



**WLTP-18-04e**

**Transposition of GTR15 (WLTP)  
into  
UN Regulations**

**Task Force Update for 18<sup>th</sup> WLTP IWG  
Meeting**

**Bern, 18<sup>th</sup> April 2017**

# Background

- Principle of full transposition of GTR15 into UNR confirmed at 74<sup>th</sup> GRPE
- To follow model proposed by UNECE secretariat at 73<sup>rd</sup> GRPE
  - Regional levels (Level 1a, Level 1b etc.) in the original version (0 series of amendments) of new 'UNR WLTP'
  - Harmonised Level 2 to be introduced by the 01 series of amendments to that new Regulation
- New GTR Informal Working Group Task Force set up
- Europe & Japan - the CPs (to date) to 'sign-up' to the process
  - However we need to understand and consider the requirements of other Contracting Parties, and not just the EU and Japan
- Representatives from IWVTA also participating in Task Force

# Task Force Update

- 74<sup>th</sup> GRPE, January 2017
  - Aim to hold a minimum of two Task Force meetings prior to the next WLTP Informal Working Group (IWG #18 in Bern, April 2017)
  - Informal document providing an update on progress to be presented to the 75<sup>th</sup> GRPE in June 2017
- Three meetings of Task Force have been held:
  - 23<sup>rd</sup> February 2017 - EC Brussels + audio-web
  - 8<sup>th</sup> March 2017 – JAMA Brussels + audio-web
  - 11<sup>th</sup> April 2017 – audio-web
- Task Force meeting scheduled for 30<sup>th</sup> May 2017
  - After which an Informal document will be submitted to GRPE

## Task Force – Terms of Reference

- Aim is to develop a new UNR WLTP with a 'most stringent' top level (Level 2) that can be included in UN Regulation 0 - so that it can be covered by IWVTA
- Whilst it may not be possible to develop a 'single' UN Regulation that would exactly mirror the requirements of all CPs, the new UNR WLTP would need to be accepted by all CPs
- UNR WLTP should also cover other GTRs related to WLTP and not just GTR15 (e.g. Evap)
- The Task Force will be fully responsible for developing the structure and regulatory text for the 'top level' regulation.
- Responsibility of the individual regions to prepare the regulatory text specific to their region

# Task Force – Road Map

## Proposed Timeline (first implementation)

	2018	2019	2020~	
Upper Org.	<p>WLTP, GRPE</p> <p>★</p> <p>Informal Document</p>	<p>GRPE</p> <p>★</p> <p>Working Document</p>	<p>WP.29</p> <p>★</p>	
Type I	→	→		
R_999	→			
others (UNR or NEW ?)		→		

Road map will be dependent on route chosen.

Potential timeline developed by Japan shown here

→ As a first implementation, focus on Type I test with same timeline as WLTP Phase2b

# Route to enable harmonisation

## New UN/ECE 'Regulation WLTP'

**Regulation WLTP – top level (Level 2)**

**Contains most stringent limits from across all regions**

**Subject to full mutual recognition: TA shall be accepted by all CPs**

**Regulation WLTP – Level 1a**

**Contains EU requirements**

**Optional acceptance by other CPs**

**Regulation WLTP – Level 1b**

**Contains Japan requirements**

**Optional acceptance by other CPs**

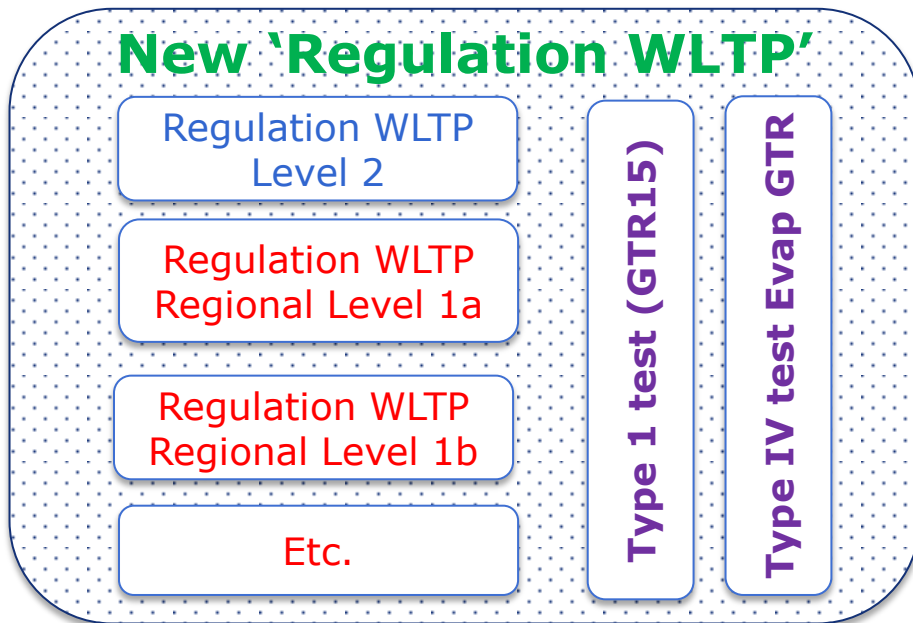
**Etc.**

Leaves a gap in the Regulations relating to the non-Type 1 & Type 4 (Evap) tests that are included in Regulation 83 as well as new EU requirements (e.g. RDE) → see next slide for options for a potential solution

## Dealing with non-Type 1 & Type 4 tests

- Regulation 83 includes tests not currently included in GTR15 (i.e. Type II (CO); Type III (crankcase gases); Type IV (Evap); Type V (Durability); Type VI (-7°C) + its specific reference fuels; and OBD. Also ISC.
- These other tests need to be added to a new UNR so that they are not 'lost' when a CP applies new UNR WLTP and ceases to apply UNR 83.
  - Type IV (Evap) an exception as that will 'join' the Type 1 test in new UNR WLTP
- From an EU point of view RDE will also need to be included
- **Two options** for introducing the other tests
  - **Option 1:** Concept of UNR WLTP + UNR 999 introduced at 72<sup>nd</sup> GRPE
  - **Option 2:** Include all the other tests in UNR WLTP using the same cross-reference concept proposed for UNR 999.
    - When the tests are introduced into the GTR over time the x-ref to R.83 would be replaced by the test itself (i.e. the new Durability test procedure would replace a x-ref to Annex 9 of UNR 83).

## Option 1 schematic



- EU would sign-up to both new regulations
- Non-EU contracting parties only need to sign-up to UNR WLTP

- When the GTR15 adds new tests (e.g. Durability) 'Reg. 999' will 'shrink' as 'UNR WLTP' 'grows'

## New 'Regulation 999'

'Empty' regulation with x-refs to equivalent parts of R.83\*

**Type II test** (Carbon monoxide emission test at idling speed)

**Type III test** (Verifying emissions of crankcase gases)

**Type V test** (Durability of pollution control devices)

**Type VI test** (Cold start at low ambient temperature)

**Annex XI – OBD**

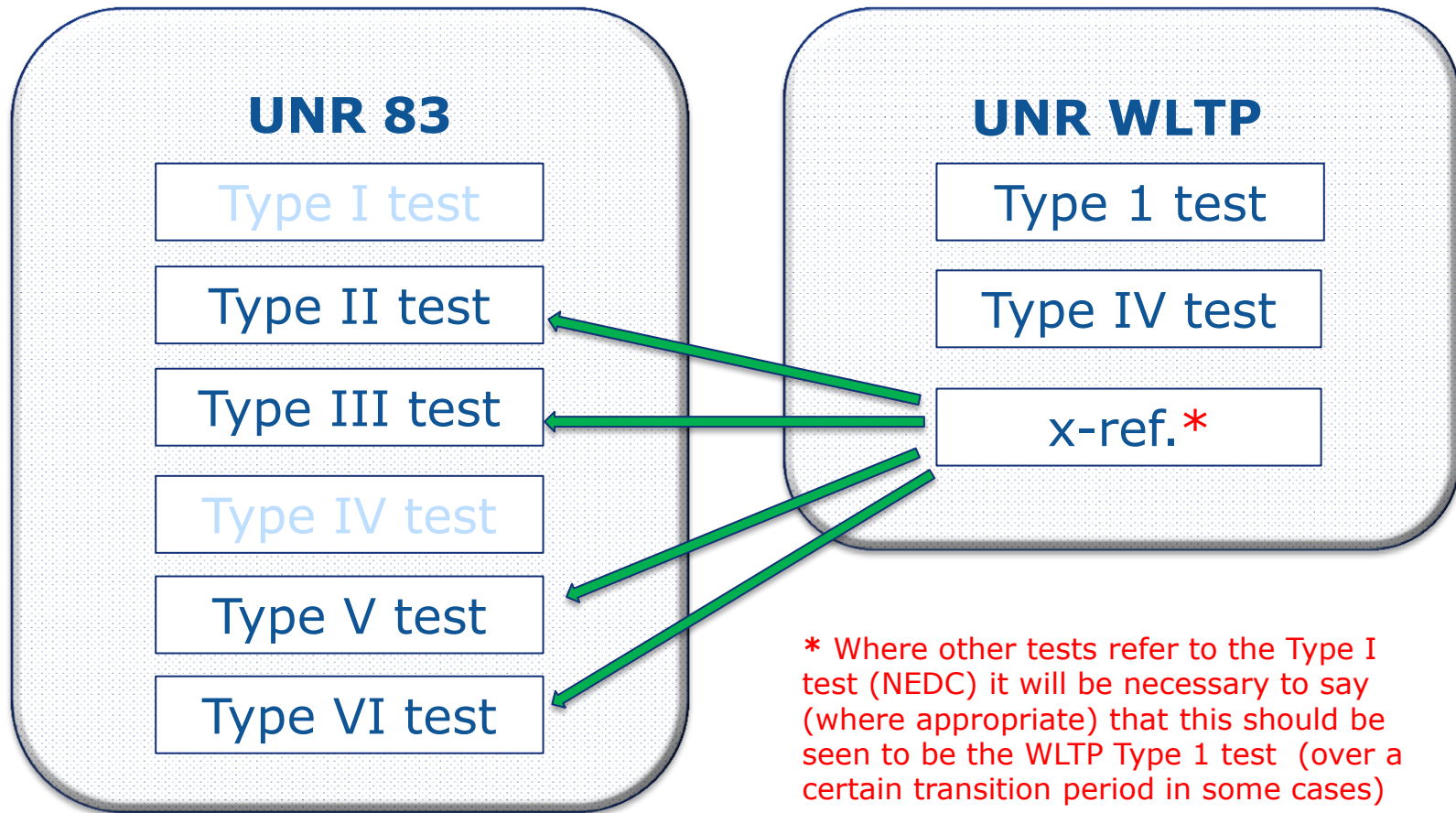
**ISC**

**RDE?**

\* Where other tests refer to the Type I test (NEDC) it will be necessary to say (where appropriate) that this should be seen to be the WLTP Type 1 test (over a certain transition period in some cases)



## Option 2 schematic



# Option 1 v. Option 2

- Option 1: Concept of UNR WLTP + UNR 999 introduced at 72<sup>nd</sup> GRPE
  - **(+)** option would keep tests not currently used by regions which are not CPs to R.83 (e.g. -7°C test in Japan) out of the new UNR WLTP and therefore resolve the potential issue of how to include them in the top level (Level 2).
  - **(+)** leaves open the option to have separate future UNRs for the different tests
  - **(-)** option creates a new UNR that will be short-lived. Extra administrative burden.
- Option 2: Include the other tests in UNR WLTP using the same cross-reference concept proposed for UNR 999.
  - **(+)** a simpler concept and with less administrative burden (not having a UNR 999)
  - **(-)** may not work at top level (Level 2) – as regions that are not CPs to R.83 do not apply the other tests
  - **(-)** how can it be distinguished as to which CP apply which test?
  - **(?)** do CP option tests remain in UNR WLTP?

# Task Force Update

- Japan are not able to support Option 2
  - how can it be distinguished as to which CP apply which test?
  - do CP option tests remain in UNR WLTP?
- Reminder from Task Force
  - Top level (i.e. Level 2) is about accepting more stringency and not about requiring more stringency
  - This means that ATCT, for example, could be included in Level 2 even though it is only required in Europe – as it does not reduce the environmental performance of the vehicle. It will need to be in the European Level 1a and therefore would also need to be in Level 2 – otherwise Level 2 would be less stringent than Level 1a.
  - Discussions held in the Task Force as to whether the same principle could apply to non-Type 1 elements included in European regulations (e.g. RDE)
  - Japan keen for UNR WLTP to be restricted to Type 1 and Type IV tests only

## Level 2 stringency

- The difference between the reference fuels used in the EU and Japan poses a problem in terms of stringency for Level 2
  - To be investigated in order to determine which reference fuels are 'worse' for emissions testing.
  - It may be that new 'common' reference fuels need to be developed for WLTP
- Assuming that the reference fuel issue is sorted, Level 2 would take account of the differences between Japan and EU limits and number of phases as follows:
  - Japanese emission thresholds shall be applied to Low - High test cycle and EU emission thresholds shall be applied to Low - extra High test cycle.
  - The vehicle type which meets both Low-High and Low-extra High requirements is considered to be the type in compliance with Level 2.

# Task Force Update

- To act as a discussion document, a draft structure of a Level 2 UNR WLTP incorporating all requirements from a EU perspective (including non-Type I tests + RDE) was prepared Task Force meeting 11/04/17 (see WLTP-18-04e Appendix A)
  - Not a formal proposal – but to prompt discussion and help develop a better understanding of how the new UNR WLTP would ‘work’ alongside other regulations e.g. R.24, R.83 and R.85
  - Many of the principles would apply to a UNR WLTP that was restricted to Type 1 and Type IV tests (i.e. Option 1 supported by Japan)
- If UNR WLTP only covers Type 1 and Type IV tests
  - Should RDE etc. be included in a new series of R.83 or in a new UNR 999?
  - Cleaner to use the UNR 999 route.

# Task Force Update

- Equivalent draft structures to be prepared for:
  - UNR WLTP only covering Type 1 and Type IV tests
  - UNR 999
- Clarification required from UNECE as to:
  - Whether two UNRs can have overlapping content
  - Whether one UNR can have the same content as two other UNRs (e.g. UNR 999 v. R.83 & R.24)
  - How UNR WLTP and UNR 999 would work together
  - Whether more than one GTR can be included in one UNR (e.g. GTR15 and GTR Evap into UNR WLTP)

# Task Force Update

- How would UNR WLTP work alongside R.83?
  - Based on new transitional provisions for R.83, a CP will have to leave R.83 when UNR WLTP comes into force
  - Transitional provisions in R.83 may need to be amended to enable a CP (e.g. EU) to issue an approval to R.83 for export but not to accept an approval to R.83
- See next slide for a table exploring how the transition from R.83 to UNR WLTP could/would operate in Europe

# Task Force Update

- For discussion

Requirements /Status	Timescale			
	Today	58A Rev 3	Sept. 2017	Adoption of R-WLTP
For sales in the EU	692/2008 or Swap R-83, R-101, R-24, R-85, RDE & RMI for 692/2008	692/2008 or: Swap R-83.07, R-101.01, R-24.03, R-85, RDE & RMI for 692/2008	EU-WLTP No ECE option	EU-WLTP or: R-WLTP & R-999 & ???
EU is a Contracting Party to regulations: →	R-83, R-101, R-24, R-85	R-83, R-101, R-24, R-85	R-83, R-101 (with TPs), R- 24, R-85	R-WLTP & R-999 BUT NOT R-83 & R-101 What about R-24 & R-85?
Approvals for export from the EU (e.g. Russia, Australia etc.)	R-83.07	R-83.0x	R-83.0x	?



# Task Force Update

- **Reminder – based on Option 1 being followed:**
  - Level 2 to contain options agreed by all CPS (e.g. EU 4 phase limits and Japan 3 phase limits)
  - Regional levels to contain options specific to the regions (but not more stringent than those in Level 2)
  - Additional tests / requirements to be included in a separate UNR (e.g. RDE in UNR 999)
- Slides that follow discuss GTR15 regional options



European  
Commission

## Options in WLTP

ECE/TRANS/WP.29/GRPE/2017/7			no discussion under WLTP IWG			
Annex	Section	breif description	EU	JPN	India	
definition	3.7.1.	Rated engine power	R85	TRIAS,R85,ISOetc		
	3.7.2.	Maximum speed	R68	TRIAS,calculate		
1	2	Vehicle classifications	Y	NA (class3 only)		
	3.1. ~ 3.3.	Test cycles	include ex-H	exclude ex-H		
	3.5	WLTC city cycles	?	NA		
	8	Downscaling	Y	NA		
	9	Capped speed	NA?	NA		
3		reference fuel	Y	Y		
4	4.1.1.2.	Atmospheric temperature	not allow +5°C ?	not allow +5°C	allow +5°C	
	4.2.2.	Tyre selection	R No. 117 - 02	R No. 117		
6	1.2.	criteria pollutant and limit value	Y	Y		
	1.2.2.	other regional corrections	Y (14°C)	NA		
	1.2.3.8.	dCO2 determination.	Y(0.99...)	Y(1.018?...)		
	1.2.4.2.1.	Auxiliary devices	?(DRL)	NA		
	2.4.	4WD requirement	Y	NA		
	Appendix 1 1.5. & 1.6.	regenerative factor KI	include ex-H	exclude ex-H		
8	4.3.4. & 4.4.	Electric energy consumption	?	exclude city test		
	Table A8/8~10	EC <sub>OC</sub>	?	N		
		COP	Y	N		
	Appendix 5	Utility factors	Y (Europe)	Y (Japan)		
Appendix 6	allow city cycle test only	NA	NA			
Misc.		14°C test	Y	NA		
		RDE	Y	?		

### ECE/TRANS/WP.29/GRPE/2017/3

Annex	Section	breif description	EU	JPN	India	
1	5.3.10.	calculation	2day total	<--		
2	Table A2/1	mutual recognition fuel	?	?		

# European regional level Type 1 test

**The three slides that follow provide an indication of how GTR15 would be amended to make it EU specific**

**Japan and any other regional levels would adapt GTR15 to meet their specific test requirements**

## Main amendments to GTR15 for European Regional Level Type 1 test

- Main body of GTR: Update definitions to align with EU Regulation xxx/2016 – or move them into Main Body of the new UNR
- Annex 1: Delete regional option for capped speed
- Annex 1 (and throughout GTR): Delete regional options for excluding Extra High phase
- Annex 3: Delete 'non-European' fuels (e.g. diesel (B5)) to align with EU xxx/2016 (excluding the low temp test fuels)
- Annex 4: Amend Tyre Selection text (para 4.2.2.1.) and table to match EU xxx/2016
- Annexes 5 and 7: delete "(if applicable)" in relation to PN measurement
- Annex 5: Delete Section 7: Additional sampling and analysis methods

## Main amendments to GTR15 for European Level Type 1 test (cont.)

- Annex 6: Make  $dCO_{2_1}$ ,  $dCO_{2_2}$  and  $dCO_{2_3}$  determination EU specific
- Annex 6: Add additional paragraphs 2.4.2.4. and 2.4.2.5. relating to 2WD / 4WD mode from EU xxx/2016
- Annex 6a: introduce this new annex for ATCT – from EU xxx/2016.
- Annex 7: Remove calculations for additional pollutants (ammonia, formaldehyde etc.). Remove details for non-European fuels.
- Annexes 7 and 8 calculation tables: 'interpolation family result' and 'final criteria emission result' – amend to align with EU xxx/2016. Add ATCT and Deterioration Factors into calculation tables

## Main amendments to GTR15 for European Level Type 1 test (cont.)

- Annex 8 and appendices: Delete regional option for excluding Extra High phase
- Annex 8 and Appendix 7: delete option relating to phase specific fuel consumption
- Annex 8, Appendix 5: EU specific Utility factor (UF) for OVC-HEVs
- Annex 8, Appendix 6: delete regional options from Figures A8.App6/1, A8.App6/2 and A8.App6/3.

# Summary

- Key decisions still need to be taken on the way forward
- Confirmation required from UNECE secretariat that the proposed way forward would 'work' under the 1958 Agreement
- Detailed drafting to follow
- Informal document to be submitted to inform the 75<sup>th</sup> GRPE of progress made and outstanding issues that need to be resolved by Task Force and approved by GRPE / WP.29



Thank you for your attention

Contact information

Rob Gardner, TRL on behalf of the European  
Commission (Task Force Leader)

[rgardner@trl.co.uk](mailto:rgardner@trl.co.uk)

Alessandro Marotta, European Commission

[Alessandro.Marotta@ec.europa.eu](mailto:Alessandro.Marotta@ec.europa.eu)