

The experts from OICA, having reviewed the draft Item List to be discussed in the WLTP Informal Group, document WLTP-02-03, would like to propose a number of improvements. These are shown in red in the attached sheet as modified version of WLTP-

**A-1 – “Maximum possible commonization of certification procedures”** is correctly excluded because the provisions of 1998 agreement does not allow for inclusion of certification procedures in a gtr. Nevertheless, a great deal of work to prepare test and vehicle specification data in support of certification under the various procedures could be commonized without impinging on the sovereignty of the contracting parties. Such commonization of the datasets to support certification would significantly reduce the resource requirements to certify a single vehicle type in different jurisdictions. OICA

**A-2 – “Use of alternative fuels”** – OICA believes that the use of alternative power sources such as electricity, should also be considered. The same applies to the consideration of Reference fuel specifications, listed in section B

**B – “Vehicle Category Concepts”** is addressed in document WLTP 02-10 and a reference is therefore added.

**B – “Need for durability requirements” and “OBD”** are shown as “excluded”, but this has not been decided in the informal group and should be further discussed.

**B – “Evaporative emission test procedure (driving mode only)”** is believed to refer to harmonisation of the evaporative preconditioning cycle, however this should be discussed

**C-1 – “Vehicle classification, scope”** is addressed in document WLTP 02-10 and a reference is therefore added, and this subject should be considered during the roadmap

**D – “Development of gtr text”** requires the development of a common terminology, as addressed in document WLTP. OICA therefore proposes to add a line to this effect.

Item List to be discussed in WLTP-Informal Group ( based on GRPE-55-12 and GRPE-55-18)	Task				
	Roadmap making phase			gtr making phase	
	make a decision to be launched during gtr making phase	Consensus as a concept/ procedure	Proposed Solution by TS (OICA)	Discussion	Development of the test procedure
<b>A. Objective of the proposal</b>					
<b>A-1. Basic Concept</b>					
One product sold anywhere in the world		✓	exclude (certification matter)		
One test procedure		✓	agree		
Uniform measurement constituents		✓	agree		
Maximum possible commonization of certification processes.	✓		exclude (certification matter)		
<b>Maximum possible commonization of datasets.</b>		✓	<b>agree</b>		
<b>A-2. Items to be discussed</b>					
Real driving patterns under urban, extra urban and moterway traffic conditions		✓	agree (see WLTP-02-06)		
One test procedure for emissions and energy consumption testing		✓	agree		
Broad scope including e.g. OBD, durability, off-cycle behavior, .....	✓		see WLTP-02-04	✓	
Appropriate fuel quality for the advanced powertrain systems	✓		reference fuel only		
Use of alternative fuels <b>and power sources</b>	✓		agree (see WLTP-02-04)	✓	
Future requirements based on air quality objectives for emission control				✓	
Technological and economic feasibility				✓	
<b>B. Scope of harmonization</b>					
Vehicle category concepts		✓	detail : gtr making phase rough : see WLTP-02-05 <b>and WLTP-02-10</b>		
Engine Family concepts	✓		exclude (certification matter)		
Tailpipe emission and energy consumption test procedure (driving pattern, gear shift, preconditioning, ...)		✓	agree (one procedure)		
Test conditions (incl. load, test weight, tyre selection, ...)			agree (one procedure)	✓	
Measurement techniques			agree (one procedure)	✓	
Defeat device assessment rules	✓		agree (one definition)		
Off-cycle concept (extra cycle, NTE, PEMS, ...)	✓		see WLTP-02-04		
Other devices	✓		include except MAC		
Reference fuel specifications incl. alternative fuels <b>and power sources</b>		✓	agree	✓	✓
Need for durability requirements	✓		<b>to be discussed exclude (certification matter)</b>		
OBD (test conditions and threshold values)	✓		<b>to be discussed exclude</b>		
Evaporative emission test procedure	✓		agree (driving mode only) <b>to be discussed.</b>		
Low ambient temperature test procedure	✓		agree		
Need for particulate measurement test			mass or number (according to PMP WG)	✓	
Test at high altitude / low ambient pressure	✓		agree		
<b>C. Approach for harmonization</b>					
<b>C-1. Vehicle classification, scope</b>					
Definition of vehicle classification		✓	<b>see WLTP-02-10</b>		✓
<b>C-2. Collection of statistics about vehicle park and use</b>					
Determination of the Countries/regions from which data will be collected		✓	US,EU,China,India,Japan (see WLTP-02-05)		✓
The data about vehicle use (mileage) and driving behavior (vehicle and engine speed/load pattern) has to include all relevant real life vehicle operations					✓
A classification matrix will be derived from the data about vehicle use in order to take into account all relevant influencing parameter. This matrix should consider different regions, vehicle classes and road categories					✓
<b>C-3. Collection and analysis of in-use driving behavior data, bearing in mind OBD</b>					
<b>C-4. Cycle development, [and weighting factors]</b>					
Weighting factors of the matrix are combined with the in-use data in order to create a reference database					✓
The test procedure needs to be					
representative of world-wide on-road vehicle operation				✓	
able to provide the highest practical level of efficiency in representing on-road emissions				✓	
corresponding to state-of-the-art testing, sampling and measurement technology				✓	
applicable in practice to existing and foreseeable future exhaust emissions abatement technologies				✓	

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	capable of providing a reliable ranking of exhaust emission levels from different engine types				✓	
	consistent with the development of appropriate emission factors, inclusive of testing off-cycle emissions				✓	
	The first step is to compact the reference cycles into a first draft test cycle of a desired length					✓
	This cycle should have the same key parameter values as the reference database (vehicle speed distribution, idle time distribution, acc. dec. and cruise modes).					✓
	It has to be foreseen that this first draft will need to be modified on the basis of an evaluation concerning drivability and practical points concerning the measurement procedure					✓
	Since this process is interactive by nature, several adaptation rounds including the drivability tests have to be carried out					✓
	OBD requirements must be considered.				✓	
<b>C-5. Gearshift prescription development</b>						
	The development of the gearshift procedure should be based on an analysis of the gearshift points in the in-use data.					✓
	In order to get generalized relations between technical specifications of the vehicles and gearshift speeds the engine speeds should be normalized to the utilizable band between rated speed and idling speed					✓
	In a second step the end speeds (vehicle speed as well as normalized engine speed) for up shifts and downshifts should be determined. The averages of these speeds for each gear and vehicle should be calculated and correlated with technical specification					✓
<b>C-6. Drivability tests with candidate cycle</b>						
<b>C-7. Update of measurement procedure</b>						
	The update of the measurement procedure should include the vehicle preparation as well as the test bench settings and					
	Preconditioning/soak condition					
	Road load resistance					
	Definition of inertia mass					
	Cooling requirements					✓
	Exhaust gas sampling procedure					
	Tolerance criteria					
	Emission calculation					
	This work might be performed by ISO		✓	agree		
<b>C-8. OBD tests</b>						
	Detection capabilities of the OBD				✓	
<b>C-9. Emission Validation tests in two steps</b>						
	1. Test bench measurements with priority for driveability					✓
	2. Test bench measurements in order to compare emissions. Reproducibility of measured exhaust emissions and fuel economy/CO2 values					✓
	Both steps should be performed in all relevant regions.					✓
	Depending on the outcome of step 1 further modifications of the cycle and/or the gearshift prescriptions might be necessary					✓
	For step 2 the new cycle as well as the regional certification cycles should be used					✓
<b>C-10. Round robin tests</b>						
	An additional round robin test should be performed		✓	Participant CPs		✓
<b>D. Development of gtr text</b>						
	Develop final gtr text to be proposed to WP.29					✓
	<b>Develop common terminology</b>		✓	see WLTP-02-11		✓
<b>E. Confirmation of the Work Schedule</b>						

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<p>GRPE WLTP-IG</p> <p>GRPE</p> <p>WP29</p>		✓	Road Map making phase -> see WLTP-02-02 ( revised )  gtr making phase -> see WLTP-02-08		
<b>F. Organization</b> Establish appropriate organization in gtr making phase. i.e.) the development is handled by one informal group which may be assisted by specialist sub-groups reporting to it		✓	driving mode development -> WLTP-02-07 others -> TBD		
<b>G. Budget</b> A budget needs to be developed during the roadmap making phase to clearly establish the anticipated costs of the gtr development and the burden sharing between the involved parties		✓	driving mode development -> WLTP-02-07 others -> TBD		