



EUROPEAN
COMMISSION

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COMMISSION DELEGATED REGULATION (EU) .../...

of XXX

supplementing Regulation (EU) 2019/2144 of the European Parliament and of the Council by laying down detailed rules concerning the specific test procedures and technical requirements for the type-approval of motor vehicles with regard to their intelligent speed assistance systems and for the type-approval of those systems as separate technical units and amending Annex II to that Regulation

(Text with EEA relevance)

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE DELEGATED ACT

Regulation (EU) 2019/2144 of the European Parliament and of the Council¹ mandates motor vehicles of categories M and N to be equipped with intelligent speed assistance (ISA) systems from 6 July 2022 for new vehicle types and from 7 July 2024 for all new vehicles.

There were close to 23 000 fatalities in 2019 on EU roads. Driving at excessive or inappropriate speed is a major threat to safety on the road. It is estimated that 10 to 15% of all crashes and 30% of all fatal crashes are the direct result of speeding or inappropriate speed². Technical solutions assisting drivers in reducing driving speed can have profound impact on accident outcome and reduction of injury levels.

The Intelligent Speed Assistance (ISA) is a system that prompts and encourages drivers to slow down when they are over the speed limit. The system works with the driver as an assisting function, through the accelerator control, or through other dedicated, appropriate and effective feedback, while the driver is always in full control of the driving speed of the vehicle. It is an effective safety measure because even a slightly reduced driving speed has a significant beneficial effect on accident avoidance or mitigation of the accident outcome.

The Commission is empowered to lay down detailed rules concerning the specific test procedures and technical requirements for the type-approval of motor vehicles with regard to the intelligent speed assistance systems as well as for the type-approval of those systems as separate technical units. This Commission Delegated Regulation supplements Regulation (EU) 2019/2144 by laying down the respective technical requirements and test procedures.

2. CONSULTATIONS PRIOR TO THE ADOPTION OF THE ACT

In the preparation of this act, the Commission carried out appropriate consultations with the Member States experts and stakeholders. Exchange of views on the approach proposed took place at the meetings of the Motor Vehicle Working Group held on 8 July, 8 October, 9 November (*ad hoc*) and 16 December 2020, as well as at the meeting of the Member States Expert Group on 18 January 2021.

The questions raised at the consultation process related to the effectiveness of the ISA cascaded acoustic warning function (one of the four options proposed in the draft) and its potential for annoyance to drivers in real-driving conditions; the level of the performance rate requirements for ISA systems, which can be particularly challenging with regard to the compliance of ISA systems with the implicit road signs; the status of vehicles fitted with ISA systems deployed before the adoption of Regulation (EU) 2019/2144 and not fully in compliance with the technical requirements under this Delegated Regulation.

The draft Commission Delegated Regulation addresses to the extent possible the concerns raised in the consultation and it is generally supported by the EU Member States and stakeholders.

3. LEGAL ELEMENTS OF THE DELEGATED ACT

The legal basis of this delegated act is Article 4(6) and Article 6(6) of Regulation (EU) 2019/2144 of the European Parliament and of the Council.

¹ OJ L 325, 16.12.2019, p. 1.

² https://ec.europa.eu/transport/road_safety/sites/roadsafety/files/pdf/2020-10-08-road_safety_thematic_report_speed.pdf

ISA systems have to provide feedback to the driver in case of over-speed conditions, which has to be appropriate and effective. As the current development of technology stands, there are several technical options for the feedback methodology. However, not all of them can be used in each and every motor vehicle (it depends on the engine, the propulsion type (hybrid), the gearbox, etc.). Therefore, it is provided in the draft Delegated Regulation that vehicle manufacturers can choose one of the following four feedback methodologies to base their ISA systems on:

- (1) the haptic feedback system which relies on the pedal restoring force:
 - Driver's foot will be gently pushed back in case of over-speed. It will help to reduce driving speed and can be overridden by the driver.
- (2) the speed control system which relies on engine management:
 - Automatic reduction of the propulsion power independent of the position of drive's feet on the pedal, but that can also be overridden by the driver easily.
- (3) the cascaded acoustic warning:
 - 1st step: flash an optical signal
 - 2nd step: after several seconds, if no reaction from the driver, the acoustic warning will be activated
 - If the driver ignores this combined feedback, both warnings will be timed-out.
- (4) the cascaded vibration warning
 - 1st step: flash an optical signal
 - 2nd step: after several seconds, if no reaction from the driver, pedal will vibrate
 - If the driver ignores this combined feedback, both warnings will be timed-out.

Despite the functional differences, ISA systems based on each of those four options are considered equally safe and effective.

The basic speed limit information system (SLI - visual warning only), which is a technology available in some motor vehicles today, is estimated to be 20% less effective due to missed visual alerts by drivers. For this reason it is considered not sufficiently effective or appropriate to be provided as a feedback technology alone, in this Regulation.

Acoustic warning on the other hand is shown to be very effective in terms of driver reaction, but it is deemed annoying.

Annoyance is an important element regarding the choice of technology. For this reason, the cascaded acoustic warning option combines for each over-speeding event the non-annoying, but less effective, optical signal with the acoustic warning as a back-up. To make sure the warning does not become unappreciated, its duration is kept short. Hence, it is designed in such a way to mitigate annoyance appropriately.

At this stage, there is no conclusive evidence as to which of the four proposed feedback technologies will be significantly more effective or less annoying in real-world driving conditions in the EU. All the presently available and reviewed research on effectiveness and annoyance, including on the warning sound, reflects primarily laboratory based simulation testing and not the real-world performance, as those EU ISA compliant systems will only be deployed in motor vehicles as of now.

The effectiveness and reliability of the different ISA systems have to be assessed once sufficient number of motor vehicles equipped with such systems have been placed on the

market and the relevant real-life experience is available. It is also essential that such evaluation is made as soon as possible and, if necessary, the requirements in this Commission Delegated Regulation are amended accordingly. It is provided that the Commission assess the effectiveness of the ISA systems by 31 December 2025 (which is earlier than the overall review foreseen in Article 14 of Regulation (EU) 2019/2144 by July 2027) on the basis of the information to be provided by the vehicle manufacturers and approval authorities of the EU Member States.

For the purposes of testing the real-world performance of the ISA systems, an exhaustive catalogue of signs by country is included in the Annexes to this Regulation.

The provisions of this Commission Delegated Regulation will apply from the date of application of Regulation (EU) 2019/2144.

This Commission Delegated Regulation also amends Annex II to Regulation (EU) 2019/2144 by adding a reference to the regulatory act establishing the specific requirements with regard to the intelligent speed assistance systems.

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supplementing Regulation (EU) 2019/2144 of the European Parliament and of the Council by laying down detailed rules concerning the specific test procedures and technical requirements for the type-approval of motor vehicles with regard to their intelligent speed assistance systems and for the type-approval of those systems as separate technical units and amending Annex II to that Regulation

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) 2019/2144 of the European Parliament and of the Council of 27 November 2019 on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users, amending Regulation (EU) 2018/858 of the European Parliament and of the Council and repealing Regulations (EC) No 78/2009, (EC) No 79/2009 and (EC) No 661/2009 of the European Parliament and of the Council and Commission Regulations (EC) No 631/2009, (EU) No 406/2010, (EU) No 672/2010, (EU) No 1003/2010, (EU) No 1005/2010, (EU) No 1008/2010, (EU) No 1009/2010, (EU) No 19/2011, (EU) No 109/2011, (EU) No 458/2011, (EU) No 65/2012, (EU) No 130/2012, (EU) 347/2012, (EU) No 351/2012, (EU) No 1230/2012 and (EU) 2015/166¹, and in particular Article 4(6) and Article 6(6) thereof,

Whereas:

- (1) Article 6 of Regulation (EU) 2019/2144 requires motor vehicles of categories M and N to be equipped with certain advanced vehicle systems, including intelligent speed assistance ('ISA') systems. Annex II to Regulation (EU) 2019/2144 lays down basic requirements for the type-approval of motor vehicles with regard to the ISA systems.
- (2) Detailed rules are necessary concerning the specific test procedures and technical requirements for the type-approval of motor vehicles with regard to ISA systems as well as for the type-approval of those systems as separate technical units.
- (3) In accordance with Article 3, point (3), of Regulation (EU) 2019/2144 the ISA system is a system to aid the driver in maintaining the appropriate speed for the road environment by providing dedicated and appropriate feedback. Currently there are several technical options for the feedback methodology to be used as a basis for an ISA system. However, not all of those options can be used in each motor vehicle. It is therefore, necessary to specify feedback methodologies that are equally safe and effective despite their functional differences. It is appropriate to specify several feedback methodologies and allow the manufacturers to choose any of those methodologies to base their ISA systems on.

¹ OJ L 325, 16.12.2019, p. 1.

- (4) The ISA system may rely on various input methods, such as camera observation, map data and deep learning, however, the actual presence of real-world speed limit related signs should always take precedence over any other available and potentially diverging information.
- (5) For the purposes of testing the real-world performance of the ISA system, it is necessary to establish an exhaustive catalogue of road signs used in each Member State.
- (6) The ISA systems may be faced with ambiguous speed related information due to missing, vandalised, manipulated or otherwise damaged signs, erroneous sign placement, inclement weather conditions or non-harmonised, complicated and implicit speed restrictions. For this reason, the underlying principle should be that the driver is always responsible for adhering to the relevant traffic rules and that the ISA system is a best-effort driver assistance system to alert the driver, whenever possible and appropriate.
- (7) The specific test procedures and technical requirements for the ISA systems should be to the greatest extent technology neutral and performance-based to allow innovative solutions.
- (8) The specific test procedures and technical requirements for the ISA systems should also ensure that a system does not exceed the capability of an average human driver of interpreting and understanding the pertinent speed limit information. ISA systems should not be required to have self-driving levels of capability, but only provide assistance to drivers.
- (9) The assessment of the effectiveness of the different feedback methodologies and control functions of the ISA systems in real-drive conditions will only be possible once a significant number of motor vehicles equipped with such systems are available on the market. On other hand, it is essential that such assessment is carried out without delay in order to reap all the potential road safety benefits of the ISA systems. The relevant technologies and real-drive experience is expected to be available by 31 December 2025, thus well in advance of the date for the overall review set out in Article 14 of Regulation (EU) 2019/2144. In order to enable the Commission to evaluate the performance of the feedback methodologies provided for by this Regulation as early as possible, it is necessary to require the manufacturers to provide the relevant information to the approval authorities and for the approval authorities to aggregate that information and provide it to the Commission.
- (10) In order to minimise distracting or overloading drivers with false warnings caused by sub-optimal systems in the real-world, it is necessary to ensure that vehicle manufacturers employ appropriate technologies in the vehicle fleet and that manufacturers provide, where appropriate and necessary for a reasonable proportion of the vehicle's life-time, an unrestricted and easy access to system updates.
- (11) It is however clear that systems employing a combination of a camera system, Global Navigation Satellite System (GNSS) and up-to-date digital maps are considered the state of the art systems with the greatest real-world performance and reliability.
- (12) The table in Annex II to Regulation (EU) 2019/2144 containing the list of requirements referred to in Article 4(5) and Article 5(3) of that Regulation does not contain any reference to regulatory acts as regards intelligent speed assistance systems. It is therefore necessary to add a reference to this Regulation in that Annex.
- (13) Regulation (EU) 2019/2144 should therefore be amended accordingly.

- (14) As Regulation (EU) 2019/2144 is to apply from 6 July 2022, this Regulation should apply from the same date.
- (15) The provisions of this Regulation are closely linked, as they deal with rules concerning the specific test procedures and technical requirements for the type-approval of motor vehicles with regard to their intelligent speed assistance systems and for the type-approval of those systems as separate technical units. As a result of the rules laid down in this Regulation, it is necessary to add a reference to this Regulation in Annex II to Regulation (EU) 2019/2144. It is therefore appropriate to lay down those provisions in a single Delegated Regulation,

HAS ADOPTED THIS REGULATION:

Article 1

Test procedures and technical requirements for the type-approval of a vehicle with regard to the intelligent speed assistance systems

The type-approval of a vehicle with regard to the intelligent speed assistance systems shall be subject to the vehicle complying with the test procedures and technical requirements set out in Annex I.

Article 2

Test procedures and technical requirements for the type-approval of an intelligent speed assistance system as a separate technical unit

The type-approval of an intelligent speed assistance system as a separate technical unit shall be subject to the system complying with the test procedures and technical requirements set out in Annex I.

Article 3

Catalogue of road signs

The exhaustive list of road sign types used in each Member State, based upon which the type-approval authorities and technical services shall assess the performance of the intelligent speed assistance systems in accordance with this Regulation, is set out in Annex II.

Article 4

Information on the use of intelligent speed assistance systems

1. Vehicle manufacturers shall provide the approval authorities with the following information:
 - (a) ratios of the time driven or the distances that are travelled with the intelligent speed assistance systems switched on and switched off;
 - (b) ratios of the time driven or the distances that are travelled with the perceived speed limits being observed and being overridden, respectively;
 - (c) the average time elapsed between the switch-on and the switch-off of the intelligent speed assistance system by the driver, when applicable;
 - (d) The information referred to in the first subparagraph for the cascaded acoustic warning function, the cascaded vibrating warning function and the haptic feedback

function shall be provided separately from the information for the speed control function.

2. The approval authorities shall aggregate the information received in accordance with paragraph 1 and provide it to the Commission on 7 July 2024 and every 6 months thereafter.

Article 5

Amendment to Regulation (EU) 2019/2144

Annex II to Regulation (EU) 2019/2144 is amended in accordance with Annex III to this Regulation.

Article 6

Entry into force and application

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

It shall apply from 6 July 2022.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

*For the Commission
The President
Ursula von der Leyen*