

# **Position paper on Mode Construction during Validation 2**

Prepared by OICA

DHC/DTP group  
under GRPE/WLTP informal group  
Geneva 17.01.2012

**Draft**

## 5. Mode Construction Proposal during Validation2

This document represents the position of OICA working groups on WLTP mode construction for presentation at DHC11 at the GRPE Meeting January 2012 in Geneva.

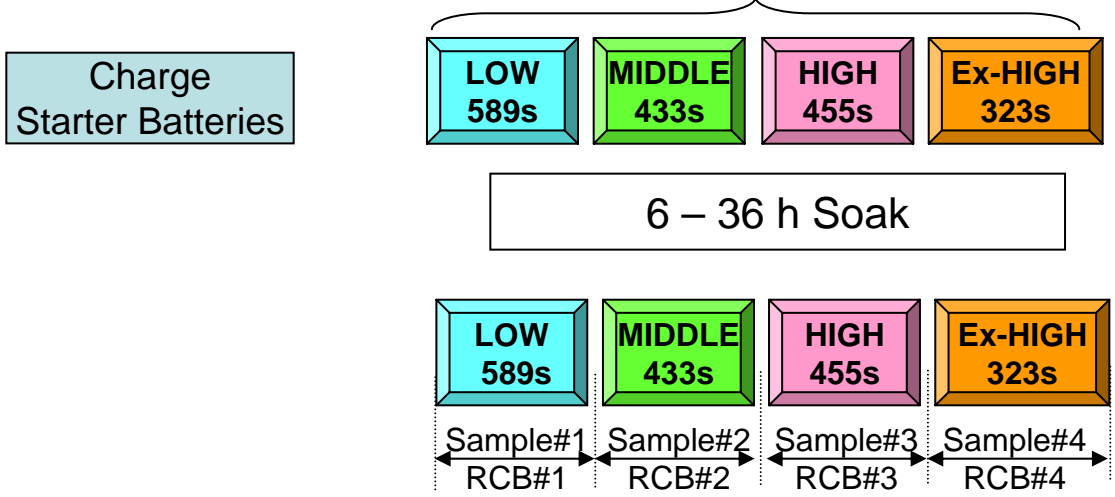
The proposal covers the mode construction for conventional vehicle with options to be tested in Validation 2.

Mode construction for electrified vehicles provides procedures for determination of electrical range, for charge depleting (CD) and charge sustaining (CS) test procedures

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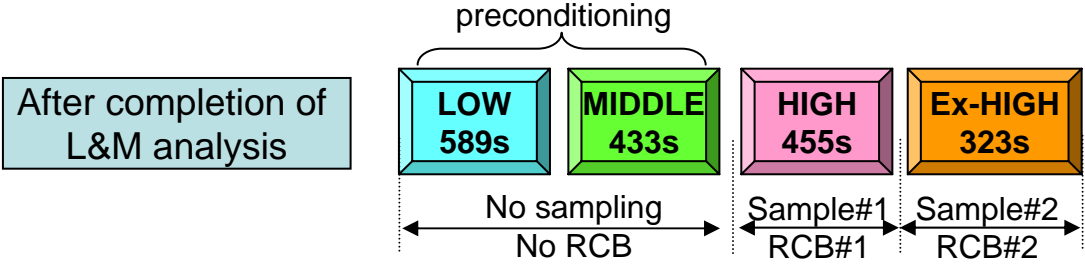
# 5. Mode Construction Proposal during Validation2

[ Coventional Vehicles, Baseline test - Cold start - ]



1 PM-Filter for all 4 phases, some labs to measure 2 Filters (L+M, HxH), SoC for each phase separately

**Note1) in case 4 bags sampling is not available, HIGH and Ex-HIGH phases can be executed separately.**



1 PM-Filter for all 4 phases, some labs to measure 2 Filters (L+M, HxH), SoC for each phase separately

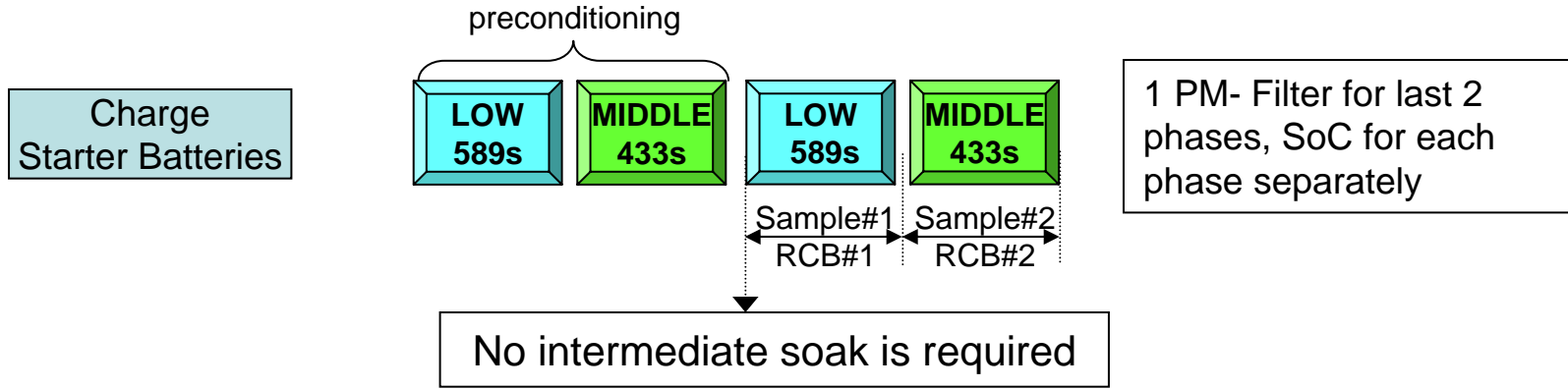
**Note2) Cycle phase to be driven**

|                       |                  |                  |                      |        |
|-----------------------|------------------|------------------|----------------------|--------|
| Vehicle maximum speed | Less than 60km/h | Less than 80km/h | Less than 110km/h    | others |
| Cycle phase(s)        | LOW              | LOW and MIDDLE   | LOW, MIDDLE and HIGH | ALL    |

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# 5. Mode Construction Proposal during Validation2

## [ Baseline test - Hot start -] Optional



**Note1) some of laboratories will be required to run the intermediate soak study ( i.e. 0, 5, 10 and more )**

**Note2) Cycle phase to be driven**

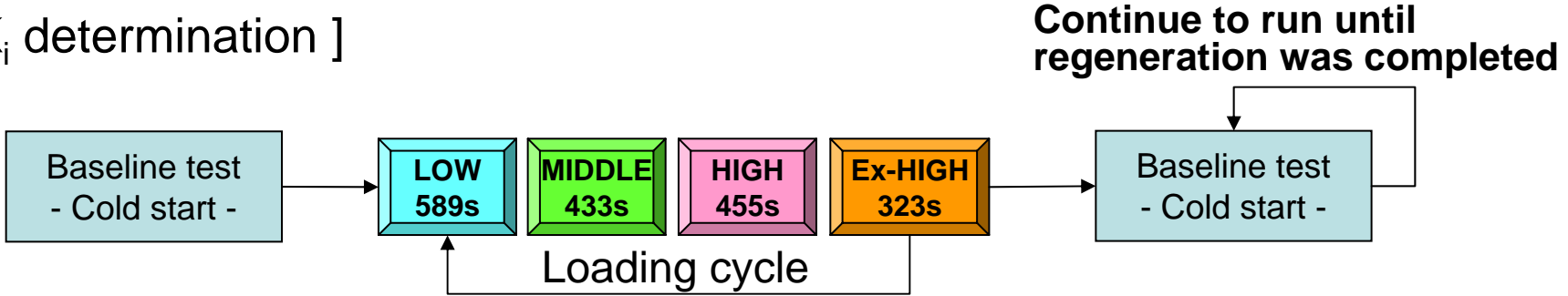
|                       |                  |                |
|-----------------------|------------------|----------------|
| Vehicle maximum speed | Less than 60km/h | others         |
| Cycle phase(s)        | LOW              | LOW and MIDDLE |

**Note3) In case hot start test is conducted after cold start test, starter battery charge shall be omitted. Soak for equipment preparation before preconditioning phases**

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[  $K_i$  determination ]



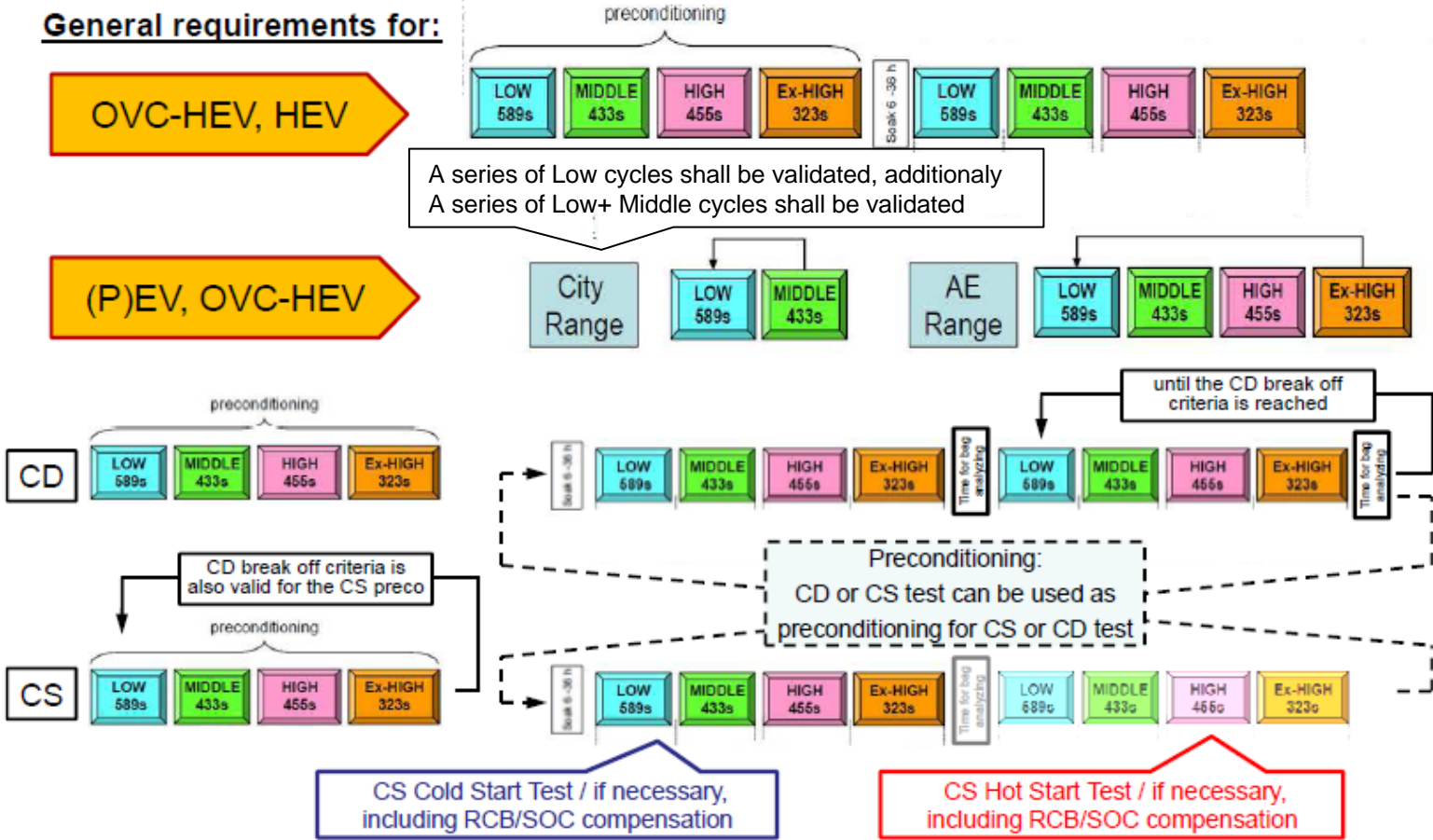
**Note1) Cycle phase to be driven**

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[ Mode Construction for electrified Vehicles – CD,CS, Electrical range ]



- CS test with and without hot test shall be validated.
- Without Hot Start CS test: For CS test only a cold start test shall be driven. Due to the expected high test burden for electrified vehicle is that the by ACEA preferred test procedure (mode construction)
- With Hot Start CS test: The complete hot- and cold test cycle shall be driven. In case that a hot start CS test is necessary, different options are thinkable according to page 4 of this document

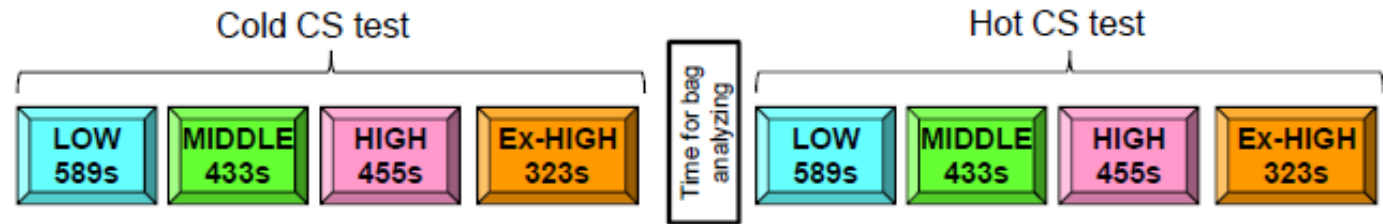
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# 5. Mode Construction Proposal during Validation2

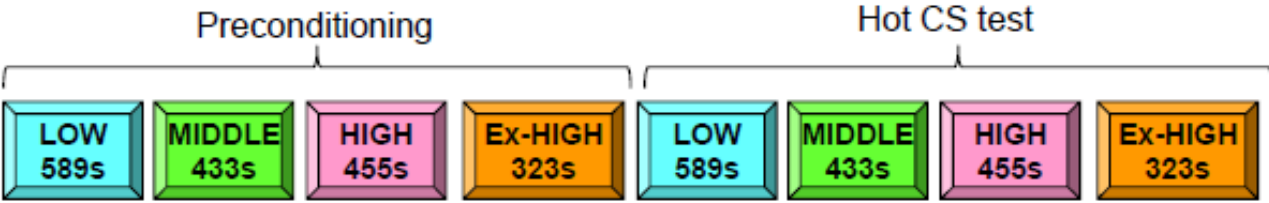
[ Mode Construction for electrified Vehicles – Thinkable options in case that a hot start test is required. For that case, the procedure should be also validated for the RCB correction factor determination during VP2]

In case that a hot start CS test is required, following options are thinkable and if necessary to be validated during the validation phase 2. The used option depends on required test sequence (mode construction) for conventional vehicles.

### Option 1, Cold CS test followed by Hot CS test



### Option 2, separate Hot CS test



The further proceeding with the measurement results of RCB/SOC behavior within the hot- and cold start CS tests should be discussed after validation phase 2. Such as:

- Admissible SOC/RCB window without necessity of CO2 and FC compensation (fuel energy related?)
- Procedure to determine the RCB/SOC correction factors (according ECE legislation ?, not decided yet)

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