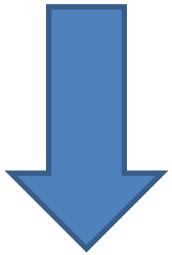
Discussion Paper on "E-Lab. Open Issues"

7th WLTP E-Lab. Meeting

9th ~ 11th March 2015 @ Brussels

Prepared by WLTP E-Lab. Technical Secretary

OIL#1b_1 (DEFINITION)

	Europe		JAPAN	others
	commission	ACEA		
Discussion Points		FCV or FCHV ?	follow VPSD decision	
				
Next Actions			no action is necessary	

OIL#2 (Family Definition of Combined Approach)

	Europe		JAPAN	others
	commission	ACEA		
Discussion Points	make it more clear including conventional vehicles		keep previous proposal with slight modification (NV ratio for CVT, HEV refer P3&4)	
Next Actions	provide concrete counter-proposal before next f2f meeting		provide concrete description for CVT/HEV NV ratio before next f2f meeting	

Additional family criteria for NOVC-HEV and OVC-HEV

(a) Type of internal combustion engine: fuel type, combustion type, engine displacement, full-load characteristics, engine technology, and charging system shall be identical, but also other engine subsystems or characteristics that have a non-negligible influence on CO2 under WLTP conditions;
(b) Operation strategy of all CO2-influencing components within the powertrain;
(c) Transmission type (e.g. manual, automatic, CVT);
(d) n/v ratios (engine rotational speed divided by vehicle speed). This requirement shall be considered fulfilled if, for all transmission ratios concerned, the difference with respect to the transmission ratios of the most commonly installed transmission type is within 8 per cent;
(e) Number of powered axles;

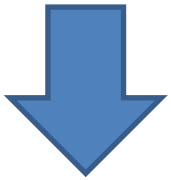
In addition above, the following specifications/characteristics shall be identical for NOVC-HEV and OVC-HEV.
(f) Hybrid system configuration (series/parallel/split)
(g) Battery specifications (type, voltage, output)
(h) R_{cdc} value (OVC-HEV)
(i) Motor specification (type, voltage, output)
(j) Inverter specifications
Note1) criteria for CO2 range :
Vehicle_L&H tests : whichever smaller 20g/km or 20% of Vehicle_H
Vehicle_L&M&H tests : within 30g/km)
Note2) n/v ratios : unique description is necessary for CVT/HEV

Family criteria for PEV

(a) motor type (e.g. UN R85) Other software or characteristics that have a non-negligible influence on energy consumption and electric range shall be identical.
(b) battery type (e.g. Energy density for battery pack [Wh/kg]) Other software or characteristics that have a non-negligible influence on energy consumption and electric range shall be identical.
(c) transmission type (e.g. manual, automatic, CVT);
(d) n/v ratios (motor rotational speed divided by vehicle speed). This requirement shall be considered fulfilled if, for all transmission ratios concerned, the difference with respect to the transmission ratios of the most commonly installed transmission type is within 8 per cent;
(e) number of powered axles;

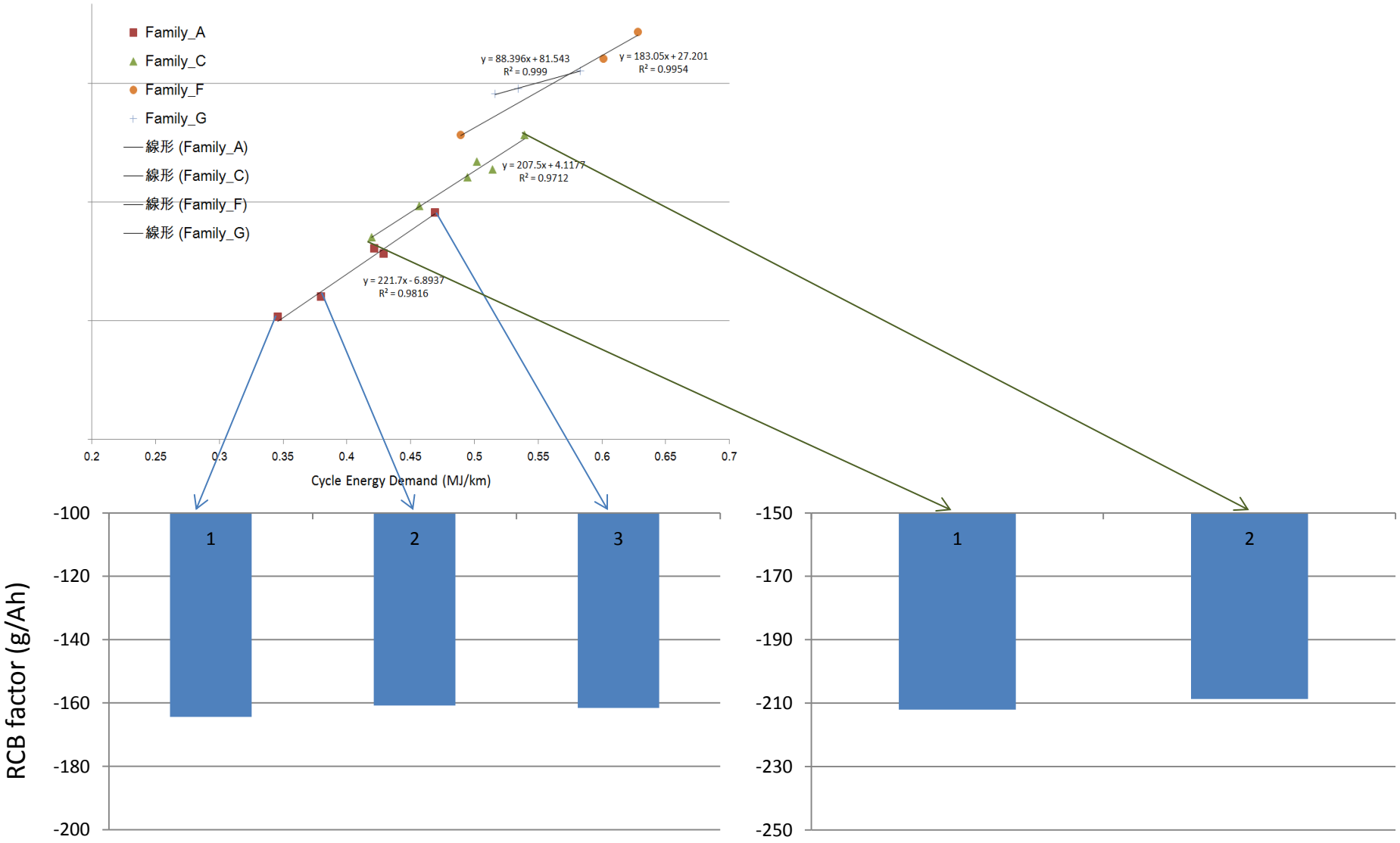
OIL#50 (RCB Correction Application)

Discussion Points	Europe		JAPAN	others
	commission	ACEA		
(A) Develop factor under warm-up condition		support	support	
(B) Use same factor within family		support	make a decision when more data from ACEA is available (refer P6)	



Next Actions (B)	1. accept (A) and/or (B) or not 2. make a decision which configuration represent the family. (practically, vehicle_H is first choice)
In case of disagreement	develop RCB factor for each configuration

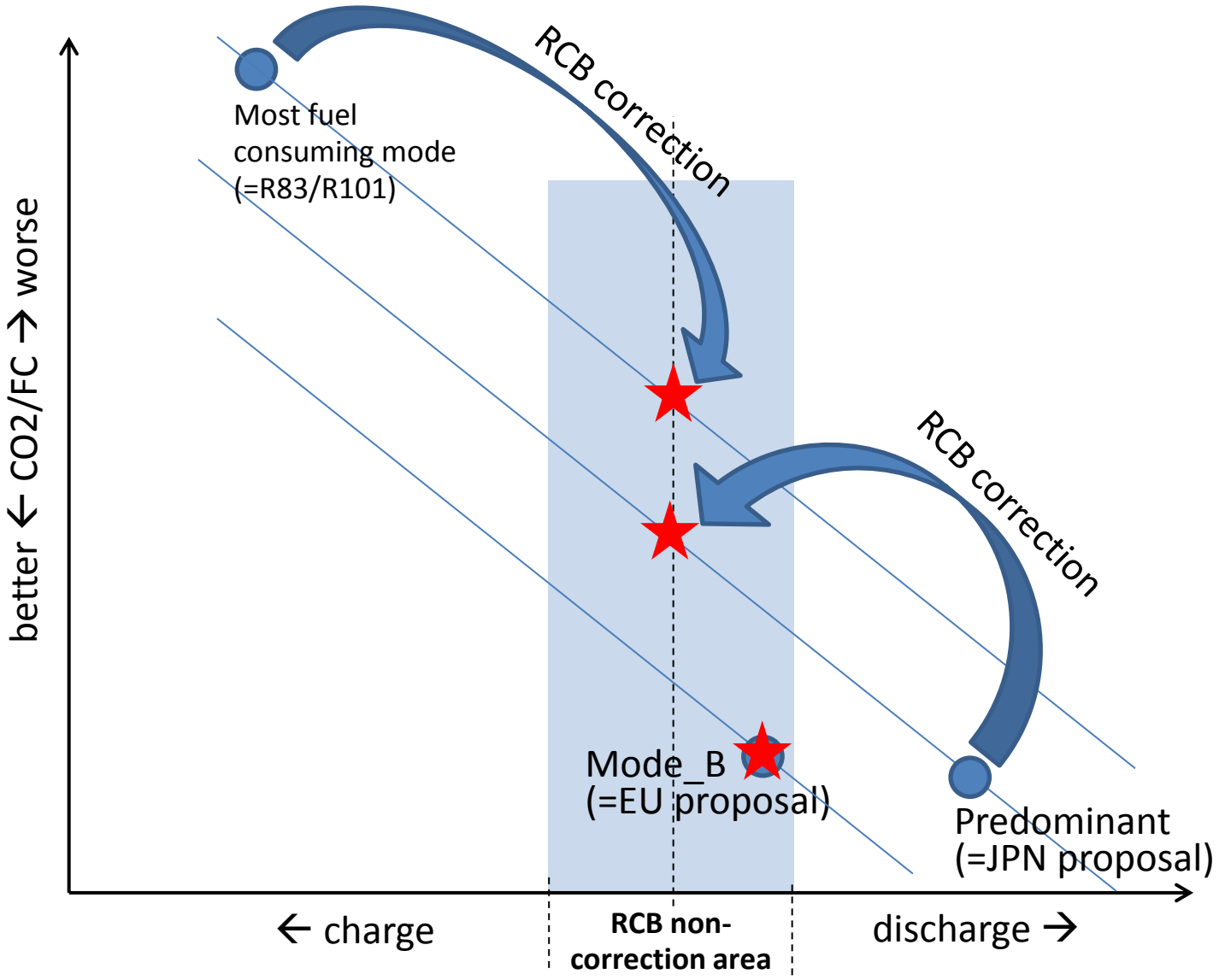
OIL#50 (B) Apply same correction factor within same CO2 family
→JAMA data indicate that correction factor within family is identical



OIL#51 (Mode Selectable Switch)

Discussion Points	Europe		JAPAN	others
	commission	ACEA		
Selectable mode during CD testing	current description is not clear	at a charging neutral balance level	by using the predominant mode among the charging balance neutral hybrid modes (refer P8, current description may create unexpected flexibility)	
Next Actions	Discuss which selectable mode should be used			
In case of disagreement	Conduct testing @ all modes ????			

OIL#51 Discussion Points – Visual Image -



OIL#52 (End of PEV range criteria for the vehicles which are not able to follow the prescribed cycle)

Discussion Points	Europe		JAPAN	others
	commission	ACEA		
Downscale	concern on modified cycle	support	support (based on motor peak power defined by R85)	
Capped speed			support, but not allow less than 120km/h	
SAE method			do not support (unfair competition)	
Next Actions	allow cycle modification or not. if yes, which cycle modification can be applied ?			
In case of disagreement	????			

OIL#53 (FCV test procedure)

Discussion Points	Europe		JAPAN	others
	commission	ACEA		
Gravimetric	need all methods? gravimetric method seems to be most reliable	support	support	
Pressure		support	support	
Flow		support (require pre-approval by authority)	do not support at this stage (validation is not completed yet)	
Next Actions	select the method(s)			
In case of disagreement	???			

OIL#55 (Phase Specific Value)

Discussion Points	Europe		JAPAN	others
	commission	ACEA		
How to treat the vehicles without complete CD mode			1. conduct each phase test or derivate by calculation to obtain phase specific value 2. as an option, allow to conduct testing according to Annex6 (CS test only, RCB compensation by Willans factor	
Next Actions	discuss Japan proposal			
In case of disagreement	Not adopt “combined approach”			

OIL#56 (Combined approach)

Discussion Points	Europe		JAPAN	others
	commission	ACEA		
Methodology presented @ Pune	support	?	support	
Applicability of phase specific value	Need validation for final decision		no unique methodology is necessary for each phase calculation	
Next Actions				
In case of disagreement	Not adopt “combined approach”			

OIL#58 (PEV shorten test procedure)

Discussion Points	Europe		JAPAN	others
	commission	ACEA		
Adoption of STP	need more study for final decision	support	support (refer WLTP-SG-EV-07-11)	
Next actions	discuss applicability of STP or not			
In case of disagreement	adopt current test procedure			