

ECE/TRANS/63/Rev.3

ECONOMIC COMMISSION FOR EUROPE
INLAND TRANSPORT COMMITTEE

European Agreement on Main International Railway Lines (AGC)

Done at Geneva on 31 May 1985

Revision 3



UNITED NATIONS
New York and Geneva, 2017

Note:

This document contains the text of the AGC Agreement, including the amendments to the AGC Agreement contained in the following Depositary Notifications:

- (a) Depositary Notifications C.N.68.2000.TREATIES-1 of 10 February 2000;
- (b) Depositary Notification C.N.255.2001.TREATIES-1 of 28 March 2001;
- (c) Depositary Notification C.N.202.2003.TREATIES-1 of 4 March 2003;
- (d) Depositary Notification C.N.140.2005.TREATIES-1 of 28 February 2005;
- (e) Depositary Notification C.N.650.2006.TREATIES-2 of 9 August 2006;
- (f) Depositary Notification C.N.532.2007.TREATIES-1 of 3 May 2007;
- (g) Depositary Notification C.N.711.2010.TREATIES-1 of 30 December 2010.

The present document contains in a single, non-official, document the consolidated text of the AGC Agreement including the basic instrument, its amendments and corrections that have come into force by the dates indicated. Only the text kept in custody by the Secretary General of the United Nations, in his capacity as depositary of the AGC Agreement, constitutes the authoritative text of the AGC Agreement.

European Agreement on Main International Railway Lines (AGC)

THE CONTRACTING PARTIES,

CONSCIOUS of the need to facilitate and develop international railway traffic in Europe,

CONSIDERING that, in order to strengthen relations between European countries, it is essential to lay down a co-ordinated plan for the development and construction of railway lines adjusted to the requirements of future international traffic,

HAVE AGREED as follows:

Article 1

Definition and adoption of the International E-railway network

The Contracting Parties adopt the proposed railway network hereinafter referred to as the "International E-railway network" and described in annex I to this Agreement, as a co-ordinated plan for the development and construction of railway lines of major international importance which they intend to undertake within the framework of national programmes in accordance with their respective legislations.

Article 2

The international E-railway network consists of a system of main lines and supplementary lines. The main lines are the "major railway axes" already carrying very heavy international traffic or traffic expected to become very heavy in the near future; the supplementary lines are those which, while already completing the network of main lines, will carry very heavy international rail traffic only in the more distant future.

Article 3

Construction and development of lines of the international E-railway network

The international E-railway network of main lines referred to in article 2 conforms to the characteristics set out in annex II to this Agreement or will be brought into conformity with the provisions of this annex in future improvement work to be carried out in conformity with national programmes.

Article 4

Designation of the depositary

The Secretary-General of the United Nations shall be the depositary of this Agreement.

Article 5

Procedure for the signature of, and for becoming Party to, the Agreement

1. This Agreement shall be open at Geneva for signature by States which are either members of the United Nations Economic Commission for Europe or have been admitted to the Commission in a consultative capacity in conformity with paragraph 8 of the terms of reference of the Commission, from 1 September 1985 to 1 September 1986.
2. Those States may become Parties to this Agreement by
 - (a) Signature, followed by ratification, acceptance or approval; or
 - (b) Accession.

3. Ratification, acceptance, approval or accession shall be effected by the deposit of an instrument in good and due form with the Secretary-General of the United Nations.

Article 6

Entry into force
of the Agreement

1. This Agreement shall enter into force 90 days after the date of the deposit of the instrument of ratification, acceptance, approval or accession, provided that one or more lines of the international E-railway network link, in a continuous manner, the territories of at least four of the States which have deposited such an instrument. If this condition is not fulfilled, the Agreement shall enter into force 90 days after the date of the deposit of the instrument of ratification, acceptance, approval or accession, whereby the said condition will be satisfied.

2. For each State which deposits an instrument of ratification, acceptance, approval or accession after the commencement of the period of 90 days specified in paragraph 1 of this article, the Agreement shall enter into force 90 days after the date of deposit of the said instrument.

Article 7

Limits to the
application
of the Agreement

Nothing in this Agreement shall be construed as preventing a Contracting Party from taking such action, compatible with the provisions of the Charter of the United Nations and limited to the exigencies of the situation, as it considers necessary for its external or internal security. Such measures, which must be temporary, shall be notified immediately to the depositary and their nature specified.

Article 8

Settlement of
disputes

1. Any dispute between two or more Contracting Parties which relates to the interpretation or application of this Agreement and which the Parties in dispute are unable to settle by negotiation or other means shall be referred to arbitration if any of the Contracting Parties in dispute so requests and shall, to that end, be submitted to one or more arbitrators selected by mutual agreement between the Parties in dispute. If the Parties in dispute fail to agree on the choice of an arbitrator or arbitrators within three months after the request for arbitration, any of those Parties may request the Secretary-General of the United Nations to appoint a single arbitrator to whom the dispute shall be submitted for decision.

2. The award of the arbitrator or arbitrators appointed in accordance with paragraph 1 of this article shall be binding upon the Contracting Parties in dispute.

Article 9

Declaration
concerning
article 8

Any State may, at the time of signing this Agreement or of depositing its instrument of ratification, acceptance, approval or accession, declare that it does not consider itself bound by article 8 of this Agreement.

Article 10

Procedure for
amending the
main text

1. The main text of this Agreement may be amended by either of the procedures specified in this article.
2. (a) Upon the request of a Contracting Party, any amendment proposed by it to the main text of this Agreement shall be considered by the Working Party on Rail Transport of the Economic Commission for Europe.
(b) If it is adopted by a two-thirds majority of the members present and voting and if this majority includes a two-thirds majority of the Contracting Parties present and voting, the amendment shall be communicated by the Secretary-General to all Contracting Parties for acceptance.
(c) If the amendment is accepted by two thirds of the Contracting Parties, the Secretary-General shall so notify all the Contracting Parties and the amendment shall enter into force 12 months after the date of such notification. The amendment shall enter into force with respect to all the Contracting Parties except those which, before its entry into force, make a declaration that they do not accept the amendment.
3. At the request of at least one third of the Contracting Parties, a conference, to which the States referred to in article 5 shall be invited, shall be convened by the Secretary-General. The procedure specified in paragraph 2, subparagraphs (a) and (b), of this article shall be applied in respect of any amendment submitted to the consideration of such a conference

Article 11

Procedure for
amending annex I

1. Annex I to this Agreement may be amended in accordance with the procedure specified in this article.
2. At the request of a Contracting Party, any amendment proposed by it to annex I to this Agreement shall be considered by the Working Party on Rail Transport of the Economic Commission for Europe.
3. If it is adopted by the majority of the members present and voting and if this majority includes the majority of the Contracting Parties present and voting, the amendment shall be communicated by the Secretary-General to the competent administrations of the Contracting Parties directly concerned. The following shall be considered Contracting Parties directly concerned:
 - (a) In the case of inclusion of a new main line or modification of an existing main line, any Contracting Party whose territory is crossed by that line;
 - (b) In the case of inclusion of a new supplementary line or modification of an existing supplementary line, any Contracting Party contiguous to the requesting country, whose territory is crossed by the principal international line or lines with which the supplementary line, whether new or to be modified, is connected. Two Contracting Parties having in their respective territories the terminal points of a proposed ferry service on the principal line or lines specified above shall also be considered contiguous for the purposes of this paragraph.

4. Any proposed amendment communicated in accordance with paragraph 3 of this article shall be accepted if, within a period of six months following the date of its communication, none of the competent administrations of the Contracting Parties directly concerned notifies the Secretary-General of its objection to the amendment. If the administration of a Contracting Party states that its national law obliges it to subordinate its agreement to the grant of a specific authorization or to the approval of a legislative body, the competent administration shall not be considered as having consented to the amendment to annex I to this Agreement, and the proposed amendment shall not be accepted until such time as the said competent administration notifies the Secretary-General that it has obtained the required authorization or approval. If such notification is not made within a period of 18 months following the date on which the proposed amendment was communicated to the said competent administration or if, within the period of six months specified above, the competent administration of a Contracting Party directly concerned expresses an objection to the proposed amendment, that amendment shall be deemed not accepted.

5. Any amendment accepted shall be communicated by the Secretary-General to all the Contracting Parties and shall enter into force for all the Contracting Parties three months after the date of its notification.

Article 12

Procedure for amending annex II

1. Annex II to this agreement may be amended by the procedure specified in this article.

2. At the request of a Contracting Party, any amendment proposed by it to annex II to this Agreement shall be considered by the Working Party on Rail Transport of the Economic Commission for Europe.

3. If it is adopted by the majority of the members present and voting, and if this majority includes the majority of the Contracting Parties present and voting, the amendment shall be communicated by the Secretary-General to the competent administrations of all the Contracting Parties for acceptance.

4. The amendment shall be accepted if, within a period of six months following the date of notification, less than one third of the competent administrations of the Contracting Parties notify the Secretary-General of their objection to the amendment.

5. Any amendment accepted shall be communicated by the Secretary-General to all the Contracting Parties and shall come into force three months after the date of its notification.

Article 13

Notification of the address of the administration to which proposed amendments to the annexes to the Agreement are to be communicated

Each State shall, at the time of signing, ratifying, accepting, approving or acceding to this Agreement, inform the Secretary-General of the name and address of its administration to which proposed amendments to the annexes to this Agreement are to be communicated in conformity with articles 11 and 12 above.

Denunciation and
suspension of the
validity of the
Agreement

Article 14

Any Contracting Party may denounce this Agreement by written notification addressed to the Secretary-General. The denunciation shall take effect one year after the date of receipt by the Secretary-General of such notification.

Article 15

The application of this Agreement shall be suspended if the number of Contracting Parties is less than eight for any period of 12 consecutive months.

IN WITNESS WHEREOF, the plenipotentiaries, being duly authorized thereto, have signed this Agreement.

DONE at Geneva, this thirty-first day of May one thousand nine hundred and eighty-five, in a single copy in the English, French and Russian languages, the three texts being equally authentic.

Annex I

Railway lines of major international importance

Numbering of lines of major international importance

1. *Principal lines*, comprising reference lines and intermediate lines, called class-A lines, have two-digit numbers; *supplementary lines*, called class-B lines, have three-digit numbers.
2. North-south oriented reference lines have two-digit odd numbers ending in 5 and increasing from west to east. West-east oriented reference lines have two-digit even numbers ending in 0 and increasing from north to south. Intermediate lines have respectively two-digit odd and two-digit even numbers falling within the numbers of the reference lines between which they are located.
3. Class-B lines have three-digit numbers, the first digit being that of the nearest reference line to the north of the B-line concerned, the second being that of the nearest reference line to the west of the B-line concerned and the third being a serial number.

List of railway lines

I. Numbering of lines at the European level

North-South

- E 03 Glasgow — Stranraer — Larne — Belfast — Dublin — Holyhead — Crewe — London — Folkestone — Dover
- E 05 $\frac{\text{Lisboa — Coimbra}}{\text{Porto}}$ — Pampilhosa — Vilar Formoso — Fuentes de Oñoro — Medina del Campo — Burgos — Irún — Bordeaux — $\frac{\text{Orléans (Les Aubrais)}}{\text{Vendôme}}$ — Paris
- E 07 Paris — $\frac{\text{Orléans (Les Aubrais)}}{\text{Vendôme}}$ — Bordeaux — Hendaye — Irún — Burgos — $\frac{\text{Avila}}{\text{Aranda de Duero}}$ — Madrid
- E 09 Paris — Lille — Calais
- E 051 Calais — Paris
- E 053 Madrid — Córdoba — Bobadilla — Algeciras
- E 15 Amsterdam — Den Haag — Rotterdam — Roosendaal — Antwerpen — Bruxelles — Quévy — Feignies — Aulnoye — Paris — $\frac{\text{Dijon}}{\text{Le Creusot}}$ — Lyon — Avignon — Tarascon — Marseille
- E 23 Dunkerque — Aulnoye — Thionville — Metz — Frouard — Toul — Culmont — Chalindrey — Dijon — Vallorbe — Lausanne — Brig
- E 25 Bruxelles — Arlon — Sterpenich — Kleinbettingen — Luxembourg — Bettembourg — Thionville — Metz — Strasbourg — Mulhouse — Basel — Olten — Bern — Brig — Domodossola — Rho — Milano — Genova
- E 27 Liège — Gouvy — Troisvierges — Luxembourg
- E 35 Amsterdam — Utrecht — Arnhem — Emmerich — Duisburg — Düsseldorf — Köln — Mainz — Mannheim — Karlsruhe — Basel — Olten — Chiasso — Milano — Bologna — Firenze — Roma — Napoli — Salerno — Messina
- E 391 Dnipropetrovsk — Lozovaya — Krasny Liman — Kharkov
- E 43 Köln — Limburg — Frankfurt (Main) — $\frac{\text{Heidelberg}}{\text{Mannheim}}$ — Stuttgart — Ulm — Augsburg — München — Freilassing — Salzburg
- E 45 Oslo — Kornsjø — Göteborg — Helsingborg — Helsingør — København — Nykøbing — Rødby — Puttgarden — Hamburg — Hannover — Würzburg — Nürnberg — Ingolstadt — München — Kufstein — Wörgl — Innsbruck — Brennero — Verona — Bologna — Ancona — Foggia — Bari
- E 451 Nürnberg — Passau — Wels
- E 51 Gedser — Rostock — Berlin — $\frac{\text{Hall}}{\text{Leipzig}}$ — Erfurt — Nürnberg
- E 53 Helsingborg — Hässleholm
- E 530 Nykøbing — Gedser
- E 55 Stockholm — Hässleholm — Malmö — Trelleborg — Sassnitz Hafen — Stralsund — Berlin/Seddin — Dresden — Bad Schandau — Dečín — Praha
- Linz — Salzburg — Schwarzach St. Veit — Villach — Arnoldstein — Tarvisio — Udine — Venezia — Bologna
- E 551 Praha — Horní Dvořiště — Summerau — Linz — Selzthal — St. Michael

- E 59 Malmö — Ystad — Świnoujście — Szczecin — Poznan — Wrocław — Opole — Chalupki
- E 593 Yasinovataya — Kvashino — Uspenskaya — Rostov na Donu
- E 595 Samur — Yalama — Baku
- E 597 Makat — Beyneu — Kungrad — Nukus — Dashowuz — Urganch — Charzhev
- E 61 Stockholm — Hässleholm — Malmö — Trelleborg — Sassnitz Hafen — Stralsund — Berlin — Dresden — Bad Schandau — Děčín — Praha — Kolin — Česká Třebová — Brno — Břeclav — Kúty — Bratislava
- E 63 Žilina — $\frac{\text{Leopoldov}}{\text{Galanta}}$ — Bratislava (— Vienna — Sopron)
- E 65 Gdynia — Gdansk — Warszawa — Katowice — Zebrzydowice — Petrovice u Karviné — Ostrava — Břeclav — Bernhardsthal — Wien — Semmering — Bruck a.d. Mur — Klagenfurt — Villach — Rosenbach — Jesenice — Ljubljana — Ilirska Bistrica — Šapjane — Rijeka
- E 67 Bruck a.d. Mur — Graz — Spielfeld Strass — Šentilj — Maribor — Zidani Most
- E 69 Budapest — Murakeresztúr — Kotoriba — Čakovec — Središče — Pragersko — Zidani Most — Ljubljana — Divača — Koper
- E 691 Murakeresztúr — Gyékényes
- E 693 Gyumri — Yerevan — Hrazdan — Dilijan — Ijevan — Ghazakh — Barkhudarli
- E 695 Bukhara — Karshi — Termiz — Galaba (— Hairaton)
- E 71 Budapest — Dombóvár — Gyékényes — Botovo — Koprivnica — Zagreb — Karlovac — Oštarije — Rijeka
- E 73 Ormož — Murska Sobota — Puconci — Hodoš — Bajánsenye — Zalaegerszeg — Boba — Veszprém — Székesfehérvár
- E 75 Warszawa — Białystok — Sokółka — Suwalki — Trakiszki — Mockava — Šeštokai — Kaunas — Šiauliai — Šarkiai — (Meitene —) Jelgava — Rīga — Lugaži — (Valga —) Tartu — Tapa — Tallin
- E 751 Zagreb — Sunja — Volinja — Dobrljin — Bihac — Ripač — Strmica — Knin — $\frac{\text{Split}}{\text{Šibenik}}$
- E 753 Zagreb — Karlovac — Oštarije — Gospić — Knín — Zadar
- E 771 Subotica — Bogojevo — Erdut — Vinkovci — Strizivojna — Vrpolje — Slavonski Šamac — Bosanski Šamac — Sarajevo — Čapljina — Metković — Ploče
- E 773 (Magyarbóly —) Beli Manastir — Osijek — Strizivojna Vrpolje
- E 79 Beograd — Bar
- E 85 Budapest — Kelebia — Subotica — Beograd — $\frac{\text{Niš — Prešovo — Tabanovci}}{\text{Kraljevo — Đeneral Janković — Volkovo}}$ — Skopje — Gevgelia — Idomeni — Thessaloniki — Athinai
- E 851 Lvov — Vadul Siret — Vicșani — Pașcani
- E 853 Larissa — Volos
- E 855 Sofia — Kulata — Promachon — Thessaloniki
- E 95 Moskva — Bryansk — Suzemka — Zernovo — Khutor Mikhailovsky — Kiev — Razdelnaya — Kuchurgan — Bender — Chisinau — Ungeny — Iasi — Pascani — Buzau — Ploiesti — Bucuresti — Videle — Giurgiu — Ruse — Gorna — Dimitrovgrad
- E 951 Sindel — Karnobat
- E 97 Samsun — Kalin — Malatya — $\frac{\text{Yenice — Mersin}}{\text{Iskenderun}}$
- E 99 Ryazan — Kochetovka I — Gryazi — Rostov na Donu — Krasnodar — $\frac{\text{Veseloe — Gantiadi — Poti}}{\text{Novorossisk}}$

West-East

- E 10 Oostende — Bruxelles — Liège — Aachen — Köln — Düsseldorf — Dortmund — Münster — Osnabrück — Bremen — Hamburg — Lübeck — Hango — Helsinki — Riihimäki — Kouvola — Vainikkala — Luzhaika — St. Petersburg — Moskva
- E 12 Ventspils — Jelgava — Krustpils — Rēzekne — Posinj — Sebezh — Novosokolniki — Moskva
Liepāja
- E 14 Riga — Krustpils — Daugavpils — Indra — Bigosovo — Polak — Vicebsk
Radviliskis — Obeliai
- E 16 London — Harwich — Hoek Van Holland — Rotterdam — Utrecht
- E 18 Hamburg — Büchen — Berlin
- E 20 Oostende — Bruxelles — Liège — Aachen — Köln — Duisburg — Dortmund — Hannover — Helmstedt — Marienborn — Berlin/Seddin — Frankfurt (O) — Kunowice — Poznan — Warszawa — Terespol — Brest — Minsk — Asinowka — Krasnoe — Smolensk — Moskva — Nizhny Novgorod — Perm — Sverdlovsk* — Tyumen
Kurgan — Petropavlovsk
- E 20/3 Kaliningrad — Cherniakhovsk — Nesterov — Kybartai — Kaunas — Vilnius — Kena — Gudagai — Maladzečna
Mukran — Sassnitz — Draugyste — Klaipėda — Radviliškis
— Minsk
- E 22 Zeebrugge — Brugge
- E 24 Moskva — Ryazan — Ruzaevka — Samara — Ufa — Chelyabinsk — Kurgan — Presnogorskovskaya — Kökshetaú — Aqmola — Mointy — Druzhba — Alashankou
- E 30 Karlsruhe — Stuttgart — Nürnberg — Plauen — Dresden — Görlitz — Zgorzelec — Wrocław — Katowice — Krakow — Przemysl — Medyka — Mostiska — Lvov — Kiev — Kharkiv — Kupyansk — Topoli — Solovei Valuiki — Samara — Orenburg — Iletsk I — Kandagach
- E 32 Frankfurt (M) — Hanau — Erfurt — Leipzig — Dresden
- E 40 Le Havre — Paris — Lérrouville — Onville — Metz — Rémyilly — Forbach — Saarbrücken — Ludwigshafen — Mannheim — Frankfurt (M)
Gemünden — Nürnberg — Schirnding — Cheb — Plzeň — Praha — Kolin — Ostrava — Mosty u Jablunkova — Čadca — Zilina
- E 42 Paris — Lérrouville — Nancy — Sarrebourg — Réding — Strasbourg — Kehl — Appenweier — Karlsruhe — Stuttgart
- E 46 Mainz — Frankfurt (M)
- E 50 Paris — Dijon — Culoz — Genève — Lausanne — Bern — Zürich — Buchs — Innsbruck — Wörgl — Le Creusot — Kufstein (Rosenheim — Freilassing) — Salzburg — Linz — Wien — Hegyeshalom — Budapest — Miskolc — Schwarzach St.Veit
Nyiregyhaza — Zahony — Čop — Lvov — Fastov — Dnipropetrovsk — Krasnoarmeisk — Yasinovataya — Debaltsevo — Krasnaya Mogila — Gukovo — Likhaya — Volgograd — Astrakhan — Aksaraiskaya II — Atyraú — Makat — Kandagach — Arys — Almaty — Aqtogai
- E 502 Bischofshofen — Selzthal
- E 52 Bratislava — Galanta — Nové Zámky — Stürovo — Szob — Budapest — Cegléd — Szolnok — Debrecen — Nyiregyhaza
- E 54 Arad — Deva — Teius — Vinatori — Brasov — Bucuresti

* Yekaterinburg.

- E 56 Budapest — Rakos — Ujszasz — Szolnok — Lökösháza — Curtici — Arad — Timisoara — Craiova — Bucuresti
- E 560 Buzáú — Galati — Giurgiulesti — Reni — Etulia — Greceni — Bolgrad — Taraclia — Basarabasca — Carabuteni — Cimislia — Bender
- E 562 Bucuresti — Costanta
- E 592 Beineu — Shetpe — Aqtau
- E 60 $\frac{\text{Poti}}{\text{Batumi}}$ — Tbilisi — Gardabani — Beyuk — Kyasik — Baku — Turkmenbashi — Ashgabat — Chardzhev — Alat — Bukhara — Tashkent — Salar — Chengeldy — Arys
- E 66 Beograd — Vršac — Stamura Moravita — Timisoara
- E 660 Ruse — Kaspican
- E 680 Sofia — Mezdra — Gorna — Kaspican — Sindel — Varna
- E 692 Cetinkaya — Kars — $\frac{\text{Akhalkalaki}}{\text{Dogu Kapi — Akhuryan — Gyumri — Ayrum — Sadakhlo}}$ — Tbilisi
- E 694 Gyumri — Artashat — Nakhichevkan — Dzhulfa — Karchivan — Meghri — Agbent — Bartaz — $\frac{\text{Baku}}{\text{Astara}}$
- E 696 Tashkent — Khavast — Andizhan (— Osh)
- E 70 Paris — $\frac{\text{Dijon}}{\text{Le Creusot}}$ — Mâcon — Ambérieu — Culoz — Modane — Torino — Rho — Milano — Verona — Trieste — Villa Opicina — Sežana — Ljubljana — Zidani Most — Dobova — Savski Marof — Zagreb — Strizivojna Vrpolje — Vinkovci — Tovarnik — Šid — Beograd — Niš — Dimitrovgrad — Dragoman — Sofija — Plovdiv — Dimitrovgrad — Svilengrad — Kapikule — Istanbul — Haydarpaşa — Ankara — $\frac{\text{Kapiköj [— Razi(Iran, Islamic Republic of)]}}{\text{Nusajbin [— Kamichli (Syrian Arab Republic)]}}$
- E 700 Lyon — Ambérieu
- E 702 Središče — Čakovec — Varaždin — Koprivnica — Osijek — Erdut — Bogojevo
- E 72 Torino — Genova
- E 720 Plovdiv — Zimnitza — Karnobat — Burgas
- E 74 Eskisehir — Kütahya — Balikser — Bandirma
- E 90 Lisboa — Entrocamento — Valencia de Alcántara — Madrid — Barcelona — Port Bou — Cerbère — Narbonne — Tarascon — Marseille — Menton — Ventimiglia — Genova — Pisa — Livorno — Roma

II. Numbering of lines at the national level*

(1) Portugal

- E 05 (Fuentes de Oñoro —) Vilar Formoso — Pampilhosa — $\frac{\text{Coimbra — Lisboa}}{\text{Porto}}$
- E 90 Lisboa — Entrocamento — Marvao (— Valencia de Alcántara)

* In the list of towns given below, it should be noted that the stations shown in brackets are located on other routes or outside the country concerned.

(2) Spain

- E 05 (Hendaye —) Irún — Burgos — Medina del Campo — Fuentes de Oñoro (— Vilar Formoso)
 E 07 (Hendaye —) Irún — Burgos — $\frac{\text{Avila}}{\text{Aranda de Duero}}$ — Madrid
 E 053 Madrid — Córdoba — Bobadilla — Algeciras
 E 90 (Marvao —) Valencia de Alcántara — Madrid — Barcelona — Port Bou (— Cerbère)

(3) Ireland

- E 03 (Larne — Belfast —) Dublin (— Holyhead)

(4) United Kingdom

- E 03 Glasgow — Stranraer — Larne — Belfast (— Dublin)
 Holyhead — Crewe — London — Folkestone — Dover
 E 16 London — Harwich (— Hoek Van Holland)

(5) France

- E 05 Paris — $\frac{\text{Orléans (Les Aubrais)}}{\text{Vendôme}}$ — Bordeaux — Hendaye (— Irún)
 E 051 Calais — Paris
 E 07 Paris — $\frac{\text{Orléans (Les Aubrais)}}{\text{Vendôme}}$ — Bordeaux — Hendaye (— Irún)
 E 09 Paris — Lille — Calais
 E 15 (Quévy —) Feignies — Aulnoye — Paris — $\frac{\text{Dijon}}{\text{Le Creusot}}$ — Lyon — Avignon — Tarascon — Marseille
 E 23 Dunkerque — Aulnoye — Thionville — Metz — Frouard — Toul — Culmont — Chalindrey — Dijon (— Vallorbe)
 E 25 (Bettembourg —) Thionville — Metz — Strasbourg — Mulhouse (— Basel)
 E 40 Le Havre — Paris — Lérouville — Onville — Metz — Rémilly — Forbach (— Saarbrücken)
 E 42 Paris — Lérouville — Nancy — Réding — Strasbourg (— Kehl)
 E 50 Paris — $\frac{\text{Dijon}}{\text{Le Creusot}}$ — Culoz (— Genève)
 E 70 Paris — $\frac{\text{Dijon}}{\text{Le Creusot}}$ — Mâcon — Ambérieu — Culoz — Modane (— Torino)
 E 700 Lyon — Ambérieu
 E 90 (Port Bou —) Cerbère — Narbonne — Tarascon — Marseille — Menton (— Ventimiglia)

(6) Netherlands

- E 15 Amsterdam — Den Haag — Rotterdam — Roosendaal (— Antwerpen)
 E 35 Amsterdam — Utrecht — Arnhem (— Emmerich)
 E 16 (Harwich —) Hoek Van Holland — Rotterdam — Utrecht

(7) Belgium

- E 10 Oostende — Bruxelles — Liège (— Aachen)
 E 15 (Roosendaal —) Antwerpen — Bruxelles — Quévy (— Feignies)
 E 25 Bruxelles — Arlon — Sterpenich (— Kleinbettingen)
 E 27 Liège — Gouvy (— Troisvierges)
 E 20 Oostende — Bruxelles — Liège (— Aachen)
 E 22 Zeebrugge — Brugge

(8) Luxembourg

- E 25 (Sterpenich —) Kleinbettingen — Luxembourg — Bettembourg (— Thionville)
 E 27 (Gouvy —) Troisvierges — Luxembourg

(9) Germany

- E 10 (Liège —) Aachen — Köln — Düsseldorf — Dortmund — Münster — Osnabrück — Bremen — Hamburg — Lübeck (— Hanko)
 E 18 Hamburg — Büchen — Berlin
 E 20 (Liège —) Aachen — Köln — Duisburg — Dortmund — Hannover — Berlin — Frankfurt (O) (— Kunowice)
 E 20/3 Mukran — Sassnitz (— Draugyste (Klaipėda))
 E 30 Karlsruhe — Stuttgart — Nürnberg — Plauen — Dresden — Görlitz (— Zgorzelec)
 E 32 Frankfurt (M) — Hanau — Erfurt — Leipzig — Dresden
 E 35 (Arnhem —) Emmerich — Duisburg — Düsseldorf — Köln — Mainz — Mannheim — Karlsruhe (— Basel)
 E 40 (Forbach —) Saarbrücken — Ludwigshafen — Mannheim — Frankfurt (M)
 Gemünden — Nürnberg — Schirnding (— Cheb)
 E 42 (Strasbourg —) Kehl — Appenweier — Karlsruhe — Stuttgart
 E 43 Köln — Limburg — Frankfurt (Main) — $\frac{\text{Heidelberg}}{\text{Mannheim}}$ — Stuttgart — Ulm — Augsburg — München — Freilassing (— Salzburg)
 E 45 (Rødby —) Puttgarden — Hamburg — Hannover — Würzburg — Nürnberg — Ingolstadt — München — Kufstein (— Wörgl)
 E 451 Nürnberg — Passau (— Wels)
 E 46 Mainz — Frankfurt (M)

- E 51 (Gedser —) Rostock — Berlin — $\frac{\text{Halle}}{\text{Leipzig}}$ — Erfurt — Nürnberg
- E 55 (Trelleborg —) Sassnitz Hafen — Stralsund — Berlin/Seddin — Dresden — Bad Schandau (— Dečín)
- E 61 (Trelleborg —) Sassnitz Hafen — Stralsund — Berlin — Dresden — Bad Schandau (— Dečín)

(10) Switzerland

- E 23 (Dijon —) Vallorbe — Lausanne — Brig
- E 25 (Mulhouse —) Basel — Olten — Bern — Brig (— Domodossola)
- E 35 (Karlsruhe —) Basel — Olten — Chiasso (— Milano)
- E 50 (Culoz —) Genève — Lausanne — Bern — Zürich — Buchs (— Innsbruck)

(11) Italy

- E 25 (Brig —) Domodossola — Rho — Milano — Genova
- E 35 (Chiasso —) Milano — Bologna — Firenze — Roma — Napoli — Salerno — Messina
- E 45 (Innsbruck —) Brennero — Verona — Bologna — Ancona — Foggia — Bari
- E 55 (Arnoldstein —) Tarvisio — Udine — Venezia — Bologna
- E 70 (Modane —) Torino — Rho — Milano — Verona — Trieste — Villa Opicina (— Sežana)
- E 72 Torino — Genova
- E 90 (Menton —) Ventimiglia — Genova — Pisa — Livorno — Roma

(12) Norway

- E 45 Oslo (— Kornsjø)

(13) Sweden

- E 45 (Kornsjø —) Göteborg — Helsingborg (— Helsingør)
- E 53 Helsingborg — Hässleholm
- E 55 Stockholm — Hässleholm — Malmö — Trelleborg (— Sassnitz Hafen)
- E 59 Malmö — Ystad (— Świnoujście)
- E 61 Stockholm — Hässleholm — Malmö — Trelleborg (— Sassnitz Hafen)

(14) Denmark

- E 45 (Helsingborg —) Helsingør — København — Nykøbing — Rødby (— Puttgarden)
- E 530 Nykøbing — Gedser (— Rostock)

(15) Austria

- E 43 (Freilassing —) Salzburg
- E 45 (München —) Kufstein — Wörgl — Innsbruck (— Brennero)
- E 451 (Nürnberg — Passau —) Wels
- E 55 Linz — Salzburg — Schwarzach St. Veit — Villach — Arnoldstein (— Tarvisio)
- E 551 (Horní-Dvořiště —) Summerau — Linz — Selzthal — St. Michael
- E 65 (Břeclav —) Bernhardsthal — Wien — Semmering — Bruck a.d. Mur — Klagenfurt — Villach — Rosenbach (— Jesenice)
- E 67 Bruck a.d. Mur — Graz — Spielfeld Strass (— Šentilj)
- E 50 (Buchs —) Innsbruck — Wörgl — $\frac{\text{Kufstein (— Rosenheim — Freilassing)}}{\text{Schwarzach St.Veit}}$ — Salzburg — Linz — Wien (— Hegyeshalom)
- E 502 Bischofshofen — Selzthal

(16) Poland

- E 59 (Ystad —) Świnoujście — Szczecin — Poznan — Wrocław — Opole — Chalupki
- E 65 Gdynia — Gdąnsk — Warszawa — Katowice — Zebrzydowice (— Petrovice u. Karviné)
- E 20 (Frankfurt (O) —) Kunowice — Poznan — Warszawa — Terespol (— Brest)
- E 30 (Görlitz —) Zgorzelec — Wrocław — Katowice — Krakow — Przemysl — Medyka (— Mostiska)
- E 75 Warszawa — Białystok — Sokółka — Suwalki — Trakiszki (— Mockava)

(17) Czech Republic

- E 55 (Bad Schandau —) Dečín — Praha
- E 551 Praha — Horní Dvořiště (— Summerau)
- E 61 (Bad Schandau —) Dečín — Praha — Kolin — Česká Třebová — Brno — Břeclav (— Bratislava)
- E 65 (Zebrzydowice —) Petrovice u. Karviné — Ostrava — Břeclav (— Bernhardstahl)
- E 40 (Schirnding —) Cheb — Plzeň — Praha — Kolin — Ostrava CD (— Žilina)

(18) Slovakia

- E 40 (Ostrava CD —) Žilina — Poprad Tatry — Košice — Čierna nad Tisou (— Čop)
- E 52 Bratislava — Galanta — Nové Zámky — Stúrovo (— Szob)
- E 61 (Břeclav —) Bratislava — Komárno (— Komaróm)
- E 63 Žilina — $\frac{\text{Lepoldov}}{\text{Galanta}}$ — Bratislava

(19) Hungary

- E 61 (Komárno —) Komaróm — Budapest
 E 631 Sopron — Szombathely — Nagykanizsa
 E 69 Budapest — Murakeresztúr (— Kotoriba)
 E 691 Murakeresztúr — Gyékényes
 E 71 Budapest — Dombóvár — Gyékényes (— Botovo — Koprivnica)
 E 73 (Hodoš —) Bajánsenye — Zalaegerszeg — Boba — Veszprém — Székesfehérvár
 E 85 Budapest — Kelebia (— Subotica)
 E 50 (Wien —) Hegyeshalom — Budapest — Miskolc — Nyiregyháza — Záhony (— Čop)
 E 52 (Štúrovo —) Szob — Budapest — Cegléd — Szolnok — Debrecen — Nyiregyháza
 E 56 Budapest — Rákos — Ujszász — Szolnok — Lőkösháza (— Curtici)

(20) Slovenia

- E 65 (Rosenbach —) Jesenice — Ljubljana — Ilirska Bistrica (— Šapjane)
 E 67 (Spielfeld Strass —) Šentilj — Maribor — Zidani Most
 E 69 (Čakovec —) Središče — Pragersko — Zidani Most — Ljubljana — Divaca — Koper
 E 70 (Villa Opicina —) Sezana — Ljubljana — Zidani Most — Dobova (— Savski Marof)
 E 73 Ormož — Murska Sobota — Puconci (— Hodoš)

(21) Croatia

- E 65 (Ilirska Bistrica —) Šapjane — Rijeka
 E 69 (Murakeresztúr —) Kotoriba — Čakovec (— Središče)
 E 70 (Dobova —) Savski Marof — Zagreb — Strizivojna Vrpolje — Vinkovci — Tovarnik (— Sid)
 E 71 (Gyékényes —) Botovo — Koprivnica — Zagreb — Karlovac — Oštarije — Rijeka
 E 751 Zagreb — Sunja — Volinja — (Dobrljin — Bihac — Ripac —) Stremica — Knin — $\frac{\text{Split}}{\text{Šibenik}}$
 E 771 (Bogojevo —) Erdut — Vinkovci — Strizivojna Vrpolje — Slavonski Šamac — (Bosanski Šamac — Sarajevo — Čapljina —) Metković — Ploče
 E 753 Zagreb — Karlovac — Oštarije — Gospić — Knin — Zadar
 E 773 (Magyavboly —) Beli Manastir — Osijek — Strizivojna Vrpolje
 E 702 (Središče —) Čakovec — Varaždin — Koprivnica — Osijek — Erdut (— Bogojevo)

(22) Bosnia-Herzegovina

- E 751 (Volinja —) Dobrljin — Bihac — Ripac (— Strmica)
 E 771 (Slavonski Šamac —) Bosanski Šamac — Sarajevo — Čapljina (— Metković)

(23) Serbia and Montenegro*

- E 79 Beograd — Bar
- E 85 (Kelebia —) Subotica — Beograd — $\frac{\text{Niš — Preševo (— Tabanovci)}}{\text{Kraljevo — Đeneral Janković (— Volkovo)}}$
- E 66 Beograd — Vršac (— Stamora Moravita)
- E 70 (Tovarnik —) Šid — Beograd — Niš — Dimitrovgrad (— Dragoman)

(24) The former Yugoslav Republic of Macedonia

- E 85 $\frac{\text{(Preševo —) Tabanovci}}{\text{(Đeneral Janković —) Volkovo}}$ — Skopje — Gevgelia (— Idomeni)

(25) Greece

- E 85 (Gevgelia —) Idomeni — Thessaloniki — Athinai
- E 853 Larissa — Volos
- E 855 (Kulata —) Promachon — Thessaloniki

(26) Romania

- E 851 (Vadul Siret —) Vicsani — Pacsani
- E 95 (Ungeni —) Iasi — Pascani — Buzau — Ploiesti — Bucuresti — Videle — Giurgiu (— Ruse)
- E 54 Arad — Deva — Teius — Vinatori — Brasov — Bucuresti
- E 56 (Lőkősháza —) Curtici — Arad — Timisoara — Craiova — Bucuresti
- E 560 Buzau — Galati (— Reni — Bender)
- E 562 Bucuresti — Costanta
- E 66 (Vršac —) Stamora Moravita — Timisoara

(27) Bulgaria

- E 95 (Giurgiu —) Ruse — Gorna — Dimitrovgrad
- E 951 Sindel — Karnobat
- E 660 Ruse — Kaspičan
- E 680 Sofia — Mezdra — Gorna — Kaspičan — Sindel — Varna
- E 70 (Dimitrovgrad —) Dragoman — Sofija — Plovdiv — Dimitrovgrad — Svilengrad (— Kapikule)
- E 720 Plovdiv — Zimnitsa — Karnobat — Burgas
- E 855 Sofia — Kulata (— Promachon)

* The numbering of lines corresponds to the situation before 28 June 2006 when the General Assembly admitted Montenegro as a Member State of the United Nations.

(28) Finland

E 10 Hanko — Helsinki — Riihimäki — Kouvola — Vainikkala (— Luzhaika)

(29) Belarus

E 20 (Terespol —) Brest — Minsk — Asinowka (— Krasnoe)

E 14 (Indra —) Bigosovo — Polak — Vicebsk

E 20/3 (Kena —) Gudagai — Maladzečna — Minsk

(30) Ukraine

E 30 Kiev — Kharkiv — Kupyansk — Topoli (— Solovei)

E 391 Dnipropetrovsk — Lozovaya — Krasny Liman — Kharkov

E 40 (Čierna nad Tissovo —) Čop — Lvov

E 50 Fastov — Dnipropetrovsk — Krasnoarmeisk — Yasinovataya — Debaltsevo — Krasnaya Mogila (— Gukovo)

E 593 Yasinovataya — Kvashino (— Uspenskaya)

E 851 Lvov — Vadul Siret (— Vicsani)

E 95 Kuchurgan — Razdelnaya — Kiev — Khutor Mikhailovsky — Zernovo (— Suzemka)

(31) Republic of Moldova

E 95 (Iași —) Ungeny — Chisinau — Bendery (— Kuchurgan)

E 560 (Galati —) Giurgiulesti — (Reni —) Etulia — Greceni — (Bolgrad — Taraclia — Basarabesca — (Carabuteni —) Cimislia — Bender

(32) Russian Federation

E 10 (Vainikkala —) Luzhaika — St. Petersburg — Moskva

E 12 (Zilupe —) Raz. Posinj — Novosokol'niki — Ržev — Moskva

E 20 (Asinowka —) Krasnoe — Smolensk — Moskva Nizhny Novgorod — Perm — Sverdlovsk* —
Tyumen
Kurgan (— Petropavlovsk) — Omsk — Novosibirsk — Krasnoyarsk — Irkutsk — Vladivostok

E 20/3 Kaliningrad — Cherniakhovsk — Nesterov (— Kybartai)

E 24 Moskva — Ryazan — Ruzaevka — Samara — Ufa — Chelyabinsk — Kurgan

E 30 (Topoli —) Solovei Valuiki — Samara — Orenburg (— Iletsk I)

E 50 (Krasnaya Mogila —) Gukovo — Likhaya — Volgograd — Astrakhan (— Aksaraiskaya II)

E 95 (Zernovo —) Suzemka — Bryansk — Moskva

* Yekaterinburg.

- E 99 Ryazan — Kochetovka I — Gryazi — Krasnodar — Veseloe (— Gantiadi)
Novorossisk
- E 593 (Kvashino —) Uspenskaya — Rostov na Donu

(33) Turkey

- E 692 Cetinkaya — Kars — Dogu Kapi (— Akuryan)
(— Akhalkalaki)
- E 70 (Svilengrad —) Kapikule — Istanbul — Haydarpaşa — Ankara —
Kapiköy [— Razi (Iran, Islamic Republic of)]
Nusajbin [— Kamichli (Syrian Arab Republic)]
- E 74 Eskisehir — Kütahya — Balıksır — Bandırma
- E 97 Samsun — Kalın — Malatya — Yenice — Mersin
Iskenderun

(34) Lithuania

- E 14 Radviliškis — Panvezys — Rokiskis — Obeliai (— Eglaine)
- E 20/3 (Nesterov —) Kybartai— Kazlu Ruda — Kaunas — Kaišiadorys — Vilnius — Kena
(Sassnitz — Mukran —) Draugyste — (Klaipėda —) Šiauliai — Radviliškis
(— Gudagai)
- E 75 (Trakiszi —) Mockava — Šeštokai — Kaunas — Šiauliai — Šarkiai (— Meitene)

(35) Armenia

- E 692 (Sadakhlo —) Ayrum — Gyumri — Akhuryan (— Dogu Kapi)
Gyumri — Yeraskh (— Velidag)
- E 693 Gyumri — Yerevan — Hrazdan — Dilijan — Ijevan — Ghazakh (— Barkhudarli)
- E 694 Gyumri — Artashat — (Nakhichevkan — Karchivan —) Meghri — Agbent (— Bartaz)

(36) Azerbaijan

- E 595 (Samur —) Yalama — Baku
- E 60 (Gardabani —) Beyuk — Kyasik — Baku (— Turkmenbashi)
- E 694 Astara — Baku — Dzhulfa — Nakhichevakan (— Artashat)

(37) Georgia

- E 99 (Veseloe —) Gantiadi — Poti
- E 60 Batumi — Tbilisi — Gardabani (— Beyuk — Kyasik)
Poti
- E 692 (Ayrum —) Sadakhlo — Tbilisi
(Kars —) Akhalkalaki

(38) Kazakhstan

- E 20 (Kurgan —) Petropavlovsk (— Omsk)
E 24 (Kurgan —) Presnogorkovskaya — Kökshetaú — Aqmola — Mointy — Druzhba (— Alashankou)
E 30 (Orenburg —) Iletsk I — Kandagach
E 50 (Astrakhan —) Aksaraiskaya II — Atyraú — Makat — Kandagach — Arys — Almaty — Aqtogai
E 60 (Salar —) Chengeldy — Arys
E 597 Makat — Beyneu (— Kungrad)
E 592 Beyneu — Shetpe — Aqtau

(39) Turkmenistan

- E 60 Turkmenbashi — Ashgabat — Chardzhev (— Alat)
E 695 (Termis) — (Karshi)
E 597 (Nukus —) Dashhowuz — (Urganch —) Chardzhev

(40) Uzbekistan

- E 60 (Chardzhev —) Bukhara — Tashkent — Salar (— Chengeldy)
E 696 Tashkent — Khavast — Andizhan (— Osh)
E 695 Bukhara — Karshi — Termiz — Galaba (— Hairaton)
E 597 (Beyneu —) Kungrad — Nukus — (Dashhowuz —) Urganch (— Chardzhev)

(41) Latvia

- E 12 $\frac{\text{Ventspils}}{\text{Liepaja}}$ — Jelgava — Krustpils — Rēzekne — Zilupe (— Sebezh)
E 14 $\frac{\text{Rīga — Krustpils}}{(\text{Obeliai —}) \text{Eglaine}}$ — Daugavpils — Indra (— Bigosovo)
E 75 (Šarkiai —) Meitene — Jelgava — Rīga — Lugaži (— Valga)

(42) Estonia

- E 75 Tallin — Tapa — Tartu — Valga (— Lugaži)

Annex II

Technical characteristics of main international railway lines

Preliminary remarks

The *parameters* are summarized in table 1.

The values shown in column A of table 1 are to be regarded as important objectives to be reached in accordance with national railway development plans, and any divergence from these values should be regarded as exceptional.

Lines have been divided into two main categories:

(a) *Existing* lines, capable of being improved where appropriate; it is often difficult and sometimes impossible to modify, for instance, their geometrical characteristics, and the requirements have to be eased for such lines;

(b) *New* lines to be built: within certain economic limits, the geometrical characteristics in particular may be freely selected; it is necessary to distinguish two subcategories:

(i) Lines intended solely for *passenger* traffic (excluding goods traffic);

(ii) Lines for *mixed* or *combined* traffic, for both passenger and goods services.

The parameters adopted in no way hinder technical progress: they are minimum requirements. A railway network may adopt more ambitious parameters if it considers this worth while.

By analogy, the specifications given in table 1 also apply, where appropriate, to ferry-boat services which are an integral part of the railway network.

Table 1
Infrastructure parameters for main international railway lines

		<i>A</i> <i>Existing lines which meet the infrastructure requirements and lines to be improved or reconstructed</i>	<i>B</i> <i>New lines</i>	
			<i>B1</i> <i>For passenger traffic only</i>	<i>B2</i> <i>For passenger and goods traffic</i>
1.	Number of tracks	-	2	2
2.	Vehicle loading gauge	UIC* 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
	Rail cars 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

* UIC: International Union of Railways.

1. Number of tracks

Main international lines must provide high capacity and allow precision timing of operation.

It is generally possible to meet both requirements only on lines with at least two tracks.

2. Vehicle loading gauge

This is the minimum loading gauge for main international lines.

On *new* lines, only a small marginal investment cost is normally incurred by adopting a high loading gauge, and the UIC C1 gauge has therefore been chosen.

The C1 gauge allows, for instance:

- The transport of road goods vehicles and road trains (lorry with trailer, articulated vehicle, tractor and semi-trailer) conforming to the European road loading gauge (height 4 m, width 2.5 m) on special wagons with a loading height 60 cm above rail level;
- The transport of ordinary road semi-trailers 2.5 m wide and 4 m high on recess wagons with normal bogies;
- The transport of ISO containers 2.44 m wide and 2.9 m high on ordinary flat wagons;
- The transport of swap-bodies 2.5 m wide on ordinary flat wagons.

The *existing* lines across mountainous regions (such as the Pyrenees, Massif Central, Alps, Jura, Appenines, Carpathians) have many tunnels conforming to the Technical Unit loading gauge, or gauges of slightly greater height at the centre of the track. Increasing this to conform to the UIC C1 gauge is in almost all cases impossible from the economic and financial standpoints.

The UIC B gauge has therefore been chosen for these lines, as it allows, for instance:

- The transport of ISO containers 2.44 m wide and 2.90 m high on flat container-wagons with a loading height 1.18 m above rail level;
- The transport of swap-bodies 2.5 m wide and 2.6 m high on ordinary flat wagons (loading height 1.246 m);
- The transport of semi-trailers on recess wagons.

Most of the *existing* main international lines offer at least the UIC B gauge. In the case of the others, improvement to this standard does not normally require major investment.

3. Minimum distance between track centres

This is the minimum distance between track centres for double-track main lines outside stations.

An increase in the distance between track centres presents the following advantages:

- Decrease in the aerodynamic pressure when two trains pass each other, an advantage which increases in proportion to the speed;
- Some relief from the constraints imposed in the transport of out-of-gauge loads;
- Possibility of using high-powered mechanized equipment for track maintenance and renewal.

On *existing* double-track lines, and outside stations, the distance between track centres varies between 3.5 m and 4 m. When tracks are completely renewed, efforts should be made to increase the distance, with the aim of achieving a minimum distance of 4 m.

On *new* lines, the choice of a generous between-track distance normally entails only a limited marginal investment, at least outside tunnels and up to 4.2 m. A minimum distance between track centres of 4.2 m has therefore been selected. This is sufficient for high speeds up to 300 km/h (e.g. the new Paris — south-east high-speed line between Paris and Lyon).

4. Nominal minimum speed

The nominal minimum speed determines the geometrical characteristics of the section (radius of curves and cant), the safety installations (braking distances) and the braking coefficient of the rolling stock.

On *existing* lines, maximum speeds are dependent upon the radius of the curves. The nominal minimum speed selected (160 km/h) is the general practice on sections with straight track or wide-radius curves. In some cases the layout and signalling can be improved, without excessive investment, to allow 160 km/h to be reached on some sections.

On *new* lines much higher nominal speeds can be adopted. The nominal speeds selected are those for new lines recently completed, under construction or at the planning stage.

The nominal speed is not the same as the commercial speed. The commercial speed is the distance between the origin and destination of a train divided by the total journey time, including intermediate stops.

5. Authorized mass per axle

This is the authorized mass per axle which international main lines should be able to bear.

International main lines should be capable of taking the most modern existing and future vehicle traffic, in particular:

- Locomotives with a mass per axle of 22.5 tonnes; on lines which normally take a mass per axle of 20 tonnes, locomotives with a slightly higher mass per axle are tolerated because the ratio of the number of locomotive axles to the total number of axles is usually very low and the suspension of a locomotive causes less wear than that of a wagon;
- Rail cars and rail motor sets with a mass per axle of 17 tonnes (this is the mass per axle of the French Railways TGV sets);
- Carriages with a mass per axle of 16 tonnes (in existing and planned ordinary carriage stock, no carriage has or will have a mass per axle, when loaded, exceeding 16 tonnes);
- Wagons with a mass per axle of 20 tonnes, which corresponds to UIC class C; for *new* mixed or combined traffic lines a wagon mass per axle of 22.5 tonnes up to 100 km/h has been adopted, in conformity with recent UIC decisions. The mass per axle limits of 20 tonnes for a speed of 120 km/h and 18 tonnes for a speed of 140 km/h are those set by the UIC regulations.

The mass per axle values shown are for a wheel diameter of not less than 840 mm, in accordance with the UIC regulations.

6. Authorized mass per linear metre

The authorized mass per metre of length over buffers of vehicles which international lines should be capable of accommodating has been set at 8 t, conforming to UIC class C4.

7. Test train (bridge design)

This is the minimum “test train” on which bridge design for international main lines should be based.

On *new* lines for *mixed* or *combined* traffic, the UIC 71 test train is used.

On *new* lines restricted to *passenger* traffic, no international standard has been laid down.

8. Maximum gradient

This is the gradient not to be exceeded on main international lines.

On *existing* lines, the gradient is a factor which it is virtually impossible to alter.

On *new* lines reserved for passenger traffic, the value 35 mm/m has been adopted (this is the standard used on the Paris — south-east high-speed line between Paris and Lyon).

On *new* lines for *mixed* or *combined* traffic, the value 12.5 mm/m has been adopted. This is the highest in any current national planning.

The gradient depends upon the length of the slope; the longer the slope the smaller the gradient and vice versa.

9. Minimum platform length in principal stations

The length of 400 m adopted by UIC has been chosen. A platform with a length of 400 m will take, for example:

- A train consisting of a locomotive and 13 coaches 27.5 m long, or a locomotive and 14 coaches 26.4 m long;
- A train consisting of two TGV sets as used on the Paris — south-east line.

A principal station platform length exceeding 400 m was not adopted, for two reasons:

- “Passenger resistance” from passengers on foot, especially in dead-end stations;
- Excessive investment costs, especially in modifying existing dead-end stations.

10. Minimum useful siding length

The minimum useful siding length on main international lines is significant only for goods trains.

The length of 750 m adopted by UIC was chosen. This permits the movement and stabling of goods trains of a gross hauled weight exceeding 5,000 tonnes in class C4 (8 gross tonnes per metre of length); moreover, a train of 1,500 hauled gross tonnes to be stabled on a 750 m siding has a mass of little more than 2 tonnes per metre of length.

11. Level crossings

New main international lines should be built without any road level crossings.

On *existing* main international lines, the systematic replacement of level crossings by over-or under-passes is planned, except in the few cases where such replacement is physically impossible.