This section describes the principal characteristics of the lines and installations making up the Italian railway infrastructure and its aim is to provide the railway undertakings with all the necessary elements enabling them to plan their bid and apply for the relevant train paths. The physical data of all the attachments to section 3 are up-to-date, in connection with the timetable running from 9th December 2007 to 13rd December 2008, and have information value, with respect to the timetable from 14th December 2008 to 12nd December 2009.

More detailed information is set out in specific publications, which will be provided to the train path allocatees and, on request, to the other undertakings.

3.1 DEFINITION

The infrastructure means the Italian national rail infrastructure operated under license by RFI S.p.A and the characteristics detailed hereunder are valid from the entry into force of this document and for its entire term. Any changes to the infrastructure increasing or restricting its capacity, within the period of validity, are described in the following paragraph 3.5; any changes to the effective dates of the working timetables will be notified by the IM in accordance with paragraphs 2.3.4 and 6.2.2.3 (solely as regards their economic effects).

The infrastructure is the one referred to in the DM 138T of 2000.

For the sole purpose of calculating access charges, and consistently with the DM 43T of 21 March 2000, the infrastructure is broken down into nodes, basic network and secondary network (which, in turn, is broken down into secondary-network lines, limited-traffic lines, shuttle lines). See map 1 for a graphic representation of these infrastructure components.

The connecting stations between the domestic and foreign networks are (see Diagram 1):

for the French border: the stations of Ventimiglia and Modane;

for the Swiss border: the stations of Iselle, Pino Tronzano and Chiasso;

for the Austrian border the stations of Brennero, Tarvisio Bocoverde and Prato alla Drava;

for the Slovenian border the stations of Villa Opicina and Nova Gorica.

Following is the contact information for the infrastructure managers of the networks bordering with the Italian network:

RFF (French rail network operator)
92, avenue de France
75648 PARIS CEDEX 13
Phone: +33 (0)1 53 94 30 00
Fax: +33 (0)1 53 94 38 00
http://www.rff.fr

SBB/BLS Infrastructure (Swiss rail network operator)
Hochschulstrasse 6
3000 Bern 65
Phone +41 (0) 512 20 33 44
Fax +41 (0) 512 20 51 51
E-mail: oss@sbb.ch
3.2 NETWORK DESCRIPTION
Reference should be made to the attached maps and tables.

3.2.1 GEOGRAPHICAL IDENTIFICATION
Information relating to the national rail network lines and concerning:
- Number of tracks;
- Distance between stations.
can be found in Appendix 1 (Characteristics of the lines) and map 1.

The gauge of the infrastructure is 1435 mm.

Information on the:
- Name;
- Geographical location.
of the stations belonging to the infrastructure can be found in Appendix 2 (Characteristics of installations by line) and map 1.

The name and geographical location of the border stations can be found in map 1.

3.2.2 CAPABILITIES (update to December 2007)
The characteristics of the lines, in relation to combined transport, can be found in Appendix 2 and map 3.
Line coding is shown in the Service Publications.

In the case of oversize cargo (overall dimensions exceed limits of the loading gauge), reference must be made to paragraph 2.3.8.

Line classification based on axle mass is shown in Appendix 1 and Map 4. Any special limitations relating to axle-loads above the accepted limit is also highlighted; these limitations can be found in the Preface to the Working Timetable and will be communicated during the planning phase on request of the RUs concerned.
The values corresponding to classifications shown in the map are as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Mass per axle</th>
<th>Mass per current metre</th>
</tr>
</thead>
<tbody>
<tr>
<td>D4</td>
<td>22.5 t</td>
<td>8.0 t/m</td>
</tr>
<tr>
<td>C3</td>
<td>20.0 t</td>
<td>7.2 t/m</td>
</tr>
<tr>
<td>B2</td>
<td>18.0 t</td>
<td>6.4 t/m</td>
</tr>
<tr>
<td>A</td>
<td>16.0 t</td>
<td>5.0 t/m</td>
</tr>
</tbody>
</table>

In the case of cargo above these weight limits, reference should be made to paragraph 2.3.8.

Appendix 1 also gives:

- The maximum line gradient (expressed in “per thousand”), for both directions;
- The line speed, in its minimum and maximum values for each permitted speed class in the section; the speed classes, and relevant permitted trains, are given in the Line Files/Timetable Files;
- The power supply system, where TE means electrical traction by direct current at 3000 V, and TD means Diesel Traction (see Map 2);
- The line module, indicating the maximum available length for trains, passenger and freight, running on the line (locomotive/s plus trailer vehicles).

3.2.3 SAFETY SYSTEMS (update to December 2007)

The presence or lack of equipment for relaying signals to traction vehicles can be found in Appendix 1 and map 9.

The signalling systems adopted on the infrastructure is indicated in Appendix 1 and map 6. BAB means Blocco Automatico Banalizzato, automatic block of two-way working lines, BA means Blocco Automatico, automatic block, BCA means Blocco Conta Assi, axle-counter block, BEM means Blocco Elettrico Manuale, hand-operated electric block, ERTMS means European Rail Traffic Management System.

The ground-to-train communication system, called GSM-Railway, was introduced on 25 October 2004. Since then the national Infrastructure Manager is directly responsible for the mobile communications services for railway operations, among which are emergency calls, group calls and the handling of priority calls. The activation of these functionalities, which is nevertheless subject to GSM-R radio coverage along the single sections of the track, shall be communicated in the procedures of use and made promptly available on the RFI website - Direzione Tecnica - GSM-R. Map 15 shows the radio coverage area of RFI’s GSM-R system according to the three activation stages provided for to date.

The line operating system of the infrastructure is indicated in Appendix 1 and map 7. The symbols used are: DC means Dirigente Centrale (Central Traffic Controller), CTC means Controllo Centralizzato del Traffico (Centralized Traffic Control), where the Dirigente Centrale Operativo operates, DL means Dirigenza locale (Local Traffic Controller), DU means Dirigente Unico (Single Track Line Traffic Controller); where “Others” is written, reference should be made to the service publications relating to the line.

The installation of the Sistema di Controllo Marcia Treno (SCMT), the Train Operation Control System, in the infrastructure is indicated in Appendix 3 and Map 8.
The installation of the system called “Vigilante” in the infrastructure is indicated in Appendix 4. As regards the characteristics and functionalities of the two systems, reference should be made to the regulations posted in www.rfi.it

3.3 TRAFFIC RESTRICTIONS (updated to December 2007)

Dangerous goods
In the event the terminalization of dangerous goods is carried out in a goods station or freight terminal, in accordance with paragraph 4.7, this station shall be classified as a “freight terminal for dangerous goods”, in accordance with the applicable laws and operating regulations issued by the Infrastructure Manager. The Regulations concerning the International Carriage of Dangerous Goods by Rail (RID), besides the provisions referred to in paragraphs 2.3.8, 4.2 and 4.7, apply, as such, to the international rail transport of dangerous goods.

Environmental restrictions
Omitted

Specialised infrastructure
Upgraded or specialised lines for HS passenger services are indicated in Appendix 5; upgraded or specialised lines for freight services are indicated in Appendix 6. The document also details whether the upgrading/specialisation is total or partial, in the latter case the relevant periods (assumed partial time) and other permitted services (assumed partial use) are highlighted.

Tunnel restrictions
For traffic restrictions in tunnels, see paragraph 3.2.2, relating to the line characteristics for combined transport.

Bridge restrictions
As regards traffic restrictions on the infrastructure bridges, reference should be made to tables 49ter, 50, 51 and 53 of PGOS.

Timetable
The lines can be used between the times as follows:

<table>
<thead>
<tr>
<th>Line opening schedules</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HS/HC lines</td>
<td>24h</td>
</tr>
<tr>
<td>Main lines</td>
<td>24h</td>
</tr>
<tr>
<td>Lines passing through the major rail hubs</td>
<td>24h</td>
</tr>
<tr>
<td>Type A additional lines</td>
<td>24h</td>
</tr>
<tr>
<td>Type B additional lines</td>
<td>17h46’ (min) ÷ 20h45’ (max)</td>
</tr>
<tr>
<td>Type C additional lines</td>
<td>15h46’ (min) ÷ 17h45’ (max)</td>
</tr>
<tr>
<td>Type D additional lines</td>
<td>14h24’ (min) ÷ 15h45’ (max)</td>
</tr>
</tbody>
</table>
The servicing of the type B, C and D additional lines, within the specified minimum threshold, entails no extra charges. Operations may be extended within the maximum threshold, by application to the RU concerned – concomitantly with the submission of the train path application and, in any case, within 30 days before the date of inception of the service for which the operation extension has been requested – and subject to the payment of the extension charge (see paragraph 6.3.3). The full list of additional classified lines for the 2008/2009 timetable, and their nature as regards the period of opening, can be taken from Appendix 9.

The timeframes during which the facilities can be used are indicated in Appendix 2. With regard to the terminal stations of Torino PN, Milano Cle, Venezia SL, Trieste Cle, Firenze SMN, Roma Tni, Napoli Cle, Palermo Cle, Cagliari, commercial services shall be suspended during the night for at least 3 hours, in order to allow maintenance and cleaning operations to be carried out. Any applications for and the consequent allocation of paths outside the above mentioned time frames shall generally entail a cost for the RU, corresponding to the time extension charge (see section 6.3.3).

The start and finish times for use of the rail lines and facilities may be found, for the current timetable (9th December 2007 – 13rd December 2008) in the applicable operating regulations (Line Files). Any applications for and the consequent allocation of paths outside the above mentioned time frames shall generally entail a cost for the RU, corresponding to the time extension charge (see section 6.3.3).

For stations with Remote control/D.U. arrangements, the indicated hours refer to the enablement time of the central control point with D.C.O./D.U.
In the stations run by a Dirigente Movimento (D.M.), movements inspector, on the lines with a Dirigenza Locale (D.L.), local traffic control, no train shunting, opposing train meeting and give-way operations shall be allowed outside the established timeframe during which the facilities can be used.

The timeframes set aside for maintenance work (from Mon to Fri, unless specified otherwise) are indicated in Appendix 1 and map 14 (in the case of basic network lines). The time of the day is specified with either a “D” for daytime (maintenance work is typically carried out in the morning), or an “N” for night-time (maintenance work generally begins after 11.00 pm). The start and finish times for maintenance purposes are set out, for each timetable, in the applicable operating regulations (Line Files).

Other restrictions
Following are the characteristics of the traction vehicles that are barred from running on the line sections, because of the negative effects induced on the infrastructure capacity due to the reduced performance in terms of speed and one hour continuous power rating.

Any derogations to the circulation of the vehicles in question shall be considered on a case by case basis, on partial sections, besides in the case of specific measures of deviations of traffic flows for line interruptions.
| | One hour/continuous rating 2 Mw |
| Modane / Modane FX - Alpignano [Torino] | Top speed 110 km/h  
| | One hour/continuous rating 2 Mw |
| Brennero-Verona | Top speed 110 km/h  
| | One hour/continuous rating 2 Mw |
| | One hour/continuous rating 2 Mw |

Note: the vehicles concerned are those that possess both the characteristics

### 3.4 SERVICE FACILITIES (updated to December 2007)

#### Ferry services

This part of the document provides information on the ferry services for goods wagons and passenger carriages on the Messina-Villa S. Giovanni route, which service guarantees the continuity of the paths between Sicily and the mainland.

The ferrying capacity is 396 metres per trip.

The time required for embarkation (time interval between the arrival of the train path to the reference station and the departure of the ferry) and disembarkation (time interval between the arrival of the ferry and the departure of the train path from the reference station) is more or less as follows:

<table>
<thead>
<tr>
<th></th>
<th>EMBARCATION</th>
<th>DISEMBARCATION</th>
</tr>
</thead>
</table>
| Villa S.Giovanni | - Passengers 40'-50’  
|           | - Freight 50’  
|           | - Passengers 40'-50’  
|           | - Freight 50’ |
| Messina   | - Passengers 35'-50’  
|           | - Freight 50’  
|           | - Passengers 35'-50’  
|           | - Freight 50’ |

These times may increase if, besides the embarkation/disembarkation operations, it is also necessary to perform train formation or splitting up operations, removing those carriages that are not concerned by the ferry crossing.

The application for train paths connecting Sicily and the mainland are inclusive of the ferry service.

The ferry service on the Civitavecchia-Golfo Aranci route across the Tyrrhenian Sea, carrying goods wagons between Sardinia and the mainland, does not concern entire trains.

Information on the relevant services not indicated in this document can be requested directly from the Navigation division:

RFI S.p.A.  
Direzione Movimento - Navigazione  
Piazza della Croce Rossa 1, 00161 Roma  
Phone: 0039 (0) 6 44103042

#### Fuel supply

Stations where fuel is available are indicated in Appendix 2.
Terminalization
The characteristic function of “facility for moving and transferring freight from one transport mode to another” is indicated in Appendix 2.

Freight terminals
The availability of freight sidings for loading/unloading in the RFI area is indicated in Appendix 2.

Train washing sidings and inspection pits
The availability of train washing sidings and inspection pits is indicated in Appendix 2.

Unaccompanied car service
The availability of sidings for loading/unloading cars (unaccompanied car service) is indicated in Appendix 2.

Water supply and Pre-heating / Climatisation
The availability of facilities for supplying water to the carriages and for their pre-heating and/or climatisation is indicated in Appendix 2.

Appendix 2 also provides information relating to:

- The type of facility, where “S” stands for stations (places where trains can meet or overtake) and “F” stands for stops; PC (Posto di Comunicazione) stands for Central Communications Point and PM (Posto di Movimento) is an Operating Control Point. Stations marked with a (t) are Remote-controlled/Line-controller operated, and those marked with (P), (D) and (A) are those provided with lighted P, D and A signs, respectively.
- The availability of passenger or freight services. In the case of freight services, the facility may be the origin or destination of the goods trains. The minimum and maximum length of the passenger platforms (where there is only one platform, only one figure is given), in metres, must be consistent with the length of the trains stopping there.
- The presence or lack of an underpass for reaching the station platforms; Access facilities for passengers with disabilities, if any, are suitably signposted.

3.5 FORECAST INFORMATION (updated to December 2007)
This part of the NS presents the projects that, in the term hereof, will result in either an upsizing of the infrastructure capacity (new works available for traffic – Appendix 7) or a downsizing of that capacity (Appendix 8 – setting out the infrastructure projects that the IM undertakes to publish in accordance with paragraph 2.3.4).
The projects shown in the tables are broken down by geographical division and line/section, with the indication of the date on which the infrastructure upsizing works will be available and the date/period of unavailability in the case of works resulting in the downsizing of the infrastructure capacity.

3.6 NETWORK USAGE
This part of the document provides useful information for planning transport services (itineraries and use of technical resources), and reference for certain aspects relating to the conditions of access to the infrastructure.

In particular, basic information is provided on traffic density affecting charges (sections with high, low and medium traffic density broken down per significant periods of the day).

In particular, maps 10, 11 and 12, each one relating to one of the significant periods of the day, feature breakdowns of the main infrastructure into sections with high, medium and low traffic density, based on the corresponding technical schedule attached to DM 12T of 11 April 2003.

For the purpose of determining the infrastructure access charge, map 13 indicates the reference speed, in each of the three time slots, of the main lines of the national rail infrastructure.

3.7 ACCESS TO THE HS/HC NETWORK (updated to December 2007)

This part of the document provides some indications for planning transport services on the HS/HC network.

As regards this matter, and keeping in mind that the new HS/HC lines feature

- a standard speed of 300 km/h
- level 2 ERTM-S safety system
- a tractive power supply of 25,000 V a.c., during the daytime, i.e. between 6 am and 10 pm, which is the characteristic period of HS operation, only speeds of at least 250 km/h will be allowed, in order not to jeopardise the full exploitation of the quality and quantity potential of these lines.

Lower speeds will be allowed only on the limited sections specified in Appendix 5.