

## **COMPARISON OF WORLDWIDE EMISSIONS RELATED DEFINITIONS AND TERMINOLOGY IN PREPARATION FOR A GLOBAL TECHNICAL REGULATION ON WORLDWIDE HARMONIZED LIGHT-DUTY TEST PROCEDURES (WLTP)**

### **A. Objective of the document**

In previous discussions around the subject of WLTP, and specifically in Informal Document GRPE-55-12, OICA has clearly declared its support for the worldwide harmonisation of the emissions regulation of light duty vehicles. In order to ensure the smooth running of future discussions of WLTP and to secure successful development of a harmonised regulation, OICA has initiated the process of compiling a database of the terminology used in worldwide emissions and fuel consumption legislation (technical definitions).

The following paper compares the terminology used in technical definitions and is proposed to form a “dictionary” or “common language” for initial work in the development of WLTP.

### **B. Next Steps:**

- Contracting Parties are requested to recognise the need for this task and to complete the table of worldwide definitions by providing information on their own country or region, where it is currently missing.
- Identification of areas of potential conflict
- Proposal of common definitions for use in a WLTP gtr

C . Terms and Definitions

Term	EC	ECE (1958 Agreement)	ECE (1998 Agreement)	US-EPA	Japan	India	China	Korea
National/regional legislation			⑤ means the legislation into which a Contracting Party will, if appropriate, introduce or apply the content of this gtr after having decided, at its discretion, on the options within the gtr.					
Power driven vehicle			<b>SR1</b> means any self-propelled vehicle designed and constructed to be used on the road and having at least two wheels					
vehicle			<b>SR1</b> means any power driven vehicle or trailer					
vehicle type	with regard to emissions and vehicle repair and maintenance information means a group of vehicles which do not differ in the following respects: (a) the equivalent inertia determined in relation to the reference mass as prescribed in paragraph 5.1. of Annex 4 of UN/ECE Regulation 83; (b) the engine and vehicle characteristics as defined in Appendix 3 of Annex 1;	<b>R83:</b> means a category of power-driven vehicles that do not differ in such essential respects as: the equivalent inertia determined in relation to the reference mass as prescribed in Annex 4, paragraph 5.1. and the engine and vehicle characteristics as defined in Annex 1; <b>R83 Annex XI:</b> means a category of power-driven vehicles which do not differ in such essential engine and OBD system characteristics. <b>R101:</b> means a category of power driven vehicles which do not differ in such essential respects as body, power train, transmission, traction battery (if applicable), tyres and unladen mass;						
engine type			④ means a category of engines which do not differ in essential engine characteristics.					

Term	EC	ECE (1958 Agreement)	ECE (1998 Agreement)	US-EPA	Japan	India	China	Korea
Vehicle family		<p><b>R83:</b> means a group of vehicle types identified by a parent vehicle for the purpose of Annex 12;</p> <p><b>R83 Annex XI:</b> means a manufacturer's grouping of vehicles which, through their design, are expected to have similar exhaust emission and OBD system characteristics. Each vehicle of this family shall have complied with the requirements of this Regulation as defined in Appendix 2 to this annex.</p>						
engine family			<p>④ means a manufacturers grouping of engines which, through their design as defined in paragraph 5.2. of this gtr, have similar exhaust emission characteristics; all members of the family must comply with the applicable emission limit values.</p>					
engine system			<p>④ means the engine, the emission control system and the communication interface (hardware and messages) between the engine system electronic control unit(s) (ECU) and any other powertrain or vehicle control unit.</p>					
EC type-approval of a vehicle with regard to emissions and vehicle repair and maintenance information	means an EC type-approval of a vehicle with regard to its tailpipe emissions, crankcase emissions, evaporative emissions, fuel consumption and access to vehicle OBD and vehicle repair and maintenance information;							

Term	EC	ECE (1958 Agreement)	ECE (1998 Agreement)	US-EPA	Japan	India	China	Korea
Approval of a vehicle		<p><b>ECE 83:</b> means the approval of a vehicle type with regard to the limitation of the following conditions: Limitation of exhaust emissions by the vehicle, evaporative emissions, crankcase emissions, durability of pollution control devices, cold start pollutant emissions and on-board diagnostics of vehicles fuelled with unleaded petrol, or which can be fuelled with either unleaded petrol and LPG or NG (Approval B); Limitation of emissions of gaseous and particulate pollutants, durability of pollution control devices and on-board diagnostics of vehicles fuelled with diesel fuel (Approval C); Limitation of emissions of gaseous pollutants by the engine, crankcase emissions, durability of pollution control devices, cold start emissions and on-board diagnostics of vehicles fuelled with LPG or NG (Approval D);</p> <p><b>ECE 101:</b> means the approval of a vehicle type with regard to the measurement of energy consumption (fuel or electric energy);</p>						
gaseous pollutants	means the exhaust gas emissions of carbon monoxide, oxides of nitrogen, expressed in nitrogen dioxide (NO <sub>2</sub> ) equivalent, and hydrocarbons with the following ratio: C <sub>1</sub> H <sub>1.89</sub> O <sub>0.016</sub> for petrol (E5), C <sub>1</sub> H <sub>1.86</sub> O <sub>0.005</sub> for diesel (B5), C <sub>1</sub> H <sub>2.525</sub> for LPG (liquefied petroleum gas), CH <sub>4</sub> for NG (natural gas) and biomethane, and C <sub>1</sub> H <sub>2.74</sub> O <sub>0.385</sub> for ethanol (E85).	means the exhaust gas emissions of carbon monoxide, oxides of nitrogen, expressed in nitrogen dioxide (NO <sub>2</sub> ) equivalent and hydrocarbons assuming ratio of:- C <sub>1</sub> H <sub>1.85</sub> for petrol, - C <sub>1</sub> H <sub>1.86</sub> for diesel, - C <sub>1</sub> H <sub>2.525</sub> for LPG, - C <sub>1</sub> H <sub>4</sub> for NG.	④ means carbon monoxide, hydrocarbons and/or non-methane hydrocarbons (assuming a ratio of CH <sub>1.85</sub> for diesel, CH <sub>2.525</sub> for LPG and CH <sub>2.93</sub> for NG, and an assumed molecule CH <sub>3</sub> O <sub>0.5</sub> for ethanol fuelled diesel engines), methane (assuming a ratio of CH <sub>4</sub> for NG) and oxides of nitrogen (expressed in nitrogen dioxide (NO <sub>2</sub> ) equivalent).					
Exhaust emissions		means: - for positive-ignition (P.I.) engines, emissions of gaseous pollutants; - for compression-ignition (C.I.) engines, emissions of gaseous and particulate pollutants;						

Term	EC	ECE (1958 Agreement)	ECE (1998 Agreement)	US-EPA	Japan	India	China	Korea
Particulate pollutants	means components of the exhaust gas which are removed from the diluted exhaust gas at a maximum temperature of 325 K (52°C) by means of the filters described in test procedure for verifying average tailpipe emissions;	means components of the exhaust gas which are removed from the diluted exhaust gas at a maximum temperature of 325 K (52 °C) by means of the filters described in Annex 4;	④ "particulate matter (PM)" means any material collected on a specified filter medium after diluting exhaust with clean filtered air to a temperature between 315 K (42 °C) and 325 K (52 °C), as measured at a point immediately upstream of the filter; this is primarily carbon, condensed hydrocarbons, and sulphates with associated water.					
Tailpipe emissions	means the emission of gaseous and particulate pollutants;							
Evaporative emissions	means the hydrocarbon vapours lost from the fuel system of a motor vehicle other than those from tailpipe emissions;	means the hydrocarbon vapours lost from the fuel system of a motor vehicle other than those from exhaust emissions;						
crankcase	means the spaces in, or external to, an engine which are connected to the oil sump by internal or external ducts through which gases and vapours can escape;							
Tank breathing losses		are hydrocarbon emissions caused by temperature changes in the fuel tank (assuming a ratio of C1H2.33).						
Hot soak losses		are hydrocarbon emissions arising from the fuel system of a stationary vehicle after a period of driving (assuming a ratio of C1 H2.20 );						
useful life			④ means the relevant period of distance and/or time over which compliance with the relevant gaseous and particulate emission limits has to be assured.					
starting aid	means glow plugs, modifications to the injection timing and other devices which assist the engine to start without enrichment of the air/fuel mixture of the engine;	means a device which assists engine start up without enrichment of the air/fuel mixture of the engine, e.g. glow plug, injection timing change, etc.;						
Cold start device	"cold start system or device" means a system which temporarily enriches the air/fuel mixture of the engine thus assisting the engine to start;	means a device that temporarily enriches the air/fuel mixture of the engine thus assisting the engine to start;						

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engine capacity	means either of the following: (a) for reciprocating piston engines, the nominal engine swept volume, (b) for rotary piston (Wankel) engines, double the nominal engine swept volume;	For reciprocating piston engines, the nominal engine swept volume; For rotary piston engines (Wankel), twice the nominal swept volume of a combustion chamber per piston;						
Pollution control devices	means those components of a vehicle that control and/or limit tailpipe and evaporative emissions;	means those components of a vehicle that control and/or limit exhaust and evaporative emissions.	④ "exhaust after-treatment system" means a catalyst (oxidation or 3-way), particulate filter, deNOx system, combined deNOx particulate filter or any other emission reducing device that is installed downstream of the engine. This definition excludes exhaust gas recirculation (EGR), which is considered an integral part of the engine.					
particulate after-treatment device			④ means an exhaust after-treatment system designed to reduce aerodynamic, diffusional or inertial separation.					
deNOx system			④ means an exhaust after-treatment system designed to reduce aerodynamic, diffusional or inertial separation. NOx adsorbers and selective catalytic reduction (SCR) systems).					
Replacement catalytic converter / pollution control device	means a pollution control device or an assembly of such devices intended to replace an original equipment pollution control device which can be approved as a separate technical unit as defined in Directive 70/156/EEC;	means a catalytic converter or an assembly of catalytic converters for which approval can be obtained according to this Regulation, other than those defined in paragraph 2.1. above.						
Original replacement catalytic converter / pollution control device	means a pollution control device or an assembly of such devices whose types are indicated in Appendix 4 to Annex I to this regulation but are offered on the market as separate technical units by the holder of the vehicle type approval.	means a catalytic converter or an assembly of catalytic converters whose types are indicated in the documents related to Annex 2 of Regulation No. 83., but are offered in the market as separate technical units by the holder of the vehicle type-approval.						

Term	EC	ECE (1958 Agreement)	ECE (1998 Agreement)	US-EPA	Japan	India	China	Korea
Original equipment catalytic converter / pollution control device	means a pollution control device or an assembly of such devices covered by the type approval delivered for the vehicle;	means a catalytic converter or an assembly of catalytic converters covered by the type approval delivered for the vehicle and whose types are indicated in the documents related to Annex 2 of Regulation No. 83						
type of pollution control device	means catalytic converters and particulate filters which do not differ in any of the following essential aspects: (a) number of substrates, structure and material; (b) type of activity of each substrate; (c) volume, ratio of frontal area and substrate length; (d) catalyst material content; (e) catalyst material ratio; (f) cell density; (g) dimensions and shape; (h) thermal protection;	means catalytic converters which do not differ in such essential aspects as: (i) number of coated substrates, structure and material (ii) type of catalytic activity (oxidising, three-way, ...) (iii) volume, ratio of frontal area and substrate length (iv) catalyst material content (v) catalyst material ratio (vi) cell density (vii) dimensions and shape (viii) thermal protection						
periodically regenerating system	means catalytic converters, particulate filters or other pollution control devices ) that require a periodical regeneration process in less than 4,000 km of normal vehicle operation.	means an anti-pollution device (e.g. catalytic converter, particulate trap) that requires a periodical regeneration process in less than 4,000 km of normal vehicle operation. (During cycles where regeneration occurs, emission standards can be exceeded.) If a regeneration of an anti-pollution device occurs at least once per Type I test and that has already regenerated at least once during vehicle preparation cycle, it will be considered as a continuously regenerating system which does not require a special test procedure. Annex 13 of R83 / 10 of R101 does not apply to continuously regenerating systems.  At the request of the manufacturer, the test procedure specific to periodically regenerating systems will not apply to a regenerative device if the manufacturer provides data to the type approval authority that, during cycles where regeneration occurs, (emissions remain below the standards given in paragraph 5.3.1.4. applied for the concerned vehicle category after agreement of the technical service.) [emission of CO2 does not exceed the declared value by more than 4 per cent after agreement of the technical service] Note ( )= R83 text, [ ]= R101 text						

Term	EC	ECE (1958 Agreement)	ECE (1998 Agreement)	US-EPA	Japan	India	China	Korea
periodic regeneration			④ means the regeneration process of an exhaust after-treatment system that occurs periodically in typically less than 100 hours of normal engine operation. During cycles where regeneration occurs, emission standards may be exceeded.					
continuous regeneration			④ means the regeneration process of an exhaust aftertreatment system that occurs either permanently or at least once per WHTC hot start test. Such a regeneration process will not require a special test procedure.					
mono-fuel vehicle	means a vehicle that is designed to run primarily on one type of fuel;	means a vehicle that is designed primarily for permanent running on LPG or NG, but may also have a petrol system for emergency purposes for starting only, where the petrol tank does not contain more than 15 litres of petrol;						
mono fuel gas vehicle	means a mono fuel vehicle that primarily runs on LPG, NG/biomethane, or hydrogen but may also have a petrol system for emergency purposes or starting only, where the petrol tank does not contain more than 15 litres of petrol;							
bi-fuel vehicle	means a vehicle with two separate fuel storage systems that can run part-time on two different fuels and is designed to run on only one fuel at a time;	means a vehicle that can run part-time on petrol and also part-time on either LPG or NG.						
bi fuel gas vehicle"	means a bi fuel vehicle that can run on petrol and also on either LPG, NG/biomethane or hydrogen;							
flex-fuel vehicle	means a vehicle with one fuel storage system that can run on different mixtures of two or more fuels;							
flex fuel ethanol vehicle"	means a flex fuel vehicle that can run on petrol or a mixture of petrol and ethanol up to an 85% ethanol blend (E85);							



Term	EC	ECE (1958 Agreement)	ECE (1998 Agreement)	US-EPA	Japan	India	China	Korea
flex fuel biodiesel vehicle	means a flex fuel vehicle that can run on mineral diesel or a mixture of mineral diesel and biodiesel;							
Power train		means the system of energy storage device(s), energy converter(s) and transmission(s) that converts stored energy to mechanical energy delivered at the wheels for propulsion of the vehicle;						
diesel engine			④ means an engine which works on the compression-ignition principle.					
Internal combustion engine vehicle		means vehicle powered by an internal combustion engine only;						
Pure electric vehicle		means vehicle powered by an electric power train only;						
Electric power train		means a system consisting of one or more electric energy storage devices (e.g. a battery, electromechanical flywheel or super capacitor), one or more electric power conditioning devices and one or more electric machines that convert stored electric energy to mechanical energy delivered at the wheels for propulsion of the vehicle;						
hybrid vehicle (HV)	means a vehicle with at least two different energy converters and two different energy storage systems (on vehicle) for the purpose of vehicle propulsion;	<b>ECE 83:</b> means a vehicle with at least two different energy converters and two different energy storage systems (on vehicle) for the purpose of vehicle propulsion. <b>ECE 101:</b> means a vehicle powered by a hybrid power train;						
Hybrid power train		means a power train with at least two different energy converters and two different energy storage systems (on-board the vehicle) for the purpose of vehicle propulsion;						
hybrid electric vehicle (HEV)	means a vehicle that, for the purpose of mechanical propulsion, draws energy from both of the following on-vehicle sources of stored energy/power: (a) a consumable fuel; (b) battery, capacitor, flywheel/generator or other electrical energy/power storage device;	<b>ECE 83:</b> means a vehicle that, for the purpose of mechanical propulsion, draws energy from both of the following on-vehicle sources of stored energy/power: - a consumable fuel- an electrical energy/power storage device (e.g.: battery, capacitor, flywheel/generator etc.) <b>ECE 101:</b> means a vehicle powered by a hybrid electric power train;						

Term	EC	ECE (1958 Agreement)	ECE (1998 Agreement)	US-EPA	Japan	India	China	Korea
Hybrid electric power train		means a power train that, for the purpose of mechanical propulsion, draws energy from both of the following on-vehicle sources of stored energy/power: - a consumable fuel -an electrical energy/power storage device (e.g.: battery, capacitor, flywheel/generator ...)						
Electric range		, for vehicles powered by an electric power train only or by a hybrid electric power train with off-vehicle charging, means distance that can be driven electrically on one fully charged battery (or other electric energy storage device) as measured according to the procedure described in Annex 9.						
properly maintained and used	means, for the purpose of a test vehicle, that such a vehicle satisfies the criteria for acceptance of a selected vehicle laid down in section 2 of Appendix 1 to Annex II;	means, for the purpose of a test vehicle, that such a vehicle satisfies the criteria for acceptance of a selected vehicle laid down in paragraph 2. of Appendix 3 to this Regulation;						
emission control system	means, in the context of the OBD system, the electronic engine management controller and any emission-related component in the exhaust or evaporative system which supplies an input to or receives an output from this controller;	means the electronic engine management controller and any emission-related component in the exhaust or evaporative system which supplies an input to or receives an output from this controller.						
Alert system			⑤ means a system on-board the vehicle which informs the driver of the vehicle or any other interested party that the OBD system has detected a malfunction.					
malfunction indicator (MI)	means a visible or audible indicator that clearly informs the driver of the vehicle in the event of a malfunction of any emission-related component connected to the OBD system, or of the OBD system itself;	means a visible or audible indicator that clearly informs the driver of the vehicle in the event of a malfunction of any emission-related component connected to the OBD system, or the OBD system itself.	⑤ is an indicator which clearly informs the driver of the vehicle in the event of a malfunction. The MI is part of the alert system.					
malfunction	means the failure of an emission-related component or system that would result in emissions exceeding the limits in section 3.3.2 of Annex XI or if the OBD system is unable to fulfil the basic monitoring requirements set out in Annex XI;	means the failure of an emission-related component or system that would result in emissions exceeding the limits in paragraph 3.3.2. or if the OBD system is unable to fulfil the basic monitoring requirements of this annex	⑤ means a failure or deterioration of a vehicle or engine system or component, including the OBD system, as defined in the specific modules of this gtr.					

Term	EC	ECE (1958 Agreement)	ECE (1998 Agreement)	US-EPA	Japan	India	China	Korea
Component monitoring			⑤ means the monitoring of input components for electrical circuit failures and rationality failures and monitoring of output components for electrical circuit failures and functionality failures.					
Electrical circuit failure			⑤ means a malfunction (e.g. open circuit or short circuit) that leads to the measured signal (i.e. voltages, currents, frequencies, etc.) being outside the range where the transfer function of the sensor is designed to operate.					
Functionality failure			⑤ means a malfunction where an output component does not respond to a computer command in the expected way.					
Qualified deteriorated component or system (QDC)			⑤ means a component or system that has been intentionally deteriorated (e.g. accelerated aging) and/or manipulated in a controlled manner and which has been accepted by the authorities according to the provisions set in the applicable specific module as a qualified component for the purpose of demonstrating compliance of the OBD system with this gtr 3/.					
Rationality failure			⑤ means a malfunction where the signal from an individual sensor or component is at variance with that expected when assessed against signals available from other sensors or components within the control system. Rationality failures include malfunctions that lead to the measured signal (i.e. voltages, currents, frequencies, etc.) being inside the range where the transfer function of the sensor is designed to operate.					

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secondary air	means the air introduced into the exhaust system by means of a pump or aspirator valve or other means that is intended to aid in the oxidation of HC and CO contained in the exhaust gas stream;	refers to air introduced into the exhaust system by means of a pump or aspirator valve or other means that is intended to aid in the oxidation of HC and CO contained in the exhaust gas stream.						
driving cycle	in respect of vehicle OBD systems, consists of engine start-up, driving mode where a malfunction would be detected if present, and engine shut-off;	consists of engine start-up, driving mode where a malfunction would be detected if present, and engine shut-off.						
access	to information means the availability of all vehicle OBD and vehicle repair and maintenance information, required for the inspection, diagnosis, servicing or repair of the vehicle.	means the availability of all emission-related OBD data including all fault codes required for the inspection, diagnosis, servicing or repair of emissions-related parts of the vehicle, via the serial interface for the standard diagnostic connection (pursuant to Appendix 1 to this annex, paragraph 6.5.3.5.).						
Unrestricted		means: access not dependent on an access code obtainable only from the manufacturer, or a similar device, or access allowing evaluation of the data produced without the need for any unique decoding information, unless that information itself is standardised.						
standardised		means that all data stream information, including all fault codes used, shall be produced only in accordance with industry standards which, by virtue of the fact that their format and their permitted options are clearly defined, provide for a maximum level of harmonisation in the motor vehicle industry, and whose use is expressly permitted in this Regulation.						
deficiency	means, in the context of the OBD systems, that up to two separate components or systems that are monitored contain temporary or permanent operating characteristics which impair the otherwise efficient OBD monitoring of those components or systems or do not meet all of the other detailed requirements for OBD.	means, in respect of vehicle OBD systems, that up to two separate components or systems that are monitored contain temporary or permanent operating characteristics that impair the otherwise efficient OBD monitoring of those components or systems or do not meet all of the other detailed requirements for OBD. Vehicles may be type-approved, registered and sold with such deficiencies according to the requirements of paragraph 4. of this annex.						

Term	EC	ECE (1958 Agreement)	ECE (1998 Agreement)	US-EPA	Japan	India	China	Korea
Deteriorated replacement catalytic converter / pollution control device	means a pollution control device as defined in Article 3(11) of Regulation (EC) No 715/2007 that has been aged or artificially deteriorated to such an extent that it fulfils the requirements laid out in Section 1 to Appendix 1 to Annex XI of UN/ECE Regulation 83.	means a converter that has been aged or artificially deteriorated to such an extent that it fulfils the requirements laid out in paragraph 1. of Appendix 1 to Annex 11 of Regulation No. 83.						
Approval of a replacement catalytic converter		means the approval of a converter intended to be fitted as a replacement part on one or more specific types of vehicles with regard to the limitation of pollutant emissions, noise level and effect on vehicle performance and, where applicable, on the on-board diagnostic (OBD).						
Unladen mass		<b>ECE 83:</b> means the mass of the vehicle in running order without driver, passengers or load, but with the fuel tank 90 per cent full and the usual set of tools and spare wheel on board, where applicable; <b>ECE 101:</b> means the mass of the vehicle in running order without crew, passengers or load, but with the fuel tank full (if any), cooling liquid, service and traction batteries, oils, onboard charger, portable charger, tools and spare wheel, whatever is appropriate for the vehicle considered and if provided by the manufacturer of the vehicle;	<b>SR1</b> means the nominal mass of a complete vehicle as determined by the following criteria: 2.1. Mass of the vehicle with bodywork and all factory fitted equipment, electrical and auxiliary equipment for normal operation of vehicle, including liquids, tools, fire extinguisher, standard spare parts, chocks and spare wheel, if fitted. 2.2. The fuel tank shall be filled to at least 90 per cent of rated capacity and the other liquid containing systems (except those for used water) to 100 per cent of the capacity specified by the manufacturer.					
Mass of the vehicle in running order	means the mass described in point 2.6. of Annex I to Directive 2007/46/EC;		<b>SR1</b> means the nominal mass of a vehicle as determined by the following criteria: Sum of unladen vehicle mass and driver's mass. The driver's mass is applied in accordance with paragraph 6.1. below. In the case of category 1-2 vehicles, additional crewmembers for which seating positions are provided shall be included, their mass being equal to, and incorporated in the same way as, that of the driver.					

Term	EC	ECE (1958 Agreement)	ECE (1998 Agreement)	US-EPA	Japan	India	China	Korea
Driver Mass			<b>SR1</b> means the nominal mass of a driver that shall be 75 kg (subdivided into 68 kg occupant mass at the seat and 7 kg luggage mass in accordance with ISO standard 2416–1992).					
Reference mass	means the mass of the vehicle in running order less the uniform mass of the driver of 75 kg and increased by a uniform mass of 100 kg;	means the unladen mass of the vehicle increased by a uniform figure of 100 kg (for test according to Annexes 4 and 8,) note, text in brackets only in ECE 83						
Maximum mass		means the technically permissible maximum mass declared by the vehicle manufacturer (this mass may be greater than the maximum mass authorised by the national administration);	<b>SR1</b> "Gross vehicle mass" of a vehicle means the maximum mass of the fully laden solo vehicle, based on its construction and design performances, as declared by the manufacturer. This shall be less than or equal to the sum of the maximum axles' (group of axles) capacity.					
Pay mass			<b>SR1</b> means the goods-carrying capacity of the vehicle which is the figure obtained by subtracting the unladen vehicle mass and the driver and passenger masses from the gross vehicle mass.					
Test mass		for the pure electric vehicles, means the reference mass for the category M1 vehicles and the unladen mass plus half the full load for the category N1 vehicles;						
OBD	"on-board diagnostic system" or "OBD system" means a system for emission control which has the capability of identifying the likely area of malfunction by means of fault codes stored in computer memory;	means an on-board diagnostic system for emission control, which has / shall have the capability of identifying the likely area of malfunction by means of fault codes stored in computer memory;	⑤ "On-board diagnostic system (OBD)" means a system on board of a vehicle or engine which has the capability of detecting malfunctions, and, if applicable, of indicating their occurrence by means of an alert system, of identifying the likely area of the malfunctions by means of information stored in computer memory, and/or communicating that information off-board.					
vehicle OBD information	means information relating to an on-board diagnostic system for any electronic system on the vehicle.							

Term	EC	ECE (1958 Agreement)	ECE (1998 Agreement)	US-EPA	Japan	India	China	Korea
Type I test		means the driving cycle (Parts One and Two) used for emission approvals, as detailed in Annex 4, Appendix 1.						
Engine misfire	means lack of combustion in the cylinder of a positive ignition engine due to absence of spark, poor fuel metering, poor compression or any other cause;	means lack of combustion in the cylinder of a positive-ignition engine due to absence of spark, poor fuel metering, poor compression or any other cause. In terms of OBD monitoring it is that percentage of misfires out of a total number of firing events (as declared by the manufacturer) that would result in emissions exceeding the limits given in paragraph 3.3.2. or that percentage that could lead to an exhaust catalyst, or catalysts, overheating causing irreversible damage.						
A Fuel trim		refers to feedback adjustments to the base fuel schedule. Short-term fuel trim refers to dynamic or instantaneous adjustments. Long-term fuel trim refers to much more gradual adjustments to the fuel calibration schedule than short-term trim adjustments. These long-term adjustments compensate for vehicle differences and gradual changes that occur over time.						
A warm-up cycle		means sufficient vehicle operation such that the coolant temperature has risen by a least 22 K from engine starting and reaches a minimum temperature of 343 K (70 °C).						
A Calculated load value		refers to an indication of the current airflow divided by peak airflow, where peak airflow is corrected for altitude, if available. This definition provides a dimensionless number that is not engine specific and provides the service technician with an indication of the proportion of engine capacity that is being used (with wide open throttle as 100 per cent);						
Power take-off unit	“power take-off operation or unit” means an engine-driven output provision for the purposes of powering auxiliary, vehicle mounted, equipment;	means an engine-driven output provision for the purposes of powering auxiliary, vehicle mounted, equipment.						
Permanent emission default mode		refers to a case where the engine management controller permanently switches to a setting that does not require an input from a failed component or system where such a failed component or system would result in an increase in emissions from the vehicle to a level above the limits given in paragraph 3.3.2. of this annex.						

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Repair information	“vehicle repair and maintenance information” means all information required for diagnosis, servicing, inspection, periodic monitoring, repair, re-programming or reinitialising of the vehicle and which the manufacturers provide for their authorised dealers/repair shops, including all subsequent amendments and supplements to such information. This information includes all information required for fitting parts or equipment on vehicles;	means all information required for diagnosis, servicing, inspection, periodic monitoring or repair of the vehicle and which the manufacturers provide for their authorised dealers/repair shops. Where necessary, such information shall include service handbooks, technical manuals, diagnosis information (e.g. minimum and maximum theoretical values for measurements), wiring diagrams, the software calibration identification number applicable to a vehicle type, instructions for individual and special cases, information provided concerning tools and equipment, data record information and two-directional monitoring and test data. The manufacturer shall not be obliged to make available that information which is covered by intellectual property rights or constitutes specific know-how of manufacturers and/or OEM suppliers; in this case the necessary technical information shall not be improperly withheld.						
independent operator	means undertakings other than authorised dealers and repair shops which are directly or indirectly involved in the repair and maintenance of motor vehicles, in particular repairers, manufacturers or distributors of repair equipment, tools or spare parts, publishers of technical information, automobile clubs, roadside assistance operators, operators offering inspection and testing services, operators offering training for installers, manufacturers and repairers of equipment for alternative fuel vehicles;							
Engine crankcase		means the spaces in or external to an engine which are connected to the oil sump by internal or external ducts through which gases and vapour can escape;						
In-service test		means the test and evaluation of conformity conducted in accordance with paragraph 8.2.1. of this Regulation;						



Term	EC	ECE (1958 Agreement)	ECE (1998 Agreement)	US-EPA	Japan	India	China	Korea
Defeat device	means any element of design which senses temperature, vehicle speed, engine speed (RPM), transmission gear, manifold vacuum or any other parameter for the purpose of activating, modulating, delaying or deactivating the operation of any part of the emission control system, that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use;	means any element of design which senses temperature, vehicle speed, engine rotational speed, transmission gear, manifold vacuum or any other parameter for the purpose of activating, modulating, delaying or deactivating the operation of any part of the emission control system, that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use. Such an element of design may not be considered a defeat device if: the need for the device is justified in terms of protecting the engine against damage or accident and for safe operation of the vehicle, or the device does not function beyond the requirements of engine starting, or conditions are substantially included in the Type I or Type VI test procedures.						
Fuel requirement by the engine		means the type of fuel normally used by the engine: - petrol, - LPG (liquefied petroleum gas), - NG (natural gas), - either petrol or LPG, - either petrol or NG, - diesel fuel;						
components for adjusting the idling speed		means controls for changing the idling conditions of the engine which may be easily operated by a mechanic using only the tools described in paragraph 2.5.1.1. below. In particular, devices for calibrating fuel and air flows are not considered as adjustment components if their setting requires the removal of the set-stops, an operation which cannot normally be performed except by a professional mechanic						
A parent vehicle		means a vehicle that is selected to act as the vehicle on which the self-adaptability of a fuelling system is going to be demonstrated, and to which the members of a family refer. It is possible to have more than one parent vehicle in a family.						
Reagent	means any product other than fuel that is stored on-board the vehicle and is provided to the exhaust after-treatment system upon request of the emission control system.							
biofuels	means liquid or gaseous fuel for transport produced from biomass;							

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alternative fuel vehicle	means a vehicle designed to be capable of running on at least one type of fuel that is either gaseous at atmospheric temperature and pressure, or substantially non-mineral oil derived.							
small volume manufacturers	means vehicle manufacturers whose world-wide annual production is less than 10 000 units							
Certification authority			⑤ means the authority that grants the compliance certification of an OBD system according to this gtr. Per extension, it means also the technical service that has been accredited to evaluate the technical compliance of the OBD system.					
Contracting Party			⑤ means the party signatory to the 1998 Agreement.					
delay time			④ means the difference in time between the change of the component to be measured at the reference point and a system response of 10 per cent of the final reading (t10) with the sampling probe being defined as the reference point. For the gaseous components, this is the transport time of the measured component from the sampling probe to the detector.					
response time			④ means the difference in time between the change of the component to be measured at the reference point and a system response of 90 per cent of the final reading (t90) with the sampling probe being defined as the reference point, whereby the change of the measured component is at least 60 per cent full scale (FS) and takes place in less than 0.1 second. The system response time consists of the delay time to the system and of the rise time of the system.					

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rise time			④ means the difference in time the 10 per cent and 90 per cent response of the final reading (t90 – t10).					
transformation time			④ means the difference in time between the change of the component to be measured at the reference point and a system response of 50 per cent of the final reading (t50) with the sampling probe being defined as the reference point. The transformation time is used for the signal alignment of different measurement instruments.					
full flow dilution method			④ means the process of mixing the total exhaust flow with dilution air prior to separating a fraction of the diluted exhaust stream for analysis.					
partial flow dilution method			④ means the process of separating a part from the total exhaust flow, then mixing it with an appropriate amount of dilution air prior to the particulate sampling filter.					