
THE AUTOMOBILE AND TECHNICAL REGULATIONS

1 Introduction

Amid growing interest in environmental and energy issues, various countries are continuing to tighten regulations. In addition, concerns over measuring real driving emissions (RDE), prompted by the emissions scandal, have prompted Japan and Europe to take the lead in establishing RDE regulations. More and more countries around the world have been establishing legislation aimed at making electric vehicles (EVs) and other zero emission vehicles (ZEVs) more widespread, as exemplified by the strengthening of the ZEV regulations in California in the U.S., the introduction of the new energy vehicle (NEV) regulations in China in 2019, and the announcement of a target proportion of EVs by the Indian government. In terms of safety regulations, progress was made on guidelines and standards assessments concerning vehicle-to-vehicle (V2V) communication, cybersecurity, and automated driving, as well as, for heavy-duty vehicles, work on standards for rear blind spot information monitors (BSIS) and standards assessments for advanced emergency braking systems (AEBS).

2 Overall Trends

2.1. Japan

Following the approval of the United Nations Regulation No. 66 (UN R0) implementing the IWVTA scheme by WP.29 in November 2017, UN R0 was introduced in Japan. In the area of safety, it was decided to introduce standards on accident emergency call systems (AECS) and tether-equipped auxiliary passenger car devices for small children (ISOFIX anchorage). The 13th report of the Central Environmental Council of Japan prompted the decision to introduce particulate matter (PM) regulations for gasoline direct injection vehicles, and to strengthen the regulations concerning the reduction of evaporative fuel gases. In response to the diesel vehicle emissions scandal, a government review panel is drafting

guidelines on the prohibition of illegal devices (defeat strategy) and the scope of protection control. The panel is also evaluating the introduction of the RDE testing already in place in Europe. Legislation covering the public notice and other aspects of the 2025 heavy-duty vehicle fuel economy standards was amended, and fuel economy labels complying with the new standards will be mandatory as of April 2023.

2.2. U.S.

Work related to advanced safety technologies that go beyond automobile engineering to also address the social infrastructure as a whole is moving forward rapidly, as exemplified by a call for comments on vehicle-to-everything (V2X) communication and the release of the third revision of a voluntary guidance on automated driving expanded in scope to cover transportation as a whole. The Environmental Protection Agency (EPA) has started applying the Tier 3 emissions regulations, a stricter equivalent of the Low-Emission Vehicle (LEV) III regulations that came into effect with the 2015 model year in California, to 2017 model year and later light-duty vehicles in the U.S. The California Air Resources Board (CARB) made various amendments, including revisions to the fault criteria for the on-board diagnostics (OBD) legislation applying to the LEV III regulations and detailed provisions on the diagnostics requirements for hybrid vehicles. The EPA and the National Highway Traffic Safety Administration (NHTSA) are considering whether the corporate average fuel economy (CAFE) and greenhouse gas (GHG) regulations for 2022 to 2025 model year vehicles need to be revised, and proposed a relaxing of the regulations in August 2018. In terms of recycling and substances of environmental concern (SOCs), the EPA regulation to ban the use of the current air conditioner refrigerant (R134a) in compact vehicles sold in the U.S. starting with the 2021 model year was rejected in court, but remains in effect until the EPA issues a new regulation.

2.3. Europe

At the end of March, a provisional agreement on amendments and new requirements to the European General Safety Regulation (GSR) was reached, and various stricter passive safety regulations are scheduled to come into effect starting in 2022. These include making the installation of advanced safety technologies (e.g., AEBS, ISA, LKA, emergency stop signal (ESS), cameras, sonar and other sensors providing detection when reversing, driver drowsiness warning, and advanced driver distraction warning) mandatory, the introduction of full lap frontal impact tests (R137) and pole side impact tests (R135), as well as an expansion of the pedestrian protection head impact area. The introduction of the Worldwide harmonized Light vehicles Test Procedure (WLTP) and of the RDE regulations in conjunction with the September 2017 coming into effect of Euro 6c, as well as the application of the revised procedures for the evaporative emissions test method starting in September 2019 have been determined. For the WLTP, establishing regulations that follow up on the new test cycle and procedures under the UN framework and extend to other items (such as low temperature test methods) is being assessed. The European Commission is actively participating in those assessments with an eye toward incorporating them in EU regulations. Taking the introduction of the WLTP regulations into account, the New European Driving Cycle (NEDC)-based CO₂ regulations scheduled to start in 2020 (regulation values of 95 g/km for light-duty passenger vehicles and 147 g/km for light-duty commercial vehicles) will be replaced by WLTP-based values starting in 2021. The WLTP-based regulation values have been determined for the stricter post-2020 CO₂ regulations to be introduced in two stages in 2025 and 2030. Revisions to the EU acoustic vehicle alerting system (AVAS) requirements in the vehicle exterior noise regulations are underway, with a prohibition on installing pause switches expected to apply to new models in September 2021 and to existing vehicles in September 2023.

2.4. Other Regions

In China, the GB 7258-2017 technical requirements concerning the Safety specifications for power-driven vehicles operating on roads have been promulgated, making event data recorder (EDR) installation mandatory starting in 2021. The various members of the Association of Southeast Asian Nations (ASEAN) are adopting safety standards and tightening emissions regulations as they

prepare to implement harmonized standards and mutual recognition. Cambodia has postponed the mandatory application of 19 items in UN regulations until January 2020. Meanwhile, Vietnam has issued Decree No. 116, which reinforces license acquisition requirements for manufacturers and importers. Other countries are considering mandating a range of safety devices, including seat belts, head restraints, ISOFIX anchorage, airbags, anti-lock braking systems (ABS), electronic stability control (ESC), brake assist systems (BAS), and tire pressure monitoring system (TPMS). They are also looking into tightening the emissions regulations currently in effect.

2.5. United Nations

2.5.1. Harmonization of Standards

WP29, the body that promotes international harmonization of automotive technical standards, meets regularly to discuss the 1958 and the 1998 Agreements. The aim of the 1958 agreement, currently signed by 54 European and other countries as well as 1 region, is to use UN regulations to establish uniform technical standards for vehicles and obtain mutual recognition of those standards. There are currently (as of April 2019) 147 such UN regulations, and a decision to add new regulations on BSIS and three streamlined lighting device regulations (signals, lamps and reflectors) was reached in March 2019. The 1998 Agreement went into effect in August 2000 as a means of establishing and realizing Global Technical Regulations (GTRs), and currently includes 38 participating countries and 1 participating region. In 2018, electric vehicle safety (EVS) was added to the already established 20 items covered by GTRs.

2.5.2. System for Mutual Recognition of International Whole Vehicle Type Approval (IWVTA)

The Japanese government proposed the creation of the IWVTA scheme at the WP.29 to extend the current 1958 Agreement-based mutual recognition of approval for devices, parts and systems to cover the whole vehicle. Revision 3 of the 1958 Agreement, which integrates IWVTA, went into effect in September 2017. The regulation implementing the IWVTA scheme (UN R0) came into effect in July 2018, and mutual recognition between countries that adopted it became possible in March 2019. In addition, the first revision in the series (UN R0-01) was approved by WP.29 in March 2019. However, some items necessary for vehicle certification are not covered by the IWVTA scheme (emissions, for example), which means

that even with IWVTA certification, compliance inspections for the missing items will be required in individual countries. WP.29 will continue its efforts to finalize a complete IWVTA.

2.5.3. Automated Driving Regulations

Discussions concerning technical standards for Level 3 and higher automated driving are intensifying. One proposal for new regulations involves requirements for automated lane keeping systems (ALKS). Talks on safety validation method targeting Level 3 automated vehicles have begun, and discussions focusing on data storage systems and safety criteria currently in use are also expected to start soon. Standards applicable to automotive cybersecurity and standards to implement software updates are also being drafted.

3 Japan

3.1. Vehicle Safety

3.1.1. Progress of Safety Measures

The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) is gradually assessing the regulation of the items to focus on among the four pillars of vehicle safety measures, namely (a) addressing accidents involving children or the elderly, (b) measures for the safety of pedestrians and automobile occupants, (c) measures to address grievous accidents involving heavy-duty vehicles, and (d) addressing new technologies such as automated driving, raised in its June 2016 compilation on the course of future automobile safety measures.

3.1.2. Strengthening of Safety Regulations and Harmonization of Criteria

Based on the 1958 Agreement, the MLIT is revising Japanese technical standards in line with amendments to UN standards. In 2018, standards concerning AECS and ISOFIX anchorage were introduced. Requirements for lane change functions triggered when the driver activates a turn signal were also added.

3.1.3. Automated Driving

Safety technology guidelines for the development and commercialization of Levels 3 and 4 automated driving systems, and for ensuring the safety of automated vehicles, have been issued until international standards can be formulated. In the meantime, amendments to the Road Traffic Act and the Road Transport Vehicle Act concerning Level 3 autonomously operated devices are the subject of debate in the Japanese parliament in 2019.

3.2. Emissions

3.2.1. Promotion of Measures on Emissions

In May 2017, the 13th Future Policy for Vehicle Emission Reduction report submitted to the Minister of the Environment by the Central Environmental Council of Japan, called for the introduction of PM regulations equivalent to those of diesel vehicles for direct injection gasoline vehicles and of measures against fuel evaporative emissions applying to refueling at stations starting in 2020. At the same time, it extended the number of parking test days as a measure for parked vehicles, establishing a strengthening of vehicle regulations in that same year.

3.2.2. Diesel Vehicle Emissions Scandal

Guidelines on the prohibition of illegal control in diesel passenger and other vehicles to prevent a diesel vehicle emissions scandal are being drafted, and the introduction of the RDE test is also under assessment.

3.3. Fuel Economy

To prevent cheating in fuel and electricity consumption measurements for specified automaker models, stipulations on fuel and electricity consumption were added to the safety regulations in January 2018. The tighter fuel economy standards set to apply in 2020 for passenger vehicles and 2022 for light-duty trucks will be measured using the current test cycle (JC08). However, it was also made mandatory for the catalog and other documents to indicate the Worldwide harmonized Light vehicles Test Cycles (WLTC) overall fuel economy value as well as the fuel economy values in urban, suburban and highway driving environments. Legislation covering ordinances and other legislation applying to the 2025 heavy-duty vehicle fuel economy standards was amended, and fuel economy labels complying with the new standards will be mandatory as of April 2023. At the same time, the constant values for aerodynamic drag and rolling resistance used in the existing 2015 standards have been updated with actual measured values, while the details of fuel economy simulations were revised to reflect the latest real-world conditions. While the current urban driving mode (JE05) and the interurban test cycles will remain in use, the ratio assigned to each mode was modified. This strengthens the standards by 13.4% for trucks and 14.3% for buses compared to the 2015 heavy-duty vehicle fuel economy standards.

3.4. Substances of Concern

In May 2017, at the Eighth Conference of the Parties

to the Stockholm Convention, decabromodiphenyl ether (decaBDE) and short-chain chlorinated paraffins (SCCPs) were added to Annex A, becoming chemicals to eliminate. Following this addition, decaBDE and SCCPs were designated as Class I Specified Chemical Substances in the Chemical Substances Control Act. Regulations mandating regulatory content limits and labeling for products containing mercury have been enacted.

4 The U.S. and Canada

4.1. Vehicle Safety in the U.S.

4.1.1. Vehicle-to-Everything (V2X) Communication

In light of the evolution of recent communication technologies, the Department of Transportation (DOT) issued a call for public comments in December 2018 concerning whether communication technologies other than dedicated short-range communication (DSRC) should be introduced.

4.1.2. Automated Driving

The Automated Vehicle 3.0 policy, expanded to cover transport in general rather than only passenger cars, was issued in September 2018. (However, passenger cars remain subject to Version 2 of the voluntary guidance issued in 2017.)

4.1.3. Adaptive Driving Beam (ADB)

A draft of a regulation on lamps (FMVSS 108) allowing the adaptive driving beams (ADB).

4.1.4. EDR

In February 2019, an official notice withdrawing the 2012 draft proposal to make EDR installation mandatory was published.

4.1.5. Glass

In April 2019, an official notice withdrawing the draft proposal (issued June 21, 2012) to use GTR No. 6 (Glass) as the regulation for glass (FMVSS 205) was published.

4.1.6. ESC

With the release of FMVSS 136, ESC application to some heavy-duty vehicles in effect since August 2017 will be extended to all heavy-duty vehicles starting in August 2019.

4.2. Emissions in the U.S.

4.2.1. Federal Regulations

The EPA has implemented Tier 3 emissions regulations largely harmonized with the California LEV III regulations starting with the 2017 model year. In addition, the OBD regulations have also been brought in lines with those of California. In response to the emissions

scandal, they tighten evaluations of emissions control system and also add a road test to the certification test. Spurred by the below mentioned proposal from California, work on drafting Low NO_x standards for heavy-duty vehicles by 2024 has begun.

4.2.2. California

4.2.2.1. ZEV II Regulations

The tightening of regulations from the 2018 model year requires making plug-in hybrid electric vehicles, electric vehicles, and fuel cell vehicles compliant, and requirements concerning the number of vehicles are becoming more stringent every year. In March 2017, the state government kept the regulations covering up to the 2025 model year unchanged, and decided on a policy to examine tighter regulations for the 2026 and subsequent model years.

4.2.2.2. Emissions Regulations

The LEV III regulations were implemented from the 2015 model year, and corporate average fuel economy regulations are being strengthened every year. In addition, PM regulations are also being tightened in stages, to 3 mg/mile from the 2017 model year, and 1 mg/mile from the 2025 model year.

4.2.2.3. OBD Regulations

The regulations have been made stricter with the 2016 amendments, which include setting malfunction thresholds for LEV III compliant vehicles, defining clear diagnostics requirements for hybrid vehicle parts, and expanding the number of test items and amount of required data during certification. In conjunction with the regular revision of OBD for heavy-duty vehicles, minor amendments to over the air (OTA) reprogramming and other requirements are under consideration.

4.2.2.4. Low NO_x Standards for Heavy-Duty Vehicles

A prolongation of useful life encompassing Low NO_x standards is under consideration. The idea of a two-phase implementation of regulations in 2024 and 2027 has been suggested.

4.3. Fuel Economy and GHG Regulations in the U.S.

4.3.1. CAFE and GHG Regulations

The January 2017 decision of the previous government not to revise the regulations for the 2022 to 2025 model years established in 2012 following the mid-term review on the necessity of such a revision was overturned by the new government in March. The EPA and NHTSA proposed a relaxation of regulation values in August

2018, but the ensuing discussions are taking time and no decision has been made. In accordance with a 2016 congressional directive, the penalties for non-compliance with CAFE regulations will become approximately 2.5 times higher starting with the 2019 model year.

4.3.2. Phase 2 Fuel Economy Standards for Heavy-Duty Vehicles

The Phase 2 standards to come into effect in three stages in 2021, 2024, and 2027 were announced. Test methods include the stipulation of a new cycle average-based test and a required powertrain for hybrid vehicles (HV).

4.4. Substances of Concern in the U.S.

In 2016, the federal Toxic Substances Control Act (TSCA) was updated, broadening EPA authority and otherwise strengthening its powers to enable more effective gathering and management of information concerning risks related to existing chemical substances. The use of substances of concern, copper, and copper alloys in brake friction material will be gradually prohibited (5% from 2021, and 0.5% from 2025 onward). The EPA regulation to ban the use of the current air conditioner refrigerant (R134a) in compact vehicles sold in the U.S. starting with the 2021 model year was rejected in court, but remains in effect until the EPA issues a new regulation. The Safer Consumer Products (SCP) regulations have come into force in California, with restricted substances and products covered by the regulations specified every year.

4.5. Canada

4.5.1. Vehicle Safety

The rear view mirrors regulation (CMVSS 111) was aligned with the U.S. FMVSS 111 to make the installation of rear view cameras mandatory, and issued in November 2017. In March 2018, a regulation on lamps (CMVSS 108) covering the mandatory installation of automatic lighting and allowing adaptive front lighting systems (AFS) and ADB was issued. An official notice amending the regulations on frontal impact tests (CMVSS 208) and seat belt anchorage (CMVSS 210) and mandating three-point the installation of seat belts for all seats (designated seating positions (DSPs)) in buses was published in on July 11, 2018. In conjunction with amendments to FMVSS 305, Revision 5 of Technical Standards Document (TSD) No. 305 of CMVSS 305 was published in May 2018 to introduce electricity safety requirements concerning normal use in electric vehicles.

4.5.2. Emissions

The Canadian federal government has adopted its own Tier 3 regulations, equivalent to the U.S. ones, for the 2017 and subsequent model years. As with the current Tier 2, vehicles with the U.S. Tier 3 certification sold in Canada do not need to acquire the Canadian certification. Similarly, the Quebec provincial government issued ZEV regulations equivalent to the California ZEV II ones at the end of 2017, to come into effect starting with the 2018 model year. At the same time, British Columbia is also considering introducing ZEV regulations starting with the 2020 model year.

4.5.3. Fuel Economy and GHG Regulations

As in the U.S., GHG regulations were strengthened starting with the 2017 model year, but a higher multiplier has been set for advanced technology vehicles.

4.5.4. Substances of Concern

Regulations mandating reporting and labeling for headlamps and other products containing mercury have been enacted. There are plans to follow in the footsteps of the U.S. in banning the use of the current refrigerant (R134a) in light-duty vehicles starting with the 2021 model year. Legislation for the Canadian ministry of the environment policy to prohibit asbestos, announced in 2016, is expected to come into effect in 2018.

5 Europe

5.1. Whole Vehicle Type Approval (WVTA)

The new regulation (EU 2018/858), which completely revamps the framework for the type approval of motor vehicles in the EU established by European Directive 2007/46/EC, was approved in June 2018. The regulations will apply to new models on September 1, 2020. It incorporates many policies that correct issues in the current vehicle type certification system, including improving the quality of inspections, imposing market surveillance on countries, and tighter mutual monitoring by countries in the Eurozone and the European Commission. The OBD and disclosure of repair and maintenance information requirements stipulated in the previous emissions-related regulations were also carried over to this new framework. The European Commission issued guidelines on the inspection criteria when the special approval procedure for new technology (WVTA Article 4 request) are applied to Level 3 and 4 automated driving.

5.2. Vehicle Safety

In June 2018, the European Commission proposed

amendments and new stipulations to the General Safety Regulation (GSR) designed to strengthen safety to achieve the intermediate 2020 to 2030 targets (reducing road deaths by 50%) set for the Vision Zero (reducing road deaths to almost zero by 2050) plan. A provisional agreement was reached at the liaison meeting between the European Commission, European Parliament, and Council of the European Union at the end of March 2019, and will be finalized after the official procedures of the Parliament and the Council have been completed. The regulations are scheduled to come into effect 30 months after they are issued, making May 2022 the expected date.

5.3. Emissions

5.3.1. Light-Duty Vehicles

The RDE regulations effective from September 2017 stipulate NO_x and PN regulation values, and stricter NO_x values will apply from January 2020. Legislation covering the requirements for real world test was announced at the end of 2017 and approved at the end of 2018. The evaporative emissions test procedure incorporating revisions such as a shorter preparation cycle before the test, longer diurnal test period, and additional durability requirements will come into effect in September 2019. With respect to the WLTP, the examination involving following up on the establishment of the new test cycle and procedures under the UN framework (Phase 1) with the addition of items such as a low temperature, durability, and market test methods, as well as OBD regulations (Phase 2) is still underway. The European Commission is actively taking the lead in those activities with an eye toward both incorporating them in EU regulations and ensuring they integrate EU aims.

5.3.2. Heavy-Duty Vehicles

A WTO notice for cold start procedures using a portable emissions measurement system (PEMS) is expected to be announced in 2019 as part of Euro VI Stage E.

5.4. CO₂ (Fuel Economy)

In conjunction with the introduction of the WLTP regulations in September 2017, the NEDC-based CO₂ regulations are scheduled to start in 2020, and manufacturers will replace their 2020 NEDC compliance rate with WLTP-based values, which will be applied the following year, in 2021. For the legislation concerning stricter post-2020 CO₂ regulations to be introduced in two stages in 2025 and 2030, WLTP-based regulation values (reduction of 15% in 2025, and 37.5% in 2030, compared to 2021 lev-

els), and zero-level emission vehicle (ZLEV) credits (a relaxation of CO₂ target values for manufacturers who exceed a set share of ZLEVs), have been approved. Commission Regulation (EU) 2017/2400 on fuel economy and CO₂ based on the VECTO simulation tool have been issued for commercial heavy-duty vehicles exceeding 7.5 t. Phase one will gradually introduce monitoring and reporting starting in 2019. Similarly, the European Commission has decided to reduce CO₂ emissions by 15% in 2025, and 30% in 2030 compared to 2019 levels.

5.5. Recycling and SOCs

The end-of-life vehicles (ELV) Directive (2000/53/EC) restricted and reduced the use of four types of heavy metals (lead, mercury, cadmium, and hexavalent chromium) for passenger vehicles and light-duty commercial vehicles. The metals other than lead are already fully prohibited, and the eighth revision tightening the regulations was published as an Official Journal of the European Union in November 2017. Initial audit requirements that will be applicable from 2012 (2009/1/EC) were added to the Directive that concerns the recyclability certification of WVTA (2005/64/EC). REACH, the European Community Regulation on chemicals and safe use that entered into force in June 2007, has made the registration and reporting of chemical use to government authorities, as well as the disclosing information to users of chemicals, mandatory ((EC) No. 1907/2006). Any usage restrictions on chemical substances related to automotive products will generally be handled under this regulation. Methanol in window washer fluid and phthalic acid esters in plastic components have been prohibited. The classifying, labeling, and packaging (CLP) regulation, which stipulates the requirements for the classification, labeling, and packaging of hazardous substances, is currently in force and applies to items such as puncture repair sealants, adhesives, oils, and window washer fluid ((EC) No. 1272/2008). The existing Biocides Directive (98/8/EC) was revised as a biocidal products regulation and any chemical substances applied to vehicle parts as a biocide are subject to the usage restrictions and information disclosure requirements ((EU) No. 528/2012).

5.6. Vehicle Exterior Noise

Revisions to the AVAS requirements in the vehicle exterior noise regulations are underway, with a prohibition on installing pause switches expected to apply to new models in September 2021 and to existing vehicles in September 2023.

5.7. Russia

In the Eurasian Customs Union (EACU), the Technical Regulation of the Customs Union (TR CU), a common approval system based on Russian regulations, came into effect starting in January 2015 for new models, and in July 2016 for all vehicles. It was decided to make it mandatory for vehicles to be equipped with the Russian version of the European eCall system (ERA GLONASS) ahead of Europe, a requirement applied to new model vehicles starting in January 2015 and to existing vehicles starting in January 2017. Euro 5 regulations for emissions came into force in January 2014 for new models, and applied as scheduled in January 2016 for existing passenger vehicles. For heavy-duty vehicles, the Euro V standards were applied to new models in January 2018 and to existing vehicles in January 2019. The addition of new impact safety requirements to the full lap frontal impact (R 137) and pole side impact (R 135) tests, as well as a strengthening of emissions regulations, are under consideration.

6 Central and South America

6.1. Mexico

6.1.1. Vehicle Safety

Regulations from major areas (U.S., EU, UN and others) on basic safety systems for light-duty vehicles (head restraints, seats, seat belts, controls and indicators, speedometers, mirrors, hood latches, defrosters and defoggers, wipers and washer fluid, lamps, tires, brakes, and windows) came into effect with the 2017 model year. Regulations on frontal and side collision, ABS, and seat belt reminder (SBR) regulations will come in effect from the 2020 model year for new models and the 2021 model year for all models.

6.1.2. Emissions

Emissions regulations contained in U.S. and European laws (equivalent to Tier 2-Bin 7 and Euro 4) have been introduced. The introduction of emissions regulations for heavy-duty diesel vehicles equivalent to U.S. 2007 or Euro V in July 2019, and to U.S. 2010 or Euro VI in 2021 has been determined, but the supply of ultra-low sulfur diesel (ULSD) fuel is still stalled.

6.1.3. CO₂ (Fuel Economy)

Fuel economy regulations modeled on the US CAFE have been in effect since 2014.

6.2. Brazil

6.2.1. Vehicle Safety

The installation of three-point seat belts and head restraints on all seats in passenger vehicles, and of child restraint systems (CRS) anchorage devices, became mandatory in January 2018. In both cases, the international standards represented by UN regulations and FMVSS are accepted as alternative performance requirements. Regulations will be applied in 2020 for ESC and SBR, and in 2021 for daytime running lamps (DRL), side turn signals, as well as ESS.

6.2.2. Emissions

A decision to strengthen the regulations from the current L6 to L7 and to the next-generation L8, and bring into force in 2022 and 2025, respectively, was reached. Changes cover stricter regulation values and durability requirements, PM regulations for direct injection gasoline vehicles, evaporative emissions test method, the addition of on-board refueling vapor recovery (ORVR), and more stringent OBD requirements. In addition, RDE requirements are also included, with only monitoring required in the L7 regulations, and compliance required in the L8 regulations. As a next step, detailed RDE/OBD rules will be examined. For heavy-duty vehicles, Euro VI-equivalent standards will apply to new models in 2022 and to existing vehicles in 2023.

6.2.3. CO₂ (Fuel Economy)

The second stage of fuel economy regulations modeled on the US CAFE will come in effect in 2021.

6.3. Chile

6.3.1. Vehicle Safety

Regulations for light-duty passenger vehicles will apply in October 2020 for ABS and in October 2021 for ESC. Lighting device regulations have been applied since September 2018. In addition, the installation of safety systems such as seat belt, safety glass, and head restraints already mandatory on light-duty vehicles has been applied to medium-duty vehicles since January 2016. An official notice issued for heavy-duty vehicles has finalized the application of regulations on safety glass, brakes, and seat belts starting in February 2020, and to seats, seat belt anchorages, as well as fuel tanks starting in February 2022.

6.3.2. Emissions

Emissions regulations equivalent to Euro 5 or the U.S. Tier 2-Bin 5 are currently in effect for light-duty diesel and gasoline vehicles, and a strengthening of the regula-

tions to Euro 6 starting in September 2020 is being considered. Moving the heavy-duty vehicles regulations up to Euro VI, possibly as early as 2022, is under consideration.

6.3.3. Noise

A noise certification system for light-duty vehicles registered in July 2019 and later will be set up. It covers acceleration and stationary noise, with acceleration noise based on UN R51-03 (although the UN R51-02 test method is also accepted), and stationary noise based on UN R51-02. There are no regulation values for stationary noise, and a declaration by the manufacturer is sufficient in both cases.

6.4. Argentina

6.4.1. Vehicle Safety

Requirements for the installation of rear seat head restraints and three-point seat belts, ESC, and onboard fire extinguishers, will be gradually implemented starting in January 2019. Furthermore, the implementation of stricter pole side impact, SBR, pedestrian protection, AEBS, and head restraint requirements (introduction of FMVSS 202a) between 2025 and 2030 is under consideration.

6.4.2. Emissions

Regulations equivalent to Euro 5 were in effect since January 2015 for new light-duty passenger vehicles and were applied to all vehicles in January 2017. They have applied since January 2016 to light-duty commercial vehicles, and to all vehicles since January 2018. Revising the COP regulations to expand the scope of covered imported vehicles is also being considered (only vehicles produced in Argentina are currently covered). Certification begins in January 2018, and the labels will come into effect in June 2019. A fuel consumption tax is also scheduled to be examined for one year starting in 2020. Euro V-equivalent regulations are in effect for heavy-duty diesel vehicles, and moving up to Euro VI-equivalent regulations is being considered.

6.4.3. Noise

It has been decided to move from UN R51-02 to UN R51-03. The new regulations will apply in January 2020 and later to new model certifications and to expanded certifications. For heavy-duty diesel vehicles, they will apply from January 2021.

6.5. Columbia

6.5.1. Vehicle Safety

The installation of ABS, airbags and head restraints for light-duty vehicles, and ABS for heavy-duty vehicles,

became mandatory as of January 2017.

The study of new regulations scheduled to apply to light-duty vehicles and buses from January 2020 was initiated, but has not made any progress. Making regulations on frontal-, side- and rear-end collisions, seats, and head restraints compliant with UN regulations or FMVSS, for light-duty vehicles, and making those on the upper structure, seat, seat belt, seat belt anchorage, and flame retardant interior materials compliant with UN regulations or FMVSS, as well as the installation of ESC and automatic fire suppression systems mandatory for buses, was under consideration but progress is also stalled on that front.

6.5.2. Emissions

Regulations equivalent to Euro 2 or U.S. Tier 1 are currently in effect for light-duty gasoline vehicles. A shift to the stricter Euro 4 or U.S. Tier 2 Bin 8 in starting on January 1, 2020 was under assessment, but no progress has been made. Regulations equivalent to Euro 4 or The U.S. Tier 2 Bin 9 for light-duty diesel vehicles, and to Euro IV or the U.S. 2004 for heavy-duty diesel vehicles, as well as to Euro V or U.S. 2007 for urban buses, are in effect.

6.6. Ecuador

6.6.1. Vehicle Safety

The regulation making safety systems mandatory (RTE INEN 034) has been revised and was enacted in 2015. It mainly introduces the UN regulation, but retains some Ecuador-specific requirements. It has become mandatory to submit documents proving compliance with the various requirements. Even after the certification system began operations, the regulations have frequently been amended, alternative regulations from nations such as Japan, the U.S. or China have been added, and the mandatory installation of ESC on light-duty vehicles has been postponed to the 2020 model year.

6.6.2. Emissions

Regulations equivalent to Euro 3 or U.S. Tier 1 covering light-duty gasoline vehicles have applied to vehicles produced in Ecuador since September 30, 2017. They had already applied to imported vehicles since 2017. An ordinance of the capital city of Quito will impose Euro III regulations on diesel vehicles used for public transportation or freight transportation.

6.7. Uruguay

6.7.1. Vehicle Safety

Starting in April 2018, the installation of an anchorage

system (ISOFIX or LATCH) allowing a child restraint system to be set on the right side of the rear row of seats will become mandatory.

6.7.2. Emissions

Applying emissions regulations equivalent to Euro 4 to passenger vehicles and commercial vehicles is being examined. The application of mandatory fuel economy labels for passenger vehicles is also under consideration.

6.8. Peru

6.8.1. Emissions

The Euro 4 emissions regulations have applied to light-duty vehicles since April 2018. On the same date, Euro IV was applied to heavy-duty vehicles.

6.9. Costa Rica

6.9.1. Emissions

For light-duty vehicles, regulations equivalent to Euro 4 or the U.S. Tier 2 came in effect from June 2018, but a postponement of the scheduled application of regulations equivalent Euro 6 or U.S. Tier 3 in January 2021 is under consideration.

6.9.2. Noise

Since April 2016, stationary noise regulations based on independent regulation values and test methods have applied to in-use vehicles.

7 Middle East and Africa

7.1. Gulf Cooperation Council (GCC)

7.1.1. Vehicle Safety

Installation requirements for ESC, TPMS, brake override, and other systems have been listed in the GSO 42/2015 general safety requirements. The announced separate regulations stipulating specific test methods for these items have yet to be issued. The main policy of the GSO body in charge of creating the regulations is to harmonized them with the UN regulations.

7.1.2. Emissions

Only the United Arab Emirates has introduced regulations equivalent to Euro 4 for gasoline and diesel vehicles. The United Arab Emirates, Bahrain, and Qatar have announced the application of regulations equivalent to Euro 5 for both gasoline and diesel vehicles starting with the 2022 model year. In a similar vein, Saudi Arabia, which requires more time to make the market fuel improvements (desulfurization) required by Euro 5, is planning to apply those regulations to gasoline vehicles as of the 2023 model year, and to diesel vehicles as of the 2025 model year.

7.1.3. Fuel Economy

In Saudi Arabia, regulations modeled on the U.S. CAFE have been in place for all vehicles with a maximum weight of less than 3.5 t since January 2016. The current regulations specify values until 2020. The Saudi authorities are planning to issue regulations for the 2021 to 2023 values by the end of 2019. At the same time, only Saudi Arabia is using its own requirements and a design different from that specified by the GSO GCC authorities for mandatory fuel labels.

7.2. South Africa

7.2.1. Vehicle Safety

Updates to the current safety regulations based on those of the UN and Europe were under consideration for implementation starting in 2017, but the postponement until 2020 or later is now likely to be pushed back further.

7.2.2. Emissions

Raising the current emissions regulations (Euro 2) to Euro 4 from 2020 for new models and 2022 for existing vehicles is being considered. New clean fuel regulations (equivalent to Euro 5) were scheduled to apply starting in 2017, but have been postponed due to delays in improving fuel quality. Based on the lead time needed for improvement and repairs, the local petroleum industry is calling for a postponement until around 2023.

7.3. Egypt

The adoption of UN regulations (10 items) started in 2010 (Phase 1). The adoption of the next stage of safety items (Phase 2) that had been set to start on September 16, 2016, were postponed on the grounds of revising the items to adopt. How long it will remain postponed is unknown.

7.4. Morocco

WVTA items or equivalent UN regulations have been adopted since 2010 and applied to all vehicles starting in 2015.

7.5. Algeria

In April 2015, many regulations requiring the installation of safety systems were issued, and a UN regulation containing approximately 30 items became mandatory. However, due to factors such as the mandating of local investment by automakers and the imposition of quota system on vehicle imports, these regulations effectively act as restrictions on imports.

8 Asia

8.1. China

8.1.1. Vehicle Safety

The GB 7258-2017 technical requirements concerning the Safety specifications for power-driven vehicles operating on roads have been promulgated, making EDR or on-board video device installation mandatory starting in 2021. The EDR technical standards are being drafted. Recommended standards on advanced safety technologies such as AEBS, and lane departure warning (LDW) are also being prepared.

8.1.2. Emissions

The China 6 regulations were promulgated for light-duty vehicles. The strengthening of the regulation values will come in two phases, with China 6a coming into effect nationwide starting in July 2020 and China 6b coming into effect in July 2023. Both are stricter than Euro 6. The province of Guangdong is considering enacting the China 6 regulations one year ahead of schedule, in July 2019. In February 2019, the Beijing Municipal Environmental Protection Bureau issued a notice of the adoption of the China 6 emissions regulations for the city of Beijing (adoption of China 6b starting in January 2020) and made a call for public comments, but no official decision has been made. The next stage of emissions regulations for heavy-duty vehicles (China 6 regulations) were submitted to the WTO in November 2017 and Euro VI-equivalent regulations will gradually apply, based on category, starting in 2019.

8.1.3. Fuel Economy

Legislation on the concurrent management of corporate average fuel economy and fuel economy credits for new energy vehicles has been promulgated. It contains stipulations on the method of calculating credits and the submission of fiscal year reports, and came into effect in April 2018. The Chinese Ministry of Industry and Information next-stage fuel economy standards for heavy-duty vehicles will apply to new models in July 2019 and to existing vehicles in July 2021.

8.1.4. New Energy Vehicles

With the spread of new energy vehicles, electric vehicle batteries, motors, and charging were added to the vehicle certification procedure and standards for fuel economy and other tests for hybrid vehicles have been included in the regulations implementing the certification.

8.1.5. Recycling and SOCs

The Requirements for Prohibited Substances On Automobiles standard (GB/T 30512 prohibits lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, and poly brominated diphenyl ethers, and is under consideration to be upgraded to a compulsory GB.

8.2. Hong Kong

8.2.1. Vehicle Safety

The adoption of resolutions based on those of the UN for parts such as door latches and hinges, lamps and brakes is an ongoing issue on which little progress is being made.

8.2.2. Emissions

The Euro 6b regulations have applied to gasoline passenger vehicles with a weight of 3.5 t or less since July 2017, and the Euro 6c regulations will be applied in September 2019. For commercial vehicles weighing 3.5 t or less, Euro 6b has applied since January 2018 and Euro 6c will be applied in September 2020. The Euro VI regulation comes into effect for buses and commercial vehicles weighing more than 3.5 t in October 2018, and OBD Phase C to apply as well starting in April 2019.

8.3. Taiwan

8.3.1. Vehicle Safety

Safety standards based on UN regulations are updated and newly adopted annually. The mandatory installation of daytime running lamps (DRLs), ESC and BAS, as well as requirements on external protrusion and the identification of control indicators requirements have been gradually applied to new models since 2018. Similarly, offset frontal impact, AVAS, and other requirements will be applied gradually starting with new 2019 models. The eventual introduction of the UN regulations on internal projections, forward visibility, rear-end collisions, mandatory SBR installation in all seats, fuel tanks, and full lap frontal impacts, as well of the nation's own New Car Assessment Program (NCAP), is under consideration.

8.3.2. Environmental Protection

It has been decided to strengthen the current Euro 5a/V regulations to Euro 6c/VI starting in September 2019, as well as to strengthen the CAFE regulations in 2022. Regulations on vehicle exterior noise equivalent to UN R51.03 are gradually being applied since July 2018.

8.4. Thailand

8.4.1. Vehicle Safety

The Thai Industrial Standard Institute (TISI) and Department of Land Transport (DLT) are sharing the work

of harmonizing standards with UN regulations and applying new regulations. For passenger vehicles, the DLT has decided to adopt UN R43 (glass) as of January 2018, UN R28 (warning devices) and UN 51 (noise) as of January 2019, as well as UN R14 (seat belt assembly), UN R16 (seat belts), and UN R17 (seats) as of January 2020. The gradual introduction of other UN regulations is also being examined. For its part, TISI has decided to apply UN R30 (passenger vehicle tires), UN 54 (commercial vehicle tires) as of January 2019, and UN R117 (tire noise) as of September 2019.

8.4.2. Emissions

Since December 2012, Euro 4/IV regulations have been in effect for light-duty vehicles while Euro III regulations have applied to heavy-duty diesel vehicles, which are scheduled to become subject to the stricter Euro V starting in 2026. For light-duty vehicles, the Office of Industrial Economics (OIE) has proposed a plan to apply Euro 5 to all vehicles in 2021.

8.5. Malaysia

Since joining the 1958 Agreement in 2006, Malaysia has been actively making the application of UN regulations mandatory, with approximately 30 UN regulations for items such as seat belts, brakes, and collisions becoming mandatory as of January 2012. The Malaysian Ministry of Transport made ESC installation mandatory starting in June 2018, and is review plans to make eCall mandatory. Preparations are underway for almost all UN regulations, including the latest standards such as pedestrian protection for light-duty vehicles or emergency braking systems in heavy-duty vehicles, as well as cab strength requirements, to become mandatory by 2020.

8.6. Indonesia

Phase I of the ASEAN Mutual Recognition Agreement (MRA), which involves integrating UN regulations in the national standards, is being studied. It was decided to apply the Euro 4/IV emissions regulations to all models of gasoline vehicles in 2018 and of diesel vehicles in 2021. More recently, the introduction of regulations and legislation concerning EVs has come under consideration.

8.7. Singapore

The Euro 6/VI regulations were introduced for gasoline vehicles in September 2017, and for diesel vehicles in January 2018.

8.8. India

8.8.1. Vehicle Safety

The Indian Standards (IS) and Automotive Industry

Standards (AIS) sets of technical standards are gradually being harmonized with UN regulations. With the release of the Additional Safety Features for Category M & N Vehicles (AIS 145) the basic set of safety regulations has been fully established. The next item on the agenda is to assess legislation for advanced driver assistance systems (ADAS) by 2022.

8.8.2. Emissions

The application of the Bharat Stage (BS) IV (equivalent to Euro 4/IV) regulations was expanded to all cities in 2017. The Indian government had decided to skip over the BS V (equivalent to Euro 5/V) and apply BS VI (equivalent to Euro 6/VI) to new models starting in April 2020. In addition, the introduction of RDE is also under consideration.

8.8.3. Fuel Economy

The Indian government has decided to introduce of the corporate average fuel economy regulations applying to light-duty passenger vehicles as of April 1, 2017. Stage 1 will apply from 2017 to 2022, and Stage 2 from 2022 onward. Also, the Bureau of Energy Efficiency (BEE) is considering making the originally optional application of fuel economy labels mandatory.

8.9. Vietnam

8.9.1. Vehicle Safety

Decree No. 116, which reinforces license acquisition requirements for manufacturers and importers has been issued, and standalone certification for parts such as glass, mirrors, tires, lamps, fuel tanks and aluminum wheels has also become mandatory for imported vehicles since 2018.

8.9.2. Environmental Protection

The Euro 4/IV emissions regulations were introduced in January 2017. A recycling law aimed at the recovery of waste products (Decision No. 16/2015/QD-TTg) was enacted, with its scope covering components such as oil and batteries, as well as tires and air conditioners as of July 2016, and extended to the entire vehicle as of January 2018.

8.10. The Philippines

The three-point seat belt, airbag (driver and passenger seats), head restraint (outer seat) and ABS safety systems were made mandatory for passenger vehicles in March 2016, and regulatory items for a further tightening of safety restrictions starting in 2018 are being considered. Fuel economy labeling requirements have been introduced, and the affixing of labels will become manda-

tory in January 2021.

8.11. Brunei

The three-point seat belt, airbag (driver and passenger seats), head restraint (outer seat) and ABS safety systems were made mandatory for passenger vehicles in March 2016, and additional requirements such as SBRs, ISOFIX anchors, side and curtain airbags and ESC are under consideration.

8.12. Cambodia

The adoption of 19 UN regulation items, including UN R13 (brakes) and UN R14 (seat belt anchorage) in preparation for the ASEAN MRA, originally scheduled for June 2019, has been postponed to January 2020.

9 Oceania

9.1. Australia

9.1.1. Vehicle Safety

The Australian Design Rules (ADR), which include unique requirements, are being harmonized with UN regulations. Currently, compliance certification for the technical requirements in UN regulations cited in the ADR, or for subsequently issued UN regulations up to the latest version, are generally accepted. Compliance certification for the technical requirements in UN regulations cited in the ADR, or for subsequently issued UN regulations up to the latest version, are accepted.

9.1.2. Emissions

The Euro 5 regulations have applied to all light-duty gasoline and diesel vehicles since November 2016. The Euro V regulations already applied to all heavy-duty diesel vehicles since January 2011, and both the U.S. 2007 regulations and Japanese 2005 regulations (new long-term regulations) are recognized as alternative standards. A government-led examination of next-stage emissions regulations is in progress, but no official announcement has been made.

9.2. New Zealand

Vehicles that conform to the latest Australian (ADR), Japanese (safety regulations), European (EU/UN regulations) or U.S. (FMVSS) standards are accepted.

10 Motorcycles

10.1. United Nations Regulations

10.1.1. Vehicle Safety

A proposal to amend the Consolidated Resolution on the Construction of Vehicles (RE3) to add the definition of “twin wheels” as a structure where two wheels on

the same axle are considered one wheel if they have a tread width of 460 mm or less is expected to be approved by WP.29 in November 2019. For the L1 and L3 categories, there will be an additional requirement that the full vehicle structure, or part thereof, tilt when turning.

10.2. Japan

10.2.1. Vehicle Safety

Lighting devices, (UN R50) and Headlamps emitting a symmetrical passing beam (UN R113), were adopted in June 2015 and will apply to both new models and existing vehicles from June 2020. Measures for the introduction of Installation of lighting devices (UN R53) are being considered in light of the results of UN discussions on requirements for passing beams, regardless of whether DRLs are installed. Control/tell-tales (UN R60) was applied to both new models and existing vehicles from July 2017. Reflecting amendments to UN R78 with respect to advanced brakes, the installation of ABS in vehicles with a displacement exceeding 125 cc and either ABS or a combined brake system (CBS) in vehicles with a displacement exceeding 50 cc but less than 125 cc will be made mandatory. This was applied to new models in October 2018, and will be applied to existing vehicles in October 2021.

10.2.2. Emissions

The fourth stage of emissions regulations, based on GTR 2, will apply to new models as of December 2020 and to existing vehicles as of November 2022. Evaporative emissions requirements will also apply at the same time. Similarly, OBD II requirements will also apply, but since their introduction is based on the content of revisions to GTR 2, introducing them at a later date than the emissions and evaporative emissions requirements is being considered. For OBD III, catalyst monitors are scheduled to apply starting in 2024.

10.2.3. Noise

Motorcycle noise emissions regulations (UN R41.04) were applied to new models from January 2014, and to existing vehicles from January 2017. In the close proximity exhaust noise regulations, compliance with UN R41.04 as well as third stage emissions regulations has established values as relative (eliminating upper limit regulation values), completing the harmonization of the standards. The next-stage noise regulations (UN R41.05) are scheduled to apply to new models as of 2024 and to existing vehicles as of 2026.

10.3. U.S.

10.3.1. Vehicle Safety

There were no significant changes in the laws or regulations.

10.3.2. Emissions

There were no significant changes in federal laws or regulations. Reporting greenhouse gas amounts as coefficients is still valid. In California, a proposal to amend the motorcycle emissions was submitted, and a study to introduce them for the 2024 model year, based on harmonization with Euro 5 was initiated. For off-road vehicles, an amendment postponing the timing of the phase-in of evaporative emissions regulations introduced for the 2018 model year is scheduled to come into effect.

10.4. Canada

The following amendments to regulations concerning motorcycles came into effect on March 8, 2018. (1) The horizontal aim requirement for headlamps was abolished. (2) Headlamps compliant with UN regulations are now accepted. (3) Requirements for daytime lighting were added.

10.5. Europe

Regulations for a new uniform vehicle type certification, issued in 2014, came into effect in January 2016 for motorcycles, and in January 2017 for mopeds. The three delegated and implementing acts concerning the environment, functional safety, and vehicle structure were passed in July 2016 and came into effect in October 2016.

10.5.1. Vehicle Safety

There were no significant changes in the laws or regulations.

10.5.2. Emissions

Euro 4 has applied to new models since January 2016, and were applied to existing vehicles in January 2017. Crankcase emissions, evaporative emissions, endurance degradation, and OBD requirements for the have been incorporated into the regulations in addition to test cycle emissions regulations. Euro 4 for the L1e category (mopeds), which is exempted from OBD and evaporative emissions, was applied to new models in January 2017, and to existing vehicles in January 2018.

For Euro 5, the Official Journal of the European Union issued an amendment to the vehicle type certification regulation (EEC 168/2013) on January 31, 2019. It is scheduled to apply to new models starting in 2020 and to existing vehicles starting in 2021.

10.5.3. Noise

There were no significant changes in the laws or regulations.

10.5.4. Technical Information for Repair and Maintenance

It was stipulated that automakers must maintain websites through which information on OBD as well as vehicle repair and maintenance can be obtained.

10.6. Central and South America

10.6.1. Brazil

The enactment of the legislation making it mandatory for vehicles to be equipped with anti-theft devices has been put on hold. The mandatory installation of ABS or CBS for vehicles with a displacement below 300 cc (output below 22 kW), and for ABS for those with a displacement of 300 cc or higher (22 kW or more) has gradually been made mandatory, with adoption reaching 10.0% in 2019. UN regulations on lighting devices and mirrors were used as a basis to amend domestic laws, which were applied to production vehicles and to vehicles clearing customs starting in January 2019. UN regulations on speedometers and electric motorcycles were used as a basis to amend domestic laws, which will apply to production vehicles and to vehicles clearing customs starting in January 2022. The introduction of additional safety regulations is also under consideration. The second-stage PROMOT4 fuel emissions regulations are in effect, and the application of PROMOT5 (stricter regulations that add extended durability distance, evaporative emissions, formaldehyde, acetaldehyde, and OBD requirements) to new models in January 2023 and to existing vehicles in January 2025 is being considered. Raising the current noise regulations, equivalent to UN R41.03, to the equivalent to UN R41.04 is being considered.

10.6.2. Peru

The Euro 3 emissions regulations came into effect on January 1, 2017.

10.6.3. Ecuador

New safety and emissions regulations were introduced, but the period for their application has been postponed and revisions to requirements in the various regulations (e.g., tires, mirrors, lighting devices) are under consideration.

10.6.4. Chile

Euro 3 or U.S. EPA (Tier 2) emissions regulations are currently in effect for all vehicles, and only Euro 3 is accepted since March 2019. Noise regulations equivalent to

UN R41.03 are scheduled to apply from July 2019.

10.6.5. Argentina

Five additional safety regulation items (stands, fuel tank, external projections, devices to prevent unauthorized use, and passenger handholds) will apply to new as of January 2021 and to existing vehicles as of January 2023. The regulations that will gradually introduce emissions, noise and electromagnetic compatibility requirements have been issued, but legislation to suspend them temporarily was published in January 2019, and their postponement is under consideration.

10.7. Middle-East

10.7.1. Gulf Nations

There are currently environmental and safety regulations in effect. No changes have been made to the items required for compliance with the 2014 Gulf Cooperation Council Standardization Organization (GSO) since the certification system was launched.

10.8. Asia

10.8.1. Taiwan

Safety regulations matching those of Europe made the installation of ABS or CBS mandatory in January 2019 for new models, but the provision to mandate them for existing vehicles in January 2021 has been removed. Seventh stage emissions regulations are anticipated to apply to new models from January 2021 and to existing vehicles from January 2022. (They are equivalent to EU 5, but also include unique degradation durability provisions.) The official notice is scheduled for May 2019. The sixth stage of noise regulations (equivalent to UN R41.04) has applied to new models since January 2017 and to existing vehicles since January 2018, with local regulation values applied to close proximity exhaust noise.

10.8.2. Indonesia

Emissions regulations equivalent to Euro 3 and alternative regulations that use the WMTC test cycle were added, applying to new models in August 2013 and to existing vehicles from August 2015. Plans aiming to incorporate UN R41.04-equivalent regulations in January 2021 are underway. Their application to new vehicles is scheduled for January 2023.

10.8.3. Malaysia

The application of the latest series of the following UN regulations on safety starting in January 2020 has been decided. Only Installation of lighting devices (UN R53) will be implemented from January 2022. The remaining regulations are those for speedometers (UN R39), brakes

(UN R78), electromagnetic compatibility (UN R10), and symmetrical passing beams (UN R113). It has been decided to make emissions regulations equivalent to EU 4 (Type 1 and 2 only) mandatory from January 2020. For existing vehicles, their application will start in January 2022. The application of OBD 1 to new models in January 2022 and existing vehicles in January 2024 has been decided. A decision to apply the UN R41.04 noise regulations to new models starting in January 2020 and to existing models starting in January 2022 has been made.

10.8.4. The Philippines

The application of UN regulations in preparation for the harmonization of ASEAN standards is being examined, with regulations such as horns (UN R28), tires (UN R75) and speedometers (UN R39) under assessment in the area of safety. Emissions regulations equivalent to Euro 3 have applied to new models since September 2015. The issuance of UN R41.03 noise regulations planned for 2018 is behind schedule. The regulations are expected to be issued in 2019.

10.8.5. India

Deliberations on the details of the Whole Vehicle Safety Conformity of Production (WVSCOP) scheduled to become mandatory in April 2021 are moving forward. New regulations, including those on side stands, foot rests, and exterior projections are also being assessed. The BS 6 emissions regulations, which are equivalent to Euro 5, will apply to vehicles registered as of April 2020. The OBD stage I requirements will apply at the same time. In addition, the OBD stage II requirements will apply from April 2023. Since March 2019, applications for the IS 3028:1998 noise regulations (equivalent to UN R41.03) and IS 3028:2018 (equivalent to UN R41-04) can be submitted concurrently. The date on which the transition period will end has yet to be determined. Under IS 3028:2018, the measurement of additional sound (ASEP) is optional.

10.8.6. Vietnam

Safety regulations concerning EVs (related to batteries and motors) are scheduled to be issued. Emissions regulations equivalent to Euro 3 have applied to all vehicles since January 2017. Making the application of fuel economy labels mandatory starting in January 2020 has been approved.

10.8.7. Thailand

The horn safety regulations (equivalent to UN R28.00) will apply to existing vehicles from January 2020. Com-

pliance with regulations equivalent to UN R75 has been required for tires since January 2019. The introduction of seventh-stage Euro 4-equivalent emissions regulations is being planned. They are anticipated to come into effect around the end of 2019. Compliance with all items other than OBD will be required.

There are plans to introduce noise regulations equivalent to UN R41.04 from January 2021. Their application to new vehicles is scheduled for January 2023. Noise regulations equivalent to UN R41.03 are in effect, with the application of next stage regulations equivalent to UN R41.04 from 2019 for new models and 2021 for existing vehicles being considered.

10. 8. 8. China

In the area of safety, the mandatory installation of advanced brakes has been decided. It will apply to new models as of July 2019, and to existing vehicles as of July 2020. Motorcycles with a displacement over 150 cm³ and equal to or less than 250 cm³ must be equipped with ABS or CBS. For motorcycles with a displacement over 250 cm³, ABS installation has been made mandatory for both the front and rear wheels. The China IV (equivalent to Euro 4) emissions regulations are scheduled to apply to new models from July 2018 and to all vehicles from July 2019. China V is currently being studied. The third stage of fuel economy regulations is also under consideration. Amendments to the noise regulations equivalent to

UN R41.03 are being examined.

10. 8. 9. Hong Kong

Emissions regulations equivalent to Euro 4 are currently in effect, with Euro 5 scheduled to apply in January 2020, at the same time as in Europe. Noise regulations equivalent to UN R41.04 are currently in effect.

10. 8. 10. Singapore

The Euro 4 emissions regulations have applied to vehicles with a displacement exceeding 200 cm³ since 2018, and will apply to those with a displacement of 200 cm³ or less in 2020. The introduction of noise regulations equivalent to UN R41.03 is under consideration.

10. 8. 11. South Korea

Emissions regulations equivalent to Euro 4 are currently in effect, with Euro 5 scheduled to apply in January 2020, at the same time as in Europe. Noise regulations equivalent to UN R41.04 are currently in effect.

10. 9. Oceania

10. 9. 1. Australia

The installation of front and rear ABS for vehicles above 125 cm³, and of either ABS or CBS in the front and rear for smaller vehicles, has been decided and will become mandatory for new models in November 2019 and for existing vehicles in November 2021. There were no significant changes in laws and regulations concerning either emissions or noise.