



Open letter to all European Union Type Approval Authorities:
Some Euro 6d-Temp and Euro 6d vehicle families
showing high on-road NO_x emissions

Gothenburg, 21 June 2023

According to Commission Regulation (EU) 2017/1151, as amended by Regulation (EU) 2018/1832, **granting Type Approval Authorities ('TAAs') must carry out independent in-service conformity ('ISC') testing of a minimum sample of vehicles** they have certified against RDE standards. In order to select vehicles for ISC testing, **granting TAAs are required to collect all relevant information regarding possible issues of emission non-compliance with vehicle families they have certified** and *“take into account in particular information indicating vehicle types with high emissions in real driving conditions. That information shall be obtained through the use of appropriate methods, **which may include remote sensing, ...**”* (see Article 9 and Annex II, Part B, para 4 of Regulation 2017/1151, as amended).

In several remote sensing campaigns recently conducted in the European Commission funded Horizon 2020 project CARES (<https://cares-project.eu/>), **we found some Euro-6d-TEMP and Euro-6d diesel car families with comparatively high on-road NO_x emissions: Euro 6d-TEMP and Euro 6d engines from Hyundai Motor Company (with approx. 1600 cm³ displacement), Euro 6d-TEMP engines from Ford (with approx. 2000 cm³ displacement), and Euro 6d engines from PSA, now renamed Stellantis, (with approx. 1500 cm³ displacement) show several times higher emissions than the best families in class; moreover, their NO_x emissions under urban driving conditions are also elevated compared to the respective RDE limit (see charts below).** These excess emissions pose a serious risk to people's health across the region and **suggest that the relevant vehicle families may not comply with ISC requirements to effectively limit emissions** throughout the normal life of the vehicles under normal conditions of use (see Article 4(2) of Regulation 2007/715).

The data summarizes measurement campaigns conducted in Italy, Poland, and the Czech Republic in 2021 and 2022 – our full report is available for download here: <https://cares-project.eu/high-emitter-profiles/>

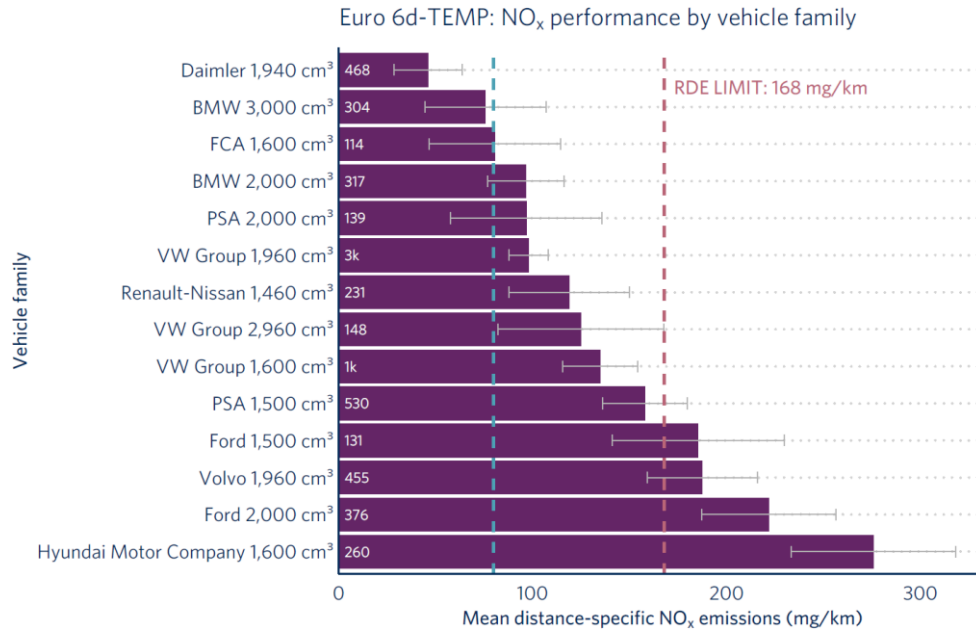


For us researchers, it has been impossible to link the vehicle models to specific Portable Emission Measurement System (PEMS) families and responsible type-approval authorities. Therefore, we send to all EU type approval authorities the list of vehicle families — defined as unique combinations of fuel type, Euro standard, manufacturer group, and engine displacement — **asking each type-approval authority to use this information to link it to the respective PEMS families**, which you have certified for the European market, **and to take appropriate action.**

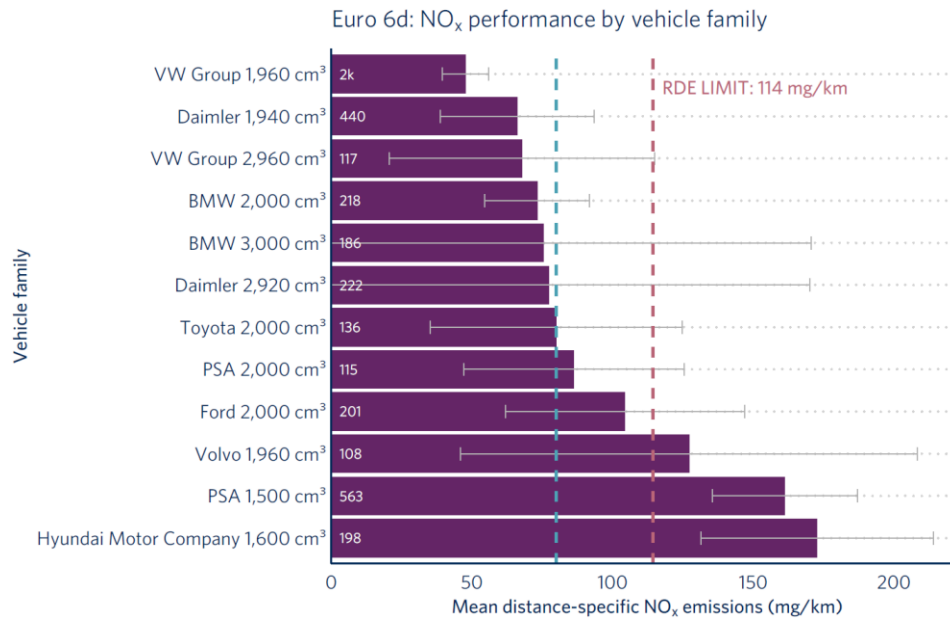
On behalf of the Horizon 2020 CARES consortium - yours sincerely,

Åke Sjödin
CARES coordinator
IVL Swedish Environmental Research Institute

Charts: Average NO_x emissions per vehicle family



Calculated average NO_x emissions (mg/km) from **diesel Euro 6d-TEMP** vehicle families as measured by remote sensing during CARES campaigns in Krakow, Milan, and Prague. The blue dotted line refers to the type-approval limit of 80 mg/km and red dotted line to the RDE limit of 168mg/km. Whiskers indicate the 95% confidence interval of the mean. Only vehicle families with 100 or more measurements are presented.



Calculated average NO_x emissions (mg/km) from **diesel Euro 6d** vehicle families as measured by remote sensing during CARES campaigns in Krakow, Milan, and Prague. The blue dotted line refers to the type-approval limit of 80 mg/km and red dotted line to the RDE limit of 114.4 mg/km. Whiskers indicate the 95% confidence interval of the mean. Only vehicle families with 100 or more measurements are presented.

The following table shows the used **taxonomy of vehicle families**, including vehicle makes that belong to each manufacturer group.

Manufacturer group	Vehicle make
BMW	BMW
	Mini
Daimler	Mercedes
	Smart
FCA	Abarth
	Alfa Romeo
	Chrysler
	Dodge
	Ferrari
	Fiat
	Jeep
	Lancia
	Maserati
	Ford
General Motors	Cadillac
	Chevrolet
Hyundai Motor Company	Hyundai
	Kia
Honda	Honda
Mazda	Mazda
Mitsubishi	Mitsubishi
PSA	Citroën
	DS
	Opel
	Peugeot
	Vauxhall
Renault-Nissan	Dacia
	Infiniti
	Nissan
	Renault
Saab	Saab
Subaru	Subaru
Suzuki	Suzuki
Jaguar Land Rover	Jaguar
	Land Rover
Toyota	Daihatsu
	Lexus
	Toyota
Volvo	Volvo
VW Group	Audi
	Bentley
	Porsche
	SEAT
	Škoda
	Volkswagen



CARES partners:



CARES is a research project funded under the European Union Horizon 2020 Research and Innovation programme. The project brings together **European and Chinese experts in non-intrusive vehicle emission measurements, from 20 partner organizations,** to investigate the use of different remote sensing techniques for monitoring real-world vehicle emissions performance and enforcing compliance with exhaust pollutant standards. The goal of the CARES project is to lower barriers to the widespread use of these technologies through a combination of technology development, new analysis techniques, proof-of-concept demonstrations, and extensive dissemination of results, findings, and guidance. The project was coordinated by the IVL Swedish Environmental Research Institute and ran from May 2019 through April 2023.



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List of type approval authorities this letter is being sent to:

Vlaamse overheid, Departement Mobiliteit en Openbare Werken, Afdeling Vlaams Huis voor de Verkeersveiligheid, Cel Homologatie, Graaf de Ferrarisgebouw, Koning Albert II laan 20 (bus 2) 1000 Brussel, Belgium
homologatie.voertuigen@mow.vlaanderen.be

SPW, Département de la Réglementation et de la Régulation des transports – Direction de la Réglementation des Véhicules et de la Certification Boulevard du Nord 8, B-5000 Namur, Belgium
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Ministerstvo dopravy (Ministry of Transport)
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1 Swift Square, Northwood, Santry Dublin 9, Ireland
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Directorate of Vehicles' Technology (D34) 2, Anastaseos & Tsigante Str.
GR-156 69, Papagou, Greece
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Direction Générale de l'Energie et du Climat
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Centre National de Réception des Véhicules
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State Office for Metrology, Independent service for type approval of motor vehicles
Capraška 6, 10 000 Zagreb, Croatia
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Ministero delle Infrastrutture e dei Trasporti Dipartimento per i trasporti, la navigazione, gli affari generali ed il personale, Direzione Generale per la Motorizzazione - Divisione 3: Omologazioni, Via Giuseppe Caraci 36 - 00157 Roma, Italia
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Lietuvos transporto saugos administracija (Lithuanian Transport Safety Administration)
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Société Nationale de Certification et d'Homologation (SNCH) (S.A.)
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IMT – Instituto da Mobilidade e dos Transportes, IP (Institute of Mobility and Transport)
Av. das Forças Armadas, 40, 1649-022 Lisboa, Portugal
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Registrul Auto Roman (Romanian Automotive Register) - Departamentul Omologare de Tip - (Type- Approval Department), Calea Griviței 391A, sector 1, 010719, Bucharest, Romania
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Javna agencija Republike Slovenije za varnost prometa (Traffic Safety Agency)
Kotnikova ulica 19a, SI – 1000 Ljubljana, Slovenia
gp.avp@avp-rs.si

Ministry of Transport and Construction of the Slovak Republic, State Transport Office
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taa@mindop.sk <http://www.mindop.sk>

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In addition, this letter is being sent to the European Commission:

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