D2.2 – Test Procedure, KPI's and Monitoring Plan

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Publishable summary

This document comprises the main test procedures and KPIs developed in Subtask 2.4.1 of work package 2. After compiling, designing and/or studying main key information in cooperation with the OEM's and JRC, a list of tests has been agreed and defined with the purpose of fulfilling the expected impacts of the project central theme.

The document specifies generic and transversal methods that could be applied to the baseline and demonstrator vehicles independently of the powertrain topology, fuel and innovations developed In the LONGRUN project. Additionally, the main KPI's and targets to be fulfilled during the validation, verification and independent assessment for the different test cases based on the project objectives.

The procedures of the following tests used for the Independent Validation and Testing (Task 2.4) are presented along the document, defined below:

- Engine testing
- Powertrain bench test
- Coast down test
- Air drag test
- PEMS emissions test
- On-road Fuel consumption test
- Chassis dyno tests
- NVH test
- Smart & connected strategies evaluation

The following figures show the technologies assessed in the project as well as a wide overview of the testing activities to be conducted for each OEM:

	Assessed technologies		TRUCK				COACH	
			FORD OTOSAN	VOLVO	FPT	DAF	VDL	Irizar
Engine level	Engine improvements	Air management		○	○	○		
		Combustion		○	○	○		
		Friction		○	○	○		
		Downsizing		○				
	48V electrification	e-turbo			○			
		Waste heat recovery			○			
Vehicle level	Hybridization	e-axle (P4)	○					
		e-transmission (P2)		○			○	○
		eFly wheel			○			
	Engine improvements			○	○	○		
	Alternative fuels	HVO	○			○		○
		Alcohol blending		○				
		Biogas			○			
	Advanced strategies	Predictive energy management	○	○				
		Predictive shifting + ecorroll				○		
		Eco routing	○			○	○	○
		Eco driving				○	○	○
		Predictive maintenance					○	○
		Smart HVAC						○
	Aerodynamic improvements					○	○	

Test to be Performed		TRUCK				COACH	
		FORD OTOSAN	VOLVO	CNH INDUSTRIAL	DAF	VDL	Irizar
Fuel consumption, CO2 and pollutants emissions	Vehicle test - Open road	Δ		Δ	Δ	Δ	Δ
	Vehicle test - Test track	Δ		Δ	Δ	Δ	Δ
	Vehicle test - Chassis dyno			Δ	Δ		
	Virtual tests		o				o
	Powertrain bench test		o				
Exterior noise (NVH test)		Δ				Δ	
Engine test - Steady state - 50% BPTE			o	Δ	o		
Engine test - Transient - CO2 and pollutants emissions			o	Δ	o		

Baseline + Prototype	Δ
Only Baseline	□
Only prototype	o

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Project partners:

#	Partner	Partner Full Name
1	FEV	FEV EUROPE GMBH
2	DAF	DAF TRUCKS NV
3	FPT	FPT INDUSTRIAL SPA
4	FORD	FORD OTOMOTIV SANAYI ANONIM SIRKETI
5	IRIZAR	IRIZAR S COOP
6	IVECO	IVECO S.p.A.
7	VOLVO	VOLVO TECHNOLOGY AB
8	VDL	VDL ENABLING TRANSPORT SOLUTIONS BV
10	AVL	AVL LIST GMBH
14	IFP	IFP Enegeies Nouvelles
23	UNR	UNIRESEARCH BH
24	JRC	JRC -JOINT RESEARCH CENTRE – EUROPEAN COMMISSION

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