

# Reference Document Database (RDD)

# Mode d'emploi pour l'accès aux règles techniques nationales

## Document des références nationales appliquées par les États membres pour la mise en service de véhicules



Concernant les règles techniques nationales, le RDD propose 3 listes en fonction du niveau de détail que vous recherchez

Liste	Objet
List of National Technical Rules	Fournit une brève liste (uniquement le titre NTR) des règles techniques nationales publiées par un État membre
List of National Technical Rules – Detailed – Criteria - TSI	Fournit une liste détaillée des NTR publiées par un État membre. Les paragraphes des STI, en relation avec les paramètres concernés, sont affichés. Des critères de sélection sont proposés

Par exemple, cliquer sur « List of National Technical Rules »

The screenshot shows the RDD SYSTEM V3.5 interface. At the top, there's a logo for the European Union Agency for Railways and a 'Log In' button. Below the logo, the title 'RDD SYSTEM v3.5' is displayed. A navigation bar includes links for Home, Part I - Application guide, Part II - NRD, Part III - NLF, Reports (which is highlighted in yellow), Publication, and Help. Under 'Reports', the 'NRD Reports' section is shown with a table. The table has two columns: 'Report Title' and 'Report Description'. The titles listed are: 'Classifications By MS', 'Cross Reference Table between List of parameters and TSIs', 'List of National Technical Rules', 'List of National Technical Rules - Detailed', 'List of National Technical Rules - Detailed - Criteria - TSI', 'MS Comparison', 'MS Comparison with Basic Parameter Lists', 'NRD-Export\_forNTRsCleaning', 'Remaining NTRs on top of the latest TSIs in force', and 'Rules By MS'. The descriptions provide details about each report's purpose. A large hand cursor icon is overlaid on the 'List of National Technical Rules' link.

Report Title	Report Description
<a href="#">Classifications By MS</a>	Provides the number published/pending publication of classifications stored in RDD, by Member State.
<a href="#">Cross Reference Table between List of parameters and TSIs</a>	Provides the TSI references based on their relationship with parameters.
<a href="#">List of National Technical Rules</a>	Provides a brief list (only NTR Title) of published National Technical Rules of a MS.
<a href="#">List of National Technical Rules - Detailed</a>	Provides a detailed list of published National Technical Rules of a MS. Selection criteria are provided.
<a href="#">List of National Technical Rules - Detailed - Criteria - TSI</a>	Provides a detailed list of published National Technical Rules of a MS. TSI references are displayed based on their relationship with parameters. Selection criteria are provided.
<a href="#">MS Comparison</a>	Provides a comparison table of national technical rules and their classifications for 2 to 5 Member States.
<a href="#">MS Comparison with Basic Parameter Lists</a>	Provides a comparison table of national technical rules and their classifications for 2 to 5 Member States.
<a href="#">NRD-Export_forNTRsCleaning</a>	
<a href="#">Remaining NTRs on top of the latest TSIs in force</a>	Provides the list of published rules applicable for authorisation of vehicles covered by the last TSI.
<a href="#">Rules By MS</a>	Provides the number published/pending publication of national technical rules stored in RDD.

  

Report Title	Report Description
<a href="#">Annex_I - NLF_Global_Comparison_by_KPIs</a>	Number of differences (by type of object) as compared to the EU LF for the selected frames.
<a href="#">Annex_II - Comparison_with_EU_Frame_using_KPIs_of_Selected_Stage</a>	Number of differences (by type of object) as compared to the EU LF for the selected stage. Includes a note about the comparison being limited to the last TSI.

Sélectionner « France » dans la liste des États membres (MS)

## RDD SYSTEM v3.5

[Home > Reports](#)

### NRD Reports

Report Title	Report Description
<a href="#">Classifications By MS</a>	Provides the number published/pending publication of classifications stored in RDD, by Member State.
<a href="#">Cross Reference Table between List of parameters and TSIs</a>	Provides the TSI references based on their relationship with parameters.
<a href="#">List of National Technical Rules</a>	Provides a brief list (only NTR Title) of published National Technical Rules of a Member State.
<a href="#">List of National Technical Rules - Detailed</a>	Provides a detailed list of published National Technical Rules of a Member State. Selection criteria are provided.
<a href="#">List of National Technical Rules - Detailed - Criteria - TSI</a>	Provides a detailed list of published National Technical Rules of a Member State. TSI references are displayed based on their relationship with parameters. Selection criteria are provided.
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<a href="#">MS Comparison With Basic Parameter Lists</a>	Provides a comparison table of national technical rules and their classifications for 2 to 5 Member States.
<a href="#">NRD-Export_forNTRsCleaning</a>	
<a href="#">Remaining NTRs on top of the latest TSIs in force</a>	Provides the list of published rules applicable for authorisation of vehicles covered by the last edition of the EU LF.
<a href="#">Rules By MS</a>	Provides the number published/pending publication of national technical rules stored in RDD, by Member State.

MS Comparison

- [European Union](#)
- [Austria](#)
- [Belgium](#)
- [Bulgaria](#)
- [Croatia](#)
- [Czech Republic](#)
- [Cyprus](#)
- [Denmark](#)
- [Estonia](#)
- [Finland](#)
- [France](#)
- [Germany](#)
- [Greece](#)
- [Hungary](#)
- [Italy](#)
- [Latvia](#)
- [Lithuania](#)
- [Luxembourg](#)
- [Malta](#)
- [Netherlands](#)
- [Poland](#)
- [Portugal](#)
- [Romania](#)
- [Slovakia](#)
- [Slovenia](#)
- [Spain](#)
- [Sweden](#)
- [United Kingdom](#)

Basic Parameter List

<Select a Value>

[View Report](#)

Sélectionner « 2015/2299/EU » dans la liste déroulante « Basic Parameter List »

## RDD SYSTEM v3.5

[Home > Reports](#)

### NRD Reports

Report Title	Report Description
<a href="#">Classifications By MS</a>	Provides the number published/pending publication of classifications stored in RDD, by Member State.
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<a href="#">NRD-Export_forNTRsCleaning</a>	
<a href="#">Remaining NTRs on top of the latest TSIs in force</a>	Provides the list of published rules applicable for authorisation of vehicles covered by the last edition of the EU LF.
<a href="#">Rules By MS</a>	Provides the number published/pending publication of national technical rules stored in RDD, by Member State.

MS Comparison

- [France](#)
- [Original List](#)
- [2015/2299/EU](#)

Basic Parameter List

<Select a Value>

[View Report](#)

Cliquer sur « View Report » afin d'accéder à la liste choisie qui s'affiche en-dessous de l'écran précédent

## NRD Reports

Report Title	Report Description
<a href="#">Classifications By MS</a>	Provides the number published/pending publication of classifications stored in RDD, by Member State.
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<a href="#">Rules By MS</a>	Provides the number published/pending publication of national technical rules stored in RDD.

## NLF Reports

Report Title	Report Description
<a href="#">Annex_I - NLF_Global_Comparison_by_KPIs</a>	Number of differences (by type of object) as compared to the EU LF for the selected frames.
<a href="#">Annex_II - Comparison_with_EU_Frame_using_KPIs_of_Selected_Stage</a>	Number of differences (by type of object) as compared to the EU LF for the selected stage.

MS France ▾ Basic Parameter List 2015/2299/EU ▾

[View Report](#)



Une fois dans la liste, il faut cliquer dans le bandeau présenté en tête de liste pour changer de page

The European Union Agency for Railways makes available the Reference Document Database-RDD in order to facilitate the access to the rules applied in conjunction with the authorisation of railway vehicles in the Member States of the European Union plus Norway.

For more information about the usage of this tool, the User Manual can be found at: [https://rdd-era.europa.eu/rdd/RDD\\_UserManual\\_v3.4.pdf](https://rdd-era.europa.eu/rdd/RDD_UserManual_v3.4.pdf).

The [Reference Document Application Guide v3.0](#) refers to the elements included in the Commission Decision 2011/155/EU, and any other information relevant for the management, understanding and use of the reference document. Version 3.0 is available in all European languages.

12/05/2017

National Reference Document For FR



Il est possible d'exporter la liste sous différents formats

XML file with report data

CSV (comma delimited)

PDF

MHTML (web archive)

Excel

TIFF file

Word

Basic Parameter	NTR Title	NTR Title EN
<b>1-Documentation</b>		
1.1-General documentation	Arrêté du 19 mars 2012 modifié. Décret 2006-1279 du 19 octobre 2006 consolidé et guide d'application EPSF pour les autorisations de mise en exploitation commerciale. Arrêté du 23 juillet 2012 modifié. Il est recommandé de consulter les recommendations du BEA-TT afin de prendre en compte le retour d'expérience, contenu dans les rapports d'enquête. Ceux-ci sont disponibles sur le site Internet du BEA-TT. La documentation doit être fournie en langue française.	English version under preparation. Please see the French version.

Cas particulier de la liste « List of National Technical Rules – Detailed – Criteria – TSI »

**Vous avez la possibilité de choisir un (ou plusieurs) item(s) particulier(s)**  
**(voir liste complète ci-après)**

NLF Reports		Report Title	Report Description
MS	France ▾	Basic Parameter List	Number of differences (by type of object) as compared to the EU LF for the selected frames
		Annex_I_- NLF_Global_Comparison_by_KPIs	Number of differences (by type of object) as compared to the EU LF for the selected stage. I
		Annex_II_- Comparison_with_EU_Frame_using_KPIs_of_Selected_Stage	Number of differences (by type of object) as compared to the EU LF for the selected stage. II

  

MS	France ▾	Basic Parameter List	Number of differences (by type of object) as compared to the EU LF for the selected frames
BasicParameter	Display TSI reference	2015/2299/EU ▾	View Report
		NONE, CR WAG TSI 321/2013, LC ▾	

(Select All)

1-Documentation

1.1-General documentation

1.2-Maintenance instructions and requirements

1.2.1-Maintenance instructions

1.2.2-The maintenance design justification file

1.3-Instructions and documentation for operation

1.3.1-Instructions for operation in normal and degraded modes of the vehicle

1.4-National requirement for testing

2-Structure and mechanical parts

2.1-Vehicle structure

2.1.1-Strength and integrity

2.1.2-Load capability

2.1.2.1-Load conditions and weighed mass

2.1.2.2-Axle load and wheel load

2.1.3-Joining technology

**Vous avez également la possibilité de choisir la (les) STI(s) pour lesquelles vous souhaitez connaître les paragraphes de référence**  
**(voir liste complète ci-après)**

NLF Reports		Report Title	Report Description
MS	France ▾	Basic Parameter List	Number of differences (by type of object) as compared to the EU LF for the selected frames
		Annex_I_- NLF_Global_Comparison_by_KPIs	Number of differences (by type of object) as compared to the EU LF for the selected stage. I
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MS	France ▾	Basic Parameter List	Number of differences (by type of object) as compared to the EU LF for the selected frames
BasicParameter	Display TSI reference	2015/2299/EU ▾	View Report
		NONE, CR WAG TSI 321/2013, LC ▾	

(Select All)

NONE

CR WAG TSI 321/2013

LOC & PAS TSI 1302/2014

CR NOI TSI 2011/229/EU (repealed by 1304/2014)

ENE TSI 1301/2014

TAP TSI 454/2011

PRM TSI 1300/2014

SRT TSI 1303/2014

CCS TSI 2012/88/EU, amended by 2012/696/EU

CR TAF TSI 62/2006

NOI TSI 1304/2014

CR WAG TSI 1236/2013

CR LOC&PAS TSI 2011/291/EU

HS RST TSI 2008/232/CE

PRM TSI 2008/164/CE

SRT TSI 2008/163/EC

Matériel STI Loc&Pas : moyens acceptables de conformité nationaux correspondant à des points ouverts des STI

Dans le champ « Associated TSI reference », les références des points ouverts pour lesquels un moyen acceptable de conformité national existe sont rappelées.

- Pour le matériel STI Loc&Pas 2011/291, les moyens acceptables de de conformité nationaux associés aux points ouverts de la STI Loc&Pas 1302/2014 (sauf ceux propres à la grande vitesse) et de la STI Loc&Pas 2011/291 sont à prendre en compte ;
- Pour le matériel STI Loc&Pas 1302/2014, seuls les moyens acceptables de de conformité nationaux associés aux points ouverts de la STI Loc&Pas 1302/2014 sont à prendre en compte ;

Les autres règles ou moyens acceptables de conformité nationaux applicables au matériel STI Loc&Pas et non liées à un point ouvert sont à prendre en compte quelle que soit la version de la STI, sauf mention contraire dans le texte de la règle nationale ou du moyen acceptable de conformité national.

## Basic Parameter

<p>1 - Documentation</p> <ul style="list-style-type: none"> <li>1.1 - General documentation</li> <li>1.2 - Maintenance instructions and requirements           <ul style="list-style-type: none"> <li>1.2.1 - Maintenance instructions</li> <li>1.2.2 - The maintenance design justification file</li> </ul> </li> <li>1.3 - Instructions and documentation for operation           <ul style="list-style-type: none"> <li>1.3.1 - Instructions for operation in normal and degraded modes of the vehicle</li> </ul> </li> <li>1.4 - National requirement for testing</li> </ul> <p>2 - Structure and mechanical parts</p> <ul style="list-style-type: none"> <li>2.1 - Vehicle structure           <ul style="list-style-type: none"> <li>2.1.1 - Strength and integrity</li> <li>2.1.2 - Load capability               <ul style="list-style-type: none"> <li>2.1.2.1 - Load conditions and weighed mass</li> <li>2.1.2.2 - Axle load and wheel load</li> </ul> </li> <li>2.1.3 - Joining technology</li> <li>2.1.4 - Lifting and jacking</li> <li>2.1.5 - Fixing of devices to car body structure</li> <li>2.1.6 - Connections used between different parts of the vehicle</li> </ul> </li> <li>2.2 - Couplers / coupling systems           <ul style="list-style-type: none"> <li>2.2.1 - Automatic coupling</li> <li>2.2.2 - Characteristics of rescue coupling</li> <li>2.2.3 - Conventional screw coupling and other non-automatic coupling systems</li> <li>2.2.4 - Buffing</li> <li>2.2.5 - Gangways</li> </ul> </li> <li>2.3 - Passive safety</li> </ul> <p>3 - Track interaction and gauging</p> <ul style="list-style-type: none"> <li>3.1 - Vehicle gauge</li> <li>3.2 - Vehicle dynamics           <ul style="list-style-type: none"> <li>3.2.1 - Running safety and dynamics</li> <li>3.2.2 - Equivalent conicity</li> <li>3.2.3 - Wheel profile and limits</li> <li>3.2.4 - Track loading compatibility parameters</li> <li>3.2.5 - Minimum horizontal curve radius, vertical concave curve radius, convex curve radius</li> </ul> </li> <li>3.3 - Bogies / running gear           <ul style="list-style-type: none"> <li>3.3.1 - Bogies</li> <li>3.3.2 - Wheelset (complete)</li> <li>3.3.3 - Wheel</li> <li>3.3.4 - Wheel/rail interaction influencing systems</li> <li>3.3.5 - Sanding system</li> <li>3.3.6 - Bearings on the wheelset</li> <li>3.3.7 - Axle shaft</li> <li>3.3.8 - Axle bearing condition monitoring</li> </ul> </li> <li>3.4 - Limit of maximum longitudinal positive and negative acceleration</li> </ul> <p>4 - Braking</p> <ul style="list-style-type: none"> <li>4.1 - Functional requirements for braking at train level</li> <li>4.2 - Safety requirements for braking at train level           <ul style="list-style-type: none"> <li>4.2.1 - Reliability of main brake system functionality</li> <li>4.2.2 - Reliability of traction/braking interlocking</li> <li>4.2.3 - Reliability of stopping distance</li> <li>4.2.4 - Reliability of parking brake</li> </ul> </li> <li>4.3 - Brake system - Recognised architecture and associated standards</li> <li>4.4 - Brake command           <ul style="list-style-type: none"> <li>4.4.1 - Emergency braking command</li> <li>4.4.2 - Service braking command</li> <li>4.4.3 - Direct braking command</li> <li>4.4.4 - Dynamic braking command</li> <li>4.4.5 - Parking braking command</li> </ul> </li> <li>4.5 - Brake performance           <ul style="list-style-type: none"> <li>4.5.1 - Emergency braking performance</li> <li>4.5.2 - Service braking performance</li> <li>4.5.3 - Calculations related to thermal capacity</li> <li>4.5.4 - Parking brake performance</li> <li>4.5.5 - Brake performance calculation</li> </ul> </li> <li>4.6 - Braking adhesion management           <ul style="list-style-type: none"> <li>4.6.1 - Limit of wheel rail adhesion profile</li> <li>4.6.2 - Wheel slide protection system ("WSP")</li> </ul> </li> <li>4.7 - Braking force production           <ul style="list-style-type: none"> <li>4.7.1 - Friction brake components               <ul style="list-style-type: none"> <li>4.7.1.1 - Brake blocks</li> <li>4.7.1.2 - Brake discs</li> <li>4.7.1.3 - Brake pads</li> </ul> </li> <li>4.7.2 - Dynamic brake linked to traction</li> <li>4.7.3 - Magnetic track brake</li> <li>4.7.4 - Eddy current track brake</li> <li>4.7.5 - Parking brake</li> </ul> </li> <li>4.8 - Brake state and fault indication</li> <li>4.9 - Brake requirements for rescue purposes</li> </ul> <p>5 - Passenger-related items</p> <ul style="list-style-type: none"> <li>5.1 - Access           <ul style="list-style-type: none"> <li>5.1.1 - Exterior doors</li> <li>5.1.2 - Boarding aids</li> </ul> </li> <li>5.2 - Interior           <ul style="list-style-type: none"> <li>5.2.1 - Interior doors</li> <li>5.2.2 - Intercirculation doors</li> <li>5.2.3 - Clearways</li> <li>5.2.4 - Floor height changes</li> <li>5.2.5 - Interior lighting</li> </ul> </li> <li>5.3 - Handrails</li> <li>5.4 - Windows</li> <li>5.5 - Toilets</li> <li>5.6 - Heating, ventilation and air conditioning systems</li> <li>5.7 - Passenger information           <ul style="list-style-type: none"> <li>5.7.1 - Public address system</li> <li>5.7.2 - Signs and information</li> </ul> </li> </ul>	<p>6 - Environmental conditions and aerodynamic effects</p> <ul style="list-style-type: none"> <li>6.1 - Impact of the environment on the vehicle           <ul style="list-style-type: none"> <li>6.1.1 - Environmental conditions impacting on the vehicle               <ul style="list-style-type: none"> <li>6.1.1.1 - Altitude</li> <li>6.1.1.2 - Temperature</li> <li>6.1.1.3 - Humidity</li> <li>6.1.1.4 - Rain</li> <li>6.1.1.5 - Snow, ice and hail</li> <li>6.1.1.6 - Solar radiation</li> <li>6.1.1.7 - Resistance to pollution</li> </ul> </li> <li>6.1.2 - Aerodynamic effects on the vehicle               <ul style="list-style-type: none"> <li>6.1.2.1 - Crosswind effects</li> <li>6.1.2.2 - Maximum pressure variation in tunnels</li> </ul> </li> </ul> </li> <li>6.2 - Impact of the vehicle on the environment           <ul style="list-style-type: none"> <li>6.2.1 - External emissions               <ul style="list-style-type: none"> <li>6.2.1.1 - Toilet emissions</li> <li>6.2.1.2 - Exhaust gas emissions</li> <li>6.2.1.3 - Chemical and particulate emission</li> </ul> </li> <li>6.2.2 - Limits for noise emissions               <ul style="list-style-type: none"> <li>6.2.2.1 - Stationary noise impact</li> <li>6.2.2.2 - Starting noise impact</li> <li>6.2.2.3 - Pass-by noise impact</li> </ul> </li> <li>6.2.3 - Limits for aerodynamic loads impact               <ul style="list-style-type: none"> <li>6.2.3.1 - Head pressure pulses</li> <li>6.2.3.2 - Aerodynamic impact on passengers/materials on the platform</li> <li>6.2.3.3 - Aerodynamic impact on track workers</li> <li>6.2.3.4 - Ballast pick-up and projection onto neighbouring property</li> </ul> </li> </ul> </li> <li>7 - External warning, signalling, marking functions and software integrity requirements           <ul style="list-style-type: none"> <li>7.1 - Integrity of software employed for safety related functions</li> <li>7.2 - Visual and audible vehicle identification and warning functions               <ul style="list-style-type: none"> <li>7.2.1 - Vehicle marking</li> <li>7.2.2 - External lights                   <ul style="list-style-type: none"> <li>7.2.2.1 - Headlights</li> <li>7.2.2.2 - Marker lights</li> <li>7.2.2.3 - End-of-train signal</li> <li>7.2.2.4 - Lamp controls</li> </ul> </li> <li>7.2.3 - Audible signal systems</li> <li>7.2.4 - Brackets</li> </ul> </li> </ul> </li> <li>8 - On-board power supply and control systems           <ul style="list-style-type: none"> <li>8.1 - Traction performance requirements</li> <li>8.2 - Functional and technical specification related to the interface between the vehicle and the energy subsystem               <ul style="list-style-type: none"> <li>8.2.1 - Functional and technical specification related to the electric power supply                   <ul style="list-style-type: none"> <li>8.2.1.1 - Specific requirements for power supply</li> <li>8.2.1.2 - Voltage and frequency of overhead contact line power supply</li> <li>8.2.1.3 - Regenerative braking</li> <li>8.2.1.4 - Maximum power and maximum train current that is permissible to draw from the overhead contact line</li> </ul> </li> <li>8.2.2 - Pantograph functional and design parameters                   <ul style="list-style-type: none"> <li>8.2.2.1 - Pantograph overall design</li> <li>8.2.2.2 - Pantograph head geometry</li> <li>8.2.2.3 - Pantograph contact force (including static contact force, dynamic behaviour and aerodynamic effects)</li> <li>8.2.2.4 - Working range of pantographs</li> <li>8.2.2.5 - Current capacity of pantograph including contact strip</li> <li>8.2.2.6 - Arrangement of pantographs</li> <li>8.2.2.7 - Insulation of pantograph from the vehicle</li> <li>8.2.2.8 - Pantograph lowering</li> <li>8.2.2.9 - Running through phase or system separation sections</li> </ul> </li> <li>8.2.3 - Contact strip functional and design parameters                   <ul style="list-style-type: none"> <li>8.2.3.1 - Contact strip geometry</li> <li>8.2.3.2 - Contact strip material</li> <li>8.2.3.3 - Contact strip assessment</li> <li>8.2.3.4 - Detection of contact strip breakage</li> </ul> </li> <li>8.3 - Electrical power supply and traction system                   <ul style="list-style-type: none"> <li>8.3.1 - Energy consumption measurement</li> <li>8.3.2 - Requirements for electrical installations on-board of a railway vehicle</li> <li>8.3.3 - High voltage components</li> <li>8.3.4 - Earthing</li> </ul> </li> <li>8.4 - Electromagnetic Compatibility ("EMC")                   <ul style="list-style-type: none"> <li>8.4.1 - EMC within the vehicle</li> <li>8.4.2 - EMC between the vehicle and the railway system                       <ul style="list-style-type: none"> <li>8.4.2.1 - Maximum currents                           <ul style="list-style-type: none"> <li>8.4.2.1.1 - Rail return current</li> <li>8.4.2.1.2 - Heating cable interference current</li> <li>8.4.2.1.3 - Interference current under the vehicle</li> <li>8.4.2.1.4 - Harmonic characteristics and related overvoltages on the overhead contact line</li> <li>8.4.2.1.5 - Effects of DC content in AC supply</li> </ul> </li> <li>8.4.2.2 - Maximum electro-magnetic fields/Induced voltages                           <ul style="list-style-type: none"> <li>8.4.2.2.1 - Electro-magnetic fields/Induced voltages in the track/under the vehicle</li> <li>8.4.2.2.2 - Electro-magnetic fields/Induced voltages outside the track</li> </ul> </li> <li>8.4.2.3 - Vehicle entrance impedance</li> <li>8.4.2.4 - Psophometric current</li> <li>8.4.2.5 - Transverse voltage limits for compatibility voice/data circuits</li> </ul> </li> </ul> </li> </ul> </li></ul></li></ul>
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## Basic Parameter

<p>8.4.3 - EMC between the vehicle and the environment</p> <ul style="list-style-type: none"> <li>8.4.3.1 - Maximum electro-magnetic fields</li> <li>8.4.3.2 - Induced interference current/voltage</li> <li>8.4.3.3 - Psophometric current</li> </ul> <p>8.5 - Protection against electrical hazards</p> <p>8.6 - Diesel and other thermal traction system requirements</p> <p>8.7 - Systems requiring special monitoring and protection measures</p> <ul style="list-style-type: none"> <li>8.7.1 - Tanks and pipe systems for flammable liquids</li> <li>8.7.2 - Pressure vessel systems/pressure equipment</li> <li>8.7.3 - Steam boiler installations</li> <li>8.7.4 - Technical systems in potentially explosive atmospheres</li> <li>8.7.5 - Hydraulic/pneumatic supply and control systems</li> </ul> <p>9 - Staff facilities, interfaces and environment</p> <p>9.1 - Driver's cab design</p> <ul style="list-style-type: none"> <li>9.1.1 - Interior layout</li> <li>9.1.2 - Access to driver's cab           <ul style="list-style-type: none"> <li>9.1.2.1 - Access, egress and doors</li> <li>9.1.2.2 - Driver's cab emergency exits</li> </ul> </li> <li>9.1.3 - Windscreen in driver's cab           <ul style="list-style-type: none"> <li>9.1.3.1 - Mechanical characteristics</li> <li>9.1.3.2 - Optical characteristics</li> <li>9.1.3.3 - Equipment to the windscreens</li> <li>9.1.3.4 - Front visibility / visibility field</li> </ul> </li> <li>9.1.4 - Desk ergonomics</li> <li>9.1.5 - Driver's seat</li> </ul> <p>9.2 - Health and safety</p> <ul style="list-style-type: none"> <li>9.2.1 - Environmental conditions           <ul style="list-style-type: none"> <li>9.2.1.1 - Heating, ventilation and air-conditioning systems in driver's cab</li> <li>9.2.1.2 - Noise in driver's cab</li> <li>9.2.1.3 - Lighting in driver's cab</li> </ul> </li> <li>9.2.2 - Other health and safety requirements</li> </ul> <p>9.3 - Driver/machine interface</p> <ul style="list-style-type: none"> <li>9.3.1 - Speed indication</li> <li>9.3.2 - Driver display unit and screens</li> <li>9.3.3 - Controls and indicators</li> <li>9.3.4 - Driver supervision</li> <li>9.3.5 - Rear and side view</li> </ul> <p>9.4 - Marking and labelling in driver's cab</p> <p>9.5 - Equipment and other facilities on-board for staff</p> <ul style="list-style-type: none"> <li>9.5.1 - Facilities on-board for staff           <ul style="list-style-type: none"> <li>9.5.1.1 - Staff access for coupling/uncoupling</li> <li>9.5.1.2 - External steps and handrails for shunting staff</li> <li>9.5.1.3 - Storage facilities for use by staff</li> </ul> </li> <li>9.5.2 - Staff and freight access doors</li> <li>9.5.3 - On-board tools and portable equipment</li> <li>9.5.4 - Audible communication system</li> </ul> <p>9.6 - Recording device</p> <p>9.7 - Remote control function from the ground</p>	<p>10 - Fire safety and evacuation</p> <ul style="list-style-type: none"> <li>10.1 - Fire protection concept and protection measures</li> <li>10.2 - Emergency           <ul style="list-style-type: none"> <li>10.2.1 - Passenger evacuation concept</li> <li>10.2.2 - Rescue services' information, equipment and access</li> <li>10.2.3 - Passenger alarm</li> <li>10.2.4 - Emergency lighting</li> </ul> </li> <li>10.3 - Emergency running capabilities</li> </ul> <p>11 - Servicing</p> <ul style="list-style-type: none"> <li>11.1 - Train cleaning facilities</li> <li>11.2 - Train refueling facilities           <ul style="list-style-type: none"> <li>11.2.1 - Waste water disposal systems</li> <li>11.2.2 - Water supply system</li> <li>11.2.3 - Further supply facilities</li> <li>11.2.4 - Interface to refueling equipment for non-electric rolling stock</li> </ul> </li> </ul> <p>12 - On-board control command and signaling</p> <ul style="list-style-type: none"> <li>12.1 - On-board radio system           <ul style="list-style-type: none"> <li>12.1.1 - Non-GSM-R radio system</li> <li>12.1.2 - GSM-R compliant radio system               <ul style="list-style-type: none"> <li>12.1.2.1 - Use of hand portables as cab mobile radio</li> <li>12.1.2.2 - Other GSM-R requirements</li> </ul> </li> </ul> </li> <li>12.2 - On-board signaling           <ul style="list-style-type: none"> <li>12.2.1 - National on-board signaling systems</li> <li>12.2.2 - STM requirements</li> <li>12.2.3 - Transitions</li> <li>12.2.4 - Compatibility of rolling stock with CCS Trackside               <ul style="list-style-type: none"> <li>12.2.4.1 - Minimum axle distance</li> <li>12.2.4.2 - Minimum wheel diameter</li> <li>12.2.4.3 - Metal and inductive components-free space between wheels</li> <li>12.2.4.4 - Metal mass of a vehicle</li> <li>12.2.4.5 - Compatibility with fixed installations of CCS</li> </ul> </li> <li>12.2.5 - ETCS cab signaling system               <ul style="list-style-type: none"> <li>12.2.5.1 - Level crossing functionality</li> <li>12.2.5.2 - Braking safety margins</li> <li>12.2.5.3 - Reliability - availability requirements</li> <li>12.2.5.4 - Safety requirements</li> <li>12.2.5.5 - Ergonomic aspects of DMI</li> <li>12.2.5.6 - Interface with service brake</li> <li>12.2.5.7 - Other ETCS requirements (related to existing not interoperable networks)</li> <li>12.2.5.8 - Specification of condition of use where ETCS on-board does not implement all functions, interfaces and performances</li> </ul> </li> </ul> </li> <li>13 - Specific operational requirements           <ul style="list-style-type: none"> <li>13.1 - Specific items to place on-board</li> <li>13.2 - Ferry transport</li> </ul> </li> <li>14 - Freight-related items           <ul style="list-style-type: none"> <li>14.1 - Design, operation and maintenance constraints for the transport of dangerous goods</li> <li>14.2 - Specific facilities for the transport of freight</li> <li>14.3 - Doors and loading facilities</li> </ul> </li> </ul>
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### Display TSI reference

(Select All)

NONE  
 CR WAG TSI 321/2013  
 LOC & PAS TSI 1302/2014  
 CR NOI TSI 2011/229/EU (repealed by 1304/2014)  
 ENE TSI 1301/2014  
 TAP TSI 454/2011  
 PRM TSI 1300/2014  
 SRT TSI 1303/2014  
 CCS TSI 2012/88/EU, amended by 2012/696/EU  
 CR TAF TSI 62/2006  
 NOI TSI 1304/2014  
 CR WAG TSI 1236/2013

CR LOC&PAS TSI 2011/291/EU  
 HS RST TSI 2008/232/CE  
 PRM TSI 2008/164/CE  
 SRT TSI 2008/163/EC  
 CR INF TSI 2011/275/EU  
 HS INF TSI 2008/217/EC  
 CR ENE 2011/274/EU  
 HS ENE 2008/284/CE  
 INF TSI 1299/2014  
 OPE TSI 2012/757/EU  
 ERA/ERTMS/033281 version 2.0  
 CR WAG TSI 2015/924  
 CCS TSI 2015/14