

Vehicle emissions discussion paper, The Australian Government

Response from Brake, the road safety charity, 6 April 2016

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Introduction

Brake is a road safety charity working towards a vision zero approach for road casualties and also for emissions from vehicles that contribute to global warming, health-damaging particulate emissions, and consequential illness, death, and lack of active travel choices. Brake's vision is a world with transport that is safe, sustainable, healthy and fair for all.

For more information about our work see brake.org.nz and brake.org.uk

The Brake response

The central and pressing issue with regard to vehicle tailpipe emissions is the often very large difference between laboratory regulation testing (type-approval in the EC or ADR in Australia) and real world emission performance levels. In other words vehicles can generate 20 or 30 times the levels of some pollutants when measured under normal driving conditions compared to the regulatory limits.

The VW case¹ resulted in a notice of violation due to use of a "defeat device", but there are permitted strategies and devices that are allowable within the current UN regulations. These enable a manufacturer to protect the engine and/or after-treatment system (the system that treats post-combustion exhaust gases prior to tailpipe emission) under certain conditions, by allowing the engine management system to change the running characteristics of the engine. Invariably under these conditions this means that emissions will significantly exceed the regulatory limits (petrol and diesel powertrains).

The conditions that warrant protection of the engine can be determined by relatively 'normal' events, for example the ambient temperature – in other words, once the vehicle is not operated at a fixed temperature in a laboratory, following a certain driving cycle on a dyno (rolling road), it may 'protect' itself and operate differently.

In reality this means that current vehicle emission requirements are theoretical only, and do not reflect real world driving conditions or performance.

There have been big improvements, in the lab and on the road as the Euro standards (currently Euro 6) have been introduced. Euro 6 vehicles are significantly better than Euro 3 or 4. However, to achieve the intended emission standards prescribed by the regulatory laboratory based tests on the road requires the introduction of the new real driving emissions (RDE) tests. These will determine whether a new car model is allowed to be put on the market based on on-road emission performance; see:

http://europa.eu/rapid/press-release_IP-15-5945_en.htm

Page 31 of The Australian Government's Vehicle Emissions Discussion Paper says:

¹ <https://www.epa.gov/vw>

“The Australian Government is engaging with international regulators through the UN World Forum for the Harmonisation of Vehicle Regulations to explore options for an international standard for on-road testing based on the Real Driving Emissions (RDE) test recently agreed in the EU. An international on-road test would complement planned changes to laboratory testing such as the new Worldwide Harmonized Light Vehicles Test Procedure, which is expected to be adopted in EU and UN vehicle regulations by the end of 2017. The RDE test would help ensure vehicle designs optimised for laboratory testing would also achieve an appropriate level of performance on-road and would also improve detection of defeat devices.”

It is Brake’s view that all world regions must without fail adopt RDE to have the desired effect of reducing real world vehicle tailpipe pollutants (especially for NOx and particles from diesels) if we are serious about protecting the environment and emissions generally and improving the adverse public health effects and the millions who suffer premature death consequently. The World Health Organisation estimates that one in eight worldwide deaths (seven million premature deaths a year) are due to air pollution, with transport being a major contributory factor.²

Pollutant limits need to be set at stringent levels and there should be an “introduction timetable” so manufacturers match the limits used in the laboratory today on the road.

While it is not realistic to expect the same performance on the road as measured in the lab immediately, the timescale must be challenging and the penalties for non-compliance within that time table must be large.

The EC has made some progress regarding setting deadlines. For diesel cars the maximum conformity factor is 2.1 x lab limits by 2017 and 1.5 x lab limits by 2020.

Brake would support a United Nations agreement that all new vehicles worldwide must meet lab limits by 2022 (1.0 x lab limits) and all vehicles on roads must meet these limits by 2025.

In addition, RDE regulations must include a requirement that manufacturers demonstrate performance over a wide range of operating conditions – especially different ambient temperatures, ranging from 0°C - 30°C. Otherwise there is a danger that all vehicles will be tested on roads and in temperatures that best match lab conditions, and not on the roads and in the variety of temperatures experienced around the world.

Brake urges the Australian and New Zealand governments to lead the way and implement urgent measures in line with the above recommendations to achieve vehicles which pass RDE requirements in a variety of different temperature conditions.

It should also be recognised by the Australian Government that there are other pollutants to worry about, including from tyre particles, waste fluids etc, not included in the scope of this discussion document.

² <http://www.who.int/mediacentre/news/releases/2014/air-pollution/en/>