



REAL-E

A smart, on-board connected system for measuring pollutant emissions

REAL-e is the result of synergies unlocked between Capelec's gas analysis expertise and pollutant emission models developed by Carnot IFPEN TE as part of the Carnauto initiative. It produces exhaustive and reliable mass measurements of car pollutant emissions that are independent of the figures produced by carmakers.

Carnot Carnauto initiative

Scientific / technological breakthrough

Roadworthiness testing of passenger cars in France uses exhaust gas analysers that measure a tiny part of the gas emissions of a stationary vehicle. These systems are incapable of measuring pollutant emissions based on traffic conditions, driving style or type of journey. REAL-e is no bigger than a suitcase but it contains an exhaust gas analyser (CO, CO₂, NO_x, PN, NH₃) connected to an EOBD dongle which reads the vehicle's settings and geolocalises and collates the data before sending it to the cloud. These measurements are then fed into digital emissions models and the resulting data is enriched, contextualized and compared to the emissions of a nominal digital twin of the same vehicle. The tested vehicle may then be either "passed" or sent back for additional testing.



Competitive advantage for the economic stakeholders

REAL-e can be effectively positioned somewhere between a "pollutant radar" (i.e., quick and simple but one-off and not very accurate) and the measurements used for accreditation purposes (PEMS: Portable Emissions Measurement System). REAL-e provides a cost-effective solution for measuring vehicle emissions under real conditions, for vehicle development, market surveillance or "in-service conformity" pursuant to RDE regulations (Real Driving Emissions). All of these three focuses represent new markets for CAPELEC, a well-established player in vehicle roadworthiness testing.

Partnership

- CAPELEC is an SME created in Montpellier in 1989. It designs and manufactures electronic measuring instruments for vehicle test centres, workshops, carmakers and transporters.



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