

International Harmonization of Safety Regulation on In-Vehicle ITS

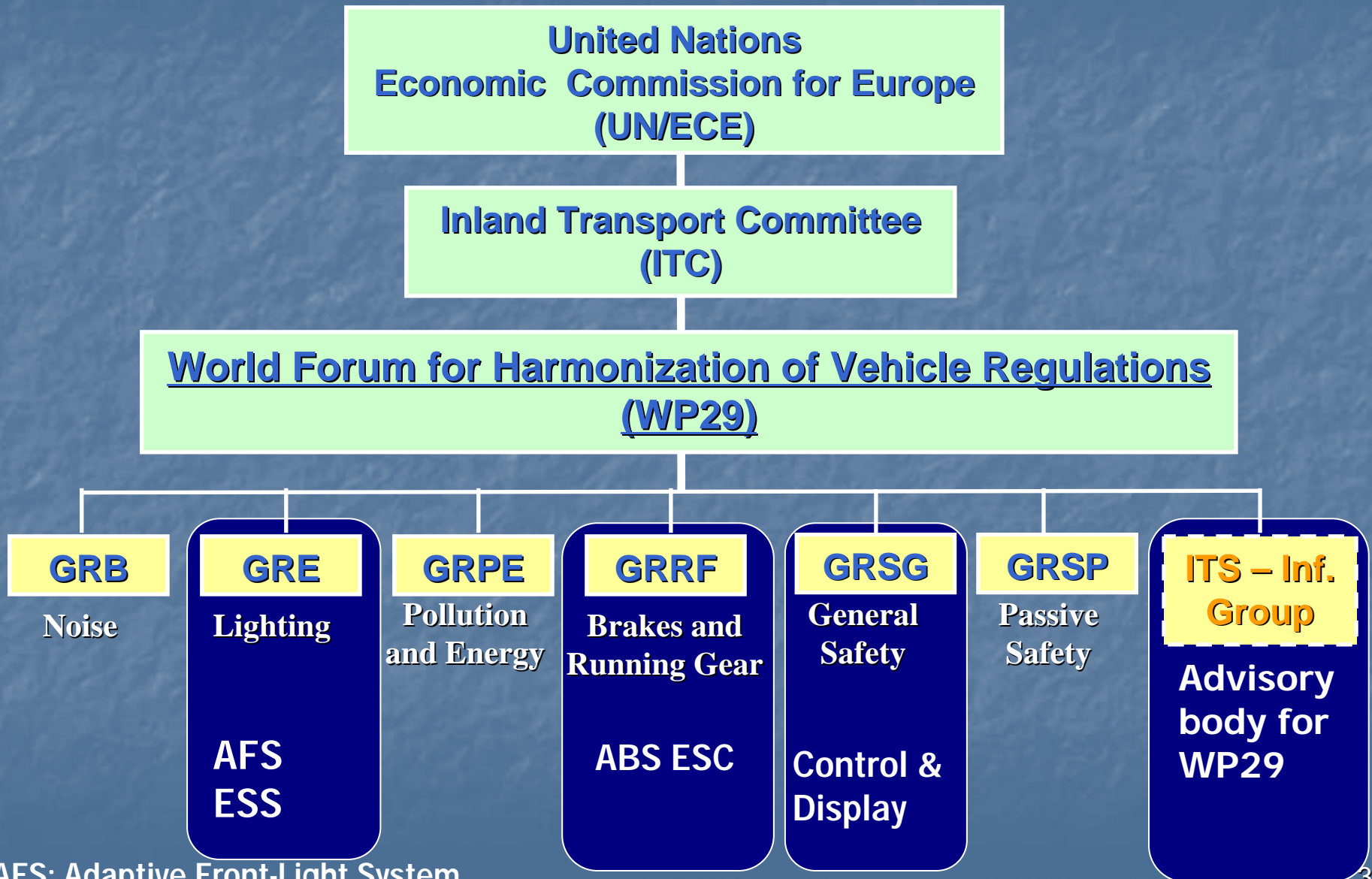
Chairman of WP29/ITS informal G

(Ministry of Land, Infrastructure
and Transport, Japan)

International Harmonization of Safety Regulation on In-Vehicle ITS

- Introduction
- UN/ECE/WP29
 - Organization of WP29 and its members
 - About gtrs/ECE regulations
- Discussion
 - Approaches taken by WP29/ITS informal Group
 - Driver assistance technologies
 - Tasks for regulatory approaches
 - Necessity for regulatory approach
 - Our views in the report of ITS Informal Group

ORGANIZATION OF UN/ECE/WP29



AFS: Adaptive Front-Light System
ESS: Emergency Stopping System

Members of WP29

Chairman : Mr. B. Kisulenko (Russian federation)

Vice Chairman : Mr. B. Gauvin (France)

ISO, AIT/FIA,
OICA, IMMA,
CLEPA,
ETRTO, AMA,
CITA etc.

Contracting party
Government

Australia, Austria, Canada,
Czech Republic, Denmark,
Estonia, Finland, France,
Germany, Hungary, Ireland,
India, Italy, Japan, Latvia,
Luxembourg, Malaysia,
Netherlands, Norway, Poland,
Portugal, Romania, Russian
Federation, Serbia and
Montenegro, Slovakia,
Slovenia, South Africa, Spain,
Sweden, Switzerland,
Thailand, Turkey, Ukraine,
United Kingdom, USA, EU
Republic of Korea,
People's republic of China,

Non
government
organization

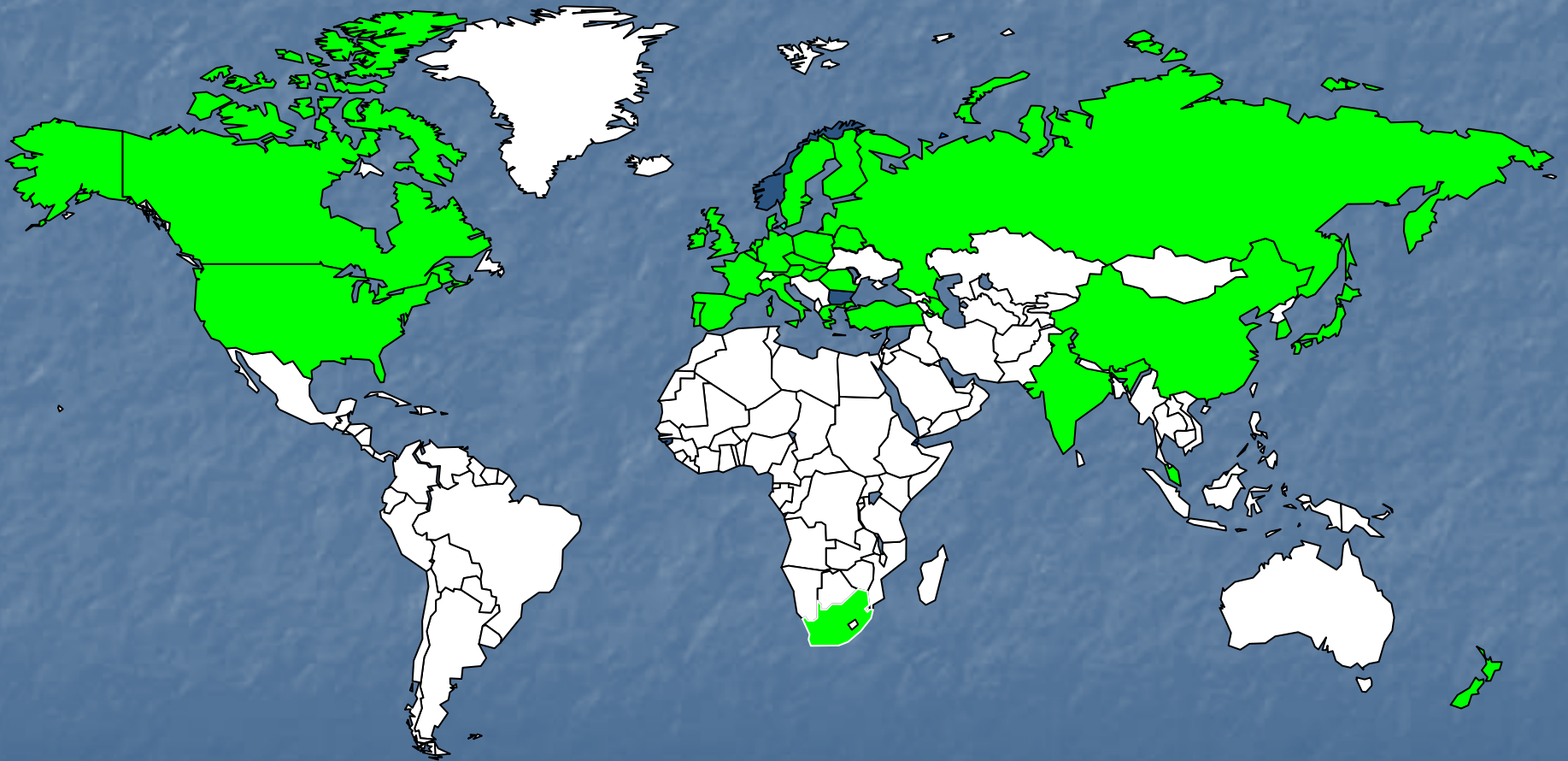
WP29

Observer
Government

Vietnam , Indonesia,
the Philippines
Saudi Arabia

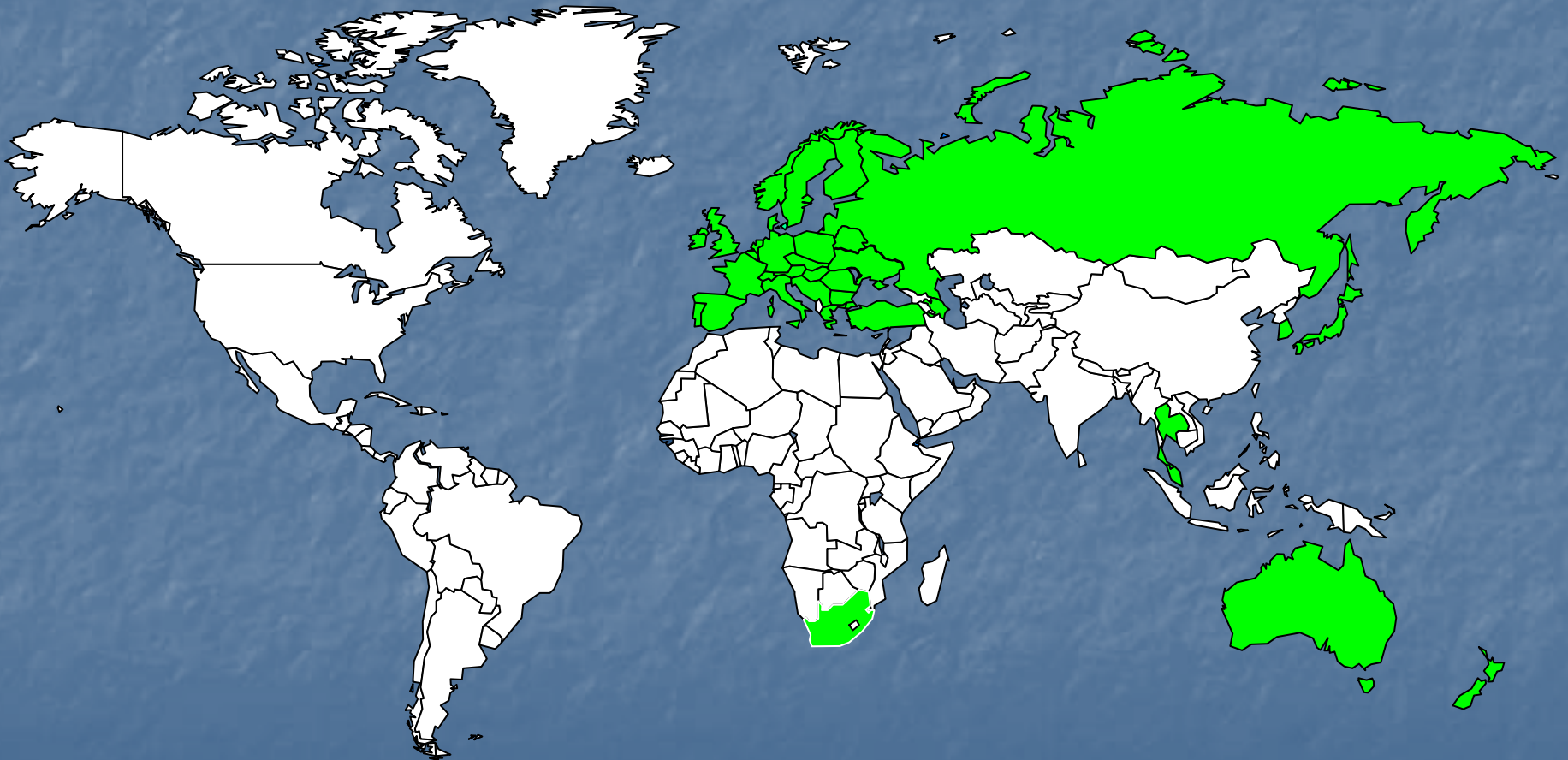
1998 Agreement: Signatory Countries

29 CPs , 5 gtrs



1958 Agreement: Signatory Countries

46 CPs , 126 ECE regulations



List of gtr

- gtr 1: Doors locks and door retention components
- gtr 2: Motorcycles emission test cycle (WMTC)
- gtr 3: Motorcycle brake systems
- gtr 4: Heavy-duty vehicle exhaust-emission certification procedure (WHDC)
- gtr 5: On-board diagnostic systems for heavy-duty vehicles and engines (WWH-OBD)
- Under development
 - Pedestrian Safety, Head Restraints, ESC, Safety Glazing, Hydrogen and fuel cells vehicles (HFCV) and so on

UN-ECE Regulations

R 1&2 Headlamps
 R 3 Reflex Reflectors
 R 4 Rear Registration Plate Lamps
 R 5 Seald Beam Headlamps
 R 6 Direction Indicators
 R 7 Front and Rear Position (Side) Lamps, Stop Lamps and End-Outline Marker
 R 8 Halogen Headlamps (H1,H2,H3,HB3,HB4,H7,H8 and/or HIR1)
 R 9 Noise (Three-Wheeled Vehicles)
 R 10 Radio Interference Suppression
 R 11 Door Latches and Hinges
 R 12 Steering Mechanism
 R 13 Braking
 R 13-H Braking (13-H)
 R 14 Safety Belt Anchorages
 R 15 Exhaust Emission
 R 16 Safety Belts
 R 17 Seats
 R 18 Protection Against Unauthorized Use
 R 19 Front Fog Lamps
 R 20 Halogen Headlamps (H4)
 R 21 Interior Fittings
 R 22 Motor Cycles Helmet
 R 23 Reversing Lamps
 R 24 Diesel Smoke
 R 25 Head Restraints
 R 26 External Projections
 R 27 Warning Triangles
 R 28 Audible Warning Devices
 R 29 Cab of a Commercial Vehicles
 R 30 Pneumatic Tyres (Passenger Vehicle)
 R 31 Halogen Seald Beam Headlamps
 R 32 Rear-end Collision
 R 33 Head-on Collision
 R 34 Prevention of Fire Risks
 R 35 Arrangement of Foot Controls
 R 36 Construction of Public Service Vehicles
 R 37 Filament Lamps
 R 38 Rear Fog Lamps
 R 39 Speedometer
 R 40 Exhaust Emission (Motor Cycle)

R 41 Noise (Motor Cycle)
 R 42 Front & Rear Protective Devices
 R 43 Uniform Provisions Concerning The Approval Of Safety Glazing Materials
 R 44 Child Restraint Systems
 R 45 Headlamp Cleaners
 R 46 Rear-view Mirrors
 R 47 Exhaust Emission (Moped)
 R 48 Installation of Lights
 R 49 Diesel Emission
 R 50 Lights (Moped, Motor Cycle)
 R 51 Noise
 R 52 Construction of Small Capacity Public Service Vehicles
 R 53 Installation of Lights (Motor Cycle)
 R 54 Pneumatic Tyres (Commercial Vehicle)
 R 55 Mechanical Coupling
 R 56 Headlamps (Moped)
 R 57 Headlamps (Motor Cycle)
 R 58 Rear Underrun Protection
 R 59 Replacement Silencing System
 R 60 Driver Operated Controls (Moped, Motor Cycle)
 R 61 External Projections (Commercial Vehicle)
 R 62 Protection Against Unauthorised Use (Motor Cycle)
 R 63 Noise (Moped)
 R 64 Temporary Spare Tyres
 R 65 Special Warning Lights
 R 66 Strength of Super Structure (Large Passenger Vehicle)
 R 67 Specific Equipment of Vehicles Using LPG
 R 68 Measurement of the Maximum Speed
 R 69 Rear Marking plates for slow-moving vehicles and their trailers
 R 70 Rear Marking Plates for Heavy and Long Vehicles
 R 71 Driver's field of vision (agricultural tractors)
 R 72 Halogen Headlamps (HS1 for Motor Cycle)
 R 73 Lateral Protection (Goods Vehicle)
 R 74 Installation of Lights (Moped)
 R 75 Pneumatic Tyres (Moped, Motor Cycle)
 R 76 Headlamps (Moped)
 R 77 Parking Lamps
 R 78 Braking (Category L)
 R 79 Steering Equipment
 R 80 Seat (Large Passenger Vehicle)
 R 81 Rear-view Mirrors (Motor Cycle)
 R 82 Halogen Headlamps (HS2 for Moped)
 R 83 Gaseous Pollutants
 R 84 Measurement of Fuel Consumption
 R 85 Measurement of Engine Power
 R 86 Installation of lighting and light-signalling devices (agricultural and forestry tractors)

R 87 Daytime Running Lamps
 R 88 Retroreflective Tyres (Motor Cycle)
 R 89 Speed Limitation Devices
 R 90 Replacement Brake Lining Assemblies
 R 91 Side-marker Lamps
 R 92 Replacement Silencing System (Motor Cycle)
 R 93 Front Underrun Protection
 R 94 Protection of the Occupants in the event of a Frontal Collision
 R 95 Protection of the Occupants in the event of a Lateral Collision
 R 96 Emission of pollutants by the engine (agricultural and forestry tractors)
 R 97 Vehicle Alarm Systems
 R 98 Gas-Discharge Headlamps
 R 99 Gas-Discharge Light Sources
 R 100 Battery Electric Vehicles
 R 101 Emission of Carbon Dioxide and Fuel Consumption (Passenger Car)
 R 102 A Close-Coupling Device
 R 103 Replacement Catalytic Converters
 R 104 Retro-reflective Markings for Heavy and Long Vehicles
 R 105 The Carriage of Dangerous Goods with Regard to their Specific Constructional
 R 106 Pneumatic Tyres (Agricultural Vehicles)
 R 107 Double-Deck Large Passenger Vehicles with Regard to their General
 R 108 Retreaded Pneumatic Tyres (Motor Vehicle)
 R 109 Retreaded Pneumatic Tyres (Commercial Vehicle)
 R 110 Vehicles using CNG
 R 111 Rollover stability (Tank vehicles if categories N & O)
 R 112 Headlamps
 R 113 Headlamps
 R 114 Airbag
 R 115 LPG and CNG retrofits system
 R 116 Protection of motor vehicle against unauthorized use
 R 117 Tyres with regard to rolling sound emissions
 R 118 Burning behavior of materials used in the interior construction
 R 119 Cornering lamp
 R 120 Measurement of the net power (agricultural or forestry tractors)
 R 121 Location and identification of hand controls,tell-tales and indicators
 R 122 Heating systems (Categories M,N and O)
 R 123 Adaptive front-lighting systems (AFS)
 R 124 Wheels for passenger cars
 R 125 Forward field of vision of the driver
 R 126 Partitioning systems

Harmonized regulations having advantages

Global cooperation
among governments

Globalized Industries

Administration

- ⊕ Efficient development of regulations

Manufacturers

- ⊕ Enhanced productivity
- ⊕ Efficient inventory management of parts

Users

- ⊕ High level Safety & Environmental
- ⊕ Friendly vehicle in relatively lower cost

Best technology for users and society everywhere

WP29/ITS informal Group

- Approaches -

- ITS informal group :
 - Established in 2002/June
 - Published TOR for 2 years study in 2004/February
 - WP29 adopted the report of 2 years study in 2007/March
- Activities at present :
 - Inputs from various bodies, especially from IHRA-ITS WG
 - Further discussion on warning guidelines
 - Other activities

WP29/ITS informal Group

- Driver Assistance -

- Common understanding for driver behavior and application of advanced technologies:
 - Information to assist driver recognition
 - Warning to assist driver judgment
 - Control to assist driver operation
- Responsibility :
 - Driver should be responsible for driving a vehicle, so driver should be able to override the systems.

Crash Mitigation Braking System



When crash is unavoidable, automatic braking will be activated.

WP29/ITS informal Group

- Tasks for Regulatory Approaches -

- Can we develop measures to evaluate negative as well as positive effects of advanced technologies?
- Technical regulation shall be expressed with performance measures, but there are several challenges to overcome.
- Can reliability of electronic systems be evaluated in the same way as vehicle structures?

WP29/ITS informal Group

- Necessity for Regulatory Approaches -
 - To get better driver acceptability, for example, warning guidelines should be discussed.
 - To encourage market introduction while avoiding negative reaction for advanced technologies, guidelines should be provided.
 - To reduce cost and to promote widespread use, we should reach common understanding when regulations required.

WP29/ITS informal Group

- Views in the Report of ITS Informal Group -

- Basic guidelines summarized in the report:
 - Information:
To keep monitoring the situation of self-commitment basis in each region for a time being
 - Warning:
To explore mechanism for assessing regulatory requirements by involving GRs
 - Control:
Control systems under normal driving should be designed on “Driving in the loop”, where driver should be involved in driving. As for Control systems to reduce collision speed under non-avoidable pre-crash condition, there is no time for necessity of overriding and driver is not very likely to depend on system.

Summary

- Importance of traffic accidents analysis to ensure effectiveness applying countermeasures
- Encouragement of active safety as well as passive safety : Development & introduction of In-vehicle ITS technologies
- Global harmonization activities under the WP29, the world forum for harmonization of vehicle regulation