Standardised On-Road Test Cycles - SORT

A project of the UITP Bus Committee
in collaboration with manufacturers
TEC Urban Cycle

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RATP Aqa 21 Cycle

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Evobus Cycle
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Objectives

- Ecological
- Normative
- Technical
- Contractual
- Economical

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Ecological reasons

- (pollution)
- consumption
- new technologies - results
  - reliability
  - comparability

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Normative reasons

- Limited relevance of EC norms
- "13 mode" test
- new European cycles

⇒ need to test entire vehicles
  - (results expressed in g/k)
  - real operation conditions
  - objective comparison

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Technical reasons

• Large array of cinematic chains possible for same vehicle
• Simplify process of vehicle choice and optimisation
• Avoid quick conclusions in bids
• Availability of comparative information
  - between models
  - between technologies

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Contractual reasons

- Guarantees on performances consumption
- Possibility to compare bids
- Relevance of a contractual cycle

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Economical reasons

- Minimise operation costs
- Minimise costs for official acceptance and conformity control tests

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Standardised on-road cycles
=
Advantage for all parties

- Operators
- Manufacturers
- Certifiers

But issues remain to be solved....

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Vehicle Performance

- Vehicle load
  - Boarding time

- Line Topography
  - Acceleration

- Obstacles – Congestion - Stops
  - Agreed speed

COMMERCIAL SPEED

CONSUMPTION

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CONSUMPTION IS STRONGLY INTERTWINED WITH COMMERCIAL SPEED (Source: RATP)

Numbers indicate line identification.
• How to design cycles suitable to all?
  • Condition for large scale use
• How to neutralise external factors?
  • Condition for repeatability
• How to design simple cycles?
  • Feasibility condition
Quality of cycles

- representative
- normative
- repeatable
- easy to use

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Cycles

Section 1
Section 2
Section 3

ST OP

Module 1
Module 2

COMPLETE CYCLE

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Urban Operation   Suburban Operation

Heavy urban       Easy urban       Suburban

12 km/h           17 km/h          27 km/h

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Heavy urban Cycle

Better mobility for people worldwide
Better mobility for people worldwide
Suburban Cycle

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Urban Operation  Suburban Operation

Heavy urban  Easy urban  Suburban

12 km/h  17 km/h  27 km/h

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Influence of external factors

• Rolling resistance
  - independent factors
  - manufacturer’s bound factors

• Driver
  ⇒ relevant to carry out tests on track with computer-aided driving...

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Characteristics of vehicle to be tested

- half load (3.2 t)
- standard basis equipment (legal)
- no accessories operating
- door open/close operation at end of a module
- run-in engine (10 to 15,000 km)
- nominal tuning (pressure etc)
  - accessories are tested separately...

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SORT should become a standard

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