

WLTP-E-Lab Sub Group Progress report

WLTP-DTP-E-LabProc-043

Leader: Per Ohlund / Kazuki Kobayashi

Meeting (after 62th GRPE)

- 11th meeting: Date:5.7.2011

Location: Sweden

Topics: Open issues /Validation Parameter

Decided the issues concerning validation phase 2 take priority.

Calculation portion will be discussed based on validation results.

E-Lab sub group will prepare test sequence for validation phase 2 instead of gtr draft.

12th meeting: Date:6.9.2011

Location: Phone meeting

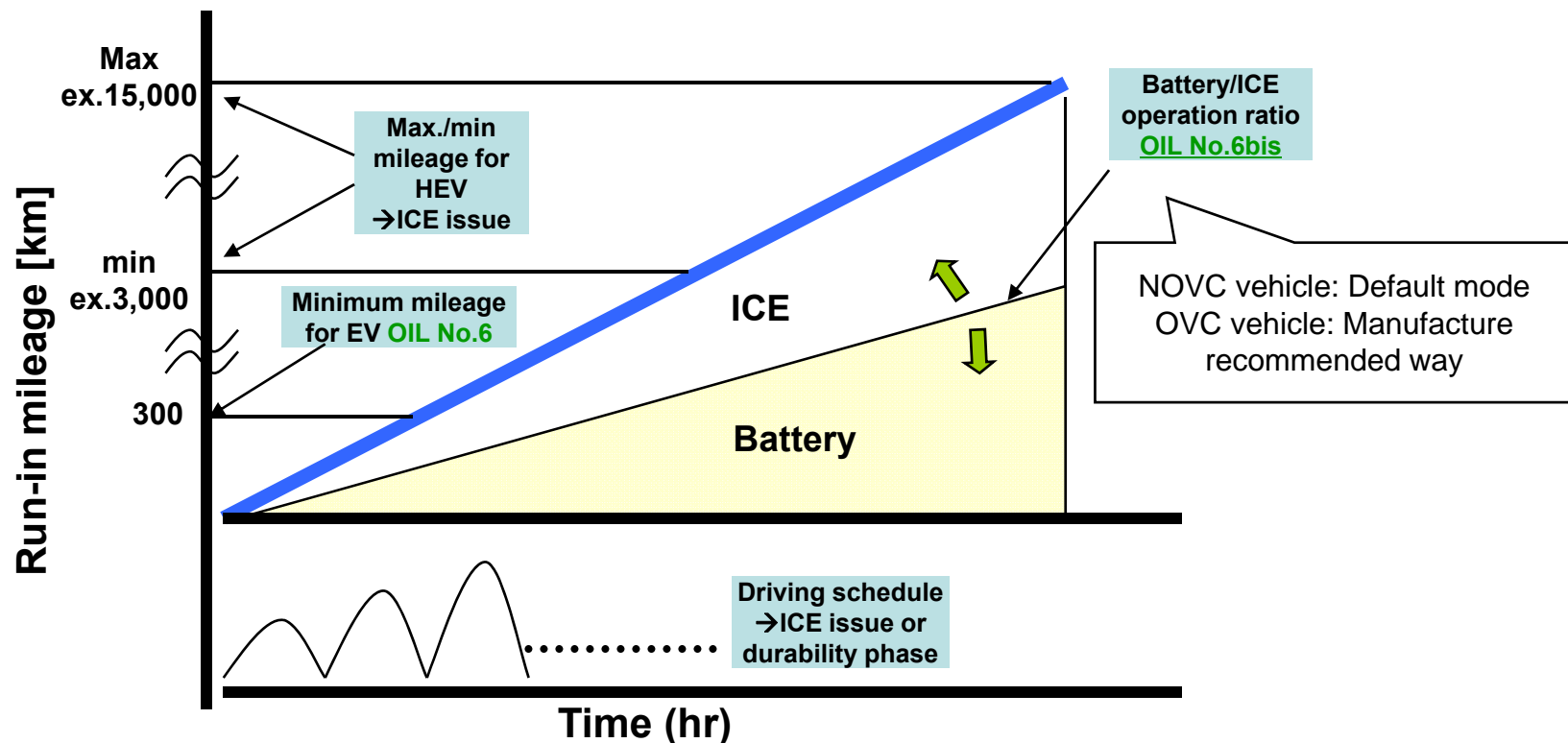
Topics: Open issues /Validation phase 2 parameter/Test sequence

Open issues

- Green color means “agreed or deleted”
- Red color means “to be discussed “.
- Blue color means” to be confirmed in Validation phase 2”.
- Under line means “changed from last DTP in Geneva”.
- These under lined issues will be reported today.

Proposal

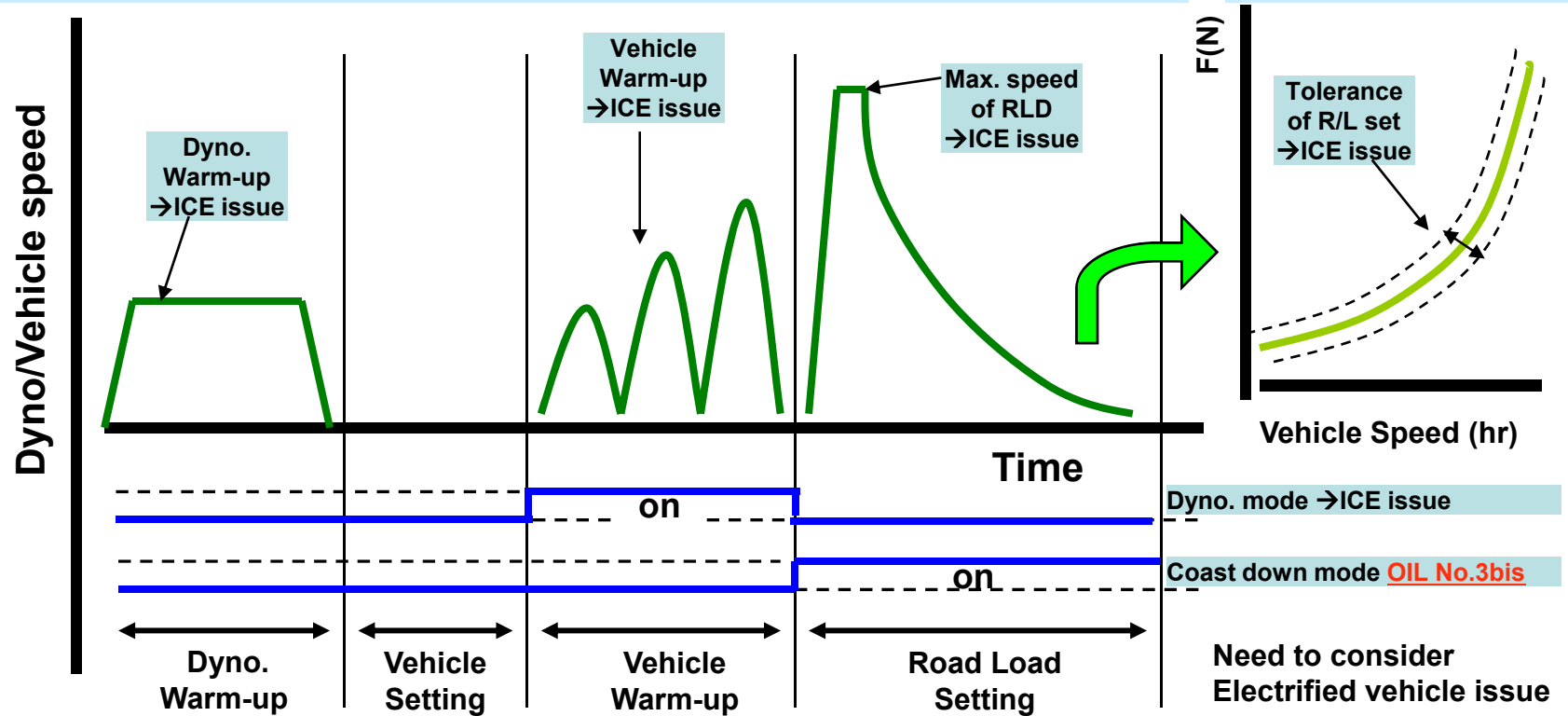
Step1: Vehicle Run-in



	Operation switch	Driving schedule	Run in mileage min.	Run in mileage Max.	Battery / ICE operation ratio
EV	n/a	Follow ICE / later	300km OIL No.6	n/a ?	n/a
OVC HEV	Without	Follow ICE Or Phase II (durability)	Follow ICE Run under CS mode	Follow ICE	Manufacture recommendation OIL6bis
	With (incl. pure EV)				
	With (no pure EV)				
NOVC HEV	Without	Follow ICE Or Phase II (durability)	Follow ICE	Follow ICE	default
	With (incl. pure EV)				
	With (no pure EV)				

Proposal

Step2: Road Load Setting



	Operation switch	Dyno. warm-up	Vehicle setting	Vehicle warm-up	Coast down mode	Road load setting criteria
EV	n/a	Follow ICE	Follow ICE	Follow ICE *	<u>OIL. No.3bis</u> <u>To be discussed with ICE group</u> F2F in Bern	Follow ICE
OVC HEV	Without					
	With (incl. pure EV)					
	With (no pure EV)					
NOV C HEV	Without					
	With (incl. pure EV)					
	With (no pure EV)					

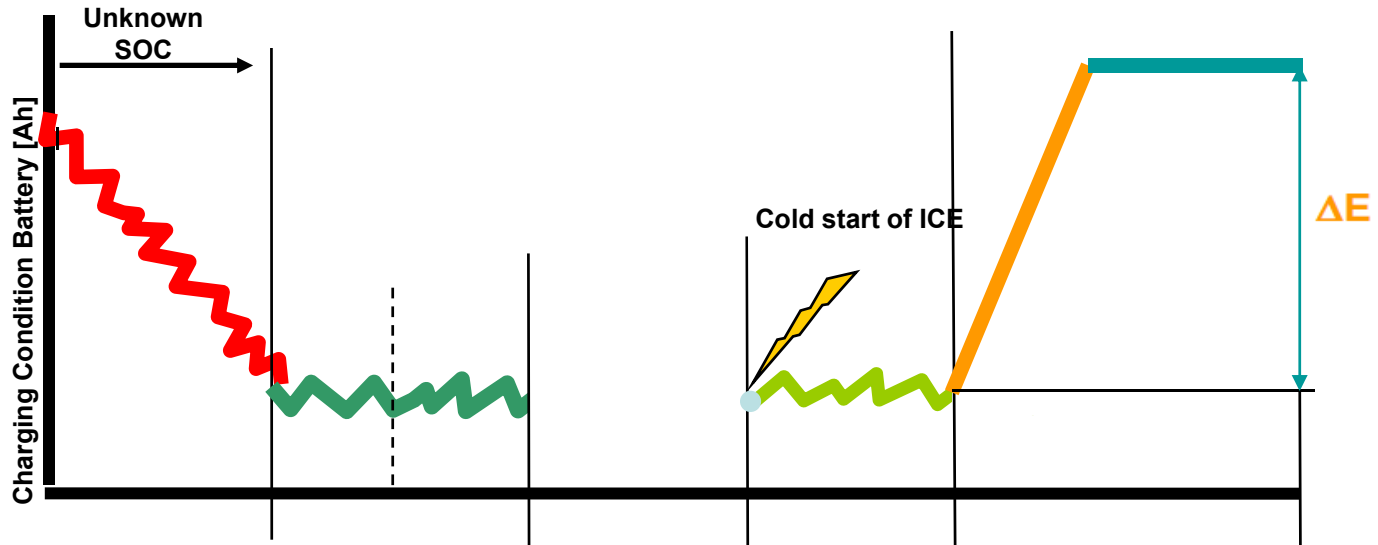
*) allow battery charging during vehicle warm-up to prevent empty battery

Proposal

Step 3 Charge Sustaining Mode

Performance of
Watt-hour meter,
Am-meter

[OIL](#)
[No.15,16,17](#)

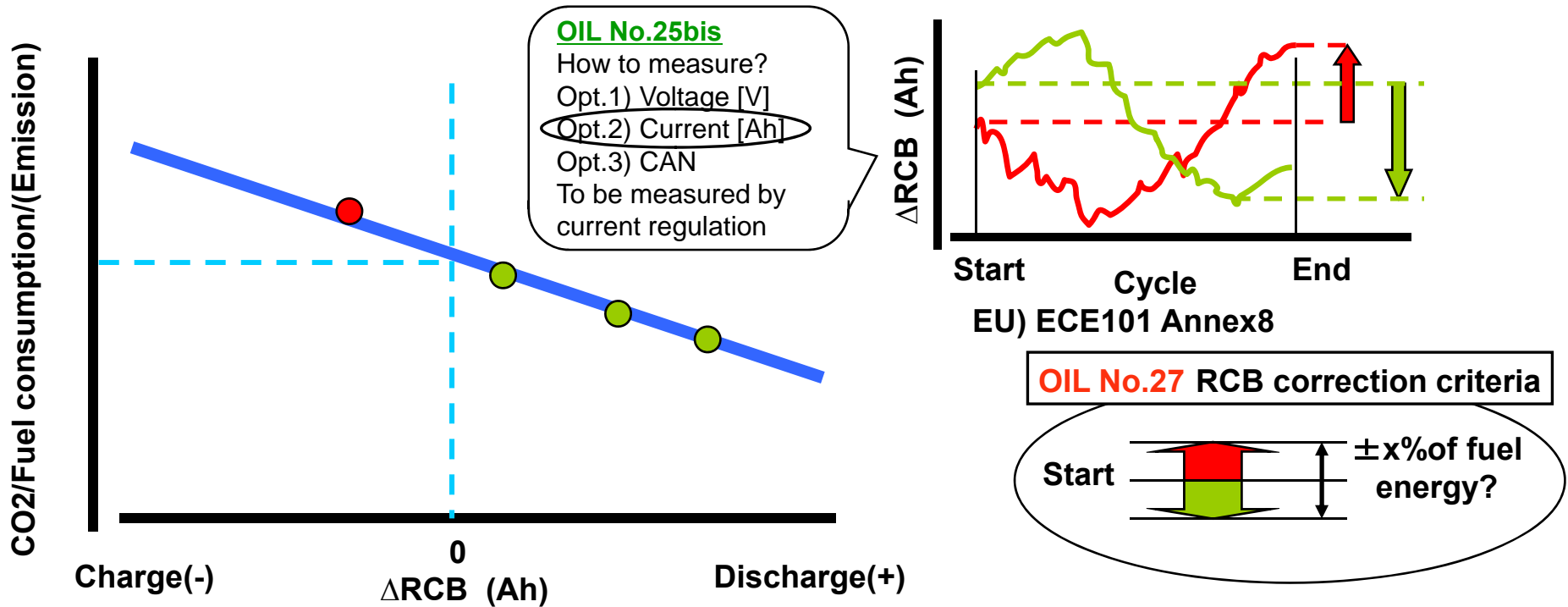


	operation switch	initial discharge	pre-conditioning	Soak time	Charge sustaining test	Charging OIL No.8 Charging method
EV	n/a	n/a	n/a	n/a	n/a	Consumption test OIL No.2
OVC HEV	without	<u>OIL No.14</u> discharge condition MR	follow ICE	follow ICE	OIL No.26,27 RCB correction	Charging time: <u>OIL No.9</u> Condition: OIL No.7 end of charge : <u>OIL No.10,10bis</u>
	With					
NOVC HEV	Without	n/a	follow ICE	follow ICE	Ex; correct emission?	n/a
	with					
	with					

Validation test

Proposal

Appendix: RCB Compensation

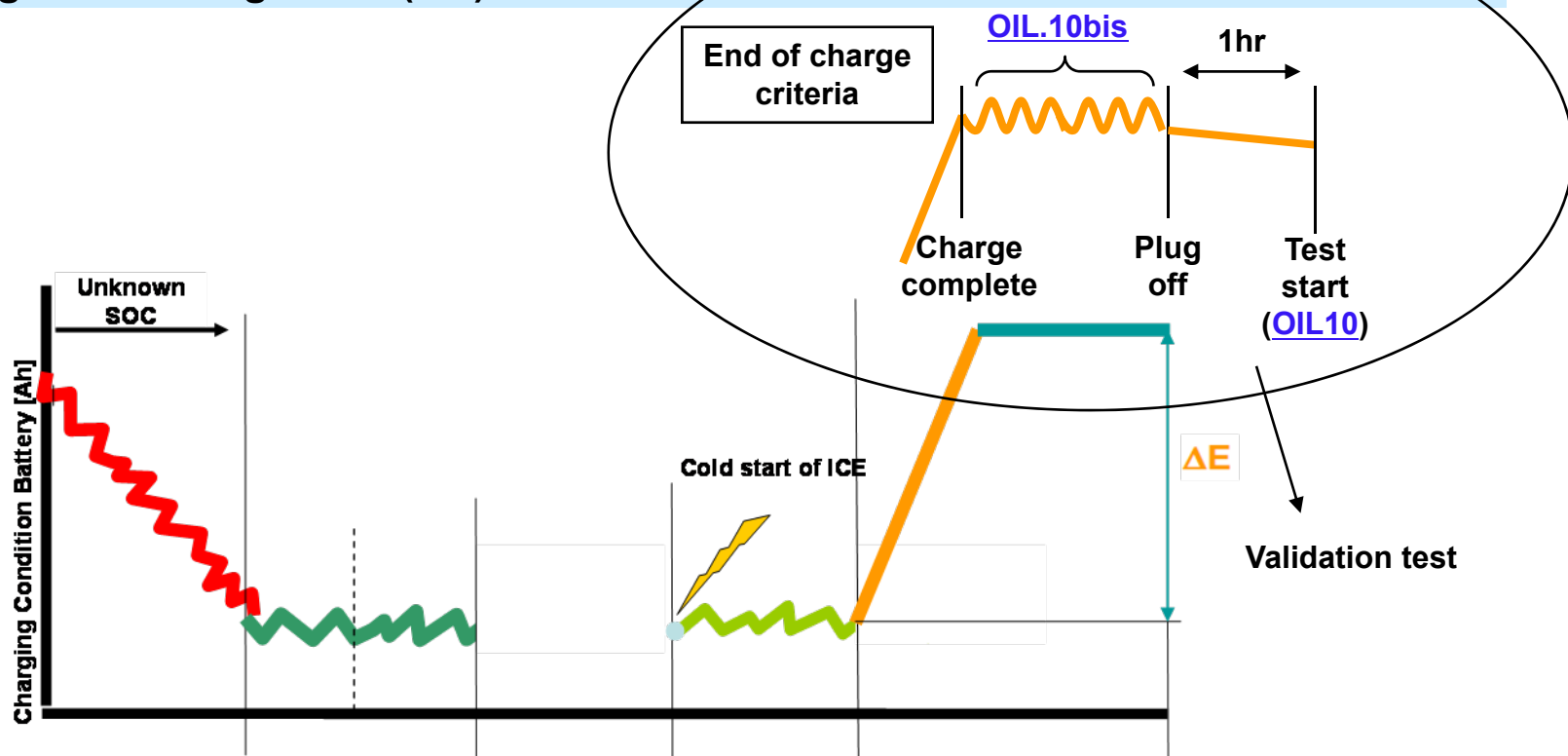


	Operation switch	Range test	Pollutants (including AP/PN/PM)		CO2/Fuel Consumption	
			CD test	CS test	CD test	CS test
EV	Without	n/a	n/a	n/a	n/a	n/a
OVC HEV	With (incl. pure EV)		n/a	OIL26/26bis/27	n/a	Applicable OIL No.27 To be discussed based on Validation result
	With (no pure EV)					
	Without					
NOVC HEV	With (incl. pure EV)		n/a	OIL26/26bis/27	n/a	Applicable OIL No.27 To be discussed based on Validation result
	With (no pure EV)					
	Without					

RCB Correction for CO2 &FC

Proposal

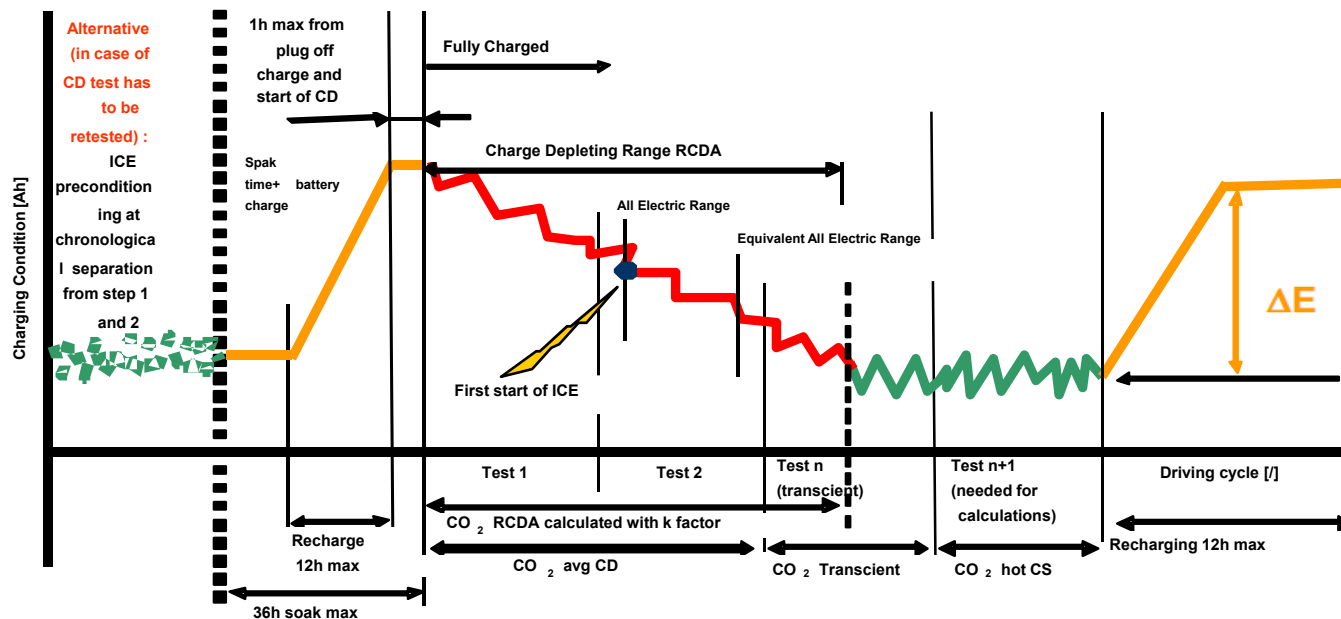
Step 3 Charge Sustaining Mode (bis)



	operation switch	initial discharge	pre-conditioning	Soak time	Charge sustaining test	Charging
EV	n/a	n/a	n/a	n/a	n/a	
OVC HEV	without	OIL No.14 discharge condition	follow ICE	follow ICE	OIL No.26,27 RCB correction	Charging time: OIL No.9 Condition: OIL No.7 end of charge :OIL No.10,10bis
	With					
	With					
NOVC HEV	Without	n/a	follow ICE	follow ICE	Ex; correct emission?	n/a
	with					
	with					

Proposal

Step4 Charge Depleting Mode



	operation switch	charging after CS test	Charge depleting test/EV range test OILNo.11 Interruption Condition	Charging
EV	n/a	n/a	Test termination Condition OIL No.12 Stop Condition OILNo.13	
OVC HEV	without	refer to step3	RCB break off criteria: OIL No.25 & 25bis Deceleration condition; OIL No.13bis EAER determination OIL No.21 To be discussed based on validation result.	
	with			
	with			
NOVC HEV	without	n/a	n/a	
	with			
	with			

OIL.No31
Low power vehicle

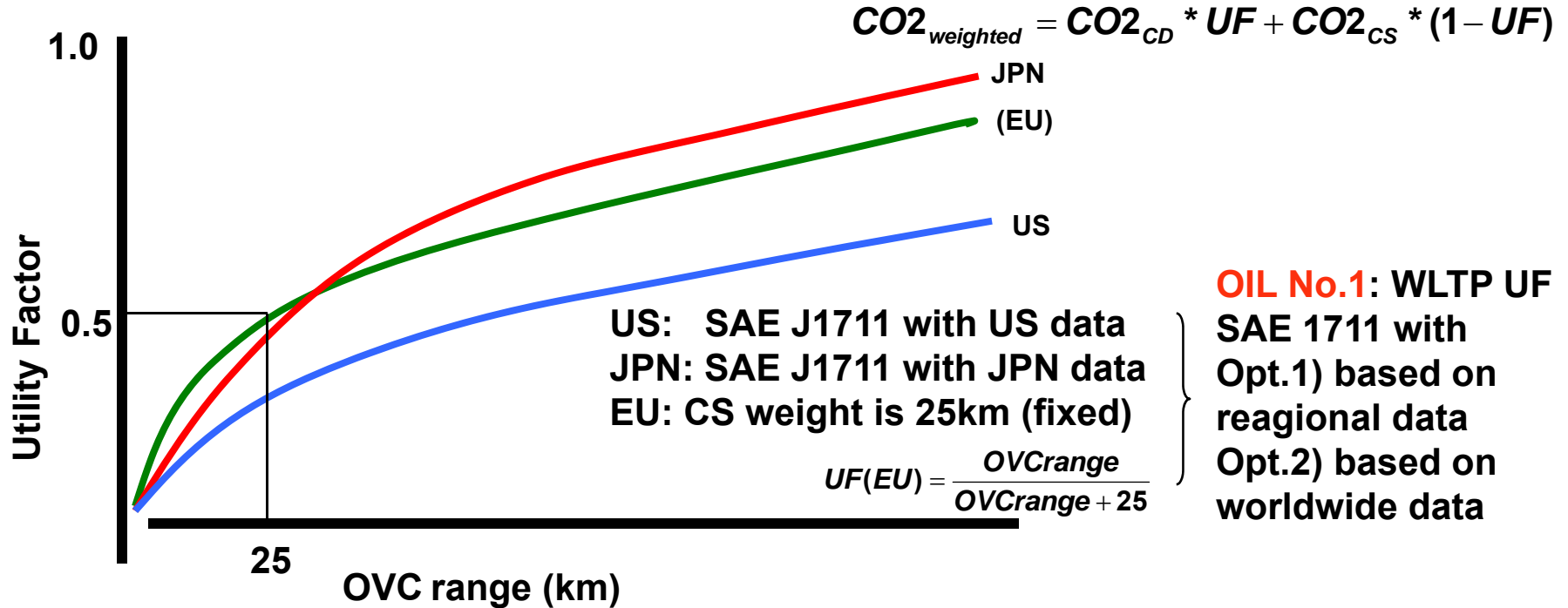
What is Low power vehicle?
How to validate?

To be raised DTP level

	Operation switch	Pollutants	Fuel Consumption	Electric Energy	Range					RCB(DC)	Chaege Duration	others	
					AER	EAER	Rcda	Rcdc	AERcity				
EV	n/a	n/a	n/a	applicable	applicable	n/a					Applicable		
OVC HEV	Without	applicable	applicable	Applicable	Applicable								
	With												
	With												
NOVC HEV	Without	applicable	applicable	n/a									
	With												
	With												

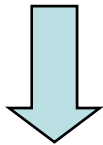
Proposal

Appendix: Utility Factor



	Operation switch	Utility Factor
EV	Without	
OVC HEV	With (incl. pure EV)	<div>To be discussed later stage</div>
	With (no pure EV)	
	Without	
NOVC HEV	With (incl. pure EV)	n/a
	With (no pure EV)	
	Without	

**E-lab subgroup
propose the test
sequence instead of
complete gtr draft.**



See attached file.

“WLTP-DTP-E-LabProc-042 Test Procedure for validation2 rev.xls”

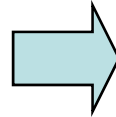
Test Procedure Overview of Electrified Vehicles					
		NOVC HEV	OVC HEV	EV	Remarks
Preparation	Set Vehicle Conditions (weight) Vehicle run-in	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	follow ICE (EV has unique run-in distance)
	Derive R/L	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	follow ICE (apply specific procedure for vehicle dynamometer setting, if necessary)
Charge/Sustaining Mode	Set SOC (follow manufacture recommended procedure)		<input checked="" type="checkbox"/>		
	Drain & 40% fill (1)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		follow ICE if test fuel is already filled in, this sequence may be omitted
	Minimum 6hr Cold Soak if necessary	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		follow ICE, Once a test vehicle has completed this sequence, this step may be omitted in subsequent testing, provided the vehicle remains under laboratory ambient temperature conditions for at least 6 hours before starting the next test
	Vehicle Preconditioning	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		For OVC HEV, test vehicles need to be run under CS mode during preconditioning.
	Drain & 40% fill (2)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		follow ICE
	12-36hr Soak Canister preconditioning	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		follow ICE
	Cold Start Test (CS Operation)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	Intermediate Soak (xx min.) or	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		depend on mode construction
	Hot Start Test (CS Operation)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		can be executed after preconditioning
	Set SOC (discharge driving)		<input checked="" type="checkbox"/> *	(<input checked="" type="checkbox"/>)	
	Drain & 40% fill (1)		<input checked="" type="checkbox"/> *		follow ICE if test fuel is already filled in, this sequence may be omitted
Charge/Depleting Mode	Minimum 6hr Cold Soak if necessary		<input checked="" type="checkbox"/> *		follow ICE, Once a test vehicle has completed this sequence, this step may be omitted in subsequent testing, provided the vehicle remains under laboratory ambient temperature conditions for at least 6 hours before starting the next test
	Vehicle Preconditioning		<input checked="" type="checkbox"/> *		For OVC HEV, test vehicles need to be run under CS mode during preconditioning.
	Drain & 40% fill (2)		<input checked="" type="checkbox"/>		follow ICE
	12-36hr Soak, Full-Charge (AC Wall Energy)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	follow ICE (for OVC HEV, the forced cool down method may not be applied due to battery charge duration, for EV, canister preconditioning is not necessary)
	Cold Start Test (CD / CS Operation including Range Test)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	Full-Charge (AC Wall Energy)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

*) these steps may be omitted if CD test follows by CS test

Open issue list1

DTP#6

Open issues	23
Political issue	1
Agreed or Closed	15
Validation test	3
Total	42



DTP#7

Open Issues	10
Agreed or deleted	19
proposal	2
Validation test	11
Total	42

Green: agreed or deleted

White: to be discussed

Blue: proposal

Yellow: to be confirmed in Validation phase 2

List of main Agreements (A)+ proposals (P)+ open issues (OI)

	tech/polit/overlap	A/P/OI	Item	Issue	Action	Vehicle	Date of discussion
1	political	OI	Utility factor	The us and jp regulation has methods which include statistical analysis. (EU:25km)	These methods will be considered. SAE method is acceptable. But to get the traffic data of all country is too difficult. Result of Stockholm meeting. The formula to calculate CO2 is agreed. How to determine UF is still open issue.	PHEV	1.6.2011->5.7.2011 ->To be discussed
2	tec	A	Energy consumption test condition	"Battery temperature requirements": What does it mean ? -> "T°C of the test" ? need to precise this wording	Follow recommendation from ICE group regarding ambient temperature, in phase 1 only normal ambient temperature and in phase 2 consider cold ambient temperature	EV	agreed
3	tec/Overlap	OI	Road load	* Issue for vehicle with no mechanical neutral gear * consider the charging/recharging electrical energy during deceleration : to guaranty the same behavior on the "road" and on the chassis dyno	Follow recommendations from ICE group except in cases where there are differences for example no mechanical neutral gear. Agreed to consider minimum requirement. This will make flexibility for future technical development and prevent judgment variation by contracting parties. E-Lab subgroup made a proposal for ICE in Stockholm	ALL	9.5.2011->5.7.2011 ->propose to ICE
3 bis	tec/Overlap	OI	Road load	Coast Down Mode : there is a need for a coast down mode and where there are special requirement for electrified vehicles this will be addressed by the Elab subgroup.	To be discussed (see T&E proposal) : ICE proposal ok with a few corrections from E-lab E-Lab subgroup made a proposal for ICE in Stockholm -> To be discussed with ICE group in Bern.	ALL	9.5.2011->5.7.2011 ->propose to ICE
4	tec/Overlap	OI	Weighting factor	The vehicles which have difficulty to follow the prescribed cycle. (like as electrified vehicles for only urban)	follow development in the DHC group. Vehicles that will have problem following the driving cycle will be considered by the DHC group.	ALL	after DHC completed

Open issue list2

	tech/polit /overlap	A/P/OI	Item	Issue	Action	Vehicle	Date of discussion
5	tec	A	Emission worst test	General opinion to avoid to large number of tests. Only Japanese regulation has worst emission test for CD mode	out of GTR scope Japanese worst emission test is out of gtr scope... Same with No29	PHEV	agreed
6	tec	A	Run in mileage	Run in mileage for test	300km or more (Evs) and for PHEVs ? EV:300km or more, PHEV->Follow ICE HEV :Follow ICE	Evs and PHEVs	1.6.2011->agreed
6 bis	tec	New OI	Run in	Battery / ICE operation ratio during vehicle run in for OVC type HEV. Consider the necessity to define the "battery operation ratio" during "run in mileage"	PHEV 1.Vehicle has default mode: Run in should be performed in default mode. 2.without default mode:manufacture recommendation. 3.Run in should be performed with CS mode.	PHEV	9.5.2011->5.7.2011 ->agreed
7	tec	OI for EV and for PHEV	Charging condition	to not regulate the possibility to soak outdoor. (proposed by Jp) : Remark actually maybe still an OI for PHEV (electric range impact) as well. Please to explain which country(ies) has (have) a problem to perform the charge of the battery inside ?	it could be a safety issue for by some contracting parties if we do not allow charging outdoor. Agreement: +/-25degC . To be deleted outdoor condition	PHEV/EV	1.6.2011->5.7.2011 ->agreed
8	tec	A	Charging method	Charging method	Soak time: 12 hr. or more, less than 36 hr. charging time: Stop with full charged. 4.5. The Lab-process group has decided to have 2 alternatives for the soak time: Alt 1: This conditioning shall be carried out for at least six hours and continue until the engine oil temperature and coolant, if any, are within ±2 K of the set point temperature of the room. At the request of the manufacturer, forced cooling down could be used with open bonnet, appropriate use of cooling fan. Alt.2: This conditioning shall be carried out at least 12 hours and maximum 36 hours, with closed bonnet in soak area environment without using a fan. So, before the test CD test for EV and OVC HEV, we propose to keep the choose between both options during the soak time with specific provision for the charge of the battery	PHEV/EV	agreed
9	tec	A- P	Charging time		Upper limit for charging time is 36 hr. To be discussed ICE proposal should be confirmed during validation test	PHEV/EV	1.6.2011 ->Validation test
10	tec	QLP	criteria for end of charging	which is the criteria "plug-off" : indication of charging completed from the vehicle and starting within 1 hour from plug off test procedure shall be applied (ACEA proposal)	Still an open issue. See ACEA proposal To be confirmed during validation test for considering RCB fluctuation from charging completed to plug off.	EV/PHEV	1.6.2011 ->Validation test
10 bis		New OI	criteria for end of charging	see § End of charge criteria : to find a consensus on the "same conditions" before and after the test.	All Charging length : losses issue to deal with as far as energy consumption calculation is concerned. Do we have to take into account such losses in the procedure ? The purpose of such a discussion is to avoid double counting to be confirmed during validation test	EV/PHEV	1.6.2011 ->Validation test
11	tec	P and OI	Interruption condition	Less than 3 minutes interruption is possible for every one cycle. During interruption, main power may be OFF.	still an open issue. Needs the driving cycle from DHC. For range test of EV :3minutes is acceptable(cycle:30min)->Validation test PHEV:to be discussed.	EV/PHEV	1.6.2011->5.7.2011 ->TBD(Validation test)
12	tec	OI	test termination condition	Test termination condition for range measurement	ACEA will make a proposal : Need to know the driving cycle in order to close the open issue. Japan proposed 4 seconds.->TBD To be confirmed in Validation test.	EV/PHEV	9.5.2011->TBD Validation test

Open issue list3

	tech/polit /overlap	A/P/OI	Item	Issue	Action	Vehicle	Date of discussion
13	tec	A	Stop condition	Proposed stop condition :Accel Off ,and press braking pedal when 5 km/h or lower to stop.	agreement	EV	agreed
13 bis	tec/overl	OI	deceleration condition	ACEA proposal to enable OEMs to fully take advantage of regenerative braking potentials, it should be allowed to disengage the clutch at deceleration periods. There may also be conventional ICE vehicle concepts with very long idle ratios where such an disengagement of the	To be discussed (not yet mature. To be reconsidered when the new cycle is known)	ALL	9.5.2014
14	tec	A	Initial Discharge condition	Initial Discharge condition before test. Discharge until manufacture's recommended level	agreement on the proposal and a wish that this should be optional and not a requirement. And also to add temperature condition for the discharge driving (?? To check this requirement --> A priori, the T°C should be the same as the	EV	1.6.2011->agreed
15	tec	OI	Watt-hour meter measurement accuracy	US and JP: +/-2% EU: +/-0.2%	Japan proposed +/-0.2%	EV/PHEV	9.5.2011->5.7.2011 ->TBD(Validation test)
16	tec	OI	Accuracy of ammeter	JP: +/-1% F.S. EU: +/- 0.5%	Japan proposed +/-0.5%. But ACEA coment: +/-0.5% is difficult. -> TBD	EV/PHEV	9.5.2011->5.7.2011 ->TBD(Validation test)
17	tec	OI	LOD of ammeter	JP: 0.0001Ah (<=50A) 0.001Ah(>50A) EU: No regulation	Japan proposed minimum measurable integration amount which regulated Jpn regulation.	EV/PHEV	9.5.2011->5.7.2011 ->TBD(Validation test)
18	tec	A	RCB(SOC)	Definition; Rename " SOC" to "RCB". RESS(Rechargeable energy storage system) ECB(RESS Charge Balance)	To be discussed	ALL	agreed
19	tec	A	RCB(SOC)	For CS mode, it could be necessary to compensate the CO2/fuel consumption based on SOC balance RCB to obtain correct value. (for CD mode, no need to compensate).	Need results about the driving cycle from the DHC group to continue the discussion. Same with No26	PHEV	agreed

Open issue list4

	tech/polit /overlap	A/P/OI	Item	Issue	Action	Vehicle	Date of discussion
20	tec	OI	CD test	calculation method for CD test (fuel consumption)	ACEA Proposal. Agreement on CD test principle as generally described but need further work to complete the details. To use some parts of the US-EPA method : sequential UF by phasis/cycle as to be examined End of test criteria : criteria to be defined based on the NEC ->To be discussed	PHEV	5.7.2011 -> TBD
21	tec	OI	EAER determination : (CO2-related) CO2 compensation for range test	Separation point of CD mode and CS mode in one cycle is agreed but the method on how is still an open issue.	ACEA will make a proposal.	PHEV	5.7.2011 -> Validation test
22	tec	P	Electric range : Shorten the test procedure	Current requirement (full charge to empty) is basic procedure. As an option, need to adapt the shorten procedure to reduce testing burden (i. e. SAE J1634)	To be discussed	EV/PHEV	5.7.2011 -> TBD
24	Overlap with ICE	OI	Ambient Air Correction	Open issue from ICE group. Intake air emission should be subtracted from tail emission.	To be considered. Follow ICE group.	ALL	follow ICE
25	Tec	OI	For detection of CS condition : RCB break off criteria	1) ACEA and JAMA agree on the principle to perform n+1 test sequence to confirm the end of CD test and define the transient cycle as the test n. If the battery energy used during each test sequence is less than a certain value [to be defined in % of fuel consumption], so the cycle before (test n) is the transient one. As an option , the fuel consumption value of the test sequence x could be compared to the fuel consumption measured at CS test. 2) Definition of the break off criteria: ACEA proposal : absolute NEC* as a % of cycle energy demand or % of total energy used (to be discussed) * NEC = Net Energy Change = RCB x nominal voltage of RESS (Proposal to be checked : the test is considered to be	Actions : 1) method to be developed to determine the cycle energy demand and then to define the value ; 2) to check Renault's proposal (26/05/2011) and to reformulate it if any. (The [values] are given as an indication but have to be well defined) ->Need Validation Test to fix the value of NEC.	PHEV	9.5.2011->5.7.2011 -> Validation test
25 bis	New tec	A	For detection of CS condition — RCB break-off criteria	a new O.I. to be discussed with EC / JRC, other experts to find an acceptable way to measure in safety conditions or to pick-up the voltage information from the can-2 If the absolute NEC is not measurable for safety reason and the CAN solution not accepted, we will have to find an alternative proposal	To be measured in Ah	PHEV	9.5.2011->5.7.2011 -> deleted
26	tec	A	RCB correction	Japan proposal: All emissions should be corrected. ACEA proposal: FC/CO2 should be corrected.	All emission should be corrected, excluding no relation with emission value. Need to consider AP constituents including PN/PM.	PHEV	deleted
26	New tec	A	RCB correction	JAMA and ACEA agree to only correct CO2 and fuel consumption. No relevance for pollutant emissions because no relationship between RCB and pollutant emissions	Tests related to CO2 correction factor elaboration are used to show that pollutant emissions comply with the limit values and no relationship with RCB. So, it means that specific tests should not be required for certification test. The non relationship between RCB and pollutants emission can be showed with manufacturers internal data associated to the CO2 measurements	NGVO HEV and PHEV in CS test	5.7.2011-> agreed

Open issue list5

	tech/polit /overlap	A/P/OI	Item	Issue	Action	Vehicle	Date of discussion
26 bis	New tes	OI	RCB correction	Need for a clarification regarding statement from ACEA and JAMA. Both agree that there is no need for pollutants emission correction unless there is evidence for a correction. Remark from ACEA there is the Matador study that could give clarity for the need of a correction. Japan is of the opinion that since there is correction for CO2 there is no extra burden for the manufacturer and that correction for critical emissions could be applied. Comment from Japan: additional pollutants will be regulated in the WLTP process. The Japanese government will require to show the influence of different RCB.	Need of pollutants emissions correction if evidence to be discussed for final clear position. Especially, if there is relationship between RCB and pollutants emissions but in any cases the pollutants emission comply with the limit value: should we need to correct as well? (Zurich) Japan agreed to correct only CO2 and Fuel consumption. If necessary, additional pollutant will be discussed.	NOVC HEV and PHEV in CS test	5.7.2011 ->agreed
27	tec	OI	RCB correction criteria (window definition) CO2-related	ACEA proposed the tolerance a window (% of fuel energy) in which there is no RCB correction. Japan does not agree. But JAMA could agree with ACEA as per a reasonable window definition	ACEA will make a proposal until 18th March: RCB window without correction needed; in case of exceeding the 1% (of fuel energy used) a correction calculation is required.	NOV HEV and PHEV in CS test	5.7.2011 ->Validation test
28	tec	A	CS test achievement: E1/Eq criteria	Only Japanese regulation: if necessary, to confirm E	Japan will confirm the necessity and reason. ->Japan agreed to delete this criteria.	PHEV	agreed
29	tec	A	CD-EM test	Only Japanese regulation has worst emission test for CD mode.	Japanese worst emission test is out of GTR scope.	PHEV	deleted
30	tec	OI	energy efficiency Calculation of electric consumption of CD range	Japan proposal: to be calculated by EAER ACEA proposal: to be calculated by RCDA (or Roda: to be checked)	ACEA/JAPAN will provide the concrete calculation sample, then discuss its advantage/disadvantage ->TBD	PHEV	5.7.2011 ->TBD
31	tec	OI	AER City	There is an interest for EV and OVC HEV with low power engine and even with full capable engine to consider such an electric range like AER city (which means low speed part(s) of the WLTC). As far as NOVC HEV are concerned, we have to consider the interest to get this pure electric driving information with the EU Commission as well.	To discuss with all together and especially along with the European Commission. To be raised DTP level. Definition of low power vehicle. How to validate low power vehicle.	EV/OVC HEV	5.7.2011 ->TBD
32	tec	P	performance info.	additional performance item(s) may be necessary for customer information... e.g. B charge time	EC ask JRC? for study vehicles? To be discussed	EV/PHEV	September
33	tec/overlap	OI	gear box/multi modes	See ICE group proposal according to the presence or not of a default mode: number of tests to perform for pollutants emissions and CO2/fuel consumption ..	ACEA proposed. For OVC HEV, a priori the concept of default mode developed in ICE group is not transposable and to keep the ECE concept (the most electric consuming mode to best match the driving curve in CD test and the most fuel consuming mode to best match the driving curve in CS test), irrespective of the presence of a default mode if any. This preliminary statement has to be confirmed during the validation phase 2 (to check the relevance of such an approach). For NOVC HEV: ICE proposal is transposable. E-lab can support ICE group decision for applications without default mode for NOVC HEV. For EVs: to keep the ECE concept to evaluate electric range and electric consumption (the mode to best match the driving curve in CD test, irrespective of the presence of a default mode if any)	All	1.6.2011 ->Check ICE proposal
34	tec	A	CD test: pollutants emissions compliance	Discussion about requirement on emissions during CD test. The Japanese legislation requires emissions compliance during CD test and the manufacturer is to provide documentation that for different initial SOC there is also compliance with emission standards. ACEA is of the opinion that the GTR requires emissions compliance during all conditions and therefore additional test is not required.	Final decision of the group confirmed on 31/03/2011: agreement to remove such requirement (additional tests) from the GTR and to let it only at the regional request that is to say at the Japanese government request if needed.	PHEV	agreed
35	tec overlap with ICE	OI	12 voltage battery	See ICE proposal and give the E-lab position	To be discussed	HEV/PHEV	TBD
36	tec overlap with ICE	OI	scope of E-lab	Does the group to handle hybrids vehicles as well or hybrids vehicles are part of ICE group?	DTP_E-lab group has to discuss with ICE group		GRPE