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INVESTIGATIONS OF VEHICLE EXHAUST EMISSIONS WITH USE PEMS

¹Gis Wojciech, ²Merkisz Jerzy, ²Pielecha Jacek

¹Motor Transport Institute, Poland, ²Poznan University of Technology, Poland

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ABSTRACT – The road tests in real traffic conditions are the most desirable because it is the only way to obtain information about the vehicle real emissions. Portable measurement systems for testing the exhaust emissions from vehicles in real traffic conditions – PEMS in short (Portable Emissions Measurement Systems) allow a measurement of the exhaust gas components in both laboratory and road conditions from vehicles fuelled with gasoline, diesel, LPG, LNG, CNG including hybrid systems. The paper presents comparative tests of the exhaust emissions (CO, CO₂, THC, NO_x) from vehicles on a chassis dynamometer, with the use of modern testing devices – a mobile analyzer for tests of emissions under real road traffic conditions (SEMTECH DS by SENSORS). The study also presents the results of the vehicle emission tests in road conditions. The tests were carried out on road portions of several to a hundred kilometers in different road conditions. They include the information on the emission level of vehicles in operation and deal with real conditions of the vehicle in motion. In order to measure the concentration of the individual emissions the said mobile analyzer SEMTECH DS was used. The data sent directly from the vehicle diagnostic system to the central unit of the analyzer and the use of the GPS were used as well. In the study the results of the vehicle emission tests in the road conditions were presented as the only way to obtain the information on the actual vehicle emissions. They include the information on the emission level of the vehicles in operation and deal with the real conditions of the vehicle in motion.