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**Guidance on the Operation and Traffic Management Technical
Specification for Interoperability**

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Guidance on the Operation and Traffic Management Technical Specification for Interoperability

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Guidance on the Operation and Traffic Management Technical Specification for Interoperability

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Guidance on the Operation and Traffic Management Technical Specification for Interoperability

Part 1 Introduction

G 1.1 Purpose of this document

G 1.1.1 The purpose of this document is to provide:

- a) Guidance on interpretation of points within the Operations and Traffic Management TSI (OPE TSI) where, owing to incomplete or relatively obscure wording, the intent and meaning may be difficult to understand.
- b) Guidance about appropriate application of the requirements in the context of the mainline railway in Great Britain.
- c) Guidance about appropriate application of the requirements in the context of cross border operations.

G 1.1.2 The guidance note is intended to assist in how company processes and procedures meet the operational requirements of the OPE TSI.

G 1.1.3 The guidance contained within clauses G 2.54 to G 2.56 and G 2.59 to 2.64 applies to railway undertakings staff carrying out the safety critical tasks of accompanying trains or preparing trains where this involves cross border trains.

G 1.1.4 The guidance contained within clauses G 2.65 to G 2.72 applies to railway undertakings staff carrying out the safety critical tasks of accompanying trains where this involves cross border trains.

G 1.1.5 This guidance note should not be read in isolation. Some of the most relevant documents that should be read in conjunction with it are:

- a) The Operations and Traffic Management TSI 2011/314/EU.
- b) The Railways and Other Guided Transport Systems (Safety) Regulations 2006 (as amended) (ROGS).
- c) The Health and Safety at Work Act 1974.
- d) The Management of Health and Safety at Work Regulations 1999 (MHSW Regulations).
- e) Railways (Interoperability) Regulations 2011.
- f) Train Driving Licences and Certificates Regulations 2010.

G 1.1.6 The OPE TSI defines the operational processes that allow rail vehicles to carry passengers or goods in service. These processes include:

- a) Development of a Competence Management System.
- b) Organisation of suitable equipment (purchased or leased).
- c) Developing relevant requirements and procedures for each level of train operations. This includes the interfaces with (sub-) contractors.

G 1.1.7 The European Railway Agency has published a guide for the application of the OPE TSI (Application Guide) that has been used to inform the guidance in this document.

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- G 1.1.8 This guidance note contains the text of the OPE TSI in boxes and, where considered necessary, guidance is provided as a series of sequentially numbered clauses prefixed 'G' immediately below the boxed text to which it relates. Where there is no guidance given, this is stated. The headings and sub-headings contained within the OPE TSI are also included in the boxes. Where a number of requirements are contained under a heading, these have been, when considered appropriate, divided into individual boxes to make it clear to the reader the relevant guidance to each specific requirement.
- G 1.1.9 Guidance on documentation for drivers who operate cross border trains is contained within clauses G 2.5 to G 2.8. This guidance is contained under separate sub-headings within these clauses.
- G 1.1.10 A number of requirements contained within the OPE TSI are yet to be agreed at a European level, are open points or have temporary specific cases for the GB mainline railway. These are mentioned at G 2.19.1, G 2.20.1 and G 2.35.1.
- G 1.1.11 The OPE TSI contains a number of requirements that are not currently met by Railway Group Standards. Guidance on these are contained within G 2.43.1, G 2.45.2, 2.45.4, 2.68.1 and G 2.70.1.

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G 1.3 Approval and authorisation of this document

- G 1.3.1 The content of this document was approved by Traffic Operation and Management Standards Committee on 23 July 2013.
- G 1.3.2 This document was authorised by RSSB on 02 August 2013.

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Part 2 Guidance on the Operation and Traffic Management TSI

G 2.1 Characteristics of the subsystem

4 Characteristics of the subsystem

4.1 Introduction

Taking into account all the relevant essential requirements, the 'operation and traffic management' subsystem, as described in point 2.2, covers only the elements specified in this Chapter.

In conformity with Directive 2001/14/EC, it is the overall responsibility of the infrastructure manager to provide all the appropriate requirements which must be met by trains permitted to run on its network, taking into account the geographic particularities of individual lines and the functional or technical specifications set out in this Chapter.

- G 2.1.1 Network Rail meet this responsibility through the provision of Route Utilisation Strategies (RUS).

G 2.2 Functional and technical specifications of the subsystem

4.2 Functional and technical specifications of the subsystem

The functional and technical specifications of the 'operation and traffic management' subsystem comprise of the following:

- Specifications relating to staff,
- Specifications relating to trains,
- Specifications relating to train operations.

- G 2.2.1 No guidance is associated with the above.

G 2.3 Specifications relating to staff – General requirements

4.2.1 Specifications relating to staff

4.2.1.1 General requirements

This point deals with staff who contributes to the operation of the subsystem by performing safety-critical tasks involving a direct interface between a railway undertaking and an infrastructure manager.

- (1) Railway undertaking staff:
 - (a) undertaking the task of driving trains (referred to throughout this TSI as 'driver') and forming part of the 'train crew',
 - (b) undertaking tasks on-board (other than driving) and forming part of the 'train crew',
 - (c) undertaking the task of preparing trains.
- (2) Infrastructure manager's staff undertaking the task of authorising the movement of trains

The areas covered are:

- Documentation
- Communication

In addition, for the staff as defined in point 2.2.1., this TSI sets out requirements on:

- Qualifications (see point 4.6 and Appendix L)
- Health and safety conditions (see point 4.7)

- G 2.3.1 Guidance is provided in G2.5 to G2.13 below.

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G 2.4 Documentation for drivers

4.2.1.2 Documentation for drivers

The railway undertaking operating the train must supply the driver with all the necessary information and documentation required to carry out his duties.

This information must take into account the necessary elements for operation in normal, degraded and emergency situations for the routes to be worked over and the rolling stock used on those routes.

- G 2.4.1 Railway undertakings meet this requirement by developing and implementing processes for providing drivers with National Operating Publications and other publications including freight train loads books, timetables and traction manuals, based on the routes their drivers operate over and the types of traction they drive.

G 2.5 Driver's Rule Book

4.2.1.2.1 Driver's Rule Book

All the necessary procedures for the driver must be included in a document or a computer medium called the 'Driver's Rule Book'.

The Driver's Rule Book must state the requirements for all the routes worked and the rolling stock used on those routes according to the situations of normal operation, degraded operation and in emergency situations which the driver may encounter. It must have two appendices:

- Appendix 1 :Manual of communication procedures;
- Appendix 2: Book of Forms.

- G 2.5.1 Railway undertakings meet this requirement by having systems in place to provide their drivers with all the appropriate Rule Book modules. These can be selected by reference to the Rule Book matrix.
- G 2.5.2 Route information is dealt with as clause G 2.6 to G 2.8 of this guidance note.
- G 2.5.3 The communications procedures are dealt with as clause G 2.14 of this guidance.
- G 2.5.4 The Draft TSI Application Guide version three states that the infrastructure manager should decide whether the use of forms is appropriate. For the GB mainline railway, except for those parts where European Railway Traffic Management System (ERTMS) is in operation, safety critical messages are communicated by the most appropriate means using the communications protocol contained within Railway Group Standard GE/RT8000 Rule Book modules.

Additional requirements regarding the rule book for drivers who operate cross border trains

- G 2.5.5 Railway undertakings should ascertain, from the National Safety Authority of each member state they plan to operate trains through, where all the national rules are posted. This may be the website of the National Safety Authority or Infrastructure Manager.
- G 2.5.6 Railway undertakings should establish from the National Safety Authority of each member state, which publications are required to operate trains through their country and any further advice they may be able to provide on how best to obtain them.
- G 2.5.7 Once the necessary information has been obtained, a decision needs to be taken about how the information will be formatted. This may be structured in the same way as Railway Group Standard GE/RT8000 Rule Book modules or it may be considered that the documents are better retained in their original format. The important thing to remember is that all Rule Book modules should be in the same format.

The Driver's Rule Book must cover two distinct aspects:

- one which describes the set of common rules and procedures (taking into account the

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contents of Appendices A, B and C),

- another which sets out any necessary rules and procedures specific to each infrastructure manager.

It must include procedures covering, as a minimum, the following aspects:

- Staff safety and security,
- Signalling and control command,
- Train operation including degraded mode,
- Traction and rolling stock,
- Incidents and accidents.

- G 2.5.8 Appendix A of the OPE TSI refers to ERTMS/ETCS operating rules. For the GB mainline railway the operating rules are contained with Railway Group Standard GE/RT8000 ERTMS Rule Book modules.
- G 2.5.9 Appendix B of the OPE TSI deals with other rules enabling coherent railway operations. Currently, the only rules within this appendix deal with sanding as shown in appendix A of this guidance note. Railway undertakings will meet this requirement by including the instructions contained within Appendix A of this guidance note in traction manuals or bulletins for those traction units that require drivers to manually operate sanders. Consideration should also be given to any additional training or briefing required and whether any changes are necessary to Competence Management Systems.
- G 2.5.10 Appendix C of the OPE TSI details the safety related communications methodology required for staff operating trains on the European network. Guidance on communications protocol is provided within G 2.14 of this guidance note.
- G 2.5.11 Railway undertakings meet the requirement regarding the operating rules applicable to staff safety and security, signalling control and command, train operations in degraded mode and the management of incidents and accidents by the provision of the appropriate GE/RT8000 Rule Book modules which can be established by reference to the Rule Book Index and Glossary and the Rule Book matrix mentioned at G 2.5.15.
- G 2.5.12 Railway undertakings meet the requirement regarding the provision of traction and rolling stock information to drivers by having processes in place for issuing and updating traction manuals, bulletins and any other instructions required for the types of rolling stock they work.

Additional requirements regarding the format of the rule book for drivers who operate cross border trains

- G 2.5.13 Railway undertakings are required to correlate all the national rules and instructions made available by the National Safety Authority or infrastructure manager of each member state that apply to their cross border operations and which cover, as a minimum, the aspects required by 4.2.1.2.1 of the OPE TSI.

The railway undertaking is responsible for compiling the Driver's Rule Book.

The railway undertaking must present the Driver's Rule Book in the same format for the entire infrastructure over which their drivers will work.

The railway undertaking must compile the Driver's Rule Book in such a way that the driver's application of all operational rules is enabled.

- G 2.5.14 For the GB mainline railway, RSSB produces rules in a modular format.

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- G 2.5.15 Railway undertakings meet this requirement by having processes in place to provide their drivers with all the appropriate Rule Book modules. These can be selected by reference to the Rule Book matrix.
- G 2.5.16 For example; the Rule Book for the High Speed 1 route from London to the Channel Tunnel is produced by the Infrastructure Manager. In this case the railway undertaking has a process in place to provide their drivers with all the appropriate Rule Book modules applicable to their operations.

Additional requirements for compiling the rule book for drivers who operate cross border trains

- G 2.5.17 Railway undertakings should decide the format of the rule book information they give to their drivers. It is possible that the extent of lines they operate trains over that form part of the GB mainline railway are a small part of the total route miles and, therefore, other available rule book formats may be considered a better option than the current GE/RT8000 Rule Book modules. The important thing to remember is that all rule book modules should be in the same format.

Predefined messages and forms must remain in the 'operating' language of infrastructure manager(s).

- G 2.5.18 Infrastructure managers and railway undertakings meet this requirement by use of the forms contained within Railway Group Standard GE/RT8000 ERTMS Rule Book modules. These forms are currently sent in PDF format to those railway undertakings operating trains over routes equipped with ERTMS so they can provide hard copies to their staff. All publications and forms used on the GB mainline railway are produced in English.

The process for preparing and updating the Driver's Rule Book must include the following steps:

- the infrastructure manager (or the organisation responsible for the preparation of the operating rules) must provide the railway undertaking with the appropriate information in the infrastructure manager's operating language,
- the railway undertaking must draw up the initial or updated document;
- if the language chosen by the railway undertaking for the Driver's Rule Book is not the language in which the appropriate information was originally supplied, it is the responsibility of the railway undertaking to arrange for any necessary translation and/or provide explanatory notes in another language.

- G 2.5.19 The Rule Book for the GB mainline railway is produced by RSSB, who act as the 'organisation responsible for the preparation of the operating rules' and, thus, there is no requirement for infrastructure managers to provide railway undertakings with appropriate information.
- G 2.5.20 For example; the Rule Book for the High Speed 1 route from London to the Channel Tunnel is produced by the Infrastructure Manager. In this case the railway undertaking has a process in place to provide their drivers with all the appropriate Rule Book modules applicable to their operations.

Additional requirements for updating the rule book for drivers who operate cross border trains

- G 2.5.21 Railway undertakings should establish, from the National Safety Authority or infrastructure manager of the member states they will be operating cross border services through, the process for amending or updating national safety publications. This may be updates published on a website. A process should be put in place to identify any amendments or updates published by the National Safety Authority so that they can be incorporated in their own rule books.

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- G 2.5.22 Having established which rules and instructions are required for cross border operations, railway undertakings should then decide whether to translate the contents of any publications into English. Care should be taken not to change the meaning of any rule when doing this. If it is decided not to translate any publications, consideration needs to be given to the linguistic competence levels of those drivers who will be required to read, interpret and understand the publications.

The infrastructure manager must ensure that the content of the documentation provided to the railway undertaking(s) is complete and accurate.

The railway undertaking must ensure that the content of the Driver's Rule Book is complete and accurate.

- G 2.5.23 RSSB, as part of the Rule Book drafting process, hold cross industry workshops. Draft Rule Books are reviewed by the Traffic Operation and Management Standards Committee before being sent out to industry consultation (all stages include representatives from infrastructure managers and railway undertakings). This process is designed so that comments and suggestions from industry parties can be incorporated, where appropriate, into the Rule Book and the final draft can be agreed before publication.

G 2.6 Description of the line and the relevant line-side equipment associated with the lines worked over

4.2.1.2.2 Description of the line and the relevant line-side equipment associated with the lines worked over

Drivers must be provided with a description of the lines and the associated line-side equipment for the lines over which they will operate and relevant to the driving task. Such information must be set out in a single document called the 'Route Book' (which can either be a traditional document or computer based).

The following is a list of information which must, as a minimum, be provided:

- the general operating characteristics,
- indication of rising and falling gradients,
- detailed line diagram.

- G 2.6.1 Railway undertakings meet this requirement by having processes in place to update and issue all the necessary sectional appendices to their drivers for the routes they operate over.
- G 2.6.2 General operating principles and detailed line diagrams are required by Railway Group Standard GO/RT3215 Requirements for the Weekly Operating Notice, Periodical Operating Notice and Sectional Appendix. Gradient information is published in the form of a map which is available as supplementary information within the National Electronic Sectional Appendix (NESA).
- G 2.6.3 Railway undertakings can, if they choose to do so, use the National Electronic Sectional Appendices (NESA) provided electronically by Network Rail and produce their own appendices. This can reduce the amount of unnecessary information they give their drivers. In such cases, however, the railway undertaking will be responsible for making sure that all the necessary information is contained within the revised version.
- G 2.6.4 Network Rail is producing an enhanced Sectional Appendix that will be available from the National Electronic Sectional Appendices (NESA). No hard copies will be produced for these new appendices. These will include enhanced information to that currently contained within the Sectional Appendices.

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Additional requirements for establishing route information for drivers operating cross border trains

- G 2.6.5 Railway undertakings should ascertain, from the National Safety Authority of each member state they plan to operate trains through, where route information is posted. This may be the website of the National Safety Authority or Infrastructure Manager.

G 2.7 Preparation of the Route Book

4.2.1.2.2.1 Preparation of the Route Book

The format of the Route Book must be prepared in the same manner for all the infrastructures worked over by the trains of an individual railway undertaking.

- G 2.7.1 Infrastructure managers meet this requirement by complying with:
- a) Railway Group Standard GO/RT3215 Requirements for the Weekly Operating Notice, Periodical Operating Notice and Sectional Appendix.
 - b) Network Rail NR/L2/OPS/110 Requirements for the Weekly Operating Notice, Periodical Operating Notice and Local Operating Instructions (including Sectional Appendix).
 - c) Network Rail Operations Manual 2-03 Preparation and Distribution of Local Instructions.

Additional requirements for the preparation of the Route Book for drivers who operate cross border trains

- G 2.7.2 Once the necessary information has been obtained, a decision needs to be taken as to the format of the route information. This may be structured in the same way as the Sectional Appendices or may be retained in the format provided by other member states if this is considered to be better. The important point is that all route information should be formatted in the same way.

The railway undertaking is responsible for the complete and correct compilation of the Route book (for example, arranging for any necessary translation and/or providing explanatory notes), using the information supplied by the infrastructure manager(s).

- G 2.7.3 Railway undertakings meet this requirement by having processes in place to issue all the necessary Sectional Appendices to their drivers for the routes they operate over as required by Railway Group Standard GO/RT3215 Requirements for the Weekly Operating Notice, Periodical Operating Notice and Sectional Appendix.

Additional requirements for the compilation of the Route Book for drivers who operate cross border trains

- G 2.7.4 Having established route information is required for cross border operations, railway undertakings should then decide whether to translate the contents of any route information into English. Great care should be taken not to change the meaning of any information when doing this.
- G 2.7.5 If it is decided not to translate any publications, consideration needs to be given to the linguistic competence levels of those drivers who will be required to read, interpret and understand the publications.

The following information must be included (this list is not exhaustive):

- (a) the general operating characteristics:
 - type of signalling and corresponding running regime (double track, reversible working, left or right hand running, etc.),
 - type of power supply,
 - type of ground-train radio equipment.

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- (b) indication of rising and falling gradients with their gradient values and location;
- (c) detailed line diagram:
 - names of stations on the line and key locations and their location;
 - tunnels, including location, name, length, specific information such as the existence of walkways and points of safe egress as well as the location of safe places where evacuation of passengers can take place
 - essential locations such as neutral sections
 - permissible speed limits for each track, including, if necessary, differential speeds relating to certain types of train,
 - the responsible infrastructure manager
 - means of communication with the traffic management / control centre in normal and degraded mode

G 2.7.6 Infrastructure managers meet this requirement by complying with:

- a) Railway Group Standard GO/RT3215 Requirements for the Weekly Operating Notice, Periodical Operating Notice and Sectional Appendix.
- b) Network Rail standard NR/L2/OPS/110 Requirements for the Weekly Operating Notice, Periodical Operating Notice and Local Operating Instructions (including Sectional Appendix).

G 2.7.7 Telephone numbers for signal boxes, electrical control rooms and control offices are contained within the Weekly and Periodical Operating Notices.

Additional requirements for the provision of route information for drivers operating cross border trains

G 2.7.8 Railway undertakings are required to obtain, as a minimum, the route information shown above from the information provided by the National Safety Authority or infrastructure manager of each member state they will operate trains through.

The infrastructure manager must ensure that the content of the documentation provided to the railway undertaking(s) is complete and accurate.

G 2.7.9 Infrastructure managers meet this requirement by complying with:

- a) Railway Group Standard GO/RT3215 Requirements for the Weekly Operating Notice, Periodical Operating Notice and Sectional Appendix.
- b) Network Rail standard NR/L2/OPS/110 Requirements for the Weekly Operating Notice, Periodical Operating Notice and Local Operating Instructions (including sectional Appendix).
- c) Network Rail standard NR/L3/OPS/111 Weekly Operating Notice – Format and Content.
- d) Network Rail Operations Manual 2-03 Preparation and Distribution of Local Instructions.
- e) Network Rail Supplementary Notice of Signalling and Permanent Way Alterations (Yellow Perils).

G 2.8 Modifications to information contained within the Route Book

4.2.1.2.2.2 Modifications to information contained within the Route Book

The infrastructure manager must advise the railway undertaking of any permanent or temporary modifications to information supplied in accordance with point 4.2.1.2.2.1.

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G 2.8.1 Infrastructure managers meet this requirement by complying with:

- a) Railway Group Standard GO/RT3215 Requirements for the Weekly Operating Notice, Periodical Operating Notice and Sectional Appendix.
- b) Network Rail standard NR/L2/OPS/110 Requirements for the Weekly Operating Notice, Periodical Operating Notice and Local Operating Instructions (including Sectional Appendix).
- c) Network Rail standard NR/L3/OPS/111 Weekly Operating Notice – Format and Content.
- d) Network Rail Operations Manual 2-03 Preparation and Distribution of Local Instructions.
- e) Network Rail Supplementary Notice of Signalling and Permanent Way Alterations (Yellow Perils).
- f) Railway group standard GE/RT8000 Rule Book modules.

Additional requirements for amending the Route Book for drivers operating cross border trains

G 2.8.2 Railway undertakings should establish, from the National Safety Authority or infrastructure manager of the member states they will be operating cross border services through, the process for amending or updating route information. This may be updates published on a website. A system should be put in place to check, at the required frequency, any amendments or updates so that they can be incorporated in their own route books.

These changes must be grouped by the railway undertaking into a dedicated document or computer medium whose format must be the same for all the infrastructures worked over by the trains of an individual railway undertaking.

G 2.8.3 Railway undertakings meet this requirement by having processes in place for the provision of weekly and periodical operating notices for all the routes their drivers operate over.

The infrastructure manager must ensure that the content of the documentation provided to the railway undertaking(s) is complete and accurate.

G 2.8.4 Network Rail meets this requirement by use of the Network Change process, which includes internal monitoring to identify any discrepancies in the Sectional Appendix or Weekly or Periodical Operating Notices.

The railway undertaking must ensure that the content of the document grouping the modifications to information contained within the Route book is complete and accurate.

G 2.8.5 Railway undertakings meet this requirement by complying with Railway Group Standard GO/RT3215 Requirements for the Weekly Operating Notice, Periodical Operating Notice and Sectional Appendix, which requires that, should they identify a need for a variation to a National Operations Publication, they shall advise the infrastructure manager of the requirement.

G 2.9 Informing the driver in real time

4.2.1.2.2.3 Informing the driver in real time

The infrastructure manager must inform drivers of any changes to the line or relevant lineside equipment that have not been advised as modifications to information for the Route Book as set out in point 4.2.1.2.2.2.

G 2.9.1 Infrastructure managers meet this requirement by complying with:

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- a) Railway Group Standard GK/RT0075 Lineside Signal Spacing and Speed Signage, which defines the principles governing the signing and advice of permissible speeds, temporary speed restrictions and emergency speed restrictions.
- b) Railway Group Standard GE/RT8000 Rule Book modules which contain the instructions for advising drivers in these circumstances.

G 2.10 Timetables

4.2.1.2.3 Timetables

The provision of train schedule information facilitates the punctual running of trains and assists in service performance.

The railway undertaking must provide drivers with the information necessary for the normal running of the train and as a minimum include:

- the train identification;
- the train running days (if necessary);
- the stopping points and the activities associated with them
- other timing points;
- the arrival/departure/passing times at each of those points.

Such train running information, which must be based on information supplied by the infrastructure manager, may be provided either electronically or in a paper format.

Presentation to the driver must be consistent across all the lines over which the railway undertaking operates.

- G 2.10.1 The timetable planning and production process is managed by Network Rail under track access conditions.
- G 2.10.2 Railway undertakings meet this requirement by providing drivers with the full working timetable (WTT) or by producing their own timetables or schedule cards using the information provided by the infrastructure manager.

G 2.11 Rolling stock

4.2.1.2.4 Rolling stock

The railway undertaking must provide the driver with all information relevant to the working of the rolling stock during degraded situations (such as trains requiring assistance). Such documentation must also focus on the specific interface with the infrastructure manager's staff in these cases.

- G 2.11.1 Railway undertakings meet this requirement by having processes in place for the provision and updating of traction manuals, traction bulletins and any other instructions required for the types of rolling stock their drivers operate.

Additional requirements for cross border trains

- G 2.11.2 Railway undertakings should correlate any rolling stock information provided by the National Safety Authority or infrastructure manager of each member state they plan to operate trains through. This may be on the website of the National Safety Authority or Infrastructure Manager.

G 2.12 Documentation for railway undertaking staff other than drivers

4.2.1.3 Documentation for railway undertaking staff other than drivers

The railway undertaking must provide all members of his staff (whether on train or otherwise) who undertake safety-critical tasks involving a direct interface with the staff, equipment or systems of the infrastructure manager with the rules, procedures, rolling stock and route specific information it deems appropriate to such tasks. Such information shall be applicable in both normal and degraded operation.

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For staff on-board trains, the structure, format, content and process for preparation and updating of such information must be based on the specification set out in Subsection 4.2.1.2 of this TSI.

- G 2.12.1 Railway undertakings meet this requirement by having processes in place for the provision and updating of rule book modules, weekly and periodical operating notices, route and traction information, working manuals and freight train loads books required by each of their staff, based on the job roles they are undertaking.

G 2.13 Documentation for infrastructure manager's staff authorising train movements

4.2.1.4 Documentation for infrastructure manager's staff authorising train movements

All the information necessary to ensure safety-related communication between staff authorising the movement of trains and train crews must be set out in:

- documents describing the Communications Principles (Appendix C);
- the document entitled Book of forms.

The infrastructure manager must draw up these documents in his operating language.

- G 2.13.1 The infrastructure managers meet this requirement by having processes in place for providing staff who are responsible for train movements with GE/RT8000 Rule Book modules and Weekly and Periodical Operating Notices.
- G 2.13.2 The book of forms mentioned in the OPE TSI is used for ERTMS routes and are contained within Railway Group Standard GE/RT8000 ERTMS Rule Book modules.

G 2.14 Safety-related communications between train crew, other railway undertaking staff and staff authorising train movements

4.2.1.5 Safety-related communications between train crew, other railway undertaking staff and staff authorising train movements

The language used for safety-related communication between train crew, other railway undertaking staff (as defined in Appendix L) and the staff authorising train movements is the operating language (see glossary) used by the infrastructure manager on the route concerned.

- G 2.14.1 Infrastructure managers and railway undertakings meet this requirement by complying with the requirements of Railway Group Standard GE/RT8046 Spoken Safety Communications which states: 'employees and others working on their behalf shall use the English language for spoken communications regarding the safe movement of trains on the mainline railway'.
- G 2.14.2 Guidance on linguistic competency is provided at G 2.57 and G 2.58 of this guidance note.

The principles for safety-related communication between train crew and staff responsible for authorising the movement of trains are to be found in Appendix C.

- G 2.14.3 The communications protocol contained within annex C of the OPE TSI differs from that contained within the GE/RT8000 Rule Book modules. The protocol is currently being discussed at a European level and is yet to be agreed.

In conformity with Directive 2001/14/EC, the infrastructure manager is responsible for publishing the —"operating" language used by his personnel in daily operational use.

Where, however, local practice requires that a second language is also provided for, it is the responsibility of the infrastructure manager to determine the geographic boundaries for its use.

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- G 2.14.4 This requirement is met by complying with Railway Group Standard GE/RT8046 Spoken Safety Communications, which states; 'employees and others working on their behalf shall use the English language for spoken communications regarding the safe movement of trains on the mainline railway.'

G 2.15 Specifications relating to trains - Train visibility

4.2.2 Specifications relating to trains

4.2.2.1 Train visibility

4.2.2.1.1 General requirement

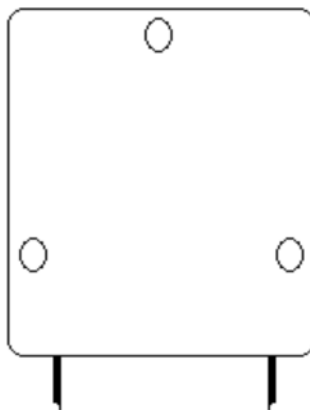
The railway undertaking must ensure that trains are fitted with means of indicating the front and rear of the train.

- G 2.15.1 No guidance is associated with the above.

G 2.16 Front end

4.2.2.1.2 Front end

The railway undertaking must ensure that an approaching train is clearly visible and recognisable as such, by the presence and layout of its lit white front-end lights. The forward facing front-end of the leading vehicle of a train must be fitted with three lights in an isosceles triangle, as shown below. These lights must always be lit when the train is being driven from that end.



The front lights must optimise train detectability (for example, to track workers and those using public crossings) (marker lights), provide sufficient visibility for the train driver (illumination of the line ahead, lineside information markers/boards, etc.) (head lights) by night and during low light conditions and must not dazzle the drivers of oncoming trains. The spacing, the height above rails, the diameter, the intensity of the lights, the dimensions and shape of the emitted beam in both day and night time operation are defined in the rolling stock TSI(hereinafter referred to as 'RST TSI').

- G 2.16.1 The OPE TSI requires each train to be equipped with front end indications formed by three white lights in the form an isosceles triangle. It permits the upper light to be above, or below the windscreen.
- G 2.16.2 This requirement is met by complying with Railway Group Standard GM/RT2483 Visibility Requirement for Trains clause C2 Front-end lamps, which mandates that the forward facing front-end of the leading vehicle of a train shall be fitted with three marker-lamps, in a triangular format.

G 2.17 Rear end

4.2.2.1.3 Rear end

The railway undertaking must provide the required means of indicating the rear of a train. The rear end signal must only be exhibited on the rear of the last vehicle of the train. It must be displayed as shown below.

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G 2.18 Passenger trains

4.2.2.1.3.1 Passenger trains

The rear end indication of a passenger train must consist of 2 steady red lights at the same height above buffer on the transversal axis.

- G 2.18.1 This responsibility is met by complying with Railway Group Standard GM/RT2483 Visibility Requirements for Trains, clauses C3.1 and 3.2 only to the extent that this relates to two fixed tail lamps.
- G 2.18.2 Trains that are locomotive hauled with a passenger coach at the rear are generally only operated by heritage railways which are outside the scope of the TSI. Where such a vehicle is marshalled at the rear of a train operating on the GB mainline railway, railway undertakings should make arrangements for two tail lights to be displayed as shown above.

G 2.19 Freight trains in international traffic

4.2.2.1.3.2 Freight trains in international traffic

The Member State must notify which of the following requirements will apply on the network of its Member State for trains that cross a border between Member States: Either

- 2 steady red lights, or
- 2 reflective plates of the following shape with white side triangles and red top and bottom triangle:



The lamps or plates must be on the same height above buffer on the transversal axis. Member States that require 2 reflective plates must also accept 2 steady red lights as train rear end indication.

- G 2.19.1 The requirement for train rear end indication for freight trains has not yet been harmonised in Europe. This requirement is currently met by complying with clause 3 of Railway Group Standard GM/RT2483 Visibility Requirements for Trains, but only as far as it requires trains to be designed for the display of two fixed tail-lamps.

G 2.20 Freight trains not crossing a border between Member States

4.2.2.1.3.3 Freight trains not crossing a border between Member States

For freight trains not crossing a border between Member States the train rear end indication is an open point (see Appendix U).

- G 2.20.1 This requirements is currently an open point therefore national technical rules continue to apply. This requirement is met by complying with clause 3 of Railway Group Standard GM/RT2483 Visibility Requirements for Trains, which states: 'A train shall be designed for the display of either two fixed tail-lamps or a single flashing lamp.'

G 2.21 Train audibility – General requirements

4.2.2.2 Train audibility

4.2.2.2.1 General requirement