

Bus Research and Testing Program

Heavy-duty Chassis Dynamometer and Emissions Testing Facility

Objective

Measure the tail pipe emissions, including particulates, carbon monoxide, oxides of nitrogen, hydrocarbons and carbon dioxide from transit buses and heavy-duty vehicles when they are tested on simulated driving cycles on a chassis dynamometer.

Equipment Overview

The facility includes a heavy-duty chassis dynamometer, required for conducting these tests, as well as a heavy-duty diesel and gasoline dilution tunnel and related emissions measuring equipment. The emissions test facility has been operational since December 2009.

Chassis Dynamometer (Horiba ATS)

- 72-inch rolls
- 300 HP continuous absorption capacity
- 25-ton inertia capability
- 30-ton axle capacity
- 80 mph speed
- Simulated road load curve
- Test cycle simulation with driver aid

Emission Equipment (Horiba ATS)

- Full-scale dilution tunnel, up to 4000 scfm
- Dilution air HEPA filtered and conditioned
- CO₂, CO, HC, NO_x, and particulates
- Fuels: Diesel, gasoline, CNG, propane, LNG, LPG, ethanol, and hybrid energy
- CFR 1065 capability
- Aerovironment AV-900 power processor

Test Track Facility



Mack Truck on Chassis Dynamometer



Vehicle Testing Laboratory



Chassis Dynamometer



Facility Layout



Potential Research Opportunities

- Real-world emissions tests on medium- and heavy-duty vehicles
- Hybrid medium- and heavy-duty vehicles emissions and fuel consumption studies
- Emissions and fuel consumption studies for different driving cycles, steady state and transient
- Multiple fuels capability including diesel, gasoline, CNG, propane, LNG, LPG, ethanol, and hybrids
- Pre- and post-catalyst tests to evaluate performance of catalytic converter

Program

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