



**Optimization of scalaBle rEaltime modelS and functiOnal testing for e-drive ConceptS**

**EUROPEAN COMMISSION**

**Horizon 2020**

**GV-07-2017**

**GA # 769506**

<b>Deliverable No.</b>	OBELICS D1.3	
<b>Deliverable Title</b>	Reference use cases and requirements for E-Motor control and inverter design & testing cluster	
<b>Deliverable Date</b>	2018-09-30	
<b>Deliverable Type</b>	REPORT	
<b>Dissemination level</b>	member only (CO)	
<b>Written By</b>	Raúl Estrada Vázquez, Aida Preda, Alfred Steinhuber (FHJ) El-Hassan Ourami, Kazusa Yamamoto (Valeo) Thorsten Fischer (AVL-SFR) Damijan Miljavec (UL)	2018-11-27
<b>Reviewed by</b>	Miran Gaberscek (NIC)	2018-09-20
<b>Approved by</b>	Horst Pfluegl (AVL) – Project Coordinator	2018-12-03
<b>Status</b>	FINAL	2018-12-04



## **Publishable Executive Summary**

The document provides a detailed description of the five use cases that conform the Use Case Cluster 4. Together, these use cases explore the different testing levels required in the development process of inverter, e-motor and their control: from Model in-the-loop (MIL) until testbeds. New testing methods and testing technologies applied at e-motors, inverters and controllers will prove the potential for improvements of performance, efficiency and safety targets.

The advent of new materials and technologies for e-motor, inverters and controller allows improving their efficiency in terms of energy savings and physical dimension, which make them attractive for the automotive industry. However, the development of these new components implies technological challenges that require to re-think the available test procedures in order to optimize them for the intended task.

In particular, the optimization of test procedures dedicated to the efficient development of high frequency inverters and the analysis of electrical and thermal aspects for new e-motors and inverters are the main motivators for the different use cases of cluster 4.