



Road Safety Legislation: Focus on vehicles standards (including powered two-wheelers)

Mandate and structure of the World Forum WP.29

WP.29 administers 3 Vehicle Regulation Agreements:

- 1958 Agreement on the construction of new vehicles
- 1998 Parallel/Global Agreement
- 1997 Agreement on Periodical Technical Inspections

By Romain HUBERT at UNECE SustainableTransport Division - RSM DGS
Caribbean Road Safety Regional Workshop in Kingston, on 8-9 September 2019



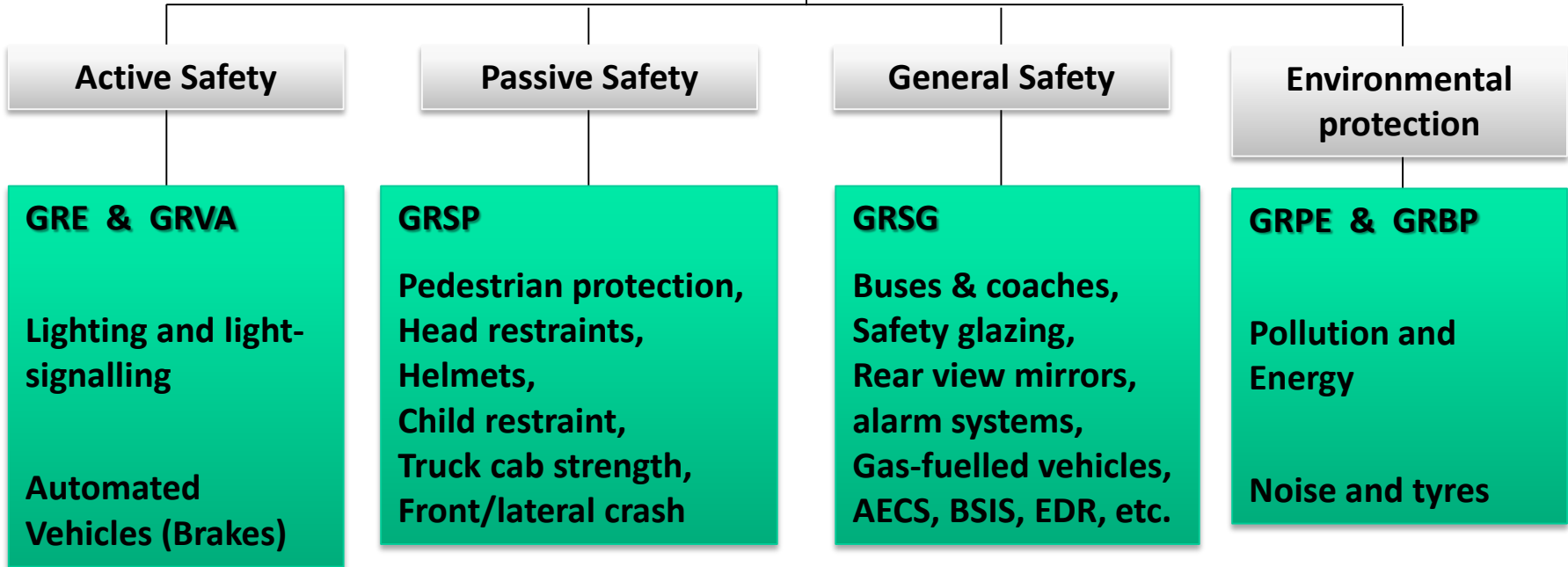


The WP.29 structure

Committee for the 1958 Agreement (AC.1)
Committee for the 1998 Agreement (AC.3)
Committee for the 1997 Agreement (AC.4)

Committee for the Coordination of Work (AC.2)

World Forum for Harmonization of Vehicle Regulations (WP.29)



More than 30 non-permanent technical expert groups (IWG)





Vehicle Regulations and Transport Innovations Section

WP.29 activities in its 6 Working Parties



Emissions of pollutants and CO₂



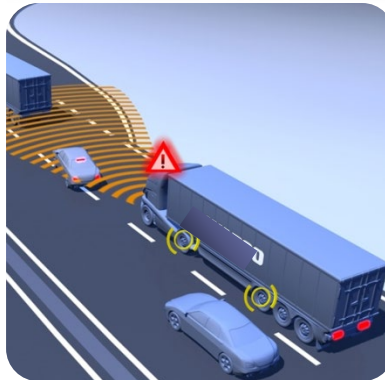
General safety



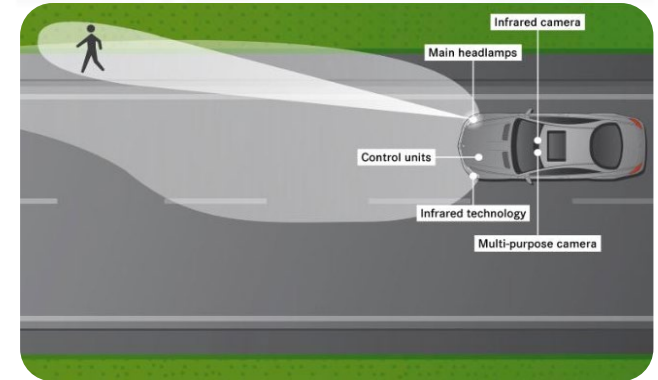
Passive safety



Noise & Tyres



Automated vehicles



Lighting and light signalling



Future



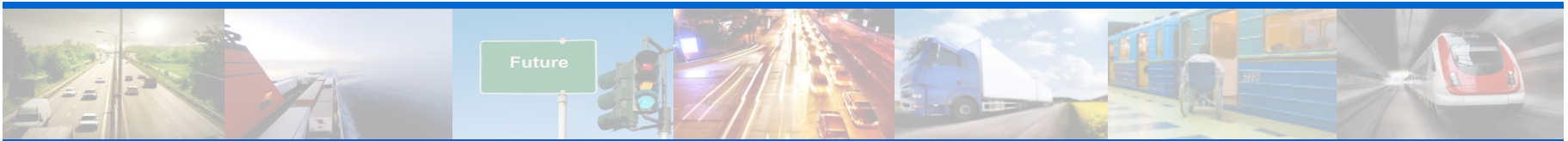
Why is a worldwide regulatory framework for vehicles needed?

- Regulatory framework: National or international?
→ WP.29 established in 1952 (World Forum since 2000)
- The automotive industry has become a global industry
- Main contributor to economic growth
- Mitigate negative effects (accidents, pollutants, climate change, trade barriers,...)



Mandate: Development of worldwide harmonized regulations resulting:

- in safer and cleaner vehicles,
- in the elimination of technical barriers to trade, and
- in the reduction of certification costs and, thus, costs for consumers



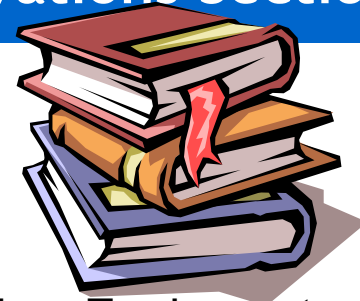


WP.29 is a worldwide, unique and transparent forum

- No other organization covers this area
- Agreements open to all UN member States (MS)
- Participation in the sessions open to MS, Governmental Organizations (GOs) and Non-Governmental Organizations (NGOs), but:

**Decisions are taken by Governments
(i.e. CPs to the Agreements)**





WP.29 administers 3 Agreements

'58 Agreement

Harmonized Technical UN Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for **Reciprocal Recognition** of Approvals Granted on the Basis of these UN Regulations (56 Contracting Parties, **149 [+4] UN Regulations**) *subject to the EiT of BSIS, LSD, RID & RRD*

'98 Agreement

Establishing of UN Global Technical Regulations (UN GTRs) for wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicle (38 Contracting Parties, **20 UN GTRs**)

'97 Agreement

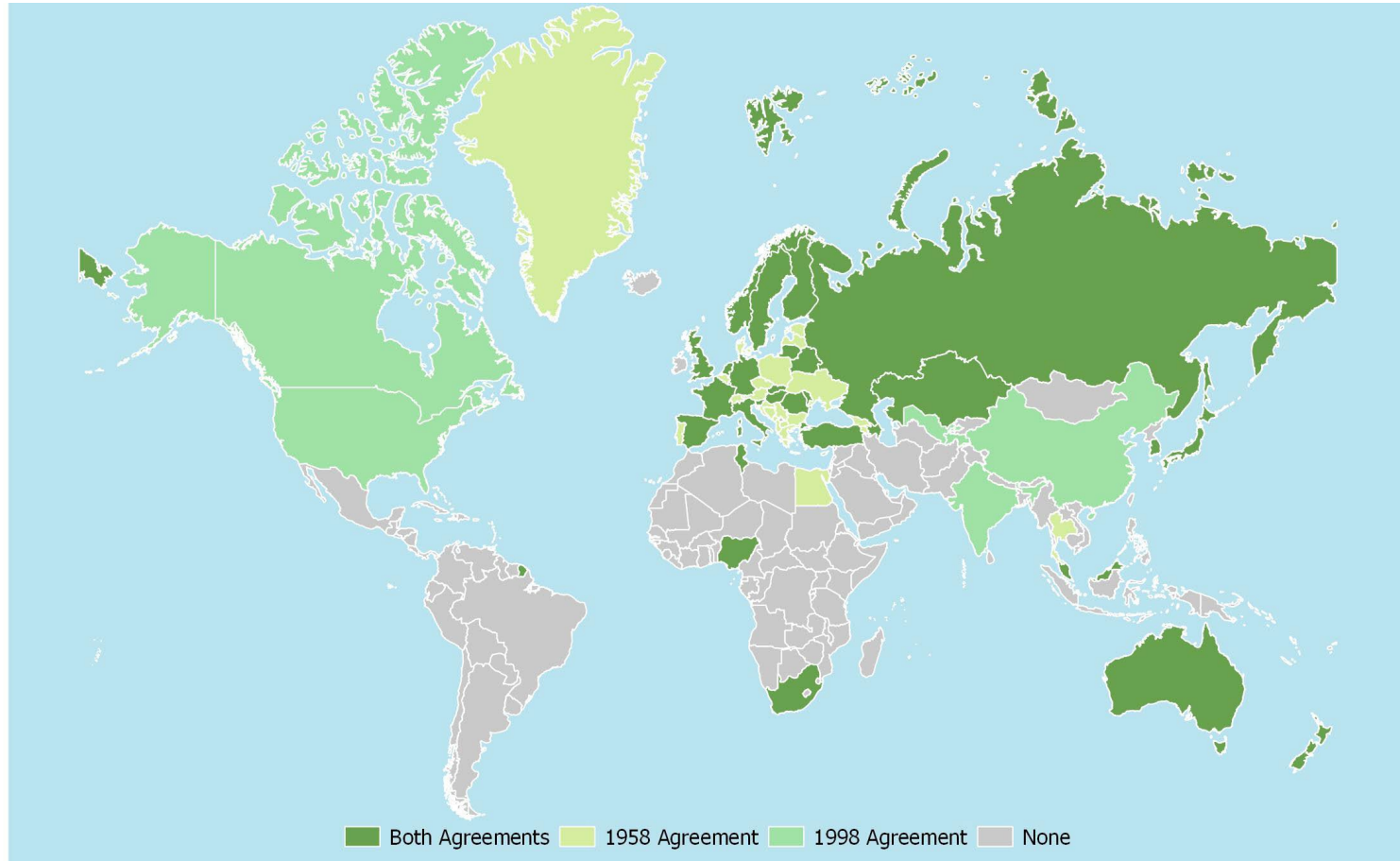
Uniform conditions for periodical technical inspections of wheeled vehicles and the reciprocal recognition of such inspections (13 Contracting Parties, 17 signatories pending ratification, **4 UN Rules**)





Vehicle Regulations and Transport Innovations Section

WP.29: Contracting Parties to the 1958 and 1998 Agreement

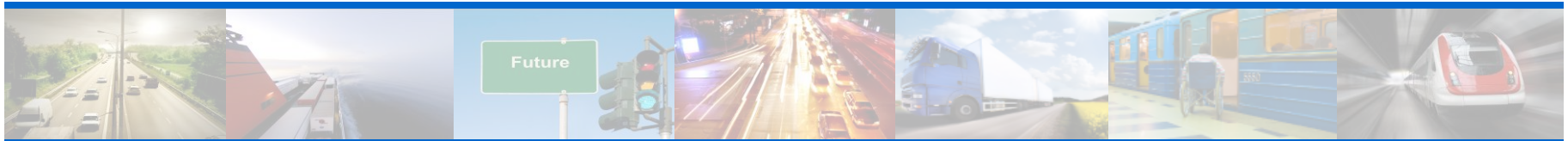




Vehicle Regulations and Transport Innovations Section

1958 Agreement vs. 1998 Agreement :

	International standards (e.g. ISO)	UN GTRs ('98 Agreement)	UN Regulations ('58 Agreement)	National / regional legislations (e.g. EU Directives / EU Regulations)
Test method	technical provisions	technical provisions	technical provisions	transposition procedure (reproduce in total or refer to the provisions of UN Regulation, UN GTRs or international standards)
Performance requirements	-	limit values	limit values	
Administrative procedures	-	-	TA/certification + COP procedures + mutual recognition	
Transposition	-	Changes are admitted	No changes permitted	-
Application	optional	optional	(optional)	mandatory





Environmental Protection

GRPE Activities on pollution and energy:

Battery Electrical Vehicles (EV): 1996

Measurement procedure for CO₂ emissions (Fuel consumption): 1997

Hybrid/Electric Vehicles (HEV): 2004

Bio-Fuels and Plug-in Hybrid/Electric Vehicles (PHEV): 2008

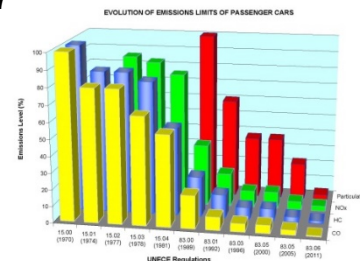
Market Fuel Quality (FQ): 2010

Hydrogen & Fuel Cell vehicles (HFCV): 2010/2013

Environmentally Friendly Vehicles (EFV) – Feasibility: 2011

Worldwide Harmonized Light Vehicle Test Procedures (WLTP): 2014/(2020/22)

Vehicle Indoor Air Quality (2017)



GRBP Activities on noise:

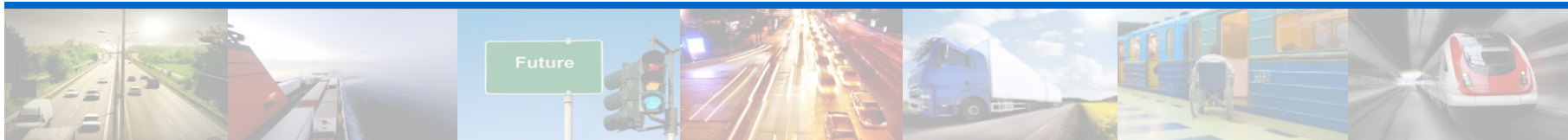
Noise level of for motor cycles and motor vehicles : 1980 &1982

Tyre rolling noise and wet grip adhesion: 2007

New noise measurement method: 2007 – new limit values: 2014

Tyres: Rolling Resistance & Pressure Monitoring System (TPMS): 2010

Tyre installation & Quiet Road Transport Vehicles (audible warning devices): 2016





Active Safety

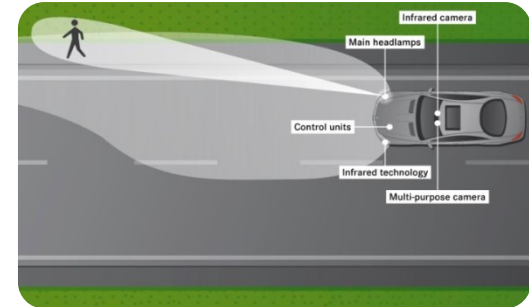
GRE Activities on lighting and light-signalling:

Conspicuity/Contour markings: 2006

Dedicated Daytime Running Lamps (DRL): 2007

Adaptive Front-lighting Systems (AFS): 2007

LED headlamps: 2008



GRVA Activities on automated/autonomous and connected vehicles:

Anti-lock braking systems (ABS): 1990

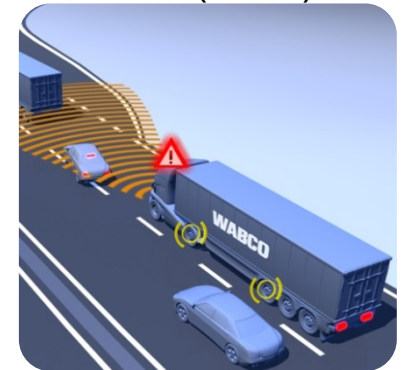
Regenerative braking systems: 2008

Electronic Stability Control (ESC) / Brake Assist system (BAS): 2008/2017/(2020)

Advanced Emergency Braking Systems (AEBS): 2012/(2020)

Lane Departure Warning Systems (LDWs): 2012

Automatically Commanded Steering Functions (ACSF): 2018/20



WP.29 informal group on:

Intelligent Transport Systems – Coord. of Automated Vehicles





General Safety (GRSG)

- Indirect vision systems (mirrors & camera monitor): 1981/2005/2015
- Safety glazing materials and their installation: 1981/2008/2014
- Rear Underrun Protection: 1982/2015
- Controls, tell-tales and indicators: 1984
- Superstructure of buses and coaches: 1986/2010
- Liquefied Petroleum Gas (LPG): 1987
- Vehicle alarm systems/immobilizer: 1997
- Compressed/Liquefied Natural Gas (CNG/LNG): 2000/2013
- Burning behaviour: 2005
- Camera-Monitor Systems: 2013
- Fire detection and suppression systems: 2016
- Accident Emergency Call Systems: 2017
- Blind Spot Information Systems: 2019
- Panoramic Sunroof Glazing (PSG): (2021)
- Event Data Recorder (EDR): (2022)





Passive Safety (GRSP)

- Safety belts: 1970
- **Protective helmets (UN R22): 1972**
- Child Restraint Systems: 1981/2013
- Frontal and lateral crash tests: 1995
- Pedestrian safety GTR: 2008
- ISOFIX anchorages: 2002
- Safety-belt reminders: 2009
- Electric vehicle safety: 2010/2013
- Enhanced Child Restraint Systems (ECRS): 2013
- Pole side impact: 2015
- Hydrogen and Fuel Cell Vehicles (HFCV): 2015





E-marking explanations

E = ECE Reg. No. 22; **2** = certified by French Authority;
051018 = ECE Reg. No. 22 **05** series of stringency, with Approval Number **1018** issued in France;

P = “Protective”, i.e. chin bar tested and approved as a protective full-face helmet;

320678 = Batch Test control number – identifies the production batch for which test results are available.





Tests for helmets according to UN Regulation No. 22 (1958 Agreement)

- Impact-absorption test
- Projection and surface friction test
- Rigidity test
- Retention (detaching) test
- Visor tests
- Micro-slip test of the chin strap
- Test for resistance to abrasion of the chin strap
- Tests for retention systems relying on quick-release mechanisms





Procedure for implementing UN Regulation No. 22 (1)

- 44 Contracting Parties around the world are applying UN R22
- Since its establishment in 1972 testing methods have developed over time, becoming more and more stringent
- Need to obtain replicable results, particularly in different test centres
- Reproduce tests representing real world crashes
- Regulation No. 22 is considered one of the most demanding worldwide





Procedure for implementing UN Regulation No. 22 (2)

- (I) A country can use partially the text of UN Regulation No. 22 as a basis for a national regulation, with no further obligation. However, in that case, the advantages of mutual recognition and international type approval are not applicable to the country and any testing associated with the regulation would have to be carried out at the national level
- (II) A countries can apply the full text of the original version of the Regulation, including the 02 series of amendments as an intermediate step and progressively apply more recent versions on the path to reach the 05 series of amendments (latest one). This would encourage countries to strive for the highest level of stringency of the Regulation. It may help countries to accede to the 1958 Agreement.





Transposition of UN Regulation under the 1958 Agreement

- Once a new UN Regulation (or an amendment to it) is voted, CPs may notify (within a period of 6 months) their disagreement or their intention not to apply the Regulation (or the amendment)
- Once a UN Regulation enters into force, CPs are obliged to apply it without changes or restrictions
- The same applies to the amendments
- CPs may decide not apply UN Regulations





Revision 3 to the 1958 Agreement: Main objectives

- A CP applying a UN Regulation may issue type-approvals pursuant to **earlier versions of the UN Regulation** (i.e. pursuant to preceding series of amendments or the original version of the UN Regulation). However, other CPs applying the UN Regulation are obliged to accept such type-approvals (ease accession by countries from emerging economies to join).
- All CPs applying a UN Regulation shall **mutually recognize type-approvals granted according to the latest version** of the UN Regulation (keep principle of mutual recognition).
- Insertion of the new scheme for the **International Whole Vehicle Type Approval (IWVTA)** into draft UN Regulation No. 0.
- Use of a **Database for the Exchange of Type Approval documentation (DETA)** between all CPs (hosted with UNECE).
- Modified **voting procedure and conditions** (4/5 majority instead of 2/3 majority).
- Insertion of new Schedules of Administrative and Procedural Provisions (e.g. exemption approvals for **new technologies** or general conditions for **virtual testing** methods).





International Whole Vehicle Type Approval (IWVTA)

- Definition: “International whole vehicle type approval” means that all type approvals granted pursuant to applicable UN Regulations for the systems, components and parts of a vehicle are integrated into a single approval of the whole vehicle according to the administrative provisions of UN Regulation No. 0
- Scope: First step is the IWVTA of category M1 vehicles (passenger cars)
- Structure:
 - ❑ New UN Regulation No. 0 on IWVTA (listing in Annex 4 all UN Regulations to which the type of vehicle has to comply with)
 - ❑ New “Schedules” under the 1958 Agreement (Annexes with a list of administrative and technical procedures)





Revision 3 to the 1958 Agreement and its status document

- Revision 3 (symbol E/ECE/TRANS/505/Rev.3) to the 1958 Agreement entered into force on 14 September 2017

See document: www.unece.org/trans/main/wp29/wp29regs.html

- UN Regulation No. 0 on IWVTA entered into force on 19 July 2018

See document: www.unece.org/trans/main/wp29/wp29regs0-20.html

- Status document of the 1958 Agreement (343 document)

See document: www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29fdocstts.html





Questions on the 1958 Agreement ?





1998 Agreement (1)

- Compendium of candidates to become Global Technical Regulations (UN GTRs)
- UN GTRs are developed at the highest stringency level
- Countries may specify lower standards as an alternative for developing economies
- Adopted unanimously by its Executive Committee (AC.3)
- There is a Global Registry of UN GTRs
- Obligation to initiate the procedure for transposition into national or regional law
- A Contracting Party may decide not to transpose the UN GTR or to transpose it with modifications
- The Contracting Parties may decide to suspend the application of the UN GTRs





1998 Agreement (2)

A UN GTR includes:

Technical prescriptions, test methods and performance requirements to be met:

- It has no administrative prescriptions, e.g. certification procedures
- It doesn't have the mutual recognition principles
- No conformity of production procedures
- However, UN GTRs and UN Regulations have in principle the same technical prescriptions (therefore called the global or parallel Agreement)





Current UN GTRs under the 1998 Agreement

1. Door locks and door retention components
2. Measurement procedure for two-wheel motorcycles equipped with a positive-ignition or compression-ignition engine with regard to the emission of gaseous pollutants, CO₂ emissions and fuel consumption
3. Brake system for motorcycles
4. Test procedure for compression-ignition engines and positive-ignition engines fuelled with natural gas or liquefied petroleum gas with regard to the emission of pollutants
5. Technical requirements for on-board diagnostic (OBD) systems for road vehicles
6. Safety glazing materials for motor vehicles and equipment for motor vehicles
7. Headrest
8. electronic stability control systems
9. Pedestrian safety
10. Off-cycle emissions
11. Test procedure for compression-ignition engines to be installed in agricultural and forestry tractors and non-road mobile machinery with regard to engine pollutant emissions
12. With regard to the location, identification and operation of motorcycle controls, tell-tales and indicators
13. Global Technical Regulation on Hydrogen and Fuel Cell Vehicles
14. Impact on the side of the post
15. Globally Harmonised Light Vehicle Test Procedures (WLTP)
16. Tyres
17. Crankcase and evaporative emissions from vehicles of category L
18. On-board diagnostic (OBD) systems for vehicles of category L
19. EVAP Test Procedure for the Harmonized World Light Vehicle Test Procedure (WLTP EVAP)
20. Electric Vehicle Safety (EVS)





Vehicle Regulations and Transport Innovations Section

Certification of a whole vehicles (1)

- Since the 1998 Agreement has not yet completed the whole set of UN GTRs covering the minimum safety requirements of the vehicle, national standards (e.g. US FMVSS) can complement the vehicle certification in case of a missing UN GTR (pending the harmonization process incorporating them into a GTR)
- Data is generated by the manufacturer to ensure that a vehicle meets the technical performance requirements of any regulation. A Blue Ribbon certificate confirms the manufacturer's declaration of compliance with safety standards. The EPA already provides an emissions compliance certificate:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY OFFICE OF TRANSPORTATION AND AIR QUALITY WASHINGTON, DC 20460 CERTIFICATE OF CONFORMITY 2016 MODEL YEAR		
Manufacturer: CUMMINS INC.		
Engine Family: GCEX2000H0AP Certificate Number: CEX-09NEW16-11 Intended Service Class: MDDDD Fuel Type: DIESEL FEL: NMEC -30D: N/A NDc: N/A PK: N/A	Greenhouse Gas Info: Primary Intended Service Class: TRACTOR/VOCATIONAL Primary Test Configuration FTP (if applicable): CO ₂ FEL value (g/hp-hr): 544 CO ₂ FEL value (g/hp-hr): 581 NO _x FEL value (g/hp-hr): 0.10 CH ₄ FEL value (g/hp-hr): 0.10 Primary Test Configuration Ramped mode (if applicable): CO ₂ FEL value (g/hp-hr): 584 CO ₂ FEL value (g/hp-hr): 589	
Effective Date: 11/18/2015 Date Issued: 11/18/2015	 Ryan J. Binkley, Director Compliance Division Office of Transportation and Air Quality	
<small> Pursuant to Section 206 of the Clean Air Act (42 U.S.C. section 7525), 40 CFR Part 86, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which represent the following motor vehicle engines, by engine family, and in subject to the terms and conditions prescribed in those provisions. This certificate of conformity covers only those new motor vehicle engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 86 and which was produced during the model year named on this certificate of the said manufacturer, as defined in 40 CFR Part 86. It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 86.006-7, 86.006, and 86.1006 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 86. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 86. This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of this certificate. </small>		

 U.S. Department of Transportation Highway Safety Administration CERTIFICATE OF AUTHENTICITY
I HEREBY CERTIFY that the enclosed is a copy of <u>the NHTSA statement regarding the 2016 model year NHTSA's new vehicles for export to India</u>
electronically reviewed by <u>Lakshmi Lakshmi Thiruvethoor</u> , in my capacity,
signed and dated at <u>Washington, D.C.</u> on <u>23</u> day of <u>February</u> , 2014 by <u>Maitreyi Kulkarni</u>
<u>Praveen Prabhakar</u> , International Policy Advisor
I HEREBY CERTIFY that <u>Maitreyi Kulkarni</u> who signed this Certificate is an employee of the Department of Transportation and is duly authorized to sign and deliver this certificate on behalf of the Department of Transportation.
IN WITNESS WHEREOF, I have hereunto subscribed my name and stamp at the seat of the Department of Transportation on the 23 day of February, 2014. Day: <u>February</u> and Year: <u>2014</u>
OFFICE SECRETARY OF TRANSPORTATION <u>Cheryl Jensen</u> RECORDS SECTION





1997 Agreement on Periodical Technical Inspections (PTI)

The 1997 Agreement provides:

- Legal framework for the adoption of uniform UN Rules for PTI of vehicles in use
- Reciprocal recognition of certificates of such inspections by all CPs to the Agreement

Status of the UN Rules currently in force:

- UN Rule No. 1 on environmental protection performances (2007)
- UN Rule No. 2 on general safety (roadworthiness) (2012)
- UN Rule No. 3 on gas-fueled vehicles (CNG, LNG & LPG) (2019)
- UN Rule No. 4 on electric or hybrid vehicles (2019)





Questions on the 1998 or 1997 Agreements ?





The 3 Agreements administered by WP.29:

- Established by consensus
- The Depositary is the S-G
- Follow well-established UN legal procedures
- Open to all UN Member States and REIO
- No accession fee
- Amended as the needs arise (innovative technologies)
- Many non-ECE States are already Parties
- To become a Party, deposit an instrument with the S-G





Why to become a Contracting Party?

- Participation in the regulatory harmonization process
- Approvals granted are recognized by the other CPs applying the regulation concerned
- Accession to Database for the Exchange of Type Approval (DETA) documentation
- Exchange of information of non-compliant automotive products
- Exchange of know-how at expert and governmental level
- Possible participation in R&D projects





How to become CP to an Agreement

Requirements for a valid instrument of accession:

- Identify the Agreement
- Declaration of undertaking. Expression of intent of the Government to be bound by the Agreement and to undertake faithfully to observe and implement its provisions
- Issued and signed by:
Head of State or Government or the Minister of Foreign Affairs (MFA) or by a person exercising the power of one of these authorities *ad interim*.
- Dated
- Addressed to the UN Secretary General in New York





Model of an instrument of accession

- WHEREAS the [title of agreement] was concluded [adopted, etc.] at [place] on [date],
- NOW THEREFORE I, [name and title of the head of State or Government or MFA], declare that the Government of [name of State], having considered the above mentioned [agreement], accedes to the same and undertakes faithfully to perform and carry out the stipulations therein contained.
- IN WITNESS WHEREOF I have signed this instrument of accession at [place] on [date].





Current Resolutions under the 3 Agreements

1. Consolidated Resolution on the Construction of Vehicles (R.E.3) (classification categories, definitions, market fuel quality, ADAS, cyber security, data protection, etc.)
2. Resolution on the common specification of light source categories (R.E.5) (e.g. filament lamps)
3. Resolution on the provisions required for carrying out PTI according to the 4 UN Rules annexed to the 1997 Agreement (R.E.6)
4. Mutual Resolution No. 1 (M.R.1) contains descriptions and performance requirements on test tools and devices necessary for the assessment of compliance of wheeled vehicles, equipment and parts according to the UN Regulations and UN GTRs under the 1958 or 1998 Agreements, respectively
5. M.R.2 contains terms, definitions and classifications of vehicle propulsion system definitions, namely those related to powertrain system types, energy storage systems, energy converters, auxiliary devices and vehicle definitions related to powertrain configuration
6. M.R.3 recommends harmonized test procedure for the measurement of interior emissions, taking into account existing standards to ensure Vehicle Interior Air Quality (VIAQ)
7. Special Resolution No. 1 (S.R.1) specifies common definitions of vehicle categories, masses and dimensions under the 1998 Agreement
8. S.R.2 deals with the improvement in the implementation of the 1998 Global Agreement

The resolutions listed above are recommendations and are available at:

www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html





Vehicle Regulations and Transport Innovations Section

WP.29 How it works - How to join it?

(4th edition 2019)

UNECE
**World Forum For Harmonization
of Vehicle Regulations (WP.29)**
How it works - How to join it
Fourth Edition



UNITED NATIONS

<http://www.unece.org/index.php?id=51355>

THANK YOU FOR YOUR ATTENTION





Thank you for your attention



More information at: <http://www.unece.org/trans/main/welcwp29.html>

