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Proposal for a

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

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/... and repealing Regulations (EC) No 78/2009, (EC) No 79/2009 and (EC) No 661/2009

(Text with EEA relevance)

{SEC(2018) 270 final} - {SWD(2018) 190 final} - {SWD(2018) 191 final}

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE PROPOSAL

• Reasons for and objectives of the proposal

Technological change is touching all parts of society and the economy and transforming the lives of EU citizens. Transport is no exception to this trend. New technologies are radically changing the mobility landscape. Against this background, the EU and its industries must meet the challenge to become a world leader in innovation, digitisation, and decarbonisation. The Commission has therefore adopted a comprehensive approach to ensure that the EU's mobility policies reflect these political priorities in the form of three "Europe on the Move" mobility packages.

Following the Low-Emission Mobility Strategy, the Commission adopted two mobility packages in May and November 2017¹. These packages set out a positive agenda delivering on the low-emission mobility strategy and ensuring a smooth transition towards clean, competitive and connected mobility for all. The European Commission calls on the European Parliament and the Council to ensure the rapid adoption of these proposals.

This initiative is part of the Third "Europe on the Move" mobility package, which delivers on the new industrial policy strategy of September 2017, and is designed to complete the process of enabling Europe to reap the full benefits of the modernisation of mobility. It is essential that tomorrow's mobility system is safe, clean and efficient for all EU citizens. The aim is to make European mobility safer and more accessible, European industry more competitive, European jobs more secure, and to be cleaner and better adapted to the imperative of tackling climate change. This will require the full commitment of the EU, Member States and stakeholders, including in strengthening the requirements for safety features in road vehicles.

Road safety is a pan-European issue that is addressed through an integrated approach. Policies are traditionally structured around three pillars: road users (drivers, pedestrians and cyclists), vehicles and infrastructure.

Over the past decades, road safety significantly improved. However, progress in the reduction of road fatalities rates has stalled in recent years. According to EU statistics, since 2013, there have been no significant decreases in the number of road fatality in the Union². Whereas some Member States are still making considerable progress every year, some others are even recording increases in fatalities leading to stagnation in EU-wide road fatality rates.

A revised framework better adapted to the changes in mobility resulting from societal trends (e.g. more cyclists and pedestrians, an aging society) and technological developments is necessary. It is expected that without new initiatives on road safety in general, the safety-effects of the current approach can no longer off-set the increasing traffic volumes. The complex situation calls for a dynamic policy adjustment that addresses the major challenges in a consistent and effective way across the entire spectrum of road safety policies. In terms of vehicle safety, this implies mandating a broad range of advanced safety measures as standard equipment for the relevant vehicle categories and improved protection of vulnerable road users, such as pedestrians, cyclists and those of small stature and the elderly.

¹ COM(2017) 283 final and COM(2017) 675 final

² https://ec.europa.eu/transport/road_safety/sites/roadsafety/files/pdf/observatory/historical_evol.pdf

The current proposal addresses the main problem of persistent high number of road accidents that in turn leads to a high number of fatalities and severe injuries and provides measures to increase safety at vehicle level so as to either avoid and lower the number of accidents or lower the severity of un-avoided accidents to limit the number of fatalities and severe injuries. This proposal has to be viewed in close relation with other initiatives, part of the Third Mobility Package such as, for example, the proposed amendments to the directive on road infrastructure safety management³. They also aim at contributing to the reduction of the number of fatalities and injuries on EU roads and, thus, share a common horizon and interlink with each other. Moreover, certain in-vehicle systems, such as the lane-keeping system and the intelligent speed assistance, rely on a well-maintained road infrastructure (road marking, signs and cameras). Therefore, the road infrastructure and vehicle safety proposals complement each other in certain areas and enable in-vehicle systems to realise their full safety potential.

On the other hand, the overall vehicle and infrastructure safety framework needs to take into account developments in connected and automated driving, which are advancing at high speed. Therefore, there is also close link with the Commission's Strategy on Cooperative Intelligent Transport Systems (C-ITS)⁴ and the proposal for an EU strategy for mobility of the future⁵. In order to become future-proof, vehicles not only have to be ready for the new technological developments in the infrastructure, but they will also have to take the lead and pave the way towards allowing fully automated driving. For this reason, mandating advanced safety features for vehicles still today will help the drivers to gradually get accustomed to the new features and will enhance public trust and acceptance in the transition toward autonomous driving.

The proposal is also fully in line with the Council conclusions based on the Valletta Declaration, in which transport ministers reconfirmed their commitment to improving road safety⁶ and notably called upon the Commission to enhance the protection of road users, and in particular vulnerable road users, by ensuring the deployment of new safety features for vehicles.

- **Consistency with existing policy provisions in the policy area**

Directive 2007/46/EC⁷ (to be replaced by a Regulation which will apply as of 1 September 2020⁸) sets out harmonised safety and environmental requirements that motor vehicles have to comply with before being placed on the internal market, thus facilitating the free movement of vehicles. It provides a framework under which a multitude of separate regulatory acts with specific technical requirements for the different types of vehicles are operating.

³ Directive 2004/54/EC of the European Parliament and of the Council of 29 April 2004 on minimum safety requirements for tunnels in the Trans-European Road Network, OJ L 167, 30.4.2004, p. 39–91

⁴ Communication from the Commission “A European strategy on Cooperative Intelligent Transport Systems, a milestone towards cooperative, connected and automated mobility” (COM/2016/0766 final)

⁵ Communication from the Commission "On the road to automated mobility: An EU strategy for mobility of the future" (COM/2018/283)

⁶ http://ec.europa.eu/transport/road_safety/sites/roadsafety/files/valletta_declaration_on_improving_road_safety.pdf

⁷ OJ L 263, 9.10.2007, p. 1.

⁸ COM (2016) 31 final.

In this context, the General Vehicle Safety Regulation (GSR)⁹, the Pedestrian Safety Regulation (PSR)¹⁰ and the Hydrogen Safety Regulation (HSR)¹¹ are separate regulatory acts within the EU type-approval procedure. The technical requirements for the type approval of motor vehicles with regard to numerous safety and environmental elements have been harmonised at Union level in order to avoid requirements that differ from one Member State to another, and to ensure a high level of health and safety standards across the Union.

Article 17 of the GSR and Article 12 of the PSR both require that the Commission monitors technical developments in enhanced safety technologies and consider possible extension of the scope of the currently applicable vehicle safety features to other/all vehicle categories, mandating new advanced safety features in an updated Union legislation and improving the protection of vulnerable road users.

In compliance with the above mentioned requirements, this proposal provides for the necessary adjustments of the current Union legislation to technical progress and at the same time introduces new vehicle safety features with high potential of saving lives on roads.

The proposal is also consistent with Regulation (EU) 2015/758¹², which requires from 31 March 2018 all new types of passenger cars and vans to be fitted with an eCall system, which in case of a serious crash automatically dials the European single emergency number 112. It is estimated that eCall could speed up emergency response times and save up to 2500 lives a year. While eCall helps mitigating the consequences of serious road accidents across the EU, the current proposal aims at avoiding road accidents or lowering the severity of un-avoided accidents to decrease the number of fatalities and severe injuries.

- **Consistency with other Union policies**

In more general terms, this proposal will contribute to the priorities linked to growth, jobs and investment in the Union, promoting the most efficient innovations and retaining quality jobs in Europe and to digitalisation of the internal market via the promotion of safety features that are considered key enabling technologies to boost and support the wide-scale deployment of automated vehicles in the Union.

2. LEGAL BASIS, SUBSIDIARITY AND PROPORTIONALITY

- **Legal basis**

The legal basis of this initiative is Article 114 of the Treaty on the Functioning of the European Union (TFEU).

⁹ Regulation (EC) No 661/2009 of the European Parliament and of the Council of 13 July 2009 concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefor, OJ L 200, 31.7.2009, p. 1.

¹⁰ Regulation (EC) No 78/2009 of the European Parliament and of the Council of 14 January 2009 on the type-approval of motor vehicles with regard to the protection of pedestrians and other vulnerable road users, amending Directive 2007/46/EC and repealing Directives 2003/102/EC and 2005/66/EC, OJ L 35, 4.2.2009, p. 1.

¹¹ Regulation (EC) No 79/2009 of the European Parliament and of the Council of 14 January 2009 on the type-approval of hydrogen-powered motor vehicles and amending Directive 2007/46/EC, OJ L 35, 4.2.2009, p. 32.

¹² Regulation (EU) 2015/758 of the European Parliament and of the Council of 29 April 2015 concerning type-approval requirements for the deployment of the eCall in-vehicle system based on the 112 service and amending Directive 2007/46/EC, OJ L 123, 19.5.2015, p. 77.

- **Subsidiarity (for non-exclusive competence)**

The subsidiarity principle applies insofar as the proposal does not fall under the exclusive competence of the Union. The objectives of the proposal cannot be sufficiently achieved by the Member States for the following reasons:

Technical requirements for type-approval of motor vehicles with regard to numerous safety and environmental elements have been harmonised at Union level and action by Member States alone would undermine the whole vehicle type-approval system. Union action is necessary because of the need to avoid the emergence of barriers to the single market and will better achieve the objectives of the proposal because it will avoid fragmentation of the internal market which would otherwise arise and will enhance the safety and environmental performance of vehicles. The proposal therefore complies with the subsidiarity principle.

- **Proportionality**

As showed in the impact assessment, the proposal complies with the proportionality principle because it does not go beyond what is necessary in order to achieve the objectives of reducing the number of fatalities on Union roads, while at the same time ensuring the proper functioning of the internal market and providing for a high level of public safety and environmental protection.

This proposal reflects the highest safety standards for all vehicles, including light commercial vehicles (category N1), for which the costs for the preferred policy option (PO3) somewhat exceed the benefits. However, in this case additional considerations are taken into account, such as the need for policy coherence, ensuring a level playing field for all car manufacturers in the internal market, avoiding workers' exposure to higher risks and the possibility for manufacturers of lowering the costs due to economies of scale and the fact that light commercial vehicles often share platform and other hardware with passenger cars. Furthermore, since a lead time is provided for manufacturers to allow them to adapt to new requirements, the current proposal is seen as proportionate.

In addition, the proposal provides for simplification of the regulatory environment which will reduce the administrative costs for national authorities and industry. It is also concluded in the impact assessment that the envisaged policy measures will have no major impacts on SMEs (see Section 6.3).

- **Choice of the instrument**

The proposal concerns three interrelated regulations – the general vehicle safety, pedestrian safety and hydrogen safety – hence, the instrument chosen is also a regulation. Given the substantive amendments proposed, the fact that the provisions of the PSR and the HSR are to a large extent outdated and need to be replaced by the respective UN Regulations (No 127 and 134) and in view of further simplification of the legislation, it appeared appropriate to propose a new legal act to replace and repeal the three regulations and their outdated implementing measures altogether.

3. RESULTS OF EX-POST EVALUATIONS, STAKEHOLDER CONSULTATIONS AND IMPACT ASSESSMENTS

- **Ex-post evaluations/fitness checks of existing legislation**

The General Safety Regulation was not subject to an ex-post evaluation.

- **Stakeholder consultations**

The formal Commission's public consultation on the proposal took place between 31 July and 22 October 2017 and was preceded by additional targeted consultations, namely:

- a general stakeholder engagement in July 2014 in the framework of the 124th meeting of the Working Group on Motor Vehicles (the Commission's expert group involving public and private stakeholders);
- a follow-up targeted (face-to-face) stakeholder two-day consultation event in October 2014.
- at the 131st meeting of the Working Group on Motor Vehicle, held on 16 February 2016, the Commission presented to the Member States and stakeholders a set of 19 potential measures that could be considered for the revision of the GSR and PSR;
- in November 2016, a further intensive stakeholder consultation took place (72 attendees representing 32 scholars/research organisations, safety advocacy groups, vehicle manufacturers, vehicle supplier industry, local/national governments and other relevant experts).

The key objectives of these extensive consultations were, on the one hand, to inform stakeholders of the Commission's views on the way forward as regards vehicle safety, and, on the other hand, to present to all stakeholders in the most transparent way possible, all data, parameters, expert views and their sources that would form the backbone of the impact assessment in terms of data sets, in particular, the vehicle safety system voluntary uptake rates, technology cost, technology effectiveness and traffic victim target population. Those consultations also allowed the stakeholder's judgement and validation of the key data used as being sufficiently and appropriately robust, relevant and up-to-date. The outcome of the consultations was subsequently used as a basis for the preparation of the proposal and the accompanying impact assessment.

- **Collection and use of expertise**

In March 2015, the Commission published the study "Benefit and Feasibility of a Range of New Technologies and Unregulated Measures in the fields of Vehicle Occupant Safety and Protection of Vulnerable Road Users"¹³, in the context of the foreseen revision of the GSR and PSR. The study contains an overview of over 50 available safety measures that could contribute to reduce further road fatalities and injuries (including benefit/cost ratios).

In December 2016, the Commission published a report for the European Parliament and the Council entitled "Saving Lives: Boosting Car Safety in the EU"¹⁴. The staff working document accompanying that report¹⁵ identifies and puts forward 19 potential regulatory measures that would be effective for further reducing road accidents and casualties.

¹³ http://bookshop.europa.eu/en/benefit-and-feasibility-of-a-range-of-new-technologies-and-unregulated-measures-in-the-field-of-vehicle-occupant-safety-and-protection-of-vulnerable-road-users-pbNB0714108/?pgid=Iq1Ekni0.1ISR00OK4MycO9B0000BAJ9tQVY;sid=OT_-Ap3uO3P-V8j2wGFgpf_Lm_yCUpo9P-w=

¹⁴ Reporting on the monitoring and assessment of advanced vehicle safety features, their cost effectiveness and feasibility for the review of the regulations on general vehicle safety and on the protection of pedestrians and other vulnerable road users" (COM (2016) 787 final)

¹⁵ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=SWD:2016:431:FIN>

In view of the preparation of the impact assessment to this initiative, in May 2017, the Commission published a second study "In depth cost-effectiveness analysis of the identified measures and features regarding the way forward for EU vehicle safety" containing a more detailed cost benefit/effectiveness assessment for the selected 19 potential regulatory measures¹⁶.

- **Impact assessment**

The initiative is supported by an impact assessment which received a positive opinion with reservations after having been reviewed on 17 January 2018 by the Regulatory Scrutiny Board (RSB). The reservations of the RSB concerned three main aspects:

- The RSB was of the opinion that the impact assessment report did not sufficiently delimit the expected contribution of this initiative within the comprehensive approach to road safety of the Safe System and it did not well explain the relationship and complementarity with the parallel road infrastructure safety initiative.
- The RSB also indicated that there was no coherence between the problem (stagnation in the reduction of road fatalities), its drivers, the objectives of the initiative and the design of options.
- The RSB pointed to the fact that the report was still not clear on how the individual measures were selected and what their estimated costs and benefits were, as well as the role and opinions of stakeholders in this process.

The opinion also noted the relevance of the REFIT dimension of the initiative and the need to deliver greater detail on the preference for policy option 3 for light commercial vehicles.

The following additions were made in the final impact assessment to address these reservations:

- clarifications on the relationship and complementarity of this initiative with the parallel initiative on road infrastructure safety are provided in Section 1.4.;
- the initiatives are put into the context of the common baseline approach, explaining their respective contributions to the common objectives and the methodologies of the studies behind them so as to show how avoidance of double counting is ensured (details provided in Section 2.1. and Annex 4);
- details on the Safe System approach as well as more possible reasons for the stagnation in the reduction of road fatalities rates (in the context of accident sources, population diversity, road user factors and general driving behaviour concerns) are also added to Section 2.1.;
- a new Section 2.2., which binds the main road safety problems to those linked to vehicles and vehicle safety performance, is included with the aim of better comprehension of the structure of the problem definition and the drivers that are arguably of a less holistic nature, but much more to the point on vehicle system level, while being still fully relevant;
- the intervention logic in Sections 5.1. to 5.4. is made more consistently linked to the main problems, objectives and options. Changes in the naming of the objectives and options

¹⁶ GSR 2, TRL, May 2017: <https://publications.europa.eu/en/publication-detail/-/publication/77990533-9144-11e7-b92d-01aa75ed71a1>

clarify that this initiative is not focussing on the protection of specific groups of traffic participants, while neglecting the others, and the objectives are further clarified with the notion of protection in case of an accident together with potential to completely prevent and avoid accidents from happening altogether;

– Section 5 now explains the interaction and role of the stakeholders in the process of selection of individual measures and assessment of their benefits and effectiveness (in multiple steps), as well as how the final costs and benefits assessment of individual measures vis-à-vis clustered measures are developed through stakeholder input;

– Section 2.8. is modified to better explain the expected simplification of the legislative framework, the way forward in terms of possible outdated regulatory dispositions, and giving indications on future updates of vehicle safety rules; and

– justification and clarification of the choice to include light commercial vehicles in policy option 3 are added to Section 8 pointing out that most European manufacturers already provide for safer than currently required vehicles, the level playing field for manufacturers, vehicle design synergies, cost sharing, stakeholder opinions and the increased risk of harm to a limited category of people, namely workers using light commercial vehicles in their workplace.

The executive summary of the impact assessment report and the opinion of the RSB are published under these links:

[...]

[...]

The impact assessment examined three broad policy options:

- Option 1 'Generalisation of mature and widely available safety features' consists on mandating safety features/systems for which technology is mature. They will mainly protect car occupants. Implementation will start from the date of application of the Regulation.
- Option 2 'Introducing widely available and less commonly available safety features as standard equipment' consists of Option 1 plus safety features that are currently also available and fitted to the vehicle fleet, but which are less common and need more time to fully mature for all vehicle categories and market segments (implementation starts from 24 months after the date of application of the Regulation). It also contains measures ensuring driver's attention to the driving task and an overall protection of vulnerable road users.
- Option 3 'Introduction of a full set of safety features boosting innovation' consists of Option 2 plus additional safety solutions that are feasible and already exist in the marketplace, although with a low fitment rate and market uptake, but have the potential to maximise the overall casualties savings in the Union and to boost safety solution innovation in the key automotive sector. The only feature with an extended implementation date in comparison to the two previous options is the requirement for direct visibility of vulnerable road users by the drivers of trucks (implementation starts from 48 months after the date of application of the Regulation).

The preferred choice is option 3. This option is expected to prevent the highest number of fatalities and severe injuries for vehicle occupants and vulnerable road users at an overall acceptable cost. It also ensures a consistent and non-discriminatory approach towards all vehicle categories.

The expected benefits are as follows:

- It is expected that over a 16 year period, the introduction of the new safety features will help to reduce fatalities by 24 794 and serious injuries by 140 740.
- The present value benefit is EUR 72.8 billion.
- It is also expected that there will be reduced road congestion due to avoided collisions, although these benefits could not be quantified. There should however be a reduced loss of time (citizens), increased productivity (businesses), and better use of existing road infrastructure (administrations).
- It is finally also expected that there will be reduced vehicle emissions and improved air quality due to speed assistance systems and tyre pressure monitoring, although these benefits could also not be quantified.

The expected costs are as follows:

- The anticipated total costs (one-off and ongoing production costs) for car manufacturers will amount to EUR 57.4 billion present value cost.
- No substantial increases in vehicle retail prices are expected due to the proposed new vehicle safety measures in the medium and long term and consequently no extraordinary impact on vehicle sales numbers was modelled for the cost-benefit analysis.
- No specific additional costs are expected for national administrations, as the new vehicle safety features will become part of the existing type-approval framework.

The overall benefit/cost indicators:

- It represents an overall net benefit of EUR 15.4 billion.
- The ‘best estimate’ benefit to cost ratio of the preferred option is BCR 1.27
- **Regulatory fitness and simplification**

This proposal is not expected to have any significant impact on the regulatory burden for manufacturers or national authorities, as vehicle type-approval is already covered by the existing legislative framework and the inclusion of any new safety features is to be integrated within that framework.

Although the relevant vehicle testing and certification procedures can be performed within the existing type-approval infrastructure available in the Member States, additional testing and certification cost will be applicable. These costs are however insignificant¹⁷ in relation to the

¹⁷ Fitness Check of the Legal Framework for the Type-Approval of Motor Vehicles - <http://ec.europa.eu/smart-regulation/evaluation/search/download.do?documentId=9407681>

overall cost of the development of a new vehicle model (typically ranging from several hundred millions to several billions euros).

The currently applicable GSR did not only introduce a range of vehicle safety measures, but also aimed to achieve simplification based on the CARS21 High Level Group recommendations¹⁸ by replacing 38 EC Directives with equivalent and world-wide harmonised UN Regulations. In the same vein, this proposal is to repeal several EU Regulations implementing the GSR, PSR and HSR and to replace them by equivalent UN Regulations, to which the Union has adhered to in the meantime. It also further simplifies the legislation by consolidating these three regulations in one single legislative act.

- **Fundamental rights**

The proposal may impact individuals' rights guaranteed under Article 7 and 8 of the Charter, as regards privacy and protection of personal data. Some of the data collected in the event data recorder or through the systems to be installed in the vehicle, such as driver drowsiness and attention monitoring or advanced distraction recognition, may be personal data relating to an identified or identifiable natural person. An identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person. Any processing of personal data should be carried out in accordance with EU legislation on data protection, in particular the General Data Protection Regulation¹⁹.

4. BUDGETARY IMPLICATIONS

The proposal will have no implications on the Union budget.

5. OTHER ELEMENTS

- **Implementation plans and monitoring, evaluation and reporting arrangements**

The European Commission will continue to monitor technical progress developments in the automotive sector and, wherever appropriate, will propose to amend the relevant legislation in order to include new safety features. It will also continue to actively participate and lead the vehicle standard harmonisation process at international level (United Nations Economic Commission for Europe – UNECE).

In order to make the new Regulation future proof, it has been deemed more appropriate to address any review of these vehicle safety rules in a more dynamic fashion, namely linked to the overall technical progress and occurrences of new safety needs. In this context, the international regulatory developments through UNECE as well as the frequent need for the adaptation of those rules tend to prompt this reviewing process automatically.

¹⁸ COM(2007) 22 final – CARS 21 High Level Group was mandated to make recommendations for the short, medium and the long term public policy and regulatory framework for the European automotive industry that enhances global competitiveness and employment while sustaining further progress in safety and environmental performance at a price affordable to the consumer:
<http://ec.europa.eu/DocsRoom/documents/1891/attachments/1/translations/en/renditions/pdf>

¹⁹ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), OJ L 119, 4.5.2016, p. 1–88.

The Commission is determined to promote and support the development as soon as possible of the detailed technical requirements for the advanced vehicle systems at the UNECE level. Nevertheless, The Commission is committed to establish those requirements under the EU type-approval framework should the preparation at UNECE does not advance at the required speed. The Commission will also endeavour to ensure that the UN Regulations adopted with the support of the Union are defined according to the highest standards of road safety technology available and are regularly updated.

On the other hand, the introduction of an event (accident) data recorder (EDR), storing a range of crucial vehicle data over a short timeframe before, during and after a triggering event (most commonly airbag deployment), should be seen as an important step in the right direction to obtain an EU-wide in-depth accident data, which does not exist today on an enough extensive scale, but is indispensable for a comprehensive monitoring of the road safety performance of vehicles. The information from the EDR will facilitate the in-depth road safety analysis and assessment of the effectiveness of specific safety measures. For this reason Member States should be strongly encouraged to perform more thorough accident analysis on Union roads and make available comprehensive reporting on a national basis. In this context Member States should also be further stimulated in their activities to analyse and improve road safety on national level through different knowledge sharing platforms at their disposal²⁰.

- Explanatory documents (for directives)

Not applicable.

- **Detailed explanation of the specific provisions of the proposal**

In general terms, this proposal refers to Regulation (EU) 2018/[...] on the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles, since both Regulations share a compatible time line for their application.

Chapter I (Subject matter, Scope and Definitions):

Article 1 – Following the proposed consolidation of the GSR and PSR, the subject matter of the GSR is maintained in this proposal with the addition of a reference to the requirements for protection of vehicle occupants and vulnerable road users.

Article 2 – In general, the scope of the GSR is preserved, however, at the level of the currently applicable vehicle safety features and related exemptions, the scope of application has been extended to cover also other vehicle categories (or all of them) and to remove the respective exemptions (for example, the current exemptions linked to SUVs and vans are eliminated).

Article 3 – A range of new definitions is included to cover the newly introduced vehicle safety features.

Chapter II (Articles 4 to 11):

²⁰ https://ec.europa.eu/transport/road_safety/sites/roadsafety/files/pdf/national-road-safety-strategies_en.pdf

Following a similar logic as in the currently applicable GSR, Article 4 sets out the general technical requirements for type-approval of vehicles, systems, components and separate technical units and provides a list of safety areas, for which detailed rules are further developed (or need to be developed) in secondary legislation. Reference is made to Annex I that lists all the UN Regulations which shall apply on a compulsory basis in the EU, and to Annex II, which contains detailed information on the relevant vehicle safety requirements, their scope of application and the related secondary legislation, whether it already exists or whether it needs to be developed as part of the initiative.

This proposal also envisages empowerment for the Commission to amend lay down detailed rules and technical requirements in delegated acts and to amend Annexes I and II to take account of technical progress and regulatory developments at United Nations and Union level.

Article 5 extends the scope of the currently applicable requirement to fit passenger cars with a tyre pressure monitoring system to cover all vehicle categories.

Article 6 mandates a range of advanced vehicle safety features for all vehicles (e.g. the intelligent speed assistance; driver drowsiness and attention monitoring/distraction recognition systems; reversing detection; alcohol interlock installation facilitation).

Article 7 lays down the specific requirements for cars and vans and, in particular requires them to be equipped with an event (accident) data recorder and to be designed and constructed with an enlarged head impact protection zone for vulnerable road users.

Article 8 lays down the requirements for frontal protection systems.

Article 9 lays down the specific requirements for trucks and busses and, in particular requires them to be equipped with a detection and warning system for vulnerable road users in close proximity of the front and nearside of the vehicle and to be designed and constructed in such a way so as to improve the visibility of vulnerable road users from driver's seat.

The Commission does not propose to modify advanced emergency braking systems for trucks and buses to autonomously brake upon detection of vulnerable road users, as is proposed for passenger cars and light commercial vehicles. The accident analysis underpinning the initiative points to a run-over risk of pedestrians and cyclists when they are in very close proximity of the driver's cab, i.e. in what are known as "blind zones", and when the heavy duty vehicle is moving very slowly (straight or turning) or taking-off from a standstill. However, the detection systems linked to autonomous braking may not work as effectively at these slow speeds. In other words, no systems are available today that would effectively prevent this type of slow speed run-over event and it is uncertain if and when they will exist. The assessment indicated that this is not a mere matter of system programming. Instead, the preparatory research has supported that the signalling of the presence of a vulnerable road user to the driver is more effective when the latter can directly observe their presence through mirrors or improved windscreens and side windows that do not contain blind zones. In turn, pedestrians and cyclists are expected to feel safer in traffic because they can have eye contact with drivers of improved cabs. However, if autonomous braking in these instances becomes technically feasible, the relevant regulation can and should be adapted to technical progress.

Article 10 lays down the specific requirements for hydrogen-powered vehicles and Annex V contains the material qualification requirements for the hydrogen systems and their components.

Article 11 lays down specific requirements for automated vehicles and, in particular provides a list of areas of safety, for which detailed rules and technical provisions need to be further developed as a basis for the deployment of automated vehicles.

Chapter III (Final provisions):

It is proposed to empower the Commission to adopt delegated acts with the aim to update the annexes to technical progress and regulatory developments, as well as to lay down detailed rules concerning the specific procedures, tests and technical requirements for the type-approval of vehicles, systems, components and separate technical units with regard to the specific requirements set out in this proposal. Article 12 specifies the terms of the delegated powers conferred to the Commission in that respect.

Article 13 sets out transitional provisions.

Article 14 refers to the implementation dates for the different safety requirements as specified in Annex II. The respective implementation dates for the newly introduced requirements are as follows:

- the bulk of the safety measures will start to apply from the date of application of the Regulation for new types and 24 months after this date to all newly produced vehicles;
- a limited number of measures (three in total) will apply from 24 months after the date of application of the Regulation for new types and 48 months after the date of application to all new vehicles;
- the requirements on the improved direct visibility for trucks and buses (Article 9(4)) need a longer implementation timeline as they will require a complete redesign of the cab – it will apply from 48 months after the date of application of the Regulation to new types and from 84 months after the application date to all new trucks and busses.

Article 15 introduces the necessary changes in Annex II to Regulation (EU) 2018/[...] that stem from the adoption of this proposal.

Article 16 repeals the three regulations (on general vehicle safety, pedestrian safety and hydrogen safety) and their outdated secondary legislation²¹.

Article 17 provides for the date of application of this regulation as of 36 months from the date of its entry into force. This will allow the Commission to adopt the respective delegated acts in advance and to provide sufficient lead time to manufacturers to adjust to the new requirements.

²¹ All the implementing measures adopted under Regulation (EC) No 661/2009 in accordance with the regulatory procedure with scrutiny will be aligned, on the basis of the empowerments provided for the Commission in this proposal, with the new comitology framework introduced by the TFEU.

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(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 114 thereof,

Having regard to the proposal from the European Commission,

After transmission of the draft legislative act to the national parliaments,

Having regard to the opinion of the European Economic and Social Committee²²,

Having regard to the opinion of the Committee of the Regions²³,

Acting in accordance with the ordinary legislative procedure,

Whereas:

- (1) Regulation (EU) 2018/... of the European Parliament and of the Council²⁴⁺ lays down administrative provisions and technical requirements for the type-approval of new vehicles, systems, components and separate technical units with a view to ensuring the proper functioning of the internal market and in order to offer a high level of safety and environmental performance.
- (2) This Regulation is a regulatory act for the purposes of the EU type-approval procedure laid down by Regulation (EU) 2018/...⁺. Therefore, Annex II to that Regulation should be amended accordingly.
- (3) Over the past decades, developments in vehicle safety have contributed significantly to the overall reduction in the number of road fatalities and severe injuries. However, these reductions have recently stalled in the Union due to various factors, such as structural and behavioural factors, and without new initiatives on general road safety,

²² OJ C , , p. .

²³ OJ C , , p. .

²⁴ Regulation (EU) 2018/... of the European Parliament and of the Council on the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles, amending Regulations (EC) No 715/2007 and (EC) No 595/2009 and repealing Directive 2007/46/EC (OJ L ..., .., p. ...)

⁺ PO: please insert in the text the number of the Regulation contained in document PE-CONS No73/17 (2016/0014 (COD)) and insert the number, date and OJ reference of that Regulation in the footnote.

the safety effects of the current approach will no longer be able to off-set the effects of increasing traffic volumes. Therefore, the safety performance of vehicles needs to be further improved as part of an integrated road safety approach and in order to protect vulnerable road users better.

- (4) Technical progress in the area of advanced vehicle safety systems offers new possibilities for reducing casualty numbers. In order to minimise the number of fatalities, some of the relevant new technologies need to be introduced.
- (5) Within the context of Regulation (EC) No 661/2009 of the European Parliament and of the Council²⁵, the Commission assessed the feasibility of extending the existing requirement in that Regulation to install certain systems (for example, advanced emergency braking systems and tyre pressure monitoring systems) in certain categories of vehicle so that it applied to all vehicle categories. The Commission also assessed the technical and economic feasibility and market maturity of imposing a new requirement to install other advanced safety features. Based on those assessments, the Commission published a report for the European Parliament and the Council in December 2016 entitled "Saving Lives: Boosting Car Safety in the EU"²⁶. The staff working document accompanying that report identified and put forward 19 potential regulatory measures that would be effective in further reducing the number of road accidents and road fatalities and injuries.
- (6) Intelligent speed assistance, lane-keeping systems, driver drowsiness and attention monitoring and distraction detection and reversing detection systems have a high potential to reduce casualty numbers considerably. In addition, those systems are based on technologies which will be used for the deployment of connected and automated vehicles too. Therefore, harmonised rules and test procedures for the type-approval of vehicles as regards those systems and for the type-approval of those systems as separate technical units should be established at Union level.
- (7) The introduction of event (accident) data recorders storing a range of crucial vehicle data over a short timeframe before, during and after a triggering event (for example, the deployment of an airbag) is a valuable step in obtaining more accurate, in-depth accident data. Motor-vehicles should therefore be required to be equipped with such recorders. It should also be a requirement that such recorders are capable for recording and storing data in such a way that the data can be used by Member States to conduct road safety analysis and assess the effectiveness of specific measures taken.
- (8) Any processing of personal data, such as information about the driver processed in event (accident) data recorders or information about the driver on drowsiness and attention monitoring or advanced distraction recognition, should be carried out in accordance with EU legislation on data protection, in particular the General Data

²⁵ Regulation (EC) No 661/2009 of the European Parliament and of the Council of 13 July 2009 concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefor, OJ L 200, 31.7.2009, p. 1.

²⁶ COM (2016) 787 final

Protection Regulation²⁷. In addition, the processing of personal data collected through the 112-based eCall in-vehicle system is subject to specific safeguards²⁸.

- (9) Regulation (EC) No 661/2009 exempted vans, sport utility vehicles (SUVs) and multi-purpose vehicles (MPVs) from safety requirements due to seating height and vehicle mass characteristics. Given the increased rate of market penetration of such vehicles (up from only 3% in 1996 to 14% in 2016) and the technological developments in post-crash electric safety checks, those exemptions are outdated and unjustified. Therefore, the exemptions should be removed and the whole range of advanced vehicle system requirements should be applied to those vehicles.
- (10) Regulation (EC) No 661/2009 achieved significant simplification of Union legislation by replacing 38 Directives with equivalent Regulations of the United Nations Economic Commission for Europe (UN Regulations) that are mandatory under Council Decision 97/836/EC²⁹. In order to achieve further simplification, more Union rules should be replaced with existing UN Regulations that apply in the Union on a compulsory basis. Furthermore, the Commission should promote and support the ongoing work at United Nations level in order to establish, without any delay and in accordance with the highest road safety standards available, technical requirements for the type-approval of the vehicle safety systems provided by this Regulation.
- (11) UN Regulations and the amendments thereto which the Union has voted in favour of or that the Union applies, in accordance with Decision 97/836/EC, should be incorporated within the Union type-approval legislation. Accordingly, the power should be delegated to the Commission to amend the list of UN Regulations that apply on a compulsory basis to ensure that it is kept up-to-date.
- (12) Regulation (EC) No 78/2009 of the European Parliament and of the Council³⁰ sets out requirements for the protection of pedestrians, cyclists and other vulnerable road users in the form of compliance tests and limit values for the approval of vehicles with regard to their front structure and for the approval of frontal protection systems (for example, bull-bars). Since the adoption of Regulation (EC) No 78/2009, technical requirements and test procedures for vehicles have developed further at United Nations level to take account of technical progress. UN Regulation No 127³¹ currently also applies in the Union in respect to type-approval of motor vehicles.

²⁷ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), OJ L 119, 4.5.2016, p. 1.

²⁸ Regulation (EU) 2015/758 of the European Parliament and of the Council of 29 April 2015 concerning type-approval requirements for the deployment of the eCall in-vehicle system based on the 112 service and amending Directive 2007/46/EC, OJ L 123, 19.5.2015, p. 77.

²⁹ Council Decision 97/836/EC of 27 November 1997 (OJ L 346, 17.12.1997, p. 78).

³⁰ Regulation (EC) No 78/2009 of the European Parliament and of the Council of 14 January 2009 on the type approval of motor vehicles with regard to the protection of pedestrians and other vulnerable road users, amending Directive 2007/46/EC and repealing Directives 2003/102/EC and 2005/66/EC, OJ L 35, 4.2.2009, p. 1.

³¹ Regulation No 127 laying down uniform provisions concerning the approval of motor vehicles with regard to their pedestrian safety performance

- (13) Following the adoption of Regulation (EC) No 79/2009 of the European Parliament and of the Council³², the technical requirements and test procedures for the approval of hydrogen-powered vehicles and hydrogen systems and components, have been further developed at United Nations level to take account of technical progress. UN Regulation No 134³³ currently also applies in the Union in respect of type-approval of hydrogen systems in motor vehicles. In addition to those requirements, criteria for the quality of the materials used in compressed hydrogen vehicle systems also apply but are currently only established at Union level.
- (14) In the interests of clarity, rationality and simplification, Regulations (EC) No 78/2009, (EC) No 79/2009 and (EC) No 661/2009 should be repealed and replaced by this Regulation.
- (15) Historically, Union rules have limited the overall length of truck combinations which resulted in the typical cab-over-engine designs as they maximise the cargo space. However, the high position of the driver led to an increased blind spot area and poorer direct visibility around the truck cab. This is a major factor for truck accidents involving vulnerable road users. The number of casualties could be reduced significantly by improving direct vision. Requirements should therefore be introduced to improve the direct vision.
- (16) Given the emphasis of EU vehicle safety regulations to protect vulnerable road users, *inter alia*, by ensuring adequate visibility for drivers, public and private entities should refrain from requiring the affixing of any kind of label, vignette or sticker meant for whichever purpose to any part of the transparent surface of the vehicles' glazing. Furthermore, national authorities should enforce that windscreens and side windows are indeed kept clear of labels, vignettes, stickers and any other vision impairing items as to not negate the effectiveness of the Union law on visibility for drivers.
- (17) Automated and connected vehicles may be able to make a huge contribution in reducing road fatalities since in the region of 90 per cent of road accidents are estimated to result from human error. As automated vehicles will gradually be taking over tasks of the driver, harmonised rules and technical requirements for automated vehicle systems should be adopted at Union level.
- (18) Vehicle platooning has the potential to bring about safer, cleaner and more efficient transport in the future. In anticipation of the introduction of platooning technology and the relevant standards, a regulatory framework with harmonised rules and procedures will be needed. In this regard, the Commission should be empowered to adopt delegated acts to establish a harmonised format for the exchange of data for the purposes of multi-brand vehicle platooning, in compliance with EU legislation on data protection.
- (19) The Union should continue to promote the development of technical requirements for tyre noise, rolling resistance and wet grip performance of tyres at the United Nations level. This is because UN Regulation No 117 now contains these detailed provisions. The process of adapting the requirements on tyres to take account of technical progress should continue at United Nations level, in particular to ensure that tyre performance

³² Regulation (EC) No 79/2009 of the European Parliament and of the Council of 14 January 2009 on the type approval of hydrogen-powered motor vehicles and amending Directive 2007/46/EC, OJ L 35, 4.2.2009, p. 32.

³³ UN Regulation No 134 on uniform provisions concerning the approval of motor vehicles and their components with regard to the safety-related performance of hydrogen-fuelled vehicles (HFCV)

is also assessed at the end of a tyre's life in its worn state and to promote the idea that tyres should meet the requirements throughout their life and not be replaced prematurely. Existing requirements in Regulation (EC) No 661/2009 relating to tyre performance should be replaced by equivalent UN Regulations.

- (20) In order to ensure the effectiveness of this Regulation, the power to adopt acts in accordance with Article 290 of the Treaty on the Functioning of the European Union should be delegated to the Commission in respect of type-approval requirements concerning the safety performance, the general construction and the relevant environmental performance of motor-vehicles and their trailers, and systems, components and separate technical units intended for such vehicles. It is of particular importance that the Commission carry out appropriate consultations during its preparatory work, including at expert level, and that those consultations be conducted in accordance with the principles laid down in the Interinstitutional Agreement of 13 April 2016 on Better Law-Making³⁴. In particular, to ensure equal participation in the preparation of delegated acts, the European Parliament and the Council receive all documents at the same time as Member States' experts, and their experts systematically have access to meetings of Commission expert groups dealing with the preparation of delegated acts.
- (21) In view of the alignment of the Union legislation referring to the regulatory procedure with scrutiny with the legal framework introduced by the Treaty on the Functioning of the European Union and in order to further simplify the Union legislation in the field of vehicle safety, the following Regulations should be repealed and replaced by delegated acts adopted under this Regulation:
- Commission Regulation (EC) No 631/2009³⁵,
 - Commission Regulation (EU) No 406/2010³⁶,
 - Commission Regulation (EU) No 672/2010³⁷,
 - Commission Regulation (EU) No 1003/2010³⁸,
 - Commission Regulation (EU) No 1005/2010³⁹,

³⁴ OJ L 123, 12.5.2016, p. 1.

³⁵ Commission Regulation (EC) No 631/2009 of 22 July 2009 laying down detailed rules for the implementation of Annex I to Regulation (EC) No 78/2009 of the European Parliament and of the Council on the type-approval of motor vehicles with regard to the protection of pedestrians and other vulnerable road users, amending Directive 2007/46/EC and repealing Directives 2003/102/EC and 2005/66/EC (OJ L 195, 25.7.2009, p. 1).

³⁶ Commission Regulation (EU) No 406/2010 of 26 April 2010 implementing Regulation (EC) No 79/2009 of the European Parliament and of the Council on type-approval of hydrogen-powered motor vehicles (OJ L 122, 18.5.2010, p. 1).

³⁷ Commission Regulation (EU) No 672/2010 of 27 July 2010 concerning type-approval requirements for windscreen defrosting and demisting systems of certain motor vehicles and implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefor (OJ L 196, 28.7.2010, p. 5).

³⁸ Commission Regulation (EU) No 1003/2010 of 8 November 2010 concerning type-approval requirements for the space for mounting and the fixing of rear registration plates on motor vehicles and their trailers and implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefor (OJ L 291, 9.11.2010, p. 22).

³⁹ Commission Regulation (EU) No 1005/2010 of 8 November 2010 concerning type-approval requirements for motor vehicle towing devices and implementing Regulation (EC) No 661/2009 of the

- Commission Regulation (EU) No 1008/2010⁴⁰,
- Commission Regulation (EU) No 1009/2010⁴¹,
- Commission Regulation (EU) No 19/2011⁴²,
- Commission Regulation (EU) No 109/2011⁴³,
- Commission Regulation (EU) No 458/2011⁴⁴,
- Commission Regulation (EU) No 65/2012⁴⁵,
- Commission Regulation (EU) No 130/2012⁴⁶,
- Commission Regulation (EU) No 347/2012⁴⁷,
- Commission Regulation (EU) No 351/2012⁴⁸,
- Commission Regulation (EU) No 1230/2012⁴⁹,

European Parliament and of the Council concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefor (OJ L 291, 9.11.2010, p. 36).

⁴⁰ Commission Regulation (EU) No 1008/2010 of 9 November 2010 concerning type-approval requirements for windscreen wiper and washer systems of certain motor vehicles and implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefor (OJ L 292, 10.11.2010, p. 2).

⁴¹ Commission Regulation (EU) No 1009/2010 of 9 November 2010 concerning type-approval requirements for wheel guards of certain motor vehicles and implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefor (OJ L 292, 10.11.2010, p. 21).

⁴² Commission Regulation (EU) No 19/2011 of 11 January 2011 concerning type-approval requirements for the manufacturer's statutory plate and for the vehicle identification number of motor vehicles and their trailers and implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefor (OJ L 8, 12.1.2011, p. 1).

⁴³ Commission Regulation (EU) No 109/2011 of 27 January 2011 implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council as regards type-approval requirements for certain categories of motor vehicles and their trailers as regards spray suppression systems (OJ L 34, 9.2.2011, p. 2).

⁴⁴ Commission Regulation (EU) No 458/2011 of 12 May 2011 concerning type-approval requirements for motor vehicles and their trailers with regard to the installation of their tyres and implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefor (OJ L 124, 13.5.2011, p. 11).

⁴⁵ Commission Regulation (EU) No 65/2012 of 24 January 2012 implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council as regards gear shift indicators and amending Directive 2007/46/EC of the European Parliament and of the Council (OJ L 28, 31.1.2012, p. 24).

⁴⁶ Commission Regulation (EU) No 130/2012 of 15 February 2012 concerning type-approval requirements for motor vehicles with regard to vehicle access and manoeuvrability and implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefor (OJ L 43, 16.2.2012, p. 6).

⁴⁷ Commission Regulation (EU) No 347/2012 of 16 April 2012 implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council with respect to type-approval requirements for certain categories of motor vehicles with regard to advanced emergency braking systems (OJ L 109, 21.4.2012, p. 1).

⁴⁸ Commission Regulation (EU) No 351/2012 of 23 April 2012 implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council as regards type-approval requirements for the installation of lane departure warning systems in motor vehicles (OJ L 110, 24.4.2012, p. 18).

– Commission Regulation (EU) 2015/166⁵⁰.

- (22) Given that approvals issued in accordance with Regulation (EC) No 78/2009, Regulation (EC) No 79/2009, Regulation (EC) No 661/2009 and their implementing measures should be considered equivalent, unless the relevant requirements are changed by this Regulation or until they are modified by the implementing legislation, transitional provisions should ensure that such approvals are not invalidated.
- (23) As concerns the dates for refusal to grant EU type-approval, refusal of vehicle registration and prohibition of the placing on the market or entry into service of components and separate technical units, these dates should be laid down for each regulated item.
- (24) Since the objective of this Regulation, namely ensuring the proper functioning of the internal market through the introduction of harmonised technical requirements concerning the safety and environmental performance of motor vehicles and their trailers, cannot be sufficiently achieved by the Member States and can therefore, by reason of its scale and effects, be better achieved at Union level, the Union may adopt measures in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty on European Union. In accordance with the principle of proportionality, as set out in that Article, this Regulation does not go beyond what is necessary in order to achieve that objective.
- (25) Detailed technical requirements and specific test procedures for type-approval of motor vehicles and their trailers, and of systems, components and separate technical units should be laid down in delegated acts before the date of application of this Regulation. Moreover, manufacturers should be allowed sufficient time to adapt to the requirements of this Regulation and the delegated acts adopted pursuant to it. Therefore, the application of this Regulation should be deferred,

HAVE ADOPTED THIS REGULATION:

CHAPTER I

SUBJECT MATTER, SCOPE AND DEFINITIONS

Article 1

Subject matter

This Regulation establishes requirements:

1. for the type-approval of vehicles, and systems, components and separate technical units designed and constructed for vehicles, with regard to their general

⁴⁹ Commission Regulation (EU) No 1230/2012 of 12 December 2012 implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council with regard to type-approval requirements for masses and dimensions of motor vehicles and their trailers and amending Directive 2007/46/EC of the European Parliament and of the Council (OJ L 353, 21.12.2012, p. 31).

⁵⁰ Commission Regulation (EU) 2015/166 of 3 February 2015 supplementing and amending Regulation (EC) No 661/2009 of the European Parliament and of the Council as regards the inclusion of specific procedures, assessment methods and technical requirements, and amending Directive 2007/46/EC of the European Parliament and of the Council, and Commission Regulations (EU) No 1003/2010, (EU) No 109/2011 and (EU) No 458/2011 (OJ L 28, 4.2.2015, p. 3).

characteristics and safety, and to the protection of vehicle occupants and vulnerable road users;

2. for the type-approval of vehicles, in respect of tyre pressure monitoring systems, with regard to their safety, fuel efficiency and CO₂ emissions; and
3. for the type-approval of newly-manufactured tyres with regard to their safety and environmental performance.

Article 2

Scope

This Regulation applies to vehicles of categories M, N and O, as defined in Article 4 of Regulation (EU) 2018/..., and to systems, components and separate technical units designed and constructed for such vehicles, subject to Articles 4 to 11 of this Regulation.

Article 3

Definitions

For the purposes of this Regulation, the definitions laid down in Article 3 of Regulation (EU) 2018/... shall apply.

In addition, the following definitions shall apply:

- (1) 'vulnerable road user' means a road user using a two-wheel powered vehicle or a non-motorised road user, such as a cyclist or a pedestrian;
- (2) 'tyre pressure monitoring system' means a system fitted on a vehicle which can evaluate the pressure of the tyres or the variation of pressure over time and transmit corresponding information to the user while the vehicle is running;
- (3) 'intelligent speed assistance' means a system to aid the driver in observing the appropriate speed for the road environment by providing haptic feedback through the accelerator pedal with speed limit information obtained through observation of road signs and signals, based on infrastructure signals or electronic map data, or both, made available in-vehicle;
- (4) 'alcohol interlock installation facilitation' means a standardised interface facilitating the fitment of aftermarket alcohol interlock devices in motor vehicles;
- (5) 'driver drowsiness and attention monitoring' means a system assessing the driver's alertness through vehicle systems analysis and warning the driver if needed;
- (6) 'advanced distraction recognition' means a system capable of recognition of the level visual attention of the driver to the traffic situation and warning the driver if needed;
- (7) 'emergency stop signal' means rapid flashing stop lamps to indicate to other road users to the rear of the vehicle that a high retardation force is being applied to the vehicle relative to the prevailing road conditions;
- (8) 'reversing detection' means a camera or monitor, optical or detection system to make the driver aware of people and objects at the rear of the vehicle with the primary aim to avoid collisions upon reversing;

- (9) 'lane departure warning system' means a system to warn the driver that the vehicle is drifting out of its travel lane;
- (10) 'advanced emergency braking system' means a system which can automatically detect a potential collision and activate the vehicle braking system to decelerate the vehicle with the purpose of avoiding or mitigating a collision;
- (11) 'lane-keeping system' means a system monitoring the position of the vehicle with respect to the lane boundary and applying a torque to the steering wheel, or pressure to the brakes, at least when a lane departure occurs or is about to occur and a collision may be imminent;
- (12) 'vehicle master control switch' means the device by which the vehicle's on-board electronics system is brought, from being switched off, as in the case where a vehicle is parked without the driver being present, to normal operation mode;
- (13) 'event (accident) data recorder' means a system recording and storing critical crash-related parameters and information before, during and after a collision;
- (14) 'frontal protection system' means a separate structure or structures, such as a bull bar, or a supplementary bumper which, in addition to the original-equipment bumper, is intended to protect the external surface of the vehicle from damage in the event of a collision with an object, with the exception of structures having a mass of less than 0,5 kg, intended to protect only the vehicle's lights;
- (15) 'bumper' means any front, lower, outer structures of a vehicle, including attachments thereto, which are intended to give protection to a vehicle when involved in a low speed frontal collision with another vehicle; it does not include however any frontal protection system;
- (16) 'hydrogen-powered vehicle' means any motor vehicle that uses hydrogen as fuel to propel the vehicle;
- (17) 'hydrogen system' means an assembly of hydrogen components and connecting parts fitted on a hydrogen-powered vehicle, excluding the hydrogen-powered propulsion system or the auxiliary power unit;
- (18) 'hydrogen-powered propulsion system' means the internal combustion engine or fuel cell system used to propel the vehicle;
- (19) 'hydrogen component' means hydrogen containers and all other parts of hydrogen-powered vehicles that are in direct contact with hydrogen or which form part of a hydrogen system;
- (20) 'hydrogen container' means the component within the hydrogen system that stores the primary volume of hydrogen fuel;
- (21) 'automated vehicle' means a motor vehicle designed and constructed to move autonomously for extended periods of time without continuous human supervision;
- (22) 'driver availability monitoring system' means a system to assess whether the driver is in a position to take over the driving function from an automated vehicle in particular situations, where appropriate;
- (23) 'vehicle platooning' means the linking of two or more vehicles in a convoy using connectivity technology and automated driving support systems which allow the vehicles to maintain automatically a set, close distance between each other when

connected for certain parts of a journey and to adapt to changes in the movement of the lead vehicle with little to no action from the drivers;

- (24) 'maximum mass' means the technically permissible maximum laden mass stated by the manufacturer;
- (25) 'A-pillar' means the foremost and outermost roof support extending from the chassis to the roof of the vehicle;
- (26) 'corner of frontal protection system' means the frontal protection system's point of contact with a vertical plane, which makes an angle of 60° with the vertical longitudinal plane of the vehicle and is tangential to the outer surface of the frontal protection system;
- (27) 'lower frontal protection system height' means, at any transverse position, the vertical distance between the ground and the lower frontal protection system reference line, with the vehicle positioned in its normal ride attitude.

CHAPTER II

OBLIGATIONS OF MANUFACTURERS

Article 4

General obligations and technical requirements

1. Manufacturers shall demonstrate that all new vehicles that are placed on the market, registered or entered into service, and all new systems, components and separate technical units that are placed on the market or entered into service, are type-approved in accordance with the requirements of this Regulation and of the delegated acts adopted pursuant to it.
2. Type-approval in accordance with the UN Regulations listed in Annex I shall be considered as EU type-approval in accordance with the requirements of this Regulation and of the delegated acts adopted pursuant to it.
3. The Commission is empowered to adopt delegated acts in accordance with Article 12 to amend Annex I in order to take account of technical progress and regulatory developments by introducing and updating references to the UN Regulations, and relevant series of amendments, that apply on a compulsory basis.
4. Manufacturers shall ensure that vehicles are designed, constructed and assembled so as to minimise the risk of injury to vehicle occupants and vulnerable road users.
5. Manufacturers shall also ensure that vehicles, systems, components and separate technical units comply with the applicable requirements listed in Annex II with effect from the dates specified in that Annex and with the detailed technical requirements and test procedures laid down in the delegated acts adopted pursuant to this Regulation, including the requirements relating to:
 - (a) restraint systems, crash testing, fuel system integrity and high voltage electrical safety;
 - (b) pedestrians, cyclists, vision and visibility;
 - (c) vehicle chassis, braking, tyres and steering;

- (d) on board instruments, electrical system, vehicle lighting and protection against unauthorized use including cyberattacks;
- (e) driver and system behaviour;
- (f) general vehicle construction and features;

6. The Commission is empowered to adopt delegated acts in accordance with Article 12 to amend Annex II in order to take account of technical progress and regulatory developments, in particular in relation to the matters listed in points (a) to (f) of paragraph 5 of this Article and with a view to ensuring a high level of general safety of vehicles, systems, components and separate technical units and a high level of protection of vehicle occupants and vulnerable road users.

7. In order to ensure that a high level of general safety of vehicles and of protection of vehicle occupants and vulnerable road users is attained, the Commission is empowered to adopt delegated acts in accordance with Article 12 to lay down detailed rules concerning the specific test procedures and technical requirements for type-approval of vehicles, systems, components and separate technical units with regard to the requirements listed in Annex II.

Article 5

Specific provisions relating to tyre pressure monitoring systems and tyres

1. Vehicles shall be equipped with an accurate tyre pressure monitoring system capable of giving an in-vehicle warning to the driver when a loss of pressure occurs in a tyre, in the interests of optimum fuel consumption and road safety, over a wide range of road and environmental conditions.
2. Tyre pressure monitoring systems shall be designed to avoid resetting or recalibration at a low tyre pressure.
3. All tyres placed on the market shall meet the safety and environmental performance requirements set out in the respective regulatory acts listed in Annex II.
4. The Commission is empowered to adopt delegated acts in accordance with Article 12 to lay down detailed rules concerning specific test procedures and technical requirements for:
 - (a) the type-approval of vehicles with regard to their tyre pressure monitoring systems;
 - (b) the type-approval of tyres, including technical requirements concerning their installation.

Article 6

Advanced vehicle systems for all categories of motor vehicle

1. Motor vehicles shall be equipped with the following advanced vehicle systems:
 - (a) intelligent speed assistance;
 - (b) alcohol interlock installation facilitation;
 - (c) driver drowsiness and attention monitoring;

- (d) advanced distraction recognition;
- (e) emergency stop signal;
- (f) reversing detection.

2. Intelligent speed assistance systems shall have the following minimum specifications:

- (a) it shall be possible for the driver to feel through the accelerator pedal that the applicable speed limit is reached or exceeded;
- (b) it shall not be possible to switch off or suppress the system;
- (c) it shall be possible for the driver to override the system's prompted vehicle speed smoothly through normal operation of the accelerator pedal without need for kick-down;
- (d) where a cruise control system is engaged, the intelligent speed assistance system must automatically adapt to any lower speed limit.

3. A motor vehicle equipped with an advanced distraction recognition system in accordance with point (d) of paragraph 1, may be considered to meet the requirement in point (c) of that paragraph too.

4. The Commission is empowered to adopt delegated acts in accordance with Article 12 to lay down detailed rules concerning the specific test procedures and technical requirements for:

- (a) the type-approval of vehicles with regard to the advanced vehicle systems listed in paragraph 1;
- (b) the type-approval of the advanced vehicle systems listed in points (a) and (f) of that paragraph as separate technical units.

Article 7

Specific requirements relating to passenger cars and light commercial vehicles

1. In addition to the other requirements of this Regulation and of the delegated acts adopted pursuant to it that are also applicable to vehicles of categories M₁ and N₁, vehicles of those categories shall meet the requirements set out in paragraphs 2 to 6 and in the delegated acts adopted under paragraph 7.

2. Vehicles of categories M₁ and N₁ shall be equipped with advanced emergency braking systems designed and fitted in two phases and providing for:

- (a) detection of moving vehicles and stationary obstacles ahead of the motor vehicle in the first phase;
- (b) extending the detection capability to also include vulnerable road users ahead of the motor vehicle in the second phase.

3. Vehicles of categories M₁ and N₁ shall be equipped with a lane-keeping system.

4. Advanced emergency braking systems and lane-keeping systems shall meet the following requirements in particular:

- (a) it shall be possible to switch off systems only one at a time, and only at standstill with the parking brake engaged, by a complex sequence of actions to be carried out by the driver;

- (b) the systems shall be in normal operation mode upon each activation of the vehicle master control switch;
- (c) it shall be possible to easily suppress audible warnings, but such action shall not at the same time suppress system functions other than audible warnings.

5. Vehicles of categories M₁ and N₁ shall be equipped with an event (accident) data recorder. Event (accident) data recorders shall meet the following requirements in particular:

- (a) the data that they are capable of recording and storing with respect of the period before, during and after a collision shall include, as a minimum, the vehicle's speed, the state and rate of activation of its safety systems and any other relevant input parameters of the on-board active safety and accident avoidance systems;
- (b) it shall not be possible to deactivate the devices;
- (c) the way in which they are capable of recording and storing data shall be such that the data is protected against manipulation and can be made available to national authorities, on the basis of Union or national legislation in compliance with Regulation (EU) No 2016/679, over a standardised interface for the purposes of accident data analysis, and such that the precise vehicle type, version and variant, and in particular the active safety and accident avoidance systems fitted to the vehicle, can be identified.

However, the data that an event (accident) data recorder is capable of recording and storing shall not include the last four digits of the vehicle indicator section of the vehicle information number nor any other information which could allow the individual vehicle itself to be identified.

6. Vehicles of categories M₁ and N₁ shall be designed and constructed so as to provide for an enlarged head impact protection zone with the aim of enhancing the protection of vulnerable road users and mitigating their potential injuries in the event of a collision.

7. The Commission is empowered to adopt delegated acts in accordance with Article 12 to lay down detailed rules concerning the specific test procedures and technical requirements for:

- (a) the type-approval of vehicles with regard to the requirements laid down in paragraphs 2 to 6 of this Article;
- (b) the type-approval of event (accident) data recorders as separate technical units.

Article 8

Frontal protection systems for passenger cars and light commercial vehicles

1. Frontal protection systems, either fitted as original equipment to vehicles of categories M₁ and N₁ or made available on the market as separate technical units for such vehicles, shall comply with the requirements laid down in paragraph 2, in Annex IV and in the delegated acts adopted under paragraph 3 of this Article.

2. Frontal protection systems made available on the market as separate technical units shall be accompanied by a detailed list of vehicle types, variants and versions for which the frontal protection system is type-approved, as well as by clear assembly instructions.

3. The Commission is empowered to adopt delegated acts in accordance with Article 12 to lay down detailed rules concerning the specific test procedures and technical requirements for the

type-approval of frontal protection systems referred to in paragraph 1 of this Article, including technical requirements concerning their construction and installation.

Article 9

Specific requirements relating to buses and trucks

1. In addition to the other requirements of this Regulation and of the delegated acts adopted pursuant to it that are also applicable to vehicles of categories M₂, M₃, N₂ and N₃, vehicles of those categories shall meet the requirements laid down in paragraphs 2 to 5 and in the delegated acts adopted under paragraph 7. Vehicles of categories M₂ and M₃, shall also meet the requirement laid down in paragraph 6.
2. Vehicles of categories M₂, M₃, N₂ and N₃ shall be equipped with a lane departure warning system and an advanced emergency braking system, which comply with the requirements set out in the delegated acts adopted under paragraph 7.
3. Vehicles of categories M₂, M₃, N₂ and N₃ shall be equipped with advanced systems capable of detecting vulnerable road users located in close proximity to the front or nearside of the vehicle and providing a warning or avoiding collision with such vulnerable road users.
4. With respect of systems referred to in paragraphs 2 and 3 of this Article, they shall meet the following requirements in particular:
 - (a) it shall be possible to switch off systems only one at a time, and only at standstill with the parking brake engaged, by a complex sequence of actions to be carried out by the driver;
 - (b) the systems shall be in normal operation mode upon each activation of the vehicle master control switch;
 - (c) it shall be possible to easily suppress audible warnings, but such action shall not at the same time suppress system functions other than audible warnings.
5. Vehicles of categories M₂, M₃, N₂ and N₃ shall be designed and constructed so as to enhance the direct visibility of vulnerable road users from the driver seat.
6. Vehicles of categories M₂ and M₃ with a capacity exceeding 22 passengers in addition to the driver and constructed with areas for standing passengers to allow frequent passenger movement shall be designed and constructed so as to be accessible by persons with reduced mobility, including wheelchair users.
7. The Commission is empowered to adopt delegated acts in accordance with Article 12 to lay down detailed rules concerning the specific test procedures and technical requirements for:
 - (a) the type-approval of vehicles with regard to the requirements laid down in paragraphs 2 to 5 of this Article;
 - (b) the type-approval of the systems referred to in paragraph 3 of this Article as separate technical units.

Article 10

Specific requirements relating to hydrogen-powered vehicles

1. In addition to the other requirements of this Regulation and of the delegated acts adopted pursuant to it that are also applicable to vehicles of categories M and N, hydrogen-powered

vehicles of those categories, their hydrogen systems and components of such systems shall comply with the requirements laid down in Annex V and in the delegated acts adopted under paragraph 3 of this Article.

2. Manufacturers shall ensure that hydrogen systems and hydrogen components are installed in accordance with the requirements set out in the delegated acts adopted under paragraph 3. Manufacturers shall also make available, if necessary information for the purposes of inspection of hydrogen systems and components during the service life of hydrogen-powered vehicles.

3. The Commission is empowered to adopt delegated acts in accordance with Article 12 to:

- (a) lay down detailed rules concerning the specific test procedures and technical requirements for the type-approval of hydrogen-powered vehicles with regard to their hydrogen systems and for the type-approval of hydrogen components, including requirements for their installation.
- (b) to amend Annex V in order to adapt it to technical progress.

Article 11

Specific requirements relating to automated vehicles

1. In addition to the other requirements of this Regulation and of the delegated acts adopted pursuant to it that are applicable to vehicles of the respective categories, automated vehicles shall comply with the requirements set out in the delegated acts adopted under paragraph 2 relating to:

- (a) systems to replace the driver's control of the vehicle, including steering, accelerating and braking;
- (b) systems to provide the vehicle with real-time information on the state of the vehicle and the surrounding area;
- (c) driver readiness monitoring systems;
- (d) event (accident) data recorders for automated vehicles;
- (e) harmonised format for the exchange of data for instance for multi-brand vehicle platooning.

2. In order to ensure the safe operation of automated vehicles on public roads, the Commission is empowered to adopt delegated acts in accordance with Article 12 to lay down requirements relating to the systems and other items listed in points (a) to (e) of paragraph 1 of this Article, and to lay down detailed rules concerning the specific test procedures and technical requirements for the type-approval of automated vehicles with regard to those requirements.

CHAPTER III

FINAL PROVISIONS

Article 12

Exercise of the delegation

1. The power to adopt delegated acts is conferred on the Commission subject to the conditions laid down in this Article.
2. The power to adopt delegated acts referred to in Articles 4(3), 4(6), 4(7), 5(4), 6(4), 7(7), 8(3), 9(7), 10(3) and 11(2) shall be conferred on the Commission for an indeterminate period of time from [PO: *Please insert the date of entry into force of this Regulation*].
3. The delegation of power referred to in Articles 4(3), 4(6), 4(7), 5(4), 6(4), 7(7), 8(3), 9(7), 10(3) and 11(2) may be revoked at any time by the European Parliament or by the Council. A decision to revoke shall put an end to the delegation of the power specified in that decision. It shall take effect the day following the publication of the decision in the *Official Journal of the European Union* or at a later date specified therein. It shall not affect the validity of any delegated acts already in force.
4. Before adopting a delegated act, the Commission shall consult experts designated by each Member State in accordance with the principles laid down in the Interinstitutional Agreement of 13 April 2016 on Better Law-Making.
5. As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.
6. A delegated act adopted under Article 4(3), 4(6), 4(7), 5(4), 6(4), 7(7), 8(3), 9(7), 10(3) or 11(2) shall enter into force only if no objection has been expressed either by the European Parliament or the Council within a period of two months of notification of that act to the European Parliament and the Council or if, before the expiry of that period, the European Parliament and the Council have both informed the Commission that they will not object. That period shall be extended by two months at the initiative of the European Parliament or of the Council.

Article 13

Transitional provisions

1. This Regulation shall not invalidate any EU type-approval granted to vehicles, systems, components or separate technical units which were granted in accordance with Regulation (EC) No 78/2009, Regulation (EC) No 79/2009, Regulation (EC) No 661/2009 and their implementing measures, by [PO: *Please insert the date immediately preceding the date of application of this Regulation*], unless the relevant requirements applying to such vehicles, systems, components or separate technical units have been modified or new requirements have been added by this Regulation and the delegated acts adopted pursuant to it.
2. Approval authorities shall continue to grant extensions of EU type-approvals referred to in paragraph 1 of this Article.

3. By way of derogation from this Regulation, Member States shall continue to permit until the dates specified in Annex VI the registration of vehicles, as well as the sale or entry into service of components, which do not comply with the requirements of the respective UN Regulations listed in that Annex.

Article 14

Implementation dates

With respect to vehicles, systems, components and separate technical units, national authorities shall:

- (a) with effect from the dates specified in Annex II, for a particular requirement, refuse, on grounds relating to that requirement, to grant EU type-approval or national type-approval in respect of new types of vehicle, systems, components or separate technical units which do not comply with the requirements of this Regulation and of the delegated acts adopted pursuant to it;
- (b) with effect from the dates specified Annex II, for a particular requirement, consider, on grounds relating to that requirement, certificates of conformity in respect to new vehicles to be no longer valid for the purposes of Article 48 of Regulation (EU) 2018/..., and prohibit the registration of such vehicles, which do not comply with the requirements of this Regulation and of the delegated acts adopted pursuant to it;
- (c) with effect from the dates specified in Annex II, for a particular requirement, prohibit, on grounds relating to that requirement, the placing on the market or entry into service of components and separate technical units, where they do not comply with the requirements of this Regulation and of the delegated acts adopted pursuant to it.

Article 15

Amendments to Regulation (EU) 2018/...

Annex II to Regulation (EU) 2018/... is amended in accordance with Annex III to this Regulation.

Article 16

Repeal

1. Regulations (EC) No 78/2009, (EC) No 79/2009, (EC) No 631/2009 and (EC) No 661/2009 and Regulations (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) No 347/2012, (EU) No 351/2012, (EU) No 1230/2012 and (EU) No 2015/166 are repealed with effect from the date of application of this Regulation.

2. References to Regulations (EC) No 78/2009, (EC) No 79/2009 and (EC) No 661/2009 shall be construed as references to this Regulation.

Article 17

Entry into force and date of 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 [*PO: Please insert the date 36 months following the date of entry into force of this Regulation*].

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

Done at Brussels,

For the European Parliament
The President

For the Council
The President



Brussels, 17.5.2018
COM(2018) 286 final

ANNEXES 1 to 6

ANNEXES

to the

Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

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/... and repealing Regulations (EC) No 78/2009, (EC) No 79/2009 and (EC) No 661/2009

{SEC(2018) 270 final} - {SWD(2018) 190 final} - {SWD(2018) 191 final}

ANNEX I

List of UN Regulations referred to in Article 4(2)

Regulation Number	Subject	Series of amendments published in the OJ	OJ Reference	Scope covered by the UN Regulation
1	Headlamps emitting an asymmetrical passing beam and/or driving beam equipped with filament lamps R2 and/or HS1	02 series of amendments	OJ L 177, 10.7.2010, p. 1	M, N ^(a)
3	Retro-reflecting devices for power-driven vehicles	Supplement 12 to the 02 series of amendments	OJ L 323, 6.12.2011, p. 1	M, N, O
4	Illumination of rear-registration plates of power-driven vehicles and their trailers	Supplement 15 to the original version of the Regulation	OJ L 4, 7.1.2012, p. 7	M, N, O
6	Direction indicators for power-driven vehicles and their trailers	Supplement 25 to the 01 series of amendments	OJ L 213, 18.7.2014, p. 1.	M, N, O
7	Front and rear position (side) lamps, stop-lamps and end-outline marker lamps for power-driven vehicles and their trailers	Supplement 23 to the 02 series of amendments	OJ L 285, 30.9.2014, p. 1.	M, N, O
8	Motor vehicles headlamps (H1, H2, H3, HB3, HB4, H7, H8, H9, HIR1, HIR2 and/or H11)	05 series of amendments Corrigendum 1 to Revision 4	OJ L 177, 10.7.2010, p. 71	M, N ^(a)
10	Electromagnetic compatibility	Supplement 01 to the 05 series of	OJ L 41, 17.2.2017, p. 1	M, N, O

		amendments		
11	Door latches and door retention components	Supplement 2 to the 03 series of amendments	OJ L 120, 13.5.2010, p. 1 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁ , N ₁
12	Protection of the driver against the steering mechanism in the event of impact	Supplement 1 to the 04 series of amendments	OJ L 89, 27.3.2013, p. 1 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁ , N ₁
13	Braking of vehicles and trailers	Supplement 13 to the 11 series of amendments	OJ L 42, 18.2.2016, p. 1.	M ₂ , M ₃ , N, O ^(b)
13-H	Braking of passenger cars	Supplement 16 to the original version of the Regulation	OJ L 335, 22.12.2015, p. 1.	M ₁ , N ₁
14	Safety-belt anchorages, ISOFIX anchorages systems and ISOFIX top tether anchorages	Supplement 5 to the 07 series of amendments	OJ L 218, 19.8.2015, p. 27 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N
16	Safety-belts, restraint systems, child restraint systems and ISOFIX child restraint systems	Supplement 2 to the 07 series of amendments	OJ L 109, 27.4.2018, p. 1	M, N
17	Seats, their anchorages and any head restraints	08 series of amendments	OJ L 230, 31.8.2010, p. 81 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N

18	Protection of motor vehicles against unauthorized use	Supplement 2 to the 03 series of amendments	OJ L 120, 13.5.2010, p. 29	M ₂ , M ₃ , N ₂ , N ₃
19	Power-driven vehicle front fog lamps	Supplement 6 to the 04 series of amendments	OJ L 250, 22.8.2014, p. 1	M, N
20	Headlamps emitting an asymmetrical passing beam or a driving beam or both and equipped with halogen filament lamps (H4)	03 series of amendments	OJ L 177, 10.7.2010, p. 170	M, N ^(a)
21	Interior fittings	Supplement 3 to the 01 series of amendments	OJ L 188, 16.7.2008, p. 32	M ₁
23	Reversing lights for power-driven vehicles and their trailers	Supplement 19 to the original version of the Regulation	OJ L 237, 8.8.2014, p. 1	M, N, O
25	Head restraints (headrests), whether or not incorporated in vehicle seats	04 series of amendments Corrigendum 2 to Revision 1	OJ L 215, 14.8.2010, p. 1 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁
26	External projections	Supplement 1 to the 03 series of amendments	OJ L 215, 14.8.2010, p. 27	M ₁
28	Audible warning devices and signals	Supplement 3 to the original version of the Regulation	OJ L 323, 6.12.2011, p. 33	M, N
29	Protection of the occupants of the cab of a commercial vehicle	03 series of amendments	OJ L 304, 20.11.2010, p. 21 <i>[PO: scheduled for</i>	N

			<i>translation in 2018, please update the references when available]</i>	
30	Pneumatic tyres for motor vehicles and their trailers (Class C1)	Supplement 16 to the 02 series of amendments	OJ L 307, 23.11.2011, p. 1	M, N, O
31	Power-driven vehicle's sealed-beam headlamps (SB) emitting an European asymmetrical passing beam or a driving beam or both	Supplement 7 to the 02 series of amendments	OJ L 185, 17.7.2010, p. 15	M, N
34	Prevention of fire risks (liquid fuel tanks)	Supplement 1 to the 03 series of amendments	OJ L 231, 26.8.2016, p. 41	M, N, O
37	Filament lamps for use in approved lamp units of power-driven vehicles and their trailers	Supplement 42 to the 03 series of amendments	OJ L 213, 18.07.2014, p. 36	M, N, O
38	Rear fog lamps for power-driven vehicles and their trailers	Supplement 15 to the original version of the Regulation	OJ L 4, 7.1.2012, p. 20	M, N, O
39	Speedometer equipment including its installation	Supplement 5 to the original version of the Regulation	OJ L 120, 13.5.2010, p. 40	M, N
43	Safety glazing materials	Supplement 2 to the 01 series of amendments	OJ L 42, 12.2.2014, p. 1	M, N, O
44	Restraining devices for child occupants of power-driven vehicles ("child restraint system")	Supplement 10 to the 04 series of amendments	OJ L 265, 30.9.2016, p. 1	M, N
45	Headlamps cleaners	Supplement	<i>[PO: scheduled for</i>	M, N

		11 to the 01 series of amendments	<i>translation in 2018, please update the references when available]</i>	
46	Devices for indirect vision and their installation	Supplement 1 to the 04 series of amendments	OJ L 237, 8.8.2014, p. 24	M, N
48	Installation of lighting and light-signalling devices on motor vehicles	Supplement 7 to the 06 series of amendments	OJ L 265, 30.09.2016, p. 125	M, N, O (°)
54	Pneumatic tyres for commercial vehicles and their trailers (Classes C2 and C3)	Supplement 17 to the original version of the Regulation	OJ L 307, 23.11.2011, p. 2	M, N, O
55	Mechanical coupling components of combinations of vehicles	Supplement 1 to the 01 series of amendments	OJ L 227, 28.8.2010, p. 1 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N, O (°)
58	Rear underrun protective devices (RUPDs) and their installation; Rear underrun protection (RUP)	Supplement 3 to the 02 series of amendments	OJ L 89, 27.3.2013, p. 34 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N, O
61	Commercial vehicles with regard to their external projections forward of the cab's rear panel	Supplement 1 to the original version of the Regulation	OJ L 164, 30.6.2010, p. 1	N
64	Temporary-use spare unit, run-flat tyres/system (and tyre pressure monitoring system)	Corrigendum 1 to the 02 series of amendments	OJ L 310, 26.11.2010, p. 18	M ₁ , N ₁

66	Strength of the superstructure of large passenger vehicles	02 series of amendments	OJ L 84, 30.3.2011, p. 1	M ₂ , M ₃
67	Motor vehicles using LPG	Supplement 14 to the 01 series of amendments	OJ L 285, 20.10.2016, p. 1	M, N
73	Lateral protection of goods vehicles	01 series of amendments	OJ L 122, 8.5.2012, p. 1	N ₂ , N ₃ , O ₃ , O ₄
77	Parking lamps for power-driven vehicles	Supplement 14 to the original version of the Regulation	OJ L 4, 7.1.2012, p. 21	M, N
79	Steering equipment	Supplement 3 to the 01 series of amendments Corrigendum	OJ L 137, 27.5.2008, p. 25	M, N, O
80	Seats of large passenger vehicles	03 series of amendments to the Regulation	OJ L 226, 24.8.2013, p. 20 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₂ , M ₃
87	Daytime running lamps for power-driven vehicles	Supplement 15 to the original version of the Regulation	OJ L 4, 7.1.2012, p. 24	M, N
89	Speed limitation devices	Supplement 2 to the original version of the Regulation	OJ L 4, 7.1.2012, p. 25	M, N ^(d)
90	Replacement brake lining assemblies and drum brake linings for power-driven vehicles and their trailers	02 series of amendments	OJ L 185, 13.7.2012, p. 24	M, N, O
91	Side-marker lamps for	Supplement	OJ L 4, 7.1.2012, p.	M, N, O

	motor vehicles and their trailers	13 to the original version of the Regulation	27	
93	Front underrun protective devices (FUPDs) and their installation; front underrun protection (FUP)	Original version of the Regulation	OJ L 185, 17.7.2010, p. 56	N ₂ , N ₃
94	Protection of occupants in the event of a frontal collision	03 series of amendments	OJ L 35, 8.2.2018, p. 1	M ₁
95	Protection of occupants in the event of a lateral collision	Supplement 4 to the 03 series of amendments	OJ L 183, 10.7.2015, p. 91	M ₁ , N ₁
97	Vehicle Alarm Systems (VAS)	Supplement 6 to the 01 series of amendments	OJ L 122, 8.5.2012, p. 19	M ₁ , N ₁ (°)
98	Motor vehicle headlamps equipped with gas-discharge light sources	Supplement 4 to the 01 series of amendments	OJ 176, 14.6.2014, p. 64	M, N
99	Gas-discharge light sources for use in approved gas-discharge lamp units of power-driven vehicles	Supplement 9 to the original version of the Regulation	OJ L 285, 30.09.2014, p. 35	M, N
100	Electric safety	Supplement 1 to the 02 series of amendments	OJ L 87, 31.3.2015, p. 1 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N
102	Close-coupling device (CCD); fitting of an approved type of CCD	Original version of the Regulation	OJ L 351, 30.12.2008, p. 44	N ₂ , N ₃ , O ₃ , O ₄
104	Retro-reflective markings (heavy and	Supplement 7 to the original	OJ L 75, 14.3.2014,	M ₂ , M ₃ , N,

	long vehicles)	version	p. 29	O ₂ , O ₃ , O ₄
105	Vehicles for the carriage of dangerous goods	05 series of amendments	OJ L 4, 7.1.2012, p. 30	N,O
107	M ₂ and M ₃ vehicles	Supplement 1 to the 07 series of amendments	OJ L 52 of 23.2.2018, p.1	M ₂ , M ₃
108	Retreated tyres for passenger cars and their trailers	Supplement 1 to the original version of the Regulation	OJ L 181, 4.7.2006, p. 1	M ₁ , O ₁ , O ₂
109	Retreated tyres for commercial vehicles and their trailers	Supplement 2 to the original version of the Regulation	OJ L 181, 4.7.2006, p. 1	M ₂ , M ₃ , N, O ₃ , O ₄
110	Specific components for CNG	Supplement 2 to 01 series of amendments	OJ L 166, 30.6.2015, p. 1	M, N
112	Motor vehicle headlamps emitting an asymmetrical passing beam or a driving beam or both and equipped with filament lamps and/or LED modules	Supplement 4 to the 01 series of amendments	OJ L 250, 22.8.2014, p. 67	M, N
114	Replacement airbag	Original version of the Regulation	OJ L 373, 27.12.2006, p. 272	M ₁ , N ₁
115	LPG and CNG retrofit systems	Supplement 6 to the original version of the Regulation	OJ L 323, 7.11.2014, p. 91	M, N
116	Protection of motor vehicles against unauthorized use	Supplement 3 to the original version of the Regulation	OJ L 45, 16.2.2012, p. 1	M ₁ , N ₁ (°)
117	Tyres with regard to rolling sound emissions, adhesion on wet surfaces and rolling	Supplement 8 to the 02 series of amendments	OJ L 218, 12.08.2016, p. 1	M, N, O

	resistance (Classes C1, C2 and C3)			
118	Fire resistance of interior materials in buses	Supplement 1 to the 02 series of amendments	OJ L 102, 21.4.2015, p.67 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₃
119	Cornering lamps	Supplement 3 to the 01 series of amendments	OJ L 89, 25.3.2014, p. 101	M, N
121	Location and identification of hand controls, tell-tales and indicators	01 series of amendments	OJ L 5, 8.1.2016, p. 9	M, N
122	Heating system of vehicles	Supplement 1 to the original version of the Regulation	OJ L 164, 30.6.2010, p. 231 <i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N, O
123	Adaptive front-lighting systems (AFS) for motor vehicles	Supplement 4 to the original version of the Regulation	OJ L 222, 24.8.2010, p. 1	M, N
124	Replacement wheels	Original version of the Regulation	OJ L 375, 27.12.2006, p. 568	M ₁ , N ₁ , O ₁ , O ₂
125	Forward field of vision	Supplement 1 to the 01 series of amendments	OJ L 20, 25.1.2018, p. 16	M ₁
126	Partitioning systems	Original series	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁
127	Pedestrian safety	02 series	<i>[PO: scheduled for</i>	M ₁ , N ₁

			<i>translation in 2018, please update the references when available]</i>	
128	Light Emitting Diode (LED) light sources	Supplement 2 to the original version of the Regulation	OJ L 162, 29.5.2014, p. 43	M, N, O
129	Enhanced child restrained systems	Supplement 2 to the original version of the Regulation	OJ L 97, 29.03.2014, p. 21	M, N
130	Lane departure warning	Original version of the Regulation	OJ L 178, 18.06.2014, p. 29	M ₂ , M ₃ , N ₂ , N ₃ ^(f)
131	Advanced emergency braking	Supplement 1 to 01 series of amendments	OJ L 214, 19.07.2014, p. 47	M ₂ , M ₃ , N ₂ , N ₃ ^(f)
134	Hydrogen safety	Supplement 2 to the original series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M, N
135	Pole side impact	Supplement 1 to the 01 series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁ , N ₁
137	Frontal full-width impact	01 series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁
139	Brake assist	Original series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁ , N ₁
140	Stability control	Original series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when</i>	M ₁ , N ₁

			<i>available]</i>	
141	Tyre pressure monitoring	Original series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁ , N ₁
142	Tyre installation	Original series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁
[145]	Child restraint anchorages	Original series of amendments	<i>[PO: scheduled for translation in 2018, please update the references when available]</i>	M ₁

Notes to the table

The series of amendments indicated in the table reflects the version that has been published in the *Official Journal* and is without prejudice to the series of amendments that shall be complied with on the basis of the transitional provisions provided therein.

Compliance with a series of amendments adopted after the particular series indicated in the table shall be accepted as an alternative.

The dates specified in the relevant series of amendments of the UN Regulations listed in the table, as regards the obligations of Contracting Parties to the ‘Revised 1958 Agreement’¹, linked to first registration, entry into service, making available on the market, sale, the recognition of type-approvals, and any similar provisions, apply on a compulsory basis for the purposes of Articles 48 and 50 of Regulation (EU) 2018/... except where alternative dates are specified in Article 14 of this Regulation in which case those alternative dates are to be followed instead.

In certain instances, a UN Regulation listed in the table provides in its transitional provisions that as from a specified date, Contracting Parties to the ‘Revised 1958 Agreement’ applying a certain series of amendments to that UN Regulation shall not be obliged to accept or may refuse to accept, for the purpose of national or regional type-approval, a type approved in accordance with a preceding series of amendments, or wording with similar intention and meaning. This shall be construed as a binding provision for national authorities to consider the certificates of conformity to be no longer valid for the purposes of Article 48 of Regulation (EU) 2018/..., except where alternative dates are specified in Annex II of this Regulation in which case those alternative dates are to be followed instead.

¹ Council Decision of 27 November 1997 with a view to accession by the European Community to the Agreement of the United Nations Economic Commission for Europe concerning the adoption of uniform technical prescriptions for wheeled vehicles, equipment and parts which can be fitted to and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions (‘Revised 1958 Agreement’) (OJ L 346, 17.12.1997, p. 78).

- (^a) UN Regulation Nos 1, 8 and 20 are not applicable for EU type-approval of vehicles.
- (^b) The mandatory fitting of a stability control function is required in accordance with the UN Regulations. However, it is also mandatory for vehicles of category N₁.
- (^c) Where it is declared by the vehicle manufacturer that a vehicle is suitable for towing loads (point 2.11.5. of the information document referred to in Article 24(1) of Regulation (EU) 2018/...) and any part of a suitable mechanical coupling device, whether fitted or not to the type of motor-vehicle, could (partly) obscure any lighting component and/or the space for mounting and fixing the rear registration plate, the following shall apply:
- the motor-vehicle's user instructions (e.g. owner's manual, vehicle handbook) shall clearly specify that installation of a mechanical coupling device that cannot be easily removed or repositioned is not permitted;
 - the instructions shall also clearly specify that, when fitted, a mechanical coupling device must always be removed or repositioned when it is not in use; and
 - in the case of vehicle system type-approval according to UN Regulation 55, it shall be ensured that the removal, repositioning and/or alternate location provisions are also fully complied with as regards lighting installation and space for mounting and fixing the rear registration plate .
- (^d) Only Speed Limitation Devices (SLD) and the mandatory installation of SLD on vehicles of category M₂, M₃, N₂ and N₃ are concerned.
- (^e) Devices to prevent unauthorised use shall be fitted on vehicles of categories M₁ and N₁ and immobilizer systems shall be fitted on vehicles of category M₁.
- (^f) See explanatory note ⁴ to the table in Annex II.

ANNEX II

List of the requirements referred to in Article 4(5) and the dates referred to in Article 14

Subject	UN Regulations	Additional specific technical requirements	M ₁	M ₂	M ₃	N ₁	N ₂	N ₃	O ₁	O ₂	O ₃	O ₄	S T U	Com pon ent
Requirements concerning RESTRAINT SYSTEMS, CRASH TESTING, FUEL SYSTEM INTEGRITY AND HIGH VOLTAGE ELECTRICAL SAFETY														
Interior fittings	UN Regulation No 21		A											
Seats and head restraints	UN Regulation No 17		A	A	A	A	A	A						
Bus seats	UN Regulation No 80			A	A									A
Safety-belt anchorages	UN Regulation No 14		A	A	A	A	A	A						
Safety-belts and restraint systems	UN Regulation No 16		A	A	A	A	A	A					A	A
Partitioning systems	UN Regulation No 126		X										B	
Child restraint anchorages	UN Regulation No 145		A											
Child restraint systems	UN Regulation No 44		A ¹	A ¹	A ¹	A ¹	A ¹	A ¹					A	A
Enhanced child restraint systems	UN Regulation No 129		X	X	X	X	X	X					B	B
Front underrun protection	UN Regulation No 93						A	A					A	A
Rear underrun protection	UN Regulation No 58		A	A	A	A	A	A	A	A	A	A	A	A

Subject	UN Regulations	Additional specific technical requirements	M ₁	M ₂	M ₃	N ₁	N ₂	N ₃	O ₁	O ₂	O ₃	O ₄	S T U	Com pon ent
Lateral protection	UN Regulation No 73						A	A			A	A		
Fuel tank safety	UN Regulation No 34		A	A	A	A	A	A	A	A	A	A	A	
Liquified petroleum gas safety	UN Regulation No 67		A	A	A	A	A	A						A
Compressed and liquified natural gas safety	UN Regulation No 110		A	A	A	A	A	A						A
Hydrogen safety	UN Regulation No 134		A	A	A	A	A	A						A
Hydrogen system material qualification		Annex V	A	A	A	A	A	A						A
In-use electric safety	UN Regulation No 100		A	A	A	A	A	A						
Frontal off-set impact	UN Regulation No 94	Applies to vehicle categories M ₁ and N ₁ with a maximum mass ≤ 3 500 kg	A			A								
Frontal full-width impact	UN Regulation No 137	Use of the anthropomorphic test device "Hybrid III" crash dummy is permitted until the test device for human occupant restraint "THOR" is available in the UN Regulation	B			B								
Protective steering	UN Regulation No 12		A			A							A	
Replacement airbag	UN Regulation No 114		X			X							B	
Cab impact	UN Regulation No 29					A	A	A						

Subject	UN Regulations	Additional specific technical requirements	M ₁	M ₂	M ₃	N ₁	N ₂	N ₃	O ₁	O ₂	O ₃	O ₄	S T U	Com pon ent
Side impact	UN Regulation No 95	Applies to all vehicles of categories M ₁ and N ₁ including those with R point of the lowest seat > 700 mm from ground level	A			A								
Pole side impact	UN Regulation No 135		B			B								
Rear impact	UN Regulation No 34	Applies to vehicle categories M ₁ and N ₁ with a maximum mass ≤ 3 500 kg. Post-crash electrical safety requirements shall be ensured	A			A								
Requirements concerning PEDESTRIANS, CYCLISTS, VISION AND VISIBILITY														
Pedestrian leg and head protection	UN Regulation No 127		A			A								
Pedestrian and cyclist enlarged head impact zone	UN Regulation No 127	Child and adult headform test area are bounded by the "adult wrap-around-distance" of 2 500 mm or "windscreen rear reference line" whichever is more forward. Headform contact with A-pillars, windscreen header and cowl is excluded, but shall be monitored.	B			B								
Frontal protection system		Annex IV	X			X							A	

Subject	UN Regulations	Additional specific technical requirements	M ₁	M ₂	M ₃	N ₁	N ₂	N ₃	O ₁	O ₂	O ₃	O ₄	S T U	Com pon ent
Advanced emergency braking for pedestrian and cyclist			C			C								
Pedestrian and cyclist collision warning				B	B		B	B					B	
Blind spot information system				B	B		B	B					B	
Reversing safety			B	B	B	B	B	B	B	B	B	B	B	
Forward vision	UN Regulation No 125	Applies to vehicle categories M ₁ and N ₁	B			C								
Heavy duty direct vision				D	D		D	D						
Safety glazing	UN Regulation No 43		A	A	A	A	A	A	A	A	A	A		A
Defrost/demist			A	A ²	A ²	A ²	A ²	A ²						
Wash/wipe			A	A ³	A ³	A ³	A ³	A ³					A	
Indirect vision devices	UN Regulation No 46		A	A	A	A	A	A						A
Requirements concerning VEHICLE CHASSIS, BRAKING, TYRES AND STEERING														
Steering equipment	UN Regulation No 79		A	A	A	A	A	A	A	A	A	A		
Lane departure warning	UN Regulation No 130			A ⁴	A ⁴		A ⁴	A ⁴						
Emergency lane keeping			B			B								

Subject	UN Regulations	Additional specific technical requirements	M ₁	M ₂	M ₃	N ₁	N ₂	N ₃	O ₁	O ₂	O ₃	O ₄	S T U	Com pon ent
Braking	UN Regulation No 13 UN Regulation No 13-H		A	A	A	A	A	A	A	A	A	A		
Replacement braking parts	UN Regulation No 90		X	X	X	X	X	X	X	X	X	X	A	
Brake assist	UN Regulation No 139		A			A								
Stability control	UN Regulation No 13 UN Regulation No 140		A	A	A	A	A	A	A	A	A	A		
Advanced emergency braking on heavy duty vehicles	UN Regulation No 131			A ⁴	A ⁴		A ⁴	A ⁴						
Advanced emergency braking on light duty vehicles			B			B								
Tyre safety and environmental performance	UN Regulation No 30 UN Regulation No 54 UN Regulation No 117		X	X	X	X	X	X	X	X	X	X		A
Spare wheels and run-flat systems	UN Regulation No 64		A ¹			A ¹								
Retreaded tyres	UN Regulation No 108 UN Regulation No 109		X	X	X	X	X	X	X	X	X	X		A
Tyre pressure monitoring for light duty	UN Regulation No 141	Applies to vehicle categories M ₁ and N ₁	A			B								
Tyre pressure monitoring for heavy duty				B	B		B	B			B	B		

Subject	UN Regulations	Additional specific technical requirements	M ₁	M ₂	M ₃	N ₁	N ₂	N ₃	O ₁	O ₂	O ₃	O ₄	S T U	Com pon ent
Tyre installation	UN Regulation No 142	Applies to all vehicle categories	A	A	A	A	A	A	A	A	A	A		
Replacement wheels	UN Regulation No 124		X			X			X	X				B
Requirements concerning ON BOARD INSTRUMENTS, ELECTRICAL SYSTEM AND VEHICLE LIGHTING														
Audible warning	UN Regulation No 28		A	A	A	A	A	A						A
Radio interference (electromagnetic compatibility)	UN Regulation No 10		A	A	A	A	A	A	A	A	A	A	A	A
Protection against unauthorised use, cyber attacks, immobilizer and alarm systems	UN Regulation No 18 UN Regulation No 97 UN Regulation No 116		A	A ¹	A ¹	A	A ¹	A ¹					A	A
Speedometer	UN Regulation No 39		A	A	A	A	A	A						
Odometer	UN Regulation No 39		A	A	A	A	A	A						
Speed limitation devices	UN Regulation No 89			A	A		A	A						A
Intelligent speed assistance			B	B	B	B	B	B					B	
Identification of controls, tell-tales and indicators	UN Regulation No 121		A	A	A	A	A	A						
Heating systems	UN Regulation No 122		A	A	A	A	A	A	A	A	A	A		A

Subject	UN Regulations	Additional specific technical requirements	M ₁	M ₂	M ₃	N ₁	N ₂	N ₃	O ₁	O ₂	O ₃	O ₄	S T U	Com pon ent
Light signalling devices	UN Regulation No 4 UN Regulation No 6 UN Regulation No 7 UN Regulation No 19 UN Regulation No 23 UN Regulation No 38 UN Regulation No 77 UN Regulation No 87 UN Regulation No 91		X	X	X	X	X	X	X	X	X	X		A
Road illumination devices	UN Regulation No 31 UN Regulation No 98 UN Regulation No 112 UN Regulation No 123		X	X	X	X	X	X						A
Retro-reflective devices	UN Regulation No 3		X	X	X	X	X	X	X	X	X	X		A
Light sources	UN Regulation No 37 UN Regulation No 99 UN Regulation No 128		X	X	X	X	X	X	X	X	X	X		A
Installation of light signalling, road illumination and retro-reflective devices	UN Regulation No 48		A	A	A	A	A	A	A	A	A	A		
Emergency Stop Signal			B	B	B	B	B	B	B	B	B	B		
Headlamp cleaners	UN Regulation No 45		A ¹	A ¹	A ¹	A ¹	A ¹	A ¹						A
Gear shift indicator			A											
Requirements concerning DRIVER AND SYSTEM BEHAVIOUR														

Subject	UN Regulations	Additional specific technical requirements	M ₁	M ₂	M ₃	N ₁	N ₂	N ₃	O ₁	O ₂	O ₃	O ₄	S T U	Com pon ent
Alcohol interlock installation facilitation			B	B	B	B	B	B						
Drowsiness and attention detection			B	B	B	B	B	B						
Advanced distraction recognition		Advanced distraction recognition may also cover drowsiness and attention detection. Distraction avoidance by technical means may also be taken into consideration as an alternative to advanced distraction recognition	C	C	C	C	C	C						
Driver availability monitoring			B ⁵	B ⁵	B ⁵	B ⁵	B ⁵	B ⁵						
Event (accident) data recorder			B	B ⁵	B ⁵	B	B ⁵	B ⁵					B	
Systems to replace driver's control			B ⁵	B ⁵	B ⁵	B ⁵	B ⁵	B ⁵						
Systems to provide the vehicle with information on state of vehicle and surrounding area			B ⁵	B ⁵	B ⁵	B ⁵	B ⁵	B ⁵						
Platooning			B ⁵	B ⁵	B ⁵	B ⁵	B ⁵	B ⁵						
Requirements concerning GENERAL VEHICLE CONSTRUCTION AND FEATURES														
Registration plate space			A	A	A	A	A	A	A	A	A	A		

Subject	UN Regulations	Additional specific technical requirements	M ₁	M ₂	M ₃	N ₁	N ₂	N ₃	O ₁	O ₂	O ₃	O ₄	S T U	Com pon ent
Reversing motion			A	A	A	A	A	A						
Door latches and hinges	UN Regulation No 11		A			A	A	A						
Door entry steps, handholds and running boards			A			A	A	A						
External projections	UN Regulation No 26		A											
External projections of commercial vehicle cabs	UN Regulation No 61					A	A	A						
Statutory plate and vehicle identification number			A	A	A	A	A	A	A	A	A	A		
Towing devices			A	A	A	A	A	A						
Wheel guards			A											
Spray suppression systems						A	A	A	A	A	A	A		
Masses and dimensions			A	A	A	A	A	A	A	A	A	A		
Mechanical couplings	UN Regulation No 55 UN Regulation No 102		A ¹	A ¹	A ¹	A ¹	A ¹	A ¹	A	A	A	A		A
Vehicles intended for the transportation of dangerous goods	UN Regulation No 105					A	A	A	A	A	A	A		

Subject	UN Regulations	Additional specific technical requirements	M ₁	M ₂	M ₃	N ₁	N ₂	N ₃	O ₁	O ₂	O ₃	O ₄	S T U	Com pon ent
General bus construction	UN Regulation No 107			A	A									
Bus strength of superstructure	UN Regulation No 66			A	A									
Flammability in buses	UN Regulation No 118				A									A

Notes to the table

A: Date for the prohibition of the registration of vehicles, as well as the placing on the market and entry into service of components and separate technical units:

[PO: Please insert the date of application of this Regulation]

B: Date for refusal to grant EU type-approval:

[PO: Please insert the date of application of this Regulation]

Date for the prohibition of the registration of vehicles, as well as the placing on the market and entry into service of components and separate technical units:

[PO: Please insert the date 24 months after the date of application of this Regulation]

C: Date for refusal to grant EU type-approval:

[PO: Please insert the date 24 months after the date of application of this Regulation]

Date for the prohibition of the registration of vehicles, as well as the placing on the market and entry into service of components and separate technical units:

[PO: Please insert the date 48 months after the date of application of this Regulation]

D: Date for refusal to grant EU type-approval:

[PO: Please insert the date 48 months after the date of application of this Regulation]

Date for the prohibition of the registration of vehicles, as well as the placing on the market and entry into service of components and separate technical units:

[PO: Please insert the date 84 months after the date of application of this Regulation]

X: The component or separate technical unit in question applies to the vehicle categories as indicated.

¹ Compliance is required if fitted.

² Vehicles of this category shall be fitted with an adequate windscreen defrosting and demisting device.

³ Vehicles of this category shall be fitted with adequate windscreen washing and wiping devices.

⁴ The following vehicles are exempted:

- semi-trailer towing vehicles of category N₂ with a maximum mass exceeding 3,5 tonnes but not exceeding 8 tonnes;
- vehicles of categories M₂ and M₃ of Class A, Class I and Class II as defined in paragraph 2.1 of UN Regulation No 107;
- articulated buses of category M₃ of Class A, Class I and Class II as defined in paragraph 2.1 of UN Regulation No 107;
- off-road vehicles of categories M₂, M₃, N₂ and N₃;
- special purpose vehicles of categories M₂, M₃, N₂ and N₃; and
- vehicles of categories M₂, M₃, N₂ and N₃ with more than three axles.

⁵ Compliance is required in case of automated vehicles.

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134	X	X	X	X	X	X					X
63	General safety	Regulation (EU) 2019/... ⁺	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾ ;

(iv) the entries for items 65 and 66 are replaced by the following:

'65	Advanced emergency braking system	Regulation (EU) 2019/... ⁺ UN Regulation No 131		X	X		X	X					
66	Lane departure warning system	Regulation (EU) 2019/... ⁺ UN Regulation No 130		X	X		X	X';					

(b) the explanatory notes are amended as follows:

(i) explanatory notes 3 and 4 are replaced by the following:

'⁽³⁾ The fitting of vehicle stability function is required in accordance with Article 4(5) of Regulation (EU) 2019/...⁺

'⁽⁴⁾ The fitting of an electronic stability control system is required in accordance with Article 4(5) of Regulation (EU) 2019/...⁺

(ii) explanatory note 9A is replaced by the following:

'^(9A) The fitting of a tyre pressure monitoring system is required in accordance with Article 5(1) of Regulation (EU) 2019/...⁺;

(iii) explanatory note 15 is replaced by the following:

'⁽¹⁵⁾ Compliance with Regulation (EU) 2019/...⁺ is mandatory. However, type-approval under this specific item is not envisaged as it merely represents the collection of individual items listed elsewhere in the table that make reference to Regulation (EU) 2019/...⁺;

(3) in Appendix 1 of Part I, Table 1 is amended as follows:

(a) the entry for item 46A is replaced by the following:

'46A	Installation of tyres	Regulation (EU)		B';
------	-----------------------	-----------------	--	-----

		2019/... ⁺ UN Regulation No 142		
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(b) the entry for item 58 is replaced by the following:

'58	Pedestrian protection	Regulation (EU) 2019/... ⁺ UN Regulation No 127		A';
-----	-----------------------	---	--	-----

(c) the entries for items 62 and 63 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134		X
63	General safety	Regulation (EU) 2019/... ⁺		Compliance with Regulation (EU) 2019/... ⁺ is mandatory. However, type-approval under this specific item is not envisaged as it merely represents the collection of individual items listed elsewhere in the table that make reference to Regulation (EU) 2019/... ⁺ ;

(4) in the explanatory notes to Table 1 of Appendix 1, the final paragraph is deleted;

(5) in Appendix 1 of Part I, Table 2 is amended as follows:

(a) the entry for item 46A is replaced by the following:

'46A	Installation of tyres	Regulation (EU) 2019/... ⁺ UN Regulation No 142		B';
------	-----------------------	---	--	-----

(b) the entry for item 58 is replaced by the following:

'58	Pedestrian protection	Regulation (EU)		A';
-----	-----------------------	-----------------	--	-----

		2019/... ⁺ UN Regulation No 127		
--	--	---	--	--

(c) the entries for items 62 and 63 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134		X
63	General safety	Regulation (EU) 2019/... ⁺		Compliance with Regulation (EU) 2019/... ⁺ is mandatory. However, type-approval under this specific item is not envisaged as it merely represents the collection of individual items listed elsewhere in the table that make reference to Regulation (EU) 2019/... ⁺ ;

(6) in Appendix 2 of Part I, point 4 is amended as follows:

(a) the table headed 'Part I: Vehicles belonging to category M₁' is amended as follows:

(i) the entry for item 58 is replaced by the following:

'58	UN Regulation No 127 Regulation (EU) 2019/... ⁺ (Pedestrian protection)	Vehicles shall be fitted with an electronic antilock braking system acting on all wheels. The requirements of UN Regulation No 127 shall apply. Any frontal protection system shall either be an integral part of the vehicle and thus compliant with the requirements of UN Regulation No 127 or be type-approved as separate technical unit';
-----	--	---

(ii) the following entry is inserted in the appropriate place by item number:

'62	UN Regulation No 134 Regulation (EU) 2019/... ⁺ (Hydrogen system)	The requirements of UN Regulation No 134 shall apply. Alternatively, it shall be demonstrated that the vehicle complies with: <ul style="list-style-type: none"> - Substantive requirements of Regulation (EC) No 79/2009 in its version applicable on [PO: Please insert the date immediately preceding the date of application of this Regulation]; - Attachment 100 – Technical Standard For Fuel Systems Of Motor Vehicle Fueled By
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		Compressed Hydrogen Gas (Japan); - GB/T 24549-2009 Fuel cell electric vehicles – safety requirements (China); - International standard ISO 23273:2013 Part 1: Vehicle functional safety and Part 2: Protection against hydrogen hazards for vehicles fuelled with compressed hydrogen; or - SAE J2578 – General Fuel Cell Vehicle Safety';
--	--	---

(b) the table headed 'Part II Vehicles belonging to category N₁' is amended as follows:

(i) the entry for item 58 is replaced by the following:

'58	UN Regulation No 127 Regulation (EU) 2019/... ⁺ (Pedestrian protection)	Vehicles shall be fitted with an electronic antilock braking system acting on all wheels. The requirements of UN Regulation No 127 shall apply. Any frontal protection system shall either be an integral part of the vehicle and thus compliant with the requirements of UN Regulation No 127 or be type-approved as separate technical unit';
-----	--	---

(ii) the following entry is inserted in the appropriate place by item number:

'62	UN Regulation No 134 Regulation (EU) 2019/... ⁺ (Hydrogen system)	The requirements of UN Regulation No 134 shall apply. Alternatively, it shall be demonstrated that the vehicle complies with: - Substantive requirements of Regulation (EC) No 79/2009 in its version applicable on [<i>PO: Please insert the date immediately preceding the date of application of this Regulation</i>]; - Attachment 100 – Technical Standard For Fuel Systems Of Motor Vehicle Fueled By Compressed Hydrogen Gas (Japan); - GB/T 24549-2009 Fuel cell electric vehicles – safety requirements (China); - International standard ISO 23273:2013 Part 1: Vehicle functional safety and Part 2: Protection against hydrogen hazards for vehicles fuelled with compressed hydrogen; or - SAE J2578 – General Fuel Cell Vehicle Safety';
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(7) in Part II, in the table, the entries for items 58, 65 and 66 are deleted;

(8) Part III is amended as follows:

(a) in Appendix 1, the table is amended as follows:

(i) the entry for item 58 is replaced by the following:

'58	Pedestrian protection	Regulation (EU) 2019/... ⁺ UN Regulation No 127	X	X';						
-----	-----------------------	---	---	-----	--	--	--	--	--	--

(ii) the entries for items 62 and 63 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134	X	X	X	X				
63	General safety	Regulation (EU) 2019/... ⁺	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾

(iii) the entries for items 65 and 66 are replaced by the following:

'65	Advanced emergency braking system	Regulation (EU) 2019/... ⁺ UN Regulation No 131						N/A	N/A	
66	Lane departure warning system	Regulation (EU) 2019/... ⁺ UN Regulation No 130						N/A	N/A';	

(b) in Appendix 2, the table is amended as follows:

(i) the following entry is inserted in the appropriate place by item number:

'55A	Pole side impact	Regulation (EU) 2019/... ⁺ UN Regulation No 135	N/A					N/A';											
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(ii) the entry for item 58 is replaced by the following:

'58	Pedestrian protection	Regulation (EU) 2019/... ⁺ UN Regulation No 127	N/A					N/A';											
-----	-----------------------	---	-----	--	--	--	--	-------	--	--	--	--	--	--	--	--	--	--	--

(iii) the entries for items 62 and 63 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation	X	X	X	X	X	X											
-----	-----------------	--	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--	--

		No 134										
63	General safety	Regulation (EU) 2019/... ⁺	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾

(iv) the entries for items 65 and 66 are replaced by the following:

'65	Advanced emergency braking system	Regulation (EU) 2019/... ⁺ UN Regulation No 131		N/A	N/A		N/A	N/A				
66	Lane departure warning system	Regulation (EU) 2019/... ⁺ UN Regulation No 130		N/A	N/A		N/A	N/A';				

(c) Appendix 3 is amended as follows:

(i) in the table, the following entry is inserted in the appropriate place by item number:

'55A	Pole side impact	Regulation (EU) 2019/... ⁺ UN Regulation No 135										N/A';
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(ii) in the table, the entry for item 58 is replaced by the following:

'58	Pedestrian protection	Regulation (EU) 2019/... ⁺ UN Regulation No 127										G';
-----	-----------------------	---	--	--	--	--	--	--	--	--	--	-----

(iii) in the table, the entries for items 62 and 63 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134										X
63	General safety	Regulation (EU) 2019/... ⁺										X ⁽¹⁵⁾ ';

(iv) the following point is added:

'5. Points 1. to 4.2. also apply to vehicles of category M₁ that are not categorised as special purpose vehicles but are wheelchair accessible.';

(d) in Appendix 4, the table is amended as follows:

(i) the following entry is inserted in the appropriate place by item number:

'55A	Pole side impact	Regulation (EU) 2019/... ⁺ UN Regulation No 135			A';							
------	------------------	---	--	--	-----	--	--	--	--	--	--	--

(ii) the entry for item 58 is replaced by the following:

'58	Pedestrian protection	Regulation (EU) 2019/... ⁺ UN Regulation No 127			A';							
-----	-----------------------	---	--	--	-----	--	--	--	--	--	--	--

(iii) the entries for items 62, 63, 65 and 66 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134	X	X	X	X	X					
63	General safety	Regulation (EU) 2019/... ⁺	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽¹⁵⁾
65	Advanced emergency braking system	Regulation (EU) 2019/... ⁺ UN Regulation No 131	N/A	N/A		N/A	N/A					
66	Lane departure warning system	Regulation (EU) 2019/... ⁺ UN Regulation No 130	N/A	N/A		N/A	N/A';					

(e) in Appendix 5, in the table, the entries for items 62, 63, 65 and 66 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134	X
63	General safety	Regulation (EU) 2019/... ⁺	X ⁽¹⁵⁾

65	Advanced emergency braking system	Regulation (EU) 2019/... ⁺ UN Regulation No 131	N/A
66	Lane departure warning system	Regulation (EU) 2019/... ⁺ UN Regulation No 130	N/A';

(f) in Appendix 6, in the table, the entries for items 62, 63, 65 and 66 are replaced by the following:

'62	Hydrogen system	Regulation (EU) 2019/... ⁺ UN Regulation No 134	X	
63	General safety	Regulation (EU) 2019/... ⁺	X ⁽¹⁵⁾	X ⁽¹⁵⁾
65	Advanced emergency braking system	Regulation (EU) 2019/... ⁺ UN Regulation No 131	N/A	
66	Lane departure warning system	Regulation (EU) 2019/... ⁺ UN Regulation No 130	N/A';	

(g) the Explanatory Notes are amended as follows:

(i) the explanatory note for X is replaced by the following:

'X The requirements set out in the relevant regulatory act are applicable.';

(ii) explanatory notes 3 and 4 are replaced by the following:

'⁽³⁾ The fitting of vehicle stability function is required in accordance with Article 4(5) of Regulation (EU) 2019/...⁺

'⁽⁴⁾ The fitting of an electronic stability control system is required in accordance with Article 4(5) of Regulation (EU) 2019/...⁺;

(iii) explanatory note 9A is replaced by the following:

'^(9A) Applies only if vehicles are fitted with equipment covered by UN Regulation No 64. However, tyre pressure monitoring system is compulsory in accordance with Article 5(1) of Regulation (EU) 2019/...⁺;

(iv) explanatory note 15 is replaced by the following:

'⁽¹⁵⁾ Compliance with Regulation (EU) 2019/...⁺ is mandatory. However, type-approval under this specific item is not envisaged as it merely represents the collection of individual items listed elsewhere in the relevant table.';

(v) explanatory notes 16 and 17 are deleted.

ANNEX IV

Frontal protection systems fitted as original equipment to vehicles of categories M₁ and N₁ or made available on the market as separate technical units intended for such vehicles

1. Provisions for the approval of frontal protection systems

1.1. A frontal protection system intended as original equipment shall be approved in accordance with UN Regulation 127 and be considered as an integral part of the relevant vehicle.

1.2. A frontal protection system intended as separate technical unit shall fulfil the following requirements:

1.2.1. Frontal protection systems shall be accompanied by information that describes the exact vehicle type, variant and version for which it is type-approved and shall be accompanied by detailed installation instructions providing sufficient information for a competent person to be able to install it properly on the vehicle. The instructions shall be provided in all the official languages of the Union.

1.2.2. All tests shall be carried out either with the frontal protection system mounted on a vehicle of the type, variant and version for which it is intended or on a test frame closely representing the essential outer front-end dimensions of the intended vehicle. When using a test frame, it is not permitted that, apart from the initial mounting points, the frontal protection system makes contact with the frame during testing. Contact of the legform or headform testing device with the frame during testing is also not permitted. In case of such contact, the test in question shall instead be carried out with the frontal protection system mounted on the relevant vehicle type, variant and version.

1.2.3. For frontal protection systems to be mounted on vehicles resulting in a lower frontal protection system height at the test position which ≥ 425 mm and < 500 mm either the tests according to point 1.2.4. or 1.2.5. shall apply, at the choice of the manufacturer. Where the height < 425 mm, the tests in accordance with 1.2.4. shall apply. Where the height ≥ 500 mm, the tests in accordance with 1.2.5. shall apply.

1.2.4. The flexible lower legform tests on the frontal protection system shall be carried out in accordance with the relevant provisions laid down in UN Regulation 127 for the 'bumper test area' compliance tests where this is understood to be for the purpose of the frontal protection system legform test area, including applying the relevant injury criteria requirements. However, the corners of the frontal protection system shall be taken into account and no relaxation zone shall apply. The test points shall be clearly identified in the test report.

1.2.5. The upper legform tests on the frontal protection system shall be carried out in accordance with the relevant provisions laid down in UN Regulation 127 for the 'bumper test area' compliance tests where this is understood to be for the purpose of the frontal protection system legform test area, including applying the relevant injury criteria requirements. However, the corners of the frontal protection system shall be taken into account. The test points shall be clearly identified in the test report.

1.2.6. A minimum of three child headform impact tests in accordance with point 1.2.7. shall be carried out at all positions on the frontal protection system that are considered by the technical service to be the worst case. The tests shall be carried out to different types of

structure, where these vary throughout the area to be assessed. The test points shall be clearly identified in the test report and shall be chosen directly onto the frontal protection system where the relevant part or parts are located beyond a wrap-around distance (WAD) of 900 mm considered with the intended vehicle type, variant and version in its normal ride attitude.

1.2.7. The tests shall be carried out in accordance with the relevant provisions laid down in UN Regulation 127 for 'child headform test area' compliance tests where this is understood to be for the purpose of the frontal protection system child headform test area. However, the head injury criteria (HIC) recorded shall not exceed 1 000 in all cases. The test points shall be clearly identified in the test report.

2. Markings

2.1. Each frontal protection system shall be clearly and indelibly marked with the trade name, make or trade mark and type designation as well as the EU type-approval mark for which the space shall be sufficient.

ANNEX V

Hydrogen-powered vehicles, their hydrogen systems and hydrogen components

1. Scope

This Annex applies to hydrogen-powered vehicles of categories M and N including their hydrogen systems and hydrogen components.

1.1. Materials used in compressed hydrogen vehicle systems.

1.1.1. The materials used in hydrogen systems, components and containers shall be compatible with hydrogen when they are in contact with it in liquid and/or gaseous state. The material tables of SAE J 2579 B2 shall apply where appropriate. Incompatible materials shall not be in contact with each other.

1.1.2. Steels

Steels for containers and liners shall conform to the material requirements of sections 6.1 to 6.4 of standard EN 9809-1 or sections 6.1. to 6.3. of standard EN 9809-2 as appropriate.

1.1.3. Stainless steels

Stainless steels for containers and liners shall conform to sections 4.1. to 4.4. of standard EN 1964-3.

1.1.3.1. Welded stainless steels for liners of containers shall conform to sections 4.1. to 4.3. as well as sections 6.1., 6.2. and 6.4. of standard EN 13322-2 as appropriate.

1.1.4. Aluminium alloys

Aluminium alloys for containers and liners shall conform to the material requirements of sections 6.1. and 6.2. of international standard ISO 7866:2012.

1.1.4.1. Welded aluminium alloys for liners of containers shall conform to sections 4.2. and 4.3. as well as sections 4.1.2. and 6.1. of standard EN 12862.

1.1.5. Plastic liner materials

The material for plastic liners of hydrogen storage containers may be thermosetting or thermoplastic.

1.1.6. Fibres

The manufacturer of the container shall keep on file for the intended life of the container design the published specifications for composite materials including principal test results, i.e. tensile test, the material manufacturer's recommendations for storage, conditions and shelf life.

The manufacturer of the container shall keep on file, for the intended life of each batch of containers, the fibre manufacturer's certification that each shipment conforms to the manufacturer's specifications for the product.

1.1.6.1. Resins

The polymeric material for impregnation of the fibres may be thermosetting or thermoplastic resin.

1.1.7. Hydrogen compatibility test

This test is not required for

- steels that conform to paragraphs 6.3. and 7.2.2 of standard EN 9809-1;
- aluminium alloys that conform to paragraph 6.1. of international standard ISO 7866:2012; and
- in case of fully wrapped containers with a non-metallic liner.

For other metallic containers, liners and components, where their maximum allowable working pressure > 2.0 MPa, hydrogen compatibility of the material, including that of welds, shall be demonstrated in accordance with international standard ISO 11114-1 and ISO 11114-4 with the tests carried out in hydrogen environments as anticipated in service (e.g. in case of 70 MPa systems, the hydrogen compatibility testing is carried out in 70 MPa environment at the temperature of -40°C).

1.1.7.1. Test procedure for containers used in vehicles

At the appropriate ambient temperature, use hydrogen to pressure cycle for 3,0 times the number of manufacturer declared filling cycles, either:

- the container between $\leq 2,0$ MPa and $\geq 1,25$ times the nominal working pressure; or
- the liner between the pressure levels that shall provide an equivalent liner wall stress as would be present at $\leq 2,0$ Mpa and $\geq 1,25$ times the nominal working pressure for the container.

The container or liner shall not fail before the test is completed.

1.1.7.2 Test procedure for components used in hydrogen systems

If a component is exposed to pressure due to refilling operations, then filling cycles shall be used. If a component is exposed to pressure due to the operation of the vehicle (e.g. switching of vehicle activation device) then duty cycles shall be used.

At the appropriate ambient temperature, use hydrogen to pressure cycle for 3,0 times the number of manufacturer declared filling cycles or 2,0 times the number of manufacturer declared duty cycles, components between the pressure levels that shall provide an equivalent component stress as would be present at $\leq 2,0$ Mpa and $\geq 1,25$ times either the maximum allowable working pressure or the nominal working pressure for the container, as appropriate.

The component shall not fail before the test is completed.

1.1.8. For the purpose of point 1.1.7. to 1.1.7.2., the number of manufacturer declared filling cycles shall be as laid down in UN Regulation 134, i.e. at least 11 000 and the number of manufacturer declared duty cycles shall be at least 37 500.

1.1.9. The technical service shall verify all items above and the test results shall be

documented in detail in the test report.

The manufacturer shall also keep the test results on file throughout the anticipated service life of all components, containers and systems as made available on the market.

- 1.2. The fuelling receptacle of compressed hydrogen gas vehicles shall conform to international standard ISO 17268:2012 (or later revisions) and be compatible with specification H35, H35HF, H70 or H70HF depending on its nominal working pressure and specific application.
- 1.3. The specific components installed on compressed hydrogen gas vehicles shall be type-approved in accordance with the provisions set out in UN Regulation 134. In addition to the type-approval mark and information required by UN Regulation 134 for specific components, they shall also be marked with the nominal working pressure (NWP) and, if located downstream of the first pressure regulator, the maximum allowable working pressure (MAWP).
- 1.4. Vehicles with liquefied hydrogen systems shall be approved in accordance with Article 39 of Regulation (EU) 2018/... concerning exemptions for new technologies or new concepts, based on UN Global technical regulation on hydrogen and fuel cell vehicles No 13, part II, section 7.
 - 1.4.1. The materials used in hydrogen components, containers and systems shall be compatible with hydrogen when they are in contact with it in liquid and/or gaseous state. This shall be demonstrated in accordance with international standard ISO 11114-1 and ISO 11114-4 insofar relevant and possible, with the tests carried out in hydrogen environments as anticipated in service. The technical service shall verify all these items and the test results shall be documented in detail in the test report.

ANNEX VI

Transitional provisions referred to in Article 13(3)

UN Regulation	Specific requirements	Final date for registration of non-compliant vehicles as well as sale or entry into service of non-compliant components ⁽¹⁾
29	Commercial vehicle cab strength	29 January 2021
	Vehicles of category N shall comply with the Regulation	
142	Tyre installation	31 October 2018
	Vehicles of categories O ₁ , O ₂ , O ₃ and O ₄ shall have class C1 or C2 tyres complying with Stage 2 rolling resistance requirements	
	Tyre installation	31 October 2020
	Vehicles of categories O ₃ and O ₄ shall have class C3 tyres complying with Stage 2 rolling resistance requirements	
117	Tyres with regard to rolling sound emissions, adhesion on wet surfaces and rolling resistance	30 April 2019
	Tyres of classes C1, C2 and C3 shall comply with Stage 2 rolling sound emission requirements	
	Tyres with regard to rolling sound emissions, adhesion on wet surfaces and rolling resistance	30 April 2019
	Tyres of class C3 shall comply with Stage 1 rolling resistance requirements	
	Tyres with regard to rolling sound emissions, adhesion on wet surfaces and rolling resistance	30 April 2021
	Tyres of classes C1 and C2 shall comply with Stage 2 rolling resistance requirements	
	Tyres with regard to rolling sound emissions, adhesion on wet surfaces and rolling resistance	30 April 2023
	Tyres of class C3 shall comply with Stage 2 rolling	

	resistance requirements	
127	Pedestrian safety performance	23 August 2019
	Vehicles of categories M ₁ with a maximum mass > 2 500 kg and N ₁	

Notes to the table

- (¹) The dates as laid down in Regulation (EC) No 661/2009 in respect of types of vehicle, system and component complying with the requirements in its version applicable on *[PO: Please insert the date immediately preceding the date of application of this Regulation]* and Regulation (EC) No 78/2009 in respect of types of vehicle and system complying with the requirements in its version applicable on *[PO: Please insert the date immediately preceding the date of application of this Regulation]*.