



# **On-board fuel consumption monitoring devices for assessing real-world CO<sub>2</sub> emissions**

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Roadworthiness Committee Meeting  
Brussels, 24 June 2019

**Climate  
Action**

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# **EU Regulations setting road CO<sub>2</sub> emissions standards**

## New regulations setting post-2020 CO<sub>2</sub> emissions standards

	LDV (cars and vans)	HDV
	Regulation 2019/631 setting post-2020 CO <sub>2</sub> emission performance standards	Regulation 2019/XXX setting CO <sub>2</sub> emission performance standards
Target 2025 (reduction vs. baseline)	-15%	-15%
Target 2030 (reduction vs. baseline)	-37,5% cars -31% vans	-30%
Baseline year	2021	2019

*Targets are based on type approval CO<sub>2</sub> values, not real-world emissions*

# Type approval procedure at a glance

Compliance with targets verified on basis of emissions determined at type-approval

**LDV**



Type approval by testing on chassis dynamometer (whole vehicle) based on WLTP procedures.

**HDV**



Type approval based on VECTO simulation tool as a 'virtual laboratory' to determine fuel consumption and CO<sub>2</sub> emissions

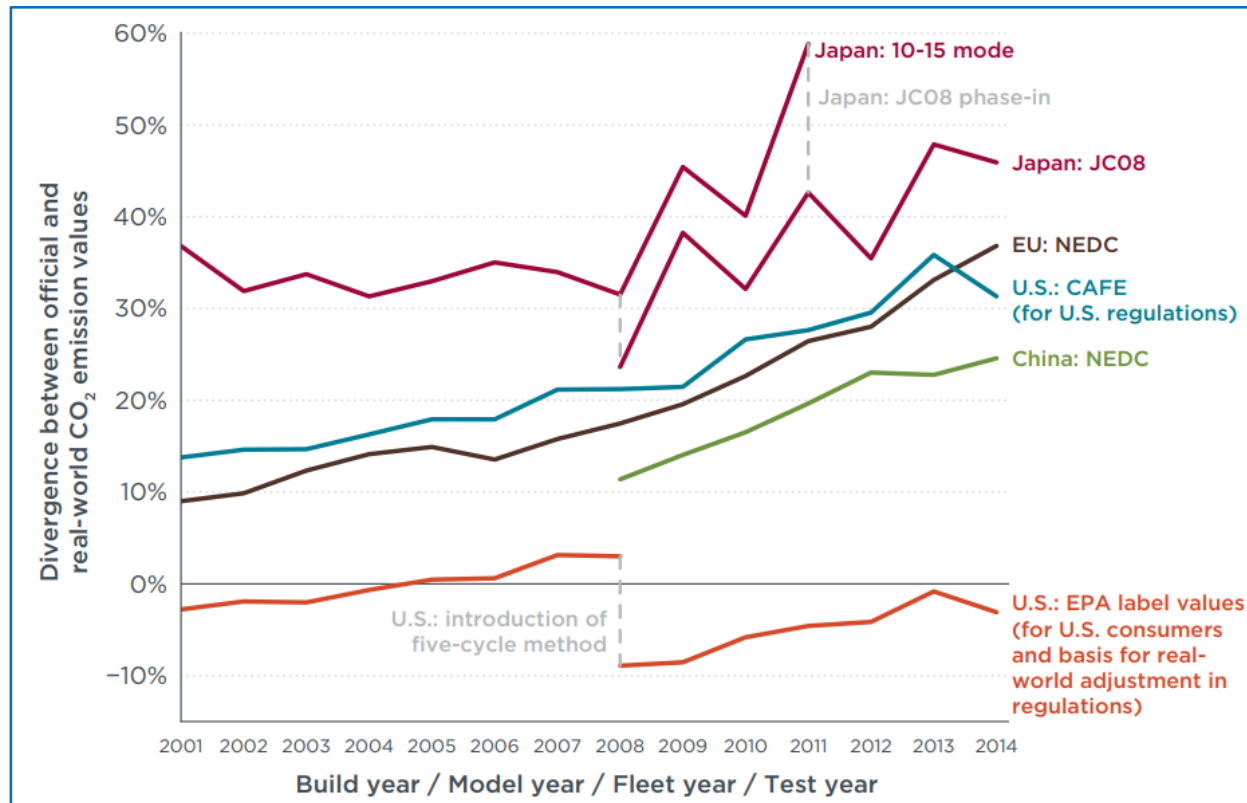
Laboratory  
concept  
tests

How representative are the type approval drive cycles of real-world operation?

To what extent are vehicles placed on the market conform to the reference vehicles tested at type approval?

Software-  
based tests

# The gap between real-world and laboratory testing values



*For LDV only*

*HDV: To be determined*

Source: Tietge et al. (2017)

*Key vehicle markets except for the US show an increasing gap between real driving and tested results in LDV of more than 10%, diverging to as high as 50%.*

## Provisions from the new Regulations setting post-2020 CO<sub>2</sub> emissions standards

	LDV	HDV
	Regulation 2019/631 setting post-2020 CO <sub>2</sub> emission performance standards	Regulation 2019/XXX setting CO <sub>2</sub> emission performance standards
MS monitoring and reporting of 'type-approval' emission values	X	X
<b>Provisions on real-world emissions</b>		
Commission shall monitor/collect on-board fuel consumption through OBFCM devices with the aim of ensuring the real-world representativeness of the type approval emission values over time	From 01/01/2021 (OBFCM requirement is already in place under type approval legislation)	Date to be established, once requirement of having OBFCM installed is applicable for new vehicles
Commission shall inform the public of how real-world representativeness evolve over time	X	X

# Real-world CO<sub>2</sub> emissions monitoring



# Real-world CO<sub>2</sub> emissions monitoring

## Why?

- To ensure that Certification Procedure results in CO<sub>2</sub> emission values that are representative of real-world emissions

*In order to prevent the real-world emissions gap from growing, the Commission shall (...) assess how fuel and energy consumption data may be used to ensure that the vehicle CO<sub>2</sub> emissions and fuel or energy consumption values (...) **remain representative of real-world emissions** over time for each manufacturer.*

*The public will be informed of how the real-world representativeness evolves over time.*

*Adapted text from both Regulations setting HDV and LDV CO<sub>2</sub> emission performance standards*

# Real-world CO<sub>2</sub> emissions monitoring

How?

- Collecting regularly data from **OBFCM** monitoring devices

*The Commission shall monitor and assess the real-world representativeness of the CO<sub>2</sub> emissions and energy consumption values (...)*

*Furthermore, the Commission shall **regularly collect data** on the real-world CO<sub>2</sub> emissions and energy consumption using **on-board fuel and/or energy consumption monitoring devices** (...)*

*Adapted text from both Regulations setting HDV and LDV CO<sub>2</sub> emission performance standards*

*The intention is not knowing the emissions of EVERY vehicle, but to count on a trusted anonymized aggregated data set to check how the real-world emissions evolve over time*

# Real-world CO<sub>2</sub> emissions monitoring

## What?

*The Commission shall ensure that the following parameters are made available at regular intervals to it, from **manufacturers, national authorities or through direct data transfer from vehicles**, as the case may be:*

- a) vehicle identification number*
- b) fuel and/or electric energy consumed*
- c) total distance travelled*
- d) payload [only for HDV]*
- e) for externally chargeable hybrid electric vehicles, the fuel and electric energy consumed and the distance travelled distributed over the different driving modes;*
- f) other parameters necessary (...)*

*Adapted text from both Regulations setting HDV and LDV CO<sub>2</sub> emission performance standards*

## Options currently under study for data collection and processing

- **Direct transfer from vehicle** to the Commission Over-The-Air (SIM card, mobile, wi-fi...)
- **Vehicle manufacturers** to collect the required data and report to the Commission.
- **National authorities** to collect periodically the required data, for example as part of the **PTI**, and report to the Commission (this is the “front runner option” for HDV)
- Regular "ad-hoc" fleet **sampling** from a variety of operators.

## OBFCM data & PTI

- **For HDV:** implementation by 2025 (or earlier)
- **PTI services** must read out information with suitable scan tool, normally the same used also for other PTI purposes
- **Electronic reporting** of OBFCM data from PTI services to European Environmental Agency (EEA), possibly via national contact points etc. (tbd)
- **Legal requirements** to be set by implementing legislation under HDV CO2 Standards, implementing amendments to 2014/45/EU or a combination of both. Point is to keep it as simple and transparent as possible.

## In brief

- The Commission is empowered to develop implementing legislation setting out the procedures for real-world fuel consumption data collection and processing from new LDV and HDV using the on-board fuel consumption monitoring devices
- Several options currently under study: PTI is one of them
- Key aspects to consider: need to ensure data integrity, reliability, minimise administrative costs/burden
- PTI seems particularly attractive for HDV in view of the annual inspection requirement from year 1 on
- Potential concerns around PTI option: need of updated tools and training, administrative burden and related costs

## What we would like from you

- Feedback on practicability or constraints of using PTI for fuel consumption data collection and reporting purposes
- Any other contribution to the discussion



# Thank you!

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