

Status report of  
WLTP Sub Group EV  
EVE 14

At WLTP IWG 10  
Adopted open issues

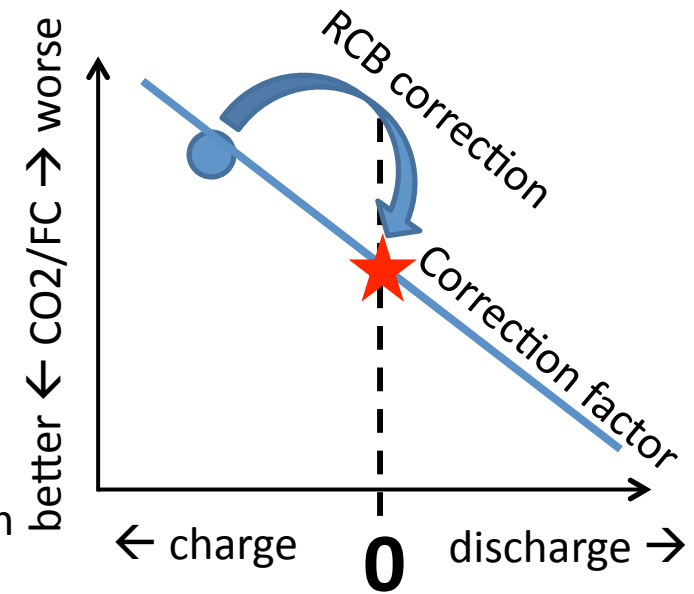
## OIL# 50 : RCB correction (procedure, application)

### Overview:

When CO<sub>2</sub>/fuel consumption need to be corrected to battery charge neutral level during charge-sustaining test, correction factor(s) should be developed.

Way to develop the effective test procedure

1. Reduce the testing duration
2. Apply same factor within interpolation approach family when adopting the interpolation approach.



### Sub Group EV Conclusion :

RCB correction factor(s)

1. is developed under the warm start condition (WLTP-SG-EV-06-11)
2. of Vehicle\_H is applied within interpolation family (WLTP-SG-EV-07-02)

## **OIL# 53: FCV test procedure**

### Overview:

The test procedures for FCV

### Current status:

The SG agreed to put the gravimetric method as reference because this is the method which the SG can ensure test conditions with good accuracy in the present situation.

Pressure and flow methods are put as candidate methods.

Sub Group EV will not develop test procedure for OVC-FCV in phase 1b.

### Sub Group EV Conclusion :

FCV test procedure

1. to put the gravimetric method as reference method (WLTP-SG-EV-07-05)
2. to put the pressure and flow methods as candidate methods (WLTP-SG-EV-07-06)

At WLTP IWG 10  
Discussed open issues

## **OIL# 02: Interpolation family**

### Overview:

Family criteria definitions are discussed to enable combined approach for electrified vehicles. The discussion point is to ensure the interpolation line to have good linearity.

### Current status:

ACEA is working on the amendment of family definitions for NOVC-HEV and PEV which based on Japanese proposal(WLTP-SG-EV-06-05).

### Next step:

Sub Group EV will review the amendment proposed by ACEA. With possibility to adopt the proposal at next Sub Group EV meeting in June 2015

## **OIL# 56 : Interpolation approach**

### Overview:

Family criteria definitions and special treatments for electrified vehicles are discussed to ensure the interpolation line to have good linearity.

Sub Group EV is evaluating an interpolation approach for CD test of OVC-HEV. There are some technical difficulties that needs to be considered.

### Current status:

For cycle values:

ACEA proposed a new method to handle OVC-HEV in CD test. The proposal enables the interpolation approach with good linearity. Japan is positive for the new method. Sub Group EV still needs time develop the new method further.

For phase specific values:

Japan proposed the calculation method (WLTP-SG-EV-04-07) which has been reviewed by ACEA. ACEA proposed some changes on the calculation to improve the accuracy. Sub Group EV reviewed the modified calculation and confirmed that it works. Sub Group EV still needs time to develop the modified calculation further.

### Next Step:

Sub Group EV plans to adopt this open issue on next meeting in June 2015

## **OIL # 55 : Phase specific calculation**

### Overview:

WLTP test procedure will deliver phase specific values for electrified vehicles. This is already agreed.

Calculation method for NOVC-HEV and PEV were proposed earlier.

The open point is how to calculate values for OVC-HEV in CD test due to technical difficulties.

### Current status:

Same as OIL# 56 : Interpolation approach.

European Commission requested that also EAER values is requested for WLTC city cycle.

see next slide

### Next Step:

Sub Group EV plans to adopt this open issue on next meeting in June 2015



Parameters for electrified vehicles  
(include working items)

Emission compliance  
In each cycle

		Each phase					L+M (regional option)					L+M+H(+Ex-H)				
		EM	CO2	FC	EC	Range	EM	CO2	FC	EC	Range	EM	CO2	FC	EC	Range
ICE		NA	NA	○	NA	NA	NA	NA	NA	NA	NA	○ Annex 7 3.2.1	○ Annex 7 3.2.1	○ Annex 7 6.	NA	NA
NOVC-HEV		NA	NA	○	NA	NA	NA	NA	NA	NA	NA	○ Annex 7 3.2.1	○ Annex 7 3.2.1	○ Annex 7 6.	NA	NA
OVC-HEV	CS	NA	NA	○	NA	NA	NA	NA	NA	NA	NA	○ Anx 6 1.2.9/ Anx 8 4.1.1.2	○ Anx 7 3.2.1/ Anx 8 4.2.1.3	○ Anx 7 6./ Anx 8 4.2.1.3	NA	NA
	CD	NA	NA	NA	○	○(*3)	NA	NA	NA	NA	○(*5) Annex 8 4.4.1.1	NA	○ Annex 8 4.2.1.1	○ Annex 8 4.2.1.2	○ Annex 8 4.3.1.3	○(*2) Annex 8 4.4.1.2 4.4.1.3 4.4.1.4
	Comb ined	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	○ Annex 8 4.1.1.3	○ Annex 8 4.2.1.4	○ Annex 8 4.2.1.5	NA	NA
PEV		NA	NA	NA	○	○(*1)	NA	NA	NA	NA	○(*1) Annex 8 4.4.2.2	NA	NA	NA	○ Annex 8 4.3.2.2	○(*1) Annex 8 4.4.2.1
FCV		NA	NA	○(*4)	NA	NA	NA	NA	NA	NA	NA	NA	NA	○(*4)	NA	NA

○ : agreed

(\*1) AER

(\*2) EAER,Rcda,Rcdc

(\*3) EAER,Rcda

(\*4) consumed H2 / km

(\*5) AER,EAER

## **OIL# 51: Mode selectable switch**

### Overview:

In principle EV should follow the procedure for conventional vehicles. The discussion point is some special cases for EV, for example OVC-HEV in CD test.

### Current status:

ACEA proposed a flow chart to choose mode selectable switch considering the ability to trace the cycle (WLTP-SG-EV-08-06).

The proposal is in principle accepted.

ACEA will improve this first proposal and provide the draft text by the end of April.

### Next Step:

Sub Group EV plans to adopt this open issue on next meeting in June 2015


## OIL# 52: End of EV range criteria

Overview: This issue is to consider special treatments for PEVs which are not able to follow the prescribed cycle due to their limited speed or power.

Current status:

Possible solutions are in the following table. Sub Group EV requested European Commission to have one position for the case of “capped speed”.

Sub Group EV Conclusion



	solutions	features	concerns
<b>accepted</b>	Downscale defined in Annex2	in line with ICE*	NA
<b>Still discussed</b>	Capped speed	Reflect the vehicle performance	Provide inappropriate information to customer Unfair competition
<b>rejected</b>	SAE method (reference cycle)		

\*) downscale ratio is determined by electric motor peak power defined in R85, instead of ICE peak power

Next Step:

European Commission will provide the conclusion of “capped speed” in May. Sub Group EV plans to adopt this open issue on next meeting in June 2015

## **OIL# 58: PEV shorten test procedure**

### Overview:

This procedure is based on range calculation.

This enables will reduce the test burden and keeping good accuracy.

### Current status:

Sub Group EV has been validating the method. And confirmed that the deviation of results from shorten test procedure compared to results from the conventional test is small.

Also confirmed that the influence of constant speed on the result is small based on evaluation of measured and simulated data.

Sub Group EV still needs time to discuss about test conditions, such as boundary conditions, constant speed and distance of constant speed

### Next Step: phase.

Sub Group EV plans to adopt this open issue on next meeting in June 2015

### 3. Next Actions

