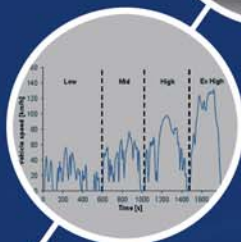
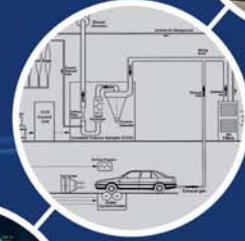


# Proficiency Testing on Emissions and Fuel Consumption



**CU  
NA**

**Commissione Tecnica  
di Unificazione  
nell'Autoveicolo**

*Ente federato all'UNI*

## Who is CUNA

CUNA is a non-profit association federated to UNI (Italian National Standardization Body). CUNA is in charge for representing the national stakeholders in CEN and ISO standardization organization on several fields related to automotive sector. CUNA also contributes to finding appropriate solutions for the quality-related topics in the automotive sector and organizes proficiency testing since more than 30 years to help stakeholders to improve their quality management.

## What is a Proficiency Testing

Proficiency Testing, or PT, is the testing of unknown items sent to a set of laboratories by a PT Provider, or PTP. Most PTs are organized on a regular basis (once or twice per year). After testing, the laboratories send their results to the PTP, who makes a statistical comparison and analysis of data using an agreed set of tools. Results of the interlaboratory comparison, scores and evaluation of performances are sent to laboratories to routinely monitor their performances.

## Why is a PT important

PT is important because it is a tool the laboratory can use to verify the accuracy and reliability of its testing and can also be used to validate the entire testing process, including competency of its testing personnel. Routine reviews of PT reports by the laboratory staff will alert for any areas of testing that are not performing as expected as well as indicate subtle shifts and trends that, over time, would affect their results.

## Type of tests

1) Vehicles:

Type-approval like driving cycles on roller test bench using standard and portable emission laboratory equipment (bags, PEMS).

2) Gases:

Measurement of the concentrations using laboratory analysers.

## Timing

The usual timing to complete a proficiency testing round is currently about 12 months.

## Current number of participating laboratories

Around 15 to passenger cars activities

Around 10 to motorcycle activities

Around 25 to gas mixtures activities

## Current testing items

- 1) Vehicles:
- Petrol passenger car
  - Diesel passenger car
  - Hybrid passenger car (HEV, PHEV)
  - Full electric passenger car (BEV): testing procedure under development
  - Petrol passenger car for evaporative emissions (shed): testing procedure under development
  - Motorcycle (emissions and shed)

**Vehicles are supplied by vehicle manufacturers participating to PTs.**

- 2) Calibration gases mixtures cylinders:

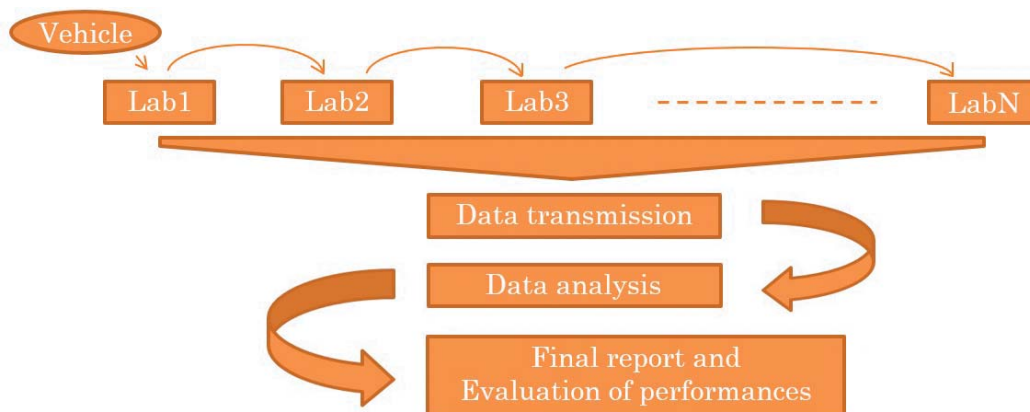
- CO, NO<sub>x</sub>, C<sub>3</sub>H<sub>8</sub>, CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, NH<sub>3</sub>

**Gas mixtures are prepared by gas suppliers participating to PTs.**

## Current PT rounds designs

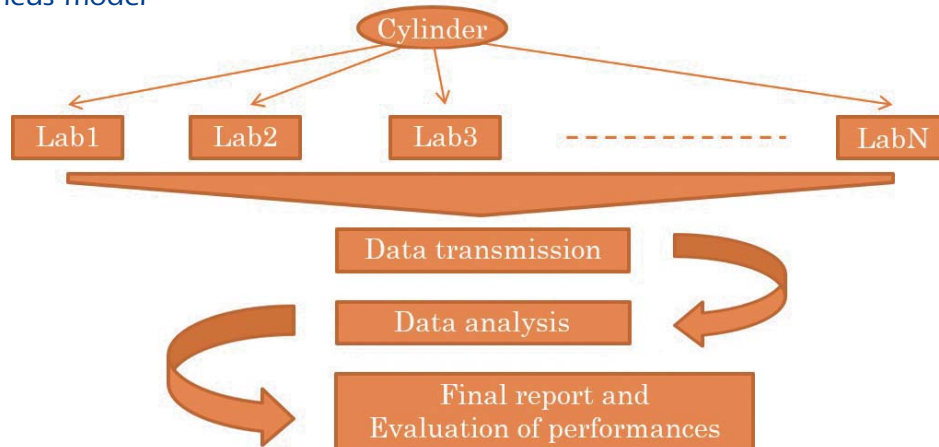
- 1) Vehicles (cars and motorcycles)

Measurement of emission on type-approval like driving cycles on roller bench dynamometer  
Sequential model



- 2) Calibration gas mixtures

Measurement of the concentrations of calibration gas mixture on analysers  
Simultaneous model



## Opportunities for laboratories

- Monitoring of laboratories performances on an ongoing basis
- Identification of any problems in the laboratories and equipment for improvement actions
- Effectiveness and comparability of tests and measurements methods
- Additional trust for the customers of the laboratories
- Sharing of best practices on the testing procedures and equipment
- Assessment of the methods and analytic equipment
- Optimisation and validation of the analytic process
- Training and development of laboratories and their personnel
- Test bench for sector updates
- Facilitation for accreditation/certification of the laboratory according to ISO 17025, IATF 16949
- Interaction and comparison with other relevant laboratories in Europe

## CUNA activities as PT Provider

- Coordination of laboratories for definition of testing procedures in dedicated working group
- Management of procedures according to ISO 17043
- Centralised management of transportation for vehicles, fuels and gas mixtures
- Interlaboratory comparison activity continuously monitored with information to participants
- Resolution of technical issues
- Timeline agreed with laboratories
- Statistical data processing and analysis
- Release of Final Report
- Release of Participation Sheet
- Online portal with PT information and historical data

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