



# REWARD

REal World Advanced Technologies foR Diesel Engines

EUROPEAN COMMISSION

Horizon 2020

H2020-MG-2014-2015

GA No. 636380



<b>Deliverable No.</b>	REWARD D5.9	
<b>Deliverable Title</b>	Implementation of OBD and control algorithms in the engine ECU	
<b>Deliverable Type</b>	REPORT	
<b>Dissemination level</b>	Confidential – member only (CO)	
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<b>Status</b>	<b>Final</b>	2018-03-13
<b>Checked by</b>	Ludwig Bürgler (AVL) WP5 Leader	2018-02-28
<b>Submitted to Executive Board</b>	Ludwig Bürgler (AVL) WP5 Leader Submitted to meeting EB27	2018-03-05
<b>Approved by Executive Board (EB)</b>	Approved and accepted by all members of Executive Board	2018-03-12

H2020-MG-2014-2015 – 636380 – REal World Advanced Technologies for Diesel Engines

**Acknowledgement:**

The author(s) would like to thank the partners in the project for their valuable comments on previous drafts and for performing the review.

**Project partners:**

- 1 - AVL - AVL List GmbH - AT
- 2 - REN - Renault SAS - FR
- 3 - VCC - Volvo Car Corporation - SE
- 4 - CRF - CRF SCpA - IT
- 5 - CNRIM - Istituto Motori – Consiglio Nazionale delle Ricerche (CNR) - IT
- 6 - JM - Johnson Matthey Plc - UK
- 7 - RIC - Ricardo Plc - UK
- 8 - SCF - Schaeffler Technologies AG & Co. KG - DE
- 9 - LMM - Le Moteur Moderne - FR
- 10 - DELPHI - Delphi Automotive Systems Luxembourg S.A. - LU
- 11 - UNR - Uniresearch BV - NL
- 12 - IFPEN - IFP Energies Nouvelles - FR
- 13 - VIF - Virtual Vehicle Research Center - AT
- 14 - CTH - Chalmers Tekniska Högskola - SE
- 15 - CTU - Czech Technical University - CZ
- 16 - UPVLC - Universitat Politecnica de Valencia – Motores Termicos - ES

**Disclaimer:**

*This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 636380.*



## **Publishable Executive summary**

Because of part-to-part dispersions and extended RDE conditions, engine out emissions of Diesel engines are more and more scattered. In parallel, in-cylinder pressure sensor is a mature technology and can be used in control strategies to increase robustness of the systems. In order to go further than simply regulate the system over the few well known combustion parameters, this study suggests to exploit all the information included in the cylinder pressure trace. Through mathematical dimension reduction method, the cylinder pressure trace is reduced to few parameters, without loss of information. In order to evaluate the potential of such a method to be a solution for OBD or control purpose, we analyze the correlation between the parameters and the engine outputs, using mathematical modeling such as artificial neural networks or krigging models.