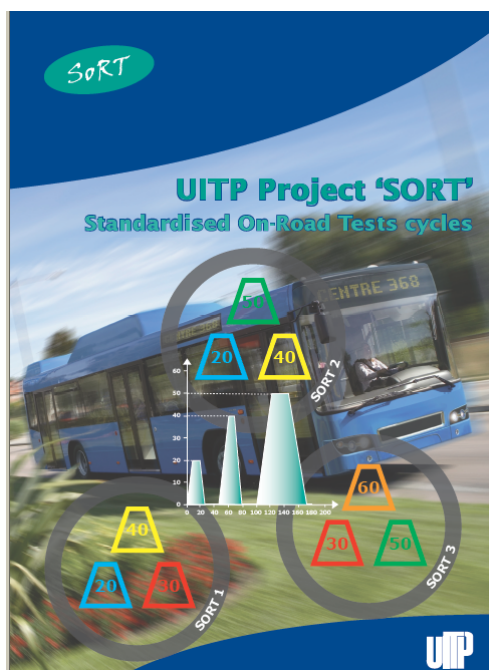# WHAT IS SORT

INTRODUCTION

Welcome to the CDROM version of SORT. The new guidelines for SORT contain amongst others a new definition of acceleration and an improved description of measurement methodology as well as measurements to other sizes of vehicles. It contains as well a simple spreadsheet calculation tool for automatic ranking and calculation of conducted consumption measurements. Thanks to SORT, you can compare fuel consumption data for different buses at tender stage and have a sound basis for evaluating bids. Click here to read further.

HISTORY

UITP has published in 2004 for the first time the brochure entitled **SORT** which stands for **S**TANDARDISED **O**N-**R**OAD **T**EST CYCLES. With the aim to build a standard for the public transport sector, to reduce the variety of different kinds of local, national and customized test cycles and to reduce costs.

SORT is a standardised and modular test cycle for the measurement of fuel consumption of diesel buses. Part of the UITP SORT publication is a test protocol which describes how a SORT test shall be conducted.

WHAT IS SORT

It is a method developed by UITP for measuring fuel consumption and is used to compare different buses presented in a call for tender (diesel). For many UITP members, the SORT cycle is the most reliable rule that exists up to day to compare the consumption of fuel of several bus manufactures in a call for tender. It is a real-life test, e.g. not an engine test but a test with a full-size bus on a test track (on-the-road).

The early work of the SORT project started back late 2000 and the first official publication was released by UITP in 2004. Many members have confirmed since the importance of the SORT cycle in the measuring of the fuel consumption. The current CDROM is the new release of 2009.

WHY SORT

The market for city buses worldwide is small; e.g. yearly "only" approx. 8 to 10.000 new city buses are purchased in Europe. A recent poll showed that approximately 70% of them being 12 meter buses and 30% articulated buses. The poll showed also an up-going trend for 18 meter buses: 40% projected for total bus fleet, horizon 2010.

Instead of each operator having his own cycle (Paris cycle, London cycle, Warsaw etc.…), the idea behind and motivation of SORT is to abandon the customised cycles, and to and end up - sector-wide - with three elementary modular cycles. A standard and reference for the sector. We are not so far yet!

Moreover, the legislative projects of the European Commission related to the purchasing of clean buses justify today even more the existence of cycles that allow for an objective comparison between buses.

WHEN DO YOU NEED SORT

1) When comparing different offers in a tender. When writing tender specifications for new buses (diesel) to be purchased, one of the criteria to evaluate the bids must be the fuel consumption of the bus (see also UITP's Tender Structure recommendation). When including the specification of SORT, the bids become truly comparable.

2) Accessorily, the check the veracity of "new" ideas, sometimes promoted from external circles, sometimes ideas from inventors that "reinvent the wheel"; by simply referring to make a SORT measurement, you will obtain useful because comparable figures.

HOW TO USE IT

SORT is a modular method. There are three SORT cycles : SORT 1, SORT 2 and SORT 3. SORT 1 for heavy urban, SORT 3 for easy suburban (peri-urbain) and SORT 2 for mixed or easy urban. Each SORT-cycle correlates (fits) with an average commercial speed. 12 km/h for 1, 18 km/h for 2 and 25 km/h for 3.

The consumption C can be obtained by using the formula:

$$C = a * C\_SORT1 + b * C\_SORT2 + c * C\_SORT 3$$

The definition of the coefficients a, b, c is the responsibility of the operator or the authority.

If an operator or organising authority is purchasing buses for a bus line/network with an average commercial speed of 15 km/h (for the sake of an example), a SORT modulation with coefficients a=0,40, b=0,40, c=0,25 may give the best fit.

Another case: a busline with an average com. speed of 10 km/h (this is typical heavy urban traffic), you may use SORT 1. Again here you have to assemble your "own" cycle. C = 1,20*SORT1. The modularity doesn't mean that the sum of the elements is equal to one ! It is up to each of the users (operators, authorities) to adapt the coefficients to his or her own situation and experience.

COMPARATIVE VALUE

SORT values provided by the manufacturers, in the framework of a tender process, can't be interpreted as a firm guarantee of the actual in-operation consumption. It remains a "theoretical" value. Criteria for fuel consumption used in tender documentation therefore are not suitable to be subject to a penalty scheme. Carrying out a SORT measurement has its cost. You need 1 day of time for measuring, you need to rent a test track, a driver, 1 or 2 technicians. You need also an independent Lab or a homologation institute to certify the results. These costs are beard by either the operator or the manufacturer or shared by both. This depends on the contractual clauses. These are not part of the SORT method as such.

OUTLOOK

Of course, we know full well that fuel consumption is but one of the criteria that govern purchase choices. However, it was important to do as much as possible to add objectivity to the figures in question.

Let us hope that this initiative will follow its course and be used by a large number of companies wishing to make their purchases in full possession of the facts! To be successful, and we don't doubt that it will be, SORT will naturally be expected to evolve further in the next future.

MOBI

For further reading about SORT related work, documents can be searched, accessed and downloaded from the UITP E-library MOBI by members of UITP (www.uitp.org).