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Revision 1 - Amendment 1

Annex 16 - GUIDELINES FOR THE DESIGN AND INSTALLATION OF INFORMATION AND COMMUNICATIONS SYSTEMS IN MOTOR VEHICLES

Note: The text reproduced below was adopted by the Working Party on the Construction of Vehicles at its one-hundred-and-fifteenth session. It is based on document TRANS/WP.29/1998/28, not amended (TRANS/WP.29/638, para. 92).

Contents, Annexes, add the title of a new Annex 16, to read:

"Annex 16 - Guidelines for the design and installation of information and communications systems in motor vehicles"

Add a new Annex 16, to read:

"Annex 16

GUIDELINES FOR THE DESIGN AND INSTALLATION
OF INFORMATION AND COMMUNICATIONS SYSTEMS IN MOTOR VEHICLES

1. Developments in the sphere of guidance, information and communications technology will result in crucial contributions towards solving transport problems in the field of road traffic. The following aspects, in particular, are of far-reaching significance:

1.1. the meshing and interconnecting of modes of transport in an integrated overall transport system;

1.2. a more efficient use of the transport infrastructure of all modes of transport;

1.3. enhancing road safety and reducing environmental pollution;

1.4. traffic avoidance and shifting traffic to more environment-friendly modes of transport.

2. The relevant systems, which either exist or are in development, are designed to assist the driver in performing his function of driving his vehicle, but they also make claims on his attention. To ensure that the use of such systems does not impair road safety, it is necessary to ensure that the licensing and design of these systems comply with certain requirements.

3. Guidelines for the design and installation of information and communications systems in motor vehicles will create a common basis on which the public sector and industry can tackle the tasks they face. They can also provide orientation for systems under development. Such Guidelines can also supply a sound basis for the licensing and marketability of innovative products at the time being, not precluding, however, further development into Regulations.

4. In some spheres, further studies will have to be conducted to deepen knowledge. These guidelines reflect a framework-model.

5. Governments wishing to apply provisions for the design and installation of information and communications systems in motor vehicles more precise through further research are recommended to

consider the short- and medium-term implementation of findings from the following fields:

5.1. **Road safety** (providing safe assistance to the driver in road traffic);

5.1.1. System safety (reliability of systems, suitability for international approval and monitoring, e.g. also electromagnetic compatibility);

5.1.2. Interaction safety (design of the driver-system interface);

5.2. **Legal safety** (questions of liability and issues relating to traffic legislation).

5.3. The ongoing standardisation activities at CEN and ISO level should be also taken into account.

6. In keeping with the findings currently available, these guidelines deal primarily with the sphere of road safety, thereby also taking account of the priority that is attached to road safety. Governments wishing to apply requirements relating to in vehicle systems are recommended to base them on the following basic requirements:

6.1. All types of information and communications equipment in motor vehicles must be designed such that the driver is not forced or encouraged to use both hands simultaneously while driving to operate it, not even for brief moments.

6.2. The use of all communications and information equipment that requires the driver to look at it must be minimised while the vehicle is in motion. This means primarily that while the vehicle is in motion, functional information may be provided, i.e. information that assists the driver in his immediate task of driving his vehicle (including finding his way and planning his journey) and serves the purposes of freight and fleet management, vehicle checks, automatic registration of charges and other tasks related to driving. Information that is likely to greatly distract the driver visually (for instance TV, video, commercials) must either be switched off completely while the vehicle is in motion or may be presented only in such a way that the driver cannot see it directly.

6.3. The information system must not deactivate or interfere with existing control equipment and prescribed instruments, in particular those that are required for road safety and safety of operation and those that the driver requires to be able to drive his vehicle safely.

6.4. The proper use of information systems in motor vehicles, as well as the total or partial failure of such systems, must not impair the safe operation of the vehicle. This means that the driver must at all times be able to perform by himself his primary task of driving his vehicle.

6.5. The information system must not pose a danger to the passengers or other road users. This statement also applies to the foreseeable incorrect operation of the system by inexperienced users.

6.6. In the case of speech-based communications systems that are designed to be used by the driver while the vehicle is in motion, provision must be made for hands-free speaking and listening equipment.

7. Irrespective of a further research that has to be done it is agreed that in the development and employment of information and communications systems for road vehicles, it is recommended that account be taken of the following requirements:

7.1. The mere presence of a system, and the functions of a system, should not result in any impairment of the functions of other systems in the vehicle or of the vehicle itself.

7.2. Information systems should be easy to use.

7.3. It should be possible to switch off the output of information by the system, in order to leave it to the driver whether or not he wishes to use the system.

7.4. If the information system is designed for use by the front-seat passenger and the driver, it should be installed such that proper use by the passenger cannot have a negative effect on the driver.

7.5. Visual information and communication should not be distributed over several display media if this could result in the driver having to divide his attention in the visual sphere, which would be detrimental to safety.

7.6. The position of the information systems should be selected such that when the driver averts his eyes from the road ahead the movement of his eyes horizontally and vertically is as slight as possible, and that the systems are easy to read.

7.7. The information system should be designed such that it does not distract the driver excessively and could not potentially cause him to drive in a dangerous manner (for instance by overreacting).

7.8. In order to ensure that it is used, the information system should not require the driver to reply or respond within a specific period of time. The driver must be able to determine the speed of interaction himself or to interrupt it. Nor must the attention that

the driver requires for the primary task of driving his vehicle be diverted for any length of time.

7.9. The information provided should, whenever practicable, assist the driver in a timely manner and in line with his requirements. Thus, for instance, routine information should be provided well in advance, to enable the driver to execute the necessary manoeuvre safely.

7.10. Input by keyboard should be minimised while the vehicle is in motion or should be possible when the vehicle is stationary. Lengthy and repeated series of actions should be avoided. Controls should be limited to those that are absolutely necessary and designed such that they can largely be operated without looking (haptic aids).

7.11. In order to minimise the amount of time during which the driver has to avert his eyes and to reduce the over-stimulation of his sense of vision, it is recommended that the acoustic information channel be used.

7.12. Instructions regarding the information system, its installation and operation should be correct, adequate, simple and written in the language of the country concerned. They should be designed such that future users can also learn how to use the system (learning by using).

7.13. The operating instructions should also highlight potential dangers and system constraints, and should point out that vehicle information systems may only be used in such a way that they do not constitute a safety hazard.“

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