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ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

Working Party on Transport Statistics

Ad hoc Meeting on the E-Rail Traffic Census 2005  
(2-3 October 2003, agenda item 5)

**DRAFT RECOMMENDATIONS TO GOVERNMENTS ON  
THE E-RAIL TRAFFIC CENSUS IN EUROPE IN 2005  
JOINTLY UNDERTAKEN BY  
THE UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE AND  
EUROSTAT  
("2005 E-RAIL CENSUS")**

**(a) MANDATE**

Based on the decisions taken by the Working Party on Rail Transport, at its fifty-third session, and by the Working Party on Transport Statistics, at its fiftieth session, an Informal Working Group on Rail Census Methodologies was convened to consider the feasibility of an E-Rail Census (TRANC/SC.2/192, paras 49-50; TRANS/WP.6/137, paras 34-36). Subsequent to the meeting of the Informal Working Group, the Inland Transport Committee (ITC) endorsed, during its sixty-third session, the report of the Informal Working Group on Rail Census Methodologies (TRANS/WP.6/2000/7-TRANS/SC.2/2000/10) and approved the proposal to convene an Ad hoc Meeting on the Rail Traffic Census in 2003 (ECE/TRANS/136, para. 106).

In connection with the convening of the Ad hoc Meeting, the Working Party on Transport Statistics, at its fifty-third session, noted that the coming EU Council Regulation on rail statistics will request similar traffic data for the Trans-European Network and welcomed the offer by

Eurostat to be closely involved in this project. The Working Party also approved 2-3 October 2003 as dates for the Ad hoc Meeting (TRANS/WP.6/143, para. 49).

The Ad hoc Meeting may note that member States of the European Union (EU) are obliged to undertake a rail census which is based on Regulation No. 91/2003 of 16 December 2002 on rail transport statistics, adopted by the European Parliament and the Council. In this Regulation, reference is also made to the Decision no. 1692/96/CE by the European Parliament and the Council on Community guidelines for the development of the trans-European transport network. In view of the above-mentioned EU Regulation, and in order to avoid duplication of work, the Working Party, at its fifty-fourth session, recommended to the UNECE secretariat and Eurostat to carry out jointly the E-Rail Census 2005 (TRANS/WP.6/145, para. 39).

In order to be in line with the Working Party's recommendation, the E-Rail Census 2005 will be jointly undertaken by the UNECE and Eurostat.

#### **(b) COVERAGE OF THE CENSUS**

For purposes of the 2005 E-Rail Census, the E-Rail network referred to is that described in Annex 1 of the European Agreement on Main International Railway Lines (AGC) of 1985 and in Amendments 1-6 to the Agreement (ECE/TRANS/63, and any other amendment which comes into force before 2005). Where an E-Rail is not open to traffic (e.g., because it is closed for repairs, has not yet been built, or for other reasons), the Census could, if possible, be taken on the rail line(s) used by the traffic which would otherwise use the E-Rail line.

The 2005 E-Rail Census ought to cover the AGC network. In addition, it ought to also cover those parts of the Trans-European rail network which are not part of the AGC. Regarding the EU member countries, the Census shall cover at least the trans-European rail transport network (Decision 1692/96/EC of the European Parliament and of the Council).

#### **(c) PURPOSE OF THE CENSUS**

Internationally comparable data on main international railway traffic lines are of major and increasing importance in Europe, given the growing volume of international and transit traffic.

Every effort should be made within the framework of the 2005 E-Rail Census to arrive at data which are as comparable as possible at the international level and respond to new data requirements and changes in traffic patterns. Continuous efforts are, therefore, necessary to keep the scope and quality of the 2005 E-Rail Census data in line with user requirements.

In particular, the rail traffic data are to be collected on the AGC network with the intention of facilitating international organization and planning of passenger and goods traffic between UNECE member countries.

Information on the extent to which various types of trains use different segments of the railway tracks enables improved land use management and better integration of rail traffic in the planning processes of the country itself, as well as at the international level, allowing for adequate maintenance, renewal and improvement programmes. This information also contributes to finding solutions to the problems raised by traffic congestion and facilitates the study of environmental issues, rail safety and energy consumption.

An additional objective of the 2005 E-Rail Census is the measurement of the train performance of the rail network, expressed mainly in train-kilometres, by the different categories of trains counted.

#### **(d) SCOPE OF THE CENSUS**

As E-rail lines constitute a relatively limited part of a country's national railway network, it is of particular interest to know the importance of traffic on main international railway lines in member countries.

For this comparison, hauled train-kilometres are the most important statistical measure to express the volume and development of traffic in a country. Figures on hauled train-kilometres are also indispensable in the context of calculations of traffic accidents and energy consumption. Accordingly, it is recommended that data be provided on hauled train-kilometres on all E-Rail lines, as well as on all other lines of the total national rail network.

#### **(e) CATEGORIES OF TRAINS TO BE COUNTED**

All trains discussed in the following categories should be counted.

The train classification system is as follows:

**Category A - Passenger train:** A train mainly for the carriage of passengers composed of one or more passenger trains and, possibly, vans moving either empty or under load.

**Category B - Goods train:** A train mainly for the carriage of goods composed of one or more wagons and, possibly, vans moving either empty or under load.

For definitions, consult Annex 1.

#### **(f) VALUES TO BE CALCULATED<sup>1</sup>**

For each E-railway line in a country, it is recommended that the annual number of trains per network segment and by train category be recorded.

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<sup>1</sup> In calculating the values and in designing the counting procedures, results obtained should be representative for the annual traffic.

For the total railway network in each country, hauled train-kilometres should be provided for the year of the census and the different train categories distinguished.

It is necessary that the railway network be divided into rail segments. The length of segments of the different lines should be defined in accordance with prevailing local characteristics.

The local conditions need to be taken into account when determining the source of information in each country.

The necessary data may be obtained using any combination of the following sources:

- timetables;
- compulsory surveys;
- administrative data, including data collected by regulatory authorities;
- statistical estimation procedures;
- data supplied by professional organizations in the rail industry;
- ad hoc studies.

Rail traffic data ought to come from the "infrastructure managers" (the network administrators).

Data need to be divided into two parts:

- the data on the number of trains;
- the data on the infrastructure<sup>2</sup>.

#### **(g) CHARACTERISTICS OF E-RAIL LINES**

Information about the volume and distribution of traffic on these rail lines would be of greater value if information about the characteristics of such lines could be obtained. Governments are, therefore, requested to submit information at the same time on infrastructure parameters of rail lines.

In considering this item, the Ad hoc Meeting may take into account the parameters contained in the AGC (ECE/TRANS/63, Annex 2, Table 1) and in the report of the Informal Working Group on Rail Census Methodologies (TRANS/WP.6/2000/7-TRANS/SC.2/2000/10, Decisions, para. 4), both reproduced in Annex 2.

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<sup>2</sup> For example, following Regulation No. 91/2003, the EU Member States shall define a set of network segments to include at least the rail TEN on their national territory. These countries ought to communicate these data to Eurostat: — the geographical coordinates and other data needed to identify and map each network segment as well as the links between segments and — information on the characteristics (including the capacity) of the trains using each network segment. The train-kms can be calculated from the number of trains and the length of the segment (from co-ordinates).

**(h) COMPILATION AND PUBLICATION OF THE 2005 E-RAIL CENSUS**

It is recommended that Governments supply to the UNECE secretariat a report on the 2005 E-Rail Census carried out in their country. Since the usefulness of the publication of the Census depends to a large extent on its timeliness, it is desirable that Governments try, to any extent possible, to furnish the data (including the map, if necessary), before 30 June 2007. The report should include data as presented in tables 1 to 3 (Annex 3).

Data (and, to the extent possible, maps) should be transmitted to the UNECE secretariat in an electronic format, in place of, or in addition to, the hard copy reply.

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## Annex 1

### Definitions of Terms<sup>3</sup>

#### **A.I-01. Railway**

Line of communication made up by rail, exclusively for the use of railway vehicles.

*Line of communication is part of space equipped for the execution of transport.*

#### **A.I-04. Railway network**

All railways in a given area.

*This does not include stretches of road or water even if rolling stock should be conveyed over such routes, e.g. by wagon-carrying trailers or ferries. Lines solely used for touristic purposes are excluded as are railways constructed solely to serve mines, forests or other industrial or agricultural undertakings and which are not open to public traffic.*

#### **A.I-05. Track**

A pair of rails over which railway vehicles can run.

#### **A.I-06. Track gauge**

Distance between a pair of rails measured between the inside edges of the rail heads.

The following track gauges are in use:

Standard gauge: 1.435 m

Large gauge: 1.524 m (example Finland)

1.600 m (example Ireland)

1.668 m (example Portugal)

Narrow gauge: 0.60 m, 0.70 m, 0.75 m, 0.76 m, 0.785 m, 0.90 m, 1.00 m.

*“Large gauge” is sometimes referred to as “broad gauge”.*

#### **A.I-12. Line**

One or more adjacent running tracks forming a route between two points. Where a section of network comprises two or more lines running alongside one another, there are as many lines as routes to which tracks are allotted exclusively.

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<sup>3</sup> The above definitions are taken from the Glossary of Transport Statistics (Third edition, 2003, UNECE-ECMT-Eurostat, TRANS/WP.6/2003/6).

<http://www.unece.org/trans/main/wp6/transstatglossmain.html>

**A.I-13. Dedicated high speed line**

A line specially built to allow traffic at speeds generally equal to or greater than 250 km/h for the main segments.

*High speed lines may include connecting lines, in particular junctions with town centre stations located on them, on which speeds may take account of local conditions.*

**A.I-14. Upgraded high speed line**

A conventional line specially upgraded to allow traffic at speeds of the order of 200 km/h for the main segments.

*They include specially upgraded high speed lines which have special features as a result of topographical, relief or town-planning constraints, on which the speed must be adapted for each case.*

**A.I-15. Length of lines operated**

The total length of line operated for passenger transport, goods transport, or for both.

*When a line is operated simultaneously by several railway bodies it will be counted only once.*

**A.II. TRANSPORT EQUIPMENT (VEHICLE)****A.II-01. Railway vehicle**

Mobile equipment running exclusively on rails, moving either under its own power (tractive vehicles) or hauled by another vehicle (coaches, railcar trailers, vans and wagons).

*The following vehicles are included in the statistics for a railway body:*

- a) All railway vehicles belonging to the railway body and hired by it and actually at its disposal, including those under or waiting for repair, or stored in working or non working-order, and foreign vehicles at the disposal of the body and vehicles of the body temporarily engaged in the normal course of running abroad.*
- b) Private owners' wagons, i.e. those not belonging to the railway body but authorized to run for it under specified conditions, together with wagons hired out by the railway body to third parties and being operated as private owners' wagons.*

Statistics for a railway body exclude vehicles not at its disposal, i.e.

- a) *Foreign vehicles or vehicles not belonging to the railway body circulating on the railway network.*
- b) *Vehicles which are on hire to, or otherwise at the disposal of, other railway bodies.*
- c) *Vehicles reserved exclusively for service transport, or intended for sale, braking-up or condemning.*

#### **A.II-02. High speed railway vehicle**

A railway vehicle designed to travel at a cruising speed of at least 250 km/h on dedicated high speed lines.

*On some segments the cruising speed may be lower, according to the local conditions.*

#### **A.II-03. High speed tilting railway vehicle**

A railway vehicle with a tilting system designed to have a cruising speed of the order of 200 km/h or above on upgraded high speed lines.

*On some segments the cruising speed may be lower, according to the local conditions.*

#### **A.II-04. Conventional high speed railway vehicle**

Any railway vehicle not specially designed to run on dedicated or upgraded high speed lines but still being able to reach a maximum cruising speed of approximately 200 km/h.

#### **A.II-05. Trainset**

Indivisible block of railcar(s) and railcar trailer(s) or locomotive(s) and passenger railway vehicle(s).

*Included are trainsets that are technically divisible but are normally kept in the same configuration.*

*A trainset could be coupled to another one.*

*Sometimes traction may be distributed throughout the trainset.*

#### **A.II-06. Tractive vehicle**

A vehicle equipped with prime mover and motor, or with motor only, intended solely for hauling other vehicles (a "locomotive") or for both hauling other vehicles and for the carriage of passengers and/or goods (a "railcar").



**A.II-07. Locomotive**

Tractive railway vehicle with a power of 110 kW and above at the draw hook equipped with prime mover and motor or with motor only used for hauling railway vehicles.

*Light rail motor tractors are excluded.*

**A.IV-01. Railway traffic**

Any movement of a railway vehicle on lines operated.

*When a railway vehicle is being carried on another vehicle only the movement of the carrying vehicle (active mode) is considered.*

**A.IV-05. Train**

One or more railway vehicles hauled by one or more locomotives or railcars, or one railcar travelling alone, running under a given number or specific designation from an initial fixed point to a terminal fixed point.

*A light engine, i.e. a locomotive travelling on its own, is not considered to be a train.*

**A.IV-06. Types of train**

The main categories being considered are:

- Goods train: Train for the carriage of goods composed of one or more wagons and, possibly, vans moving either empty or under load.
- Passenger train: Train for the carriage of passengers composed of one or more passenger railway vehicles and, possibly, vans moving either empty or under load.
- Mixed train: Train composed of passenger railway vehicles and of wagons.
- Other trains: Trains moving solely for the requirements of the railway body, which involve no commercial traffic.

**A.IV-07. Train-kilometre**

Unit of measure representing the movement of a train over one kilometre.

*The distance to be covered is the distance actually run.*

**A.IV-08. Tractive vehicle-kilometre**

Unit of measure representing any movement of an active tractive vehicle over a distance of one kilometre.

*Tractive vehicles running light are included. Shunting movements are excluded.*

**A.IV-09. Hauled vehicle-kilometre**

Unit of measure representing any movement of a hauled vehicle over one kilometre.

*Railcars movements are included. Shunting movements are excluded.*

**A.IV-10. Tonne-kilometre offered**

Unit of measure representing the movement of one tonne available in a wagon when performing services for which it is primarily intended over one kilometre.

*The distance to be considered is that actually run. Shunting and other similar movements are excluded.*

**AGC** – ACCORD EUROPEEN SUR LES GRANDES LIGNES INTERNATIONALES DE CHEMIN DE FER (EUROPEAN AGREEMENT ON MAIN INTERNATIONAL RAILWAY LINES)

**TEN** – Trans-European transport network

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**Annex 2****Table 1****INFRASTRUCTURE PARAMETERS FOR MAIN INTERNATIONAL RAILWAY LINES IN  
THE AGC<sup>1/</sup>**

	A Existing lines which meet the infrastructure requirements and lines to be improved or reconstructed	B New lines	
		B <sub>1</sub> For passenger traffic only	B <sub>2</sub> For passenger and goods traffic
1. Number of tracks	-	2	2
2. Vehicle loading gauge	UIC <sup>*/</sup> B	UIC C1	UIC C1
3. Minimum distance between track centres	4.0 m	4.2 m	4.2 m
4. Nominal minimum speed	160 km/h	300 km/h	250 km/h
5. Authorized mass per axle:			
Locomotives (= 200 km/h)	22.5 t	-	22.5 t
Railcars and rail motor sets (= 300 km/h)	17 t	17 t	17 t
Carriages	16 t	-	16 t
Wagons = 100 km/h	20 t	-	22.5 t
120 km/h	20 t	-	20 t
140 km/h	18 t	-	18 t
6. Authorized mass per linear metre	8 t	-	8 t
7. Test train (bridge design)	UIC 71	-	UIC 71
8. Maximum gradient	-	35 mm/m	12.5 mm/m
9. Minimum platform length in principal stations	400 m	400 m	400 m
10. Minimum useful siding length	750 m	-	750 m
11. Level crossings	None	None	none

<sup>1/</sup> European Agreement on Main International Railway Lines (AGC) (ECE/TRANS/63).

\*/ UIC: International Union of Railways

### **Rail infrastructure parameters identified by the Informal Working Group on Rail Census Methodologies**

The Informal Working Group decided that the initial set of variables to be considered for collection in the first E-Rail Census (2005) would be the basic set of data on traffic and parameters on the AGC, as set forth in Annex 1 of the Agreement. In addition, the eventual Ad hoc Working Group on the E-Rail Census may also consider additional variables for future censuses, such as the following (TRANS/WP.6/2000/7-TRANS/SC.2/2000/10, Decisions, para. 4):

- Infrastructure lines appropriate to high-speed rail;
  - Types of signalling (manual type, automatic type, in-cab signalization);
  - Types of electrification;
  - Track gauge;
  - Fastest journey time.
-

**Annex 3****TABLES****Traffic flows on the rail network**

Each country should provide the following tables for the census year 2005. Data transmission arrangements for the European Union countries will be similar to those applied to other Annexes of the Regulation (EC) 91/2003.

Table 1. Goods transport

Network segment identifier and geographical indication of the AGC segment	TEN flag	AGC line number	Number of trains
CZ (number) Praha-Plzen	<i>Yes/no</i>		
CZ (number) Plzen-Praha	<i>Yes/no</i>		
CZ (number)	<i>Yes/no</i>		
....			
CZ (number)	<i>Yes/no</i>		

Table 2. Passenger transport

Network segment identifier and geographical indication of the AGC segment	TEN flag	AGC line number	Number of trains
CZ (number) Praha-Plzen	<i>Yes/no</i>		
CZ (number) Plzen-Praha	<i>Yes/no</i>		
CZ (number)	<i>Yes/no</i>		
....			
CZ (number)	<i>Yes/no</i>		

Table 3. Other transport (service trains, etc.) – OPTIONAL

Network segment identifier and geographical indication of the AGC segment	TEN flag	AGC line number	Number of trains
CZ (number) Praha-Plzen	<i>yes/no</i>		
CZ (number) Plzen-Praha	<i>yes/no</i>		
CZ (number)	<i>yes/no</i>		
....			
CZ (number)	<i>yes/no</i>		

## Description of variables:

Network segment identifier	Use ISO3166-alpha2 except the United Kingdom. For the United Kingdom + 'S' + indication of direction (1 or 2) + number on 3 positions. It is recommended that traffic in different directions is reported by designating a separate "network segment" for each direction. For example, "Praha-Plzen" could be "CZS1001" and "Plzen-Praha" "CZS2001".
TEN flag (Rail Transport European Network)	0: NO 1: YES
Number of trains	Numeric