. Other common understandings will be reported by Dr. Hiramatsu later.

As an example of driver assistance functions expected based on such common understanding, the Japanese government is now taking incentive measures to encourage the use of collision mitigation braking systems for heavy-duty trucks.

(3) Tasks for regulatory approaches

Although such common understanding was reached, the following tasks remain for regulatory approaches.

1) Innovative systems designed for safety enhancement may have negative as well as positive effects. For example, information presentation, which is expected to improve safety, may distract the driver. Can we develop measures to evaluate them?

2) The 1998 Agreement states that “technical regulation shall, wherever appropriate, be expressed in terms of performance instead of design characteristics.” This is because regulation by performance tests without specifying certain technical measures does not hinder potential technological development.

For this reason, in the case of passive safety regulations, for example, performance tests are formulated by using representative collision test procedures, biofidelic dummies and injury criteria, which are based on analyses of real-world accidents. Similar regulatory approaches are desirable for driver assistance systems for safety. However, the following new tasks could arise. Firstly, in general, there are many different driving conditions under which driver assistance systems for safety can be used. Secondly, it is relatively difficult to gather and analyze pre-accident information. And thirdly, if a driver assistance technology works based on HMI, then we need to determine how to quantitatively measure its performance.

Furthermore, we may have similar tasks when determining procedures for quantitatively evaluating effects for justifying the introduction of such regulations.

3) As another aspect for advanced technologies, can the reliability of electronic systems, including software, be evaluated in the same way as we evaluate vehicle structures? This is particularly important for systems that must be highly reliable, such as steering-by-wire.

In addition to the tasks just described, we must carefully treat regulatory approaches for In-Vehicle ITS technologies because those technologies are still undergoing development. We may need a new approach to discussing regulatory approaches which assumes compatibility with technological possibilities.

(4) Necessity for regulatory approach

We must also consider the necessity for regulatory approach.

1) For example, for better acceptability, common guidelines on how to give warning and present information are may be required in order to avoid confusing the driver. In the case of a warning, for example, it is given to prompt the driver to respond quickly, but it is meaningless if the driver does not understand its aim.

2) Introducing new safety-enhancing systems to the market without sufficient consideration of safety is risky. If a problem then occurs, the market may react negatively to more appropriate similar technologies in the future. In Japan, to encourage market introduction while avoiding such problems, guidelines are provided for some driver assistance technologies.

3) It is also necessary to harmonize standards, which will reduce vehicle cost and bring other benefits that promote the widespread use of such technologies. When regulations are required in the future, we should reach a common understanding at an early stage to facilitate drafting work. It is thus important to promptly discuss regulations at international forums to reach an understanding.

We need to reach a common understanding and conduct creative discussions by acknowledging that these safety systems are still under development and by being flexible without hindering technological development.

(5) Our views in the report of ITS Informal Group

To date, ITS Informal Group has summarized in its report those guidelines that are currently considered effective in preventing certain assistance systems from negatively affecting driving in cases where the driver should be responsible for the driving and where those assistance systems cannot replace the driver. Such common understanding is the first step towards introducing safety-enhancing systems to the market.

<Ending>

It is important to understand the current traffic accident-related tasks for each country. All countries wish to reduce deaths and injuries due to traffic accidents, as well as the number of accidents themselves, and this aim applies not only to vehicles but also people, infrastructure and medical services. ITS technologies are expected to be effective in these fields, but we must also consider measures other than ITS. So, we must discuss what tasks are required for vehicles by analyzing traffic accidents in each region.

If we look at the measures now being implemented in countries in Europe, North America and Japan, they tend to focus on the importance of active safety. In Japan, for example, this point is clarified in the report on vehicle safety measures submitted by the Transport Policy Council of MLIT in June 2006. The report points out that, in order to continuously reduce the number of deaths in the future, it is not sufficient just to enhance the passive safety measures whose effect has been proven in the past; rather, we should implement active safety measures.

Without going into detail, from this current status we can expect In-Vehicle ITS technologies to be introduced and related regulatory approach to be effective for such introduction.

The fact that this ITS World Congress is being held in Beijing is significant, because China represents emerging economies around the world for smooth economic development and the accompanying rapid development of its automobile society. The tasks related to safety and environmental issues being faced by other countries are also likely to be faced by these emerging economies. In fact, such emerging economies, mostly in Asia, are considering participating in WP.29. The global harmonization activities discussed at WP.29 always take these countries into account.

I would like to end this presentation by hoping that WP.29's activities introduced at today's session will help attendees understand the potential benefits of the international harmonization of safety regulatory approach on In-Vehicle ITS.