Deutsche Akkreditierungsstelle

Annex to the Partial Accreditation Certificate D-IS-11190-01-01 according to DIN EN ISO/IEC 17020:2012

Valid from: **15.02.2024**

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This annex is a part of the accreditation certificate D-IS-11190-01-00.

Holder of partial accreditation certificate:

TÜV SÜD Rail GmbH
Barthstraße 16, 80339 München

with the locations

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Inspektionsstelle
Barthstraße 16, 80339 München [MUC]

TÜV SÜD Rail GmbH
Inspektionsstelle
Wittestraße 30 P, 13509 Berlin [BER]

TÜV SÜD Rail GmbH
Inspektionsstelle
Steinweg 26-27, 38100 Braunschweig [BRA]

TÜV SÜD Rail GmbH
Inspektionsstelle
Berliner Straße 5-7, 01067 Dresden [DRE]

TÜV SÜD Rail GmbH
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This certificate annex is only valid together with the written accreditation certificate and reflects the status as indicated by the date of issue. The current status of any given scope of accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH at https://www.dakks.de.

The inspection body type A meets the requirements of DIN EN ISO/IEC 17020:2012 to carry out the conformity assessment activities listed in this annex. The inspection body meets additional legal and normative requirements, if applicable, including those in relevant sectoral schemes, provided that these are explicitly confirmed below.

The management system requirements of DIN EN ISO/IEC 17020 are written in the language relevant to the operations of inspection bodies. Inspection bodies that conform to the requirements of this standard, operate generally in accordance with the principles of DIN EN ISO 9001.

Evaluation of railway vehicles, railway infrastructure, railway energy systems, trackside and on-board control-command, train protection and signalling, maintenance of rolling stock, railway infrastructure, railway energy systems, trackside and on-board control-command, train protection and signalling as part of the evaluation for EC verification according to IOD 2008/57/EC or IOD 2016/797/EU; evaluation of rolling stock, railway infrastructure, railway energy systems, trackside and on-board control-command, train protection and signalling as well as operation of trams on a normative basis; Independent evaluation of the application of safety management systems of railway vehicles, railway infrastructure, railway energy systems, trackside and on-board train protection,train control and signalling; evaluation of the suitability, application and results of risk management procedures in the fields of railway vehicles and trackside and on-board control-command and signalling, system integration and maintenance according to 402/2013 (CSM Regulation) (non-regulated area)
and determination of compliance with specified requirements and - on the basis of an expert judgement - with general requirements;

1 Assessment of the adequacy, completeness and accuracy of verification documents as part of the evaluation for EC verifications according to IOD 2008/57/EC or 2016/797/EU
The scope includes the modules A1, B, CA1, CA2, CB, CD, CF, CH, CH1, CV, D, F, H1, H2, SB, SD, SF, SG, SH1, SH2, V.

1.1 Overarching requirements

2010/713/EU 2010-11-09	COMMISSION DECISION of 9 November 2010 on modules for the procedures for assessment of conformity, suitability for use and EC verification to be used in the technical specifications for interoperability adopted under Directive 2008/57/EC of the European Parliament and of the Council
2008/163/EC 2007-12	Commission Decision of 20 December 2007 concerning the technical specification of interoperability relating to safety in railway tunnels in the trans-European conventional and high-speed rail system

2008/164/EC 2007-12	Commission Decision of 21 December 2007 concerning the technical specification of interoperability relating to persons with reduced mobility in the trans-European conventional and high-speed rail system
2014/1300/EU 2014-11	Commission Regulation (EU) No 1300/2014 of 18 November 2014 on the technical specifications for interoperability relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility Text with EEA relevance
2014/1303/EU 2014-11	Commission Regulation (EU) No 1303/2014 of 18 November 2014 concerning the technical specification for interoperability relating to 'safety in railway tunnels' of the rail system of the European Union Text with EEA relevance

1.2 Rail vehicles (RST subsystem) - [Locations: BER; BRA; DRE; MUC]

- **Brake systems**
- **Electrical systems**
- **Driving technology / driving dynamics / aerodynamics**
- **Strength and structural mechanics**
- **Functional safety, vehicle control technology**
- **Fire protection, evacuation**
- **Vehicle limitation**
- **Drinking and waste water systems**
- **Acoustics**
- **Equipment for the transport of dangerous goods**
- **Facilities for personal and occupational safety**
- **PRM aspects**
- **Maintenance**

Inspections according to:

TR_RS_P_04.09 2020-04	Work instruction Audit EC verification Rolling Stock - Guidelines for conducting audits as part of the EC conformity assessment procedure for railway vehicles and interoperability constituents
TR_RS_P_04.10 2019-07	Type examination work instruction within the scope of the EC verification according to the Interoperability Directive for the rolling stock subsystem and its interoperability constituents

TR_RS_P_04.22 2019-08	Performance of EC verifications in accordance with Directive 2008/57/EC in compliance with Decision 2010/713/EU - CD/SD module

Based on the evaluation and specification documentation listed below:

2008/232/EG 2008-02	Commission Decision of 21 February 2008 concerning a technical specification for interoperability relating to the rolling stock sub-system of the trans-European high-speed rail system
2011/229/EU 2011-04	Commission Decision of 4 April 2011 concerning the technical specifications of interoperability relating to the subsystem 'rolling stock – noise' of the trans-European conventional rail system
2011/291/EU 2011-04	Commission Decision of 26 April 2011 concerning a technical specification for interoperability relating to the rolling stock subsystem — 'Locomotives and passenger rolling stock' of the trans-European conventional rail system
321/2013/EU 2013-03	Commission Regulation (EU) No 321/2013 of 13 March 2013 concerning the technical specification for interoperability relating to the subsystem 'rolling stock — freight wagons' of the rail system in the European Union and repealing Decision 2006/861/EC Text with EEA relevance
2014/1302/EU 2014-11	Commission Regulation (EU) No 1302/2014 of 18 November 2014 concerning a technical specification for interoperability relating to the 'rolling stock — locomotives and passenger rolling stock' subsystem of the rail system in the European Union

1.3 Railway infrastructure (INF subsystem) - [Locations: GRA]

- **Superstructure**
- **Substructure / Geotechnics**
- **Civil engineering / Tunnelling**
- **Routing**
- **Fire protection / Tunnel safety / Evacuation**
- **Electrical and mechanical systems (except traction power supply)**
- **PRM aspects**
- **Maintenance**

2008/217/EU 2007-12	Commission Decision of 20 December 2007 concerning a technical specification for interoperability relating to the infrastructure sub-system of the trans-European high-speed rail system (notified under document number C(2007) 6440) (Text with EEA relevance)
2011/275/EU 2011-04	Commission Decision of 26 April 2011 concerning a technical specification for interoperability relating to the 'infrastructure' subsystem of the trans-European conventional rail system (notified under document C(2011) 2741) Text with EEA relevance
2014/1299/EU 2014-11	Commission Regulation (EU) No 1299/2014 of 18 November 2014 on the technical specifications for interoperability relating to the 'infrastructure' subsystem of the rail system in the European Union Text with EEA relevance

1.4 Railway energy (ENE subsystem) - [Locations: MUC]

- **Generating and switching systems for the railway power supply**
- **Overhead line systems, conductors and return conductors of the railway power supply**
- **Earthing and protective measures for railway power supply**
- **Statics of transverse structures, masts and foundations**
- **Functional safety of the railway power supply**

Inspections according to:

TR_RS_P_04.20 2014-06-17	Inspection procedure Energy

Based on the evaluation and specification documentation listed below:

2008/284/EG 2008-03	Commission Decision of 6 March 2008 concerning a technical specification for interoperability relating to the energy sub-system of the trans-European high-speed rail system (notified under document number C (2008) 807) (Text with EEA relevance)

2011/274/EU 2011-04	Commission Decision of 26 April 2011 concerning a technical specification for interoperability relating to the 'energy' subsystem of the trans-European conventional rail system (notified under document C(2011) 2740) Text with EEA relevance
2012/464/EU 2012-07	Commission Decision of 23 July 2012 amending Decisions 2006/861/EC, 2008/163/EC, 2008/164/EC, 2008/217/EC, 2008/231/EC, 2008/232/EC, 2008/284/EC, 2011/229/EU, 2011/274/EU, 2011/275/EU, 2011/291/EU and 2011/314/EU concerning technical specifications for interoperability (notified under document C(2012) 4985) Text with EEA relevance
2014/1301/EU 2014-11	Commission Regulation (EU) No 1301/2014 of 18 November 2014 on the technical specifications for interoperability relating to the 'energy' subsystem of the rail system in the Union Text with EEA relevance
2018/868/EU 2018-06	Commission Implementing Regulation (EU) 2018/868 of 13 June 2018 amending Regulation (EU) No 1301/2014 and Regulation (EU) No 1302/2014 as regards provisions on energy measuring system and data collecting system

1.5 <u>On-board</u> train protection, train control, signalling (On-board train control/command and signalling subsystem) - [Locations: MUC]

- **Vehicle equipment class A systems**
- **On-board equipment class B systems and comparable ATP systems in the light rail sector**
- **On-board GSM-R systems / radio equipment**
- **Interface and interaction with trackside CCS**
- **Maintenance**

Inspections according to:

TR_SI_P_04.07 2019-12-02	Test procedure as part of the EC verification in accordance with TSI CCS

Based on the evaluation and specification documentation listed below:

2012/88/EU 2012-01	Commission Decision of 25 January 2012 on the technical specification for interoperability relating to the control-command and signalling subsystems of the trans-European rail system (notified under document C(2012) 172) Text with EEA relevance

2016/919/EU 15.06.2016 (CCS TSI)	Commission Regulation (EU) 2016/919 of 27 May 2016 on the technical specification for interoperability relating to the 'control-command and signalling' subsystems of the rail system in the European Union (Text with EEA relevance)

1.6 Trackside train protection, train control, signalling (Trackside train control/command and signalling subsystem) - [Locations: BRA; DRE; MUC]

- **Interlocking technology Indoor and outdoor installations**
- **Remote control technology**
- **Level crossing protection technology**
- **Trackside equipment class A systems**
- **Trackside equipment class B systems and comparable ATP systems in the light rail sector**
- **Trackside GSM-R systems / radio systems**
- **Interface and interaction with on-board CCS**
- **Maintenance**

Inspections according to:

TR_SI_P_04.01 2019-11-26	Design and acceptance testing of non-federally owned railways (NE) abroad
TR_SI_P_04.03 2019-11-18	Work instruction module B in the framework of the EC verification according to Directive 2008/57/EC for the Control-Command and Signalling Subsystem and its interoperability constituents
TR_SI_P_04.04 2019-11-18	Work instruction module SB in the context of the EC verification according to Directive 2008/57/EC for the Control-Command and Signalling Subsystem and its interoperability constituents

Based on the evaluation and specification documentation listed below:

2012/88/EU 2012-01-25 (CCS TSI)	2012/88/EU: Commission Decision of 25 January 2012 on the technical specification for interoperability relating to the control-command and signalling subsystems of the trans-European rail system (notified under document C(2012) 172) Text with EEA relevance with amendment 2012/696/EU of 06/11/2012.
2016/919/EU 15.06.2016 (ZZS TSI)	Commission Regulation (EU) 2016/919 of 27 May 2016 on the technical specification for interoperability relating to the 'control-command and signalling' subsystems of the rail system in the European Union (Text with EEA relevance).

For Section 1, the requirements of the ERA Technical document - Requirements for conformity assessment bodies seeking notification (000MRA 1044 ver. 1.1) Chapter 7.4, Annex C and D for inspection and audit activities are fulfilled.

2 Assessment of the adequacy, completeness and accuracy of evidences in the context of the evaluation on a normative basis

2.1 Rolling stock (RST subsystem)

2.1.1 Overarching requirements for complete vehicles (which cannot be specifically assigned to any of the other sub-areas) - [Locations: BER; BRA; DRE; MUC]

Inspections according to:

TR_RS_P_04.17 2013-06	Assessment of system functionality marks
TR_RS_P_04.18 2013-06	Inspection of auxiliary vehicles
TR_RS_P_04.27 2014-12	Handling of BOStrab projects TAB-Saxony

Based on the evaluation and specification documentation listed below:

DIN EN 13977 2011-04	Railway applications - Track - Safety requirements for portable machines and trolleys for construction and maintenance
DIN EN 14033-1 2014-08	Railway applications - Track - Railbound construction and maintenance machines - Part 1: Technical requirements for running

DIN EN 15663 2019-03	Railway applications - Vehicle reference masses
DIN EN 15746-1 2011-12	Railway applications - Track - Road-rail machines and associated equipment - Part 1: Technical requirements for running and working
DIN EN 15746-2 2011-12	Railway applications - Track - Road-rail machines and associated equipment - Part 2: General safety requirements
DIN EN 15877-1 2012-12	Railway applications - Marking on railway vehicles - Part 1: Freight wagons
DIN EN 15877-2 2014-04	Railway applications - Markings of railway vehicles - Part 2: External markings on coaches, motive power units, locomotives and on track machines
FprEN 15954-1 2012	Railway applications - Track - Trailers and associated equipment - Part 1: Technical requirements for running and working
DIN EN 15954-1 2014-06	Railway applications - Track - Trailers and associated equipment - Part 1: Technical requirements for running and working
FprEN 15954-2 2011	Railway applications - Track - Trailers and associated equipment - Part 2: General safety requirements
DIN EN 15954-2 2013-11	Railway applications - Track - Trailers and associated equipment - Part 2: General safety requirements
FprEN 15955-1 2012	Railway applications - Track - Demountable machines and associated equipment - Part 1: Technical requirements for running and working
DIN EN 15955-1 2013-08	Railway applications - Track - Demountable machines and associated equipment - Part 1: Technical requirements for running and working

FprEN 15955-2 2011	Railway applications - Track - Demountable machines and associated equipment - Part 2: General safety requirements
DIN EN 15955-2 2013-09	Railway applications - Track - Demountable machines and associated equipment - Part 2: General safety requirements
DIN 25008 2005-10	Railway vehicles - Principles for the determination of vehicle weights - Terms and definitions, symbols, values
UIC 438-1 2004-04	Identification marking for passenger rolling stock
UIC 438-2 2004-05	Identification marking for freight rolling stock
UIC 580 1990-01	Inscriptions and markings, route indicators and number plates to be affixed to coaching stock used in international traffic
UIC 640 2003-10	Motive power units - Inscriptions, marks and signs
BOStrab 2007-11	Ordinance on the Construction and Operation of Street Railways / light railway regulations
BOStrab-RL 2014-08	BOStrab guidelines for driving without a driver

2.1.2 Braking systems - [Locations: MUC]

2.1.2.1 Brakes

Inspections according to:

TR_RS_P_04.07 2012-12	Verification of braking technology / braking systems

Based on the evaluation and specification documentation listed below:

DIN 5591 1997-07	Railway vehicle - Graphical symbols for technical drawings - Compressed-air diagrams
DIN EN 13452-1 2005-01	Railway applications - Braking - Mass transit brake systems - Part 1: Performance requirements
DIN EN 13452-2 2005-01	Railway applications - Braking - Mass transit brake systems - Part 2: Methods of test
DIN EN 14198 2005-03	Railway applications - Braking - Requirements for the brake system of trains hauled by locomotives
prEN 14531-1 2012 DIN EN 14531-1 2012-07 (Draft)	Railway applications - Methods for calculation of stopping and slowing distances and immobilization braking - Part 1: General algorithms utilizing mean value calculation for train sets or single vehicles
prEN 14531-2 2012 DIN EN 14531-2 2012-07 (Draft)	Railway aplications - Methods for calculation of stopping and slowing distances and immobilisation braking - Part 2: Step by step calculations for train sets or single vehicles
DIN EN 14531-6 2009-12	Railway applications - Methods for calculation of stopping and slowing distances and immobilisation braking - Part 6: Step by step calculations for train sets or single vehicles
DIN EN 14535-1 2011-07	Railway applications - Brake discs for railway rolling stock - Part 1: Brake discs pressed or shrunk onto the axle or drive shaft, dimensions and quality requirements

DIN EN 14535-2 2011-09	Railway applications - Brake discs for railway rolling stock - Part 2: Brake discs mounted onto the wheel, dimensions and quality requirements
prEN 14535-3 2012 DIN EN 14535-3 2012-06 (Draft)	Railways applications - Brake discs for railway rolling stock - Part 3: Brake discs, performance of the disc and the friction couple, classification
DIN EN 14601 2011-01	Railway applications - Straight and angled end cocks for brake pipe and main reservoir pipe
DIN EN 15179 2010-12	Railway applications - Braking - Requirements for the brake system of coaches
DIN EN 15220-1 2011-07	Railway applications - Brake indicators - Part 1: Pneumatically operated brake indicators
prEN 15220-2 2008 DIN EN 15220-2 2008-12 (Draft)	Railway applications - Brake indicators - Part 2: Electrical operation brake indicators
DIN EN 15327-1 2009-06	Railway applications - Passenger alarm subsystem - Part 1: General requirements and passenger interface for the passenger emergency brake system
DIN EN 15328 2008-01	Railway applications - Braking - Brake pads
FprEN 15329 2014 DIN EN 15329 2014-09 (Draft)	Railway applications - Braking - Brake block holder and brake shoe key for railway vehicles
DIN EN 15355 2011-01	Railway applications - Braking - Distributor valves and distributor-isolating devices
DIN EN 15380-4 2013-05	Railway applications - Classification system for railway vehicles - Part 4: Function groups

DIN EN 15595 2011-07	Railway applications - Braking - Wheel slide protection
DIN EN 15595 2013-05 Corrigendum 1	Railway applications - Braking - Wheel slide protection
DIN EN 15611 2011-01	Railway applications - Braking - Relay valves
DIN EN 15611 2012-12 Corrigendum 1	Railway applications - Braking - Relay valves
DIN EN 15612 2011-01	Railway applications - Braking - Brake pipe accelerator valve
DIN EN 15624 2011-01	Railway applications - Braking - Empty-loaded changeover devices
DIN EN 15624 2013-01 Corrigendum 1	Railway applications - Braking - Empty-loaded changeover devices
DIN EN 15625 2011-01	Railway applications - Braking - Automatic variable load sensing devices
DIN EN 15734-1 2013-09	Railway applications - Braking systems of high speed trains - Part 1: Requirements and definitions
DIN EN 15734-2 2013-04	Railway applications - Braking systems of high speed trains - Part 2: Test methods
DIN EN 15806 2011-01	Railway applications - Braking - Static brake testing
DIN EN 15807 2011-05	Railway applications - Pneumatic half couplings
prEN 16185-1 2010 DIN EN 16185-1 2010-11 (Draft)	Railway applications - Braking systems of multiple unit trains - Part 1: Requirements and definitions

prEN 16185-2 2010 DIN EN 16185-2 2010-11 (Draft)	Railway applications - Braking systems of multiple unit trains - Part 2: Test methods
prEN 16207 2010 DIN EN 16207 2010-12 (Draft)	Railway applications - Braking - Functional and performance criteria of magnetic track brake systems for use in railway rolling stock
DIN EN 16241 2014-06	Railway applications - Slack adjuster
prEN16334 2011 DIN EN 16334 2011-10 (Draft)	Railway applications - Passenger Alarm System - System requirements
prEN 16452 2012 DIN EN 16452 2012-09 (Draft)	Railway applications - Braking - Brake blocks
DIN 27200 2011-11	State of railway vehicles - Principles and terms for safe state of operation
DIN 27205-1 2010-11	State of railway vehicles - Brake - Part 1: Tread brake, mechanical part
DIN 27205-2 2004-02	State of railway vehicles - Brake - Part 2: Disc brake, mechanical part
DIN 27205-2 2008-12 Corrigendum 1	State of railway vehicles - Brake - Part 2: Disc brake, mechanical part
DIN 27205-3 2010-11	State of railway vehicles - Brake - Part 3: Ventilated axle mounted brake discs
DIN 27205-4 2010-11	State of railway vehicles - Brake - Part 4: Non ventilated axle mounted brake discs

DIN 27205-5 2010-11	State of railway vehicles - Brake - Part 5: Wheel mounted brake discs
DIN 27205-6 2004-02	State of railway vehicles - Brake - Part 6: Magnetic track brake
DIN 27205-8 2010-11	State of railway vehicles - Brake - Part 8: Tightness and efficiency
DIN 27205-9 2005-01	State of railway vehicles - Brake - Part 9: Function of driver's brake valve, control devices and indicators in driver's cabs
DIN 27205-10 2005-05	State of railway vehicles - Brake - Part 10: Function of emergency brake equipment and emergency brake override
DIN 27205-11 2005-08	State of railway vehicles - Brake - Part 11: Function and tightness of the brake for direct braking on powered traction unit and indirect braking on connected vehicles
DIN 27205-12 2006-04	State of railway vehicles - Brake - Part 12: Function and tightness of railway vehicle brakes
UIC 410 2006-08	Composition and calculation of the weight and braking of passenger trains
UIC 421 2012-01	Rules for the consist and braking of international freight trains
UIC 453 2001 / 2.A	Procedures for air brake tests effected with a powered unit - Provisions concerning international trains
UIC 432 2008-10	Wagons. Running speeds. Technical conditions to be observed
UIC 540 2006-11	Brakes - Air Brakes for freight trains and passenger trains
UIC 541-1 2013-03	Brakes - Regulations concerning the design of brake components

UIC 541-2 1981-07	Dimensions of hose connections (brake hoses) and electric cables, types of pneumatic and electric connections and their positioning on wagons and coaches equipped with automatic couplers of the UIC and OSJD Member Railways
UIC 541-03 1984-01	Brakes - Regulations concerning manufacture of the different brake parts - Driver´s brake valve
UIC 541-04 2006-11	Brakes - Regulations concerning the manufacture of brake components - Self-adjusting load-proportional braking system and automatic "empty-loaded" control device
UIC 541-05 2005-08	Brakes - Manufacturing specifications for various brake parts - Wheel Slide Protection device (WSP)
UIC 541-06 2013-03	Specifications for the construction of various brake components - Magnetic brakes
UIC 541-07 1992-01	Brakes - Regulations governing the construction of different types of braking gear - Simple pressure receptacles of steel, not fired, for air braking equipment and auxiliary pneumatic equipment for railway rolling stock
UIC 541-08 2007-06	Brakes - Regulations concerning the manufacture of the different brake parts - Derailment detectors for wagons
UIC 541-3 2010-07	Brakes - Disc brakes and their application - General conditions for the certification of brake pads
UIC 541-4 2010-12	Brakes - Composite brake blocks - General conditions for certification and use
UIC 541-5 2005-12	Brakes - Electropneumatic brake (ep brake) - Electropneumatic emergency brake override (EBO)
UIC 541-6 2010-10	Brakes - Electropneumatic brake (ep brake) and Passenger alarm signal (PAS) for vehicles used in hauled consists
UIC 542 2013-02	Brake parts - interchangeability
UIC 543 2014-02	Brake - regulations on wagon equipment

UIC 543-1 2009-12	Brakes - A study of minimum standards for maintenance of goods wagon brakes
UIC 544-1 2013-06	Brakes - Braking performance
UIC 544-2 1983-01	Conditions to be observed by the dynamic brake of locomotives and motor coaches so that the extra braking effort produced can be taken into account for the calculation of the braked-weight
UIC 545 2014-12	Brakes - Inscriptions, marks and signs
UIC 546 1980-01	Brakes - Air brake - High power brakes for passenger trains
UIC 547 1989-07	Brakes - Air brake - Standard programme of tests
UIC 648 2001-09	Connections for electric cables and air pipes on headstocks of locomotives and driving trailers
UIC 660 2002	Measures to ensure the technical compatibility of high-speed trains
VDV 757 Part A, B, C 2011-06 (previously RiL 91501)	Operating and checking brakes during operation
Regulations for the braking assessment of railway vehicles Rev. 15 2003	Brake testing of traction units as part of the acceptance test in accordance with §32 EBO (type testing for individual vehicles)
EBA Supplementary regulation Rev. 13.1 2013-10	Arrangement and design of brake labels
EBA Supplementary regulation B002 Rev. 11.0 2012-11	Ordering and execution of emergency brake applications on passenger transport vehicles

EBA Supplementary regulation B003 Rev. 6.0 2007-07	Brake indicator and brake control devices
EBA Supplementary regulation B004 Rev. 9.0 2007-07	Design of spring-applied brakes as parking brakes in rail vehicles
EBA Supplementary regulation B007 Rev. 2.0 2012-11	Adhesion value utilisation
EBA Supplementary regulation B009 Rev. 3.1 2012-05	Passenger emergency brake / Emergency brake override - Basic functions
EBA Supplementary regulation B011 Rev. 1.0 2016	Supplementary regulation no. B011 on "Sanding"
EBA Supplementary regulation B012 Rev. 5.4 2012-05	Technical design of the magnetic rail brake in rail vehicles
EBA Supplementary regulation B013 Rev. 1.0 2011-09	Additional brakes
EBA Supplementary regulation B015 Rev. 2.0 2009-07	Safety objectives derived from §4 AEG and EBO for coupling vehicles with automatic coupling when stationary
EBA Supplementary regulation B017 Rev. 1.0 2013-10	For the technical braking equipment of vehicles for operation on steep sections
EBA Resolution list Rev. 3.0 2012-11	Current resolution list / open points list of the brake working group on various individual topics relating to the brake
Baurichtlinie V-BKS (K) 2013-08	Construction Guideline V-BKS (K) Part 1 Construction and design of freight wagons with composite brake blocks with high friction coefficient (K)
Anwendungsrichtlinie V-BKS (LL) 2010-04	Application guideline V-BKS (LL) Installation of composite blocks in freight wagons

ISO 1219-1 2012-06	Fluid power systems and components - Graphic symbols and circuit diagrams - Part 1: Graphic symbols for conventional use and data-processing applications
ISO 1219-2 2012-09	Fluid power systems and components - Graphic symbols and circuit diagrams - Part 2: Circuit diagrams

2.1.2.2 Pressure equipment systems for brakes

Inspections according to:

TR_RS_P_04.24 2019-11	Verification of pressure equipment systems

Based on the evaluation and specification documentation listed below:

DIN 5580 1999-05	Compressed air equipment for railway vehicles - Pressure vessels made of aluminium alloys - Dimensions, designation
DIN 27205-7 2006-04	State of railway vehicles - Brake - Part 7: Simple unfired pressure vessels

2.1.3 2.1.3 Electrical systems - [Locations: MUC]

2.1.3.1 2.1.3.1 Power supply and EMC

Inspections according to:

TR_RS_P_04.28 2016-08	Measurement of magnetic fields generated by electronic and electrical devices in the railway environment with regard to the exposure of persons

Based on the evaluation and specification documentation listed below:

DIN EN 50121-3-1 VDE 0155-121-3-1 2017-11	Railway applications - Electromagnetic compatibility - Part 3-1: Rolling stock - Train and complete vehicle
DIN EN 50121-3-2 VDE 0115-121-3-2 2017-11	Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock - Apparatus
DIN EN 50122-1 2017-10	Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 1: Protective provisions against electric shock

DIN EN 50122-2 VDE 0115-4 2011-09	Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 2: Provisions against the effects of stray currents caused by d.c. traction systems
DIN EN 50122-3 VDE 0115-5 2011-09	Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 3: Mutual Interaction of a.c. and d.c. traction systems
DIN EN 50126 VDE 0115-103 Corrigendum 2 2011-01	Railway applications - The specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS)
DIN EN 50153 VDE 0115-2 2018-01	Railway applications - Rolling stock - Protective provisions relating to electrical hazards
DIN EN 50155 VDE 0115-200 2018-05	Railway applications - Rolling stock - Electronic equipment
EN 50155 2017-10	Railway applications - Rolling stock - Electronic equipment
DIN EN 50163 VDE 0115-102 2005-07	Railway applications - Supply voltages of traction systems
DIN EN 50215 VDE 0115-101 2010-07	Railway applications - Rolling stock - Testing of rolling stock on completion of construction and before entry into service
DIN EN 50311 VDE 0115-450 2004-01	Railway applications - Rolling stock - D.C. supplied electronic ballasts for lighting fluorescent lamps
DIN EN 50343 VDE 0115-130 2014-09	Railway applications - Rolling stock - Rules for installation of cabling
DIN EN 50388 VDE 0115-606 2012-12	Railway Applications - Power supply and rolling stock - Technical criteria for the coordination between power supply (substation) and rolling stock to achieve interoperability

DIN EN 50463-1 VDE 0115-480-1 2018-03	Railway applications - Energy measurement on board trains - Part 1: General;
DIN EN 50463-2 VDE 0115-480-2 2018-03	Railway applications - Energy measurement on board trains - Part 2: Energy measuring
DIN EN 50463-3 VDE 0115-480-3 2018-03	Railway applications - Energy measurement on board trains - Part 3: Data handling
DIN EN 50463-4 VDE 0115-480-4 2018-03	Railway applications - Energy measurement on board trains - Part 4: Communication
DIN EN 50463-5 VDE 0115-480-5 2018-03	Railway applications - Energy measurement on board trains - Part 5: Conformity assessment
DIN EN 50500 VDE 0115-500 2009-03	Measurement procedures of magnetic field levels generated by electronic and electrical apparatus in the railway environment with respect to human exposure
DIN EN 60077-1 2018-05	Railway applications - Electric equipment for rolling stock - Part 1: General service conditions and general rules
DIN EN 60077-2 VDE 0115-460-2 2018-05	Railway applications - Electric equipment for rolling stock - Part 2: Electrotechnical components - General rules
DIN EN 60077-3 2018-07	Railway applications - Electric equipment for rolling stock - Part 3: Electrotechnical components - Rules for DC circuit-breakers
DIN EN 60077-4 VDE 0115-460-4 2004-01	Railway applications - Electric equipment for rolling stock - Part 4: Electrotechnical components - Rules for AC circuit-breakers
IEC 60571 1998-02	Electronic equipment used on rail vehicles

IEC 61010-1 2010 Corrigendum: 2011 DIN EN 61010-1 VDE 0411-1 2011-07	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements
IEC 60309-1 1999 A1: 2005 A2: 2012 DIN EN 60309-1 VDE 0623-1 2013-02	Plugs, socket-outlets and couplers for industrial purposes - Part 1: General requirements
IEC 60309-2 1999 A1: 2005 A2: 2012 DIN EN 60309-2 VDE 0623-2 2013-01	Plugs, socket-outlets and couplers for industrial purposes - Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories
IEC 60309-4 2006 A1: 2012 DIN EN 60309-4 VDE 0623-3 2012-11	Plugs, socket-outlets and couplers for industrial purposes - Part 4: Switched socket-outlets and connectors with or without interlock
IEC 60529:1989 DIN EN 60529 VDE 0470-1 2014-09	Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989 + A1:1999 + A2:2013)
DIN VDE 0105-103 VDE 0105-103 2014-10	Operation of electrical installations - Part 103: Particular requirements for railways
DIN VDE 0105-100 VDE 0105-100 2009-10	Operation of electrical installations - Part 100: General requirements
UIC 533 2011-04	Vehicles, protection by earthing of metal parts

UIC 550 2005-04	Power supply installations for passenger stock
UIC 550-1 1990-01	Electrical switch cabinets on passenger stock
UIC 550-2 1994-01	Power supply systems for passenger coaches - Type testing
UIC 550-3 2005-04	Power supply installations for passenger stock - Effect on electrical installations outside passenger coaches
UIC 552 2005-06	Electrical power supply for trains - Standard technical characteristics of the train line
UIC 554-1 1979-01	Power supply to electrical equipment on stationary railway vehicles from a local mains system or another source of energy at 220 V or 380 V, 50 Hz

2.1.3.2 Pantographs

Inspections according to:

TR_RS_P_04.02 2016-07	Pantograph testing

Based on the evaluation and specification documentation listed below:

DIN EN 50206-1 VDE 0115-500-1 2011-02	Railway applications - Rolling stock - Pantographs: Characteristics and tests - Part 1: Pantographs for main line vehicles
DIN EN 50206-2 VDE 0115-500-2 2011-02	Railway applications - Rolling stock - Pantographs: Characteristics and tests - Part 2: Pantographs for metros and light rail vehicles
DIN EN 50318 2019-04	Railway applications - Current collection systems - Validation of simulation of the dynamic interaction between pantograph and overhead contact line
DIN EN 50367 VDE 0115-605 2017-01	Railway applications - Current collection systems - Technical criteria for the interaction between pantograph and overhead line (to achieve free access)

UIC 600 2003-11	Electric traction with aerial contact line
UIC 606-1 1987-01	Consequences of the application of the kinematic gauge defined by UIC Leaflets in the 505 series on the design of the contact lines
UIC 606-2 1986-01	Installation of 25 kV and 50 or 60 Hz overhead contact lines
UIC 794 1996-01	PANTOGRAPH-OVERHEAD LINE INTERACTION ON THE EUROPEAN HIGH-SPEED NETWORK

2.1.3.3 Battery systems

Inspections according to:

TR_RS_P_04.13 2020-10	Verification of battery systems

Based on the evaluation and specification documentation listed below:

DIN V VDE V 0166 2011-04	Installation of electrical apparatus in areas endangered by substances with explosive characteristics
DIN 43582-1 1981-10	Train-lighting batteries, block compound-batteries
DIN EN 50272-1 VDE 0510-1 2011-10	Safety requirements for secondary batteries and battery installations - Part 1: General safety information
DIN EN 50272-2 VDE 0510-2 2001-12	Safety requirements for secondary batteries and battery installations - Part 2: Stationary batteries
DIN EN 50272-3 VDE 0510-3 2003-05	Safety requirements for secondary batteries and battery installations - Part 3: Traction batteries
DIN EN 50547 2013-08	Railway applications - Batteries for auxiliary power supply systems

DIN EN 60079-0 2014-06	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 31J/208/CDV 2012 DIN EN 60079-14 VDE 0165-1 2012-12	Explosive atmospheres - Part 14: Electrical installations design, selection and erection
IEC 60079-14 2013 DIN EN 60079-14 VDE 0165-1 2014-10	Explosive atmospheres - Part 14: Electrical installations design, selection and erection
DIN EN 62485-3 2015-09	Safety requirements for secondary batteries and battery installations - Part 3: Traction batteries
DIN EN IEC 62928 VDE 0115-928 2018-10	Railway applications - Rolling stock - Onboard lithium-ion traction batteries (without chapter 6.2 and 11.2)
DIN EN 62620 VDE 0510-35 2015-09	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Secondary lithium cells and batteries for use in industrial applications (IEC 62620:2014) (only chapter 5)

2.1.4 Driving technique / driving dynamics / aerodynamics

2.1.4.1 Driving technique - [Locations: MUC]

Inspections according to:

TR_RS_P_04.08 2019-08	Inspection of the driving technology of railway vehicles

Based on the evaluation and specification documentation listed below:

DIN EN 12299 2009-08	Railway applications - Ride comfort for passengers - Measurement and evaluation
DIN EN 14363 2005-10	Railway applications - Testing for the acceptance of running characteristics of railway vehicles - Testing of running behaviour and stationary tests

DIN EN 14363 2016-10	Railway applications - Testing and Simulation for the acceptance of running characteristics of railway vehicles - Running Behaviour and stationary tests
DIN EN 15302 2011-01	Railway applications - Method for determining the equivalent conicity
DIN EN 15528 2009-07	Railway applications - Line categories for managing the interface between load limits of vehicles and infrastructure
DIN EN 15528 2013-01	Railway applications - Line categories for managing the interface between load limits of vehicles and infrastructure
DIN EN 15686 2010-11	Railway applications - Testing for the acceptance of running characteristics of railway vehicles with cant deficiency compensation system and/or vehicles intended to operate with higher cant deficiency than stated in EN 14363:2005, Annex G
DIN EN 15687 2010-11	Railway applications - Testing for the acceptance of running characteristics of freight vehicles with static axle loads higher than 225 kN and up to 250 kN
DIN EN 15839 2013-09	Railway applications - Testing for the acceptance of running characteristics of railway vehicles - Freight wagons - Testing of running safety under longitudinal compressive forces
DIN EN 15839 2016-01	Railway applications - Testing for the acceptance of running characteristics of railway vehicles - Freight wagons - Testing of running safety under longitudinal compressive forces
DIN EN 16235 2013-12	Railway application - Testing for the acceptance of running characteristics of railway vehicles - Freight wagons - Conditions for dispensation of freight wagons with defined characteristics from on-track tests according to EN 14363
DIN 27201-5 2014-06	State of railway vehicles - Basic principles and production technology - Part 5: Assessment parameters and requirements of the distribution of wheel forces and vertical wheelset forces of railway vehicles - Procedure for checking and settings

ERRI ORE B55/RP8 1983	Derailment safety of freight wagons in track twists /Conditions for travelling on track twists - Recommended values for track twist and cant Calculation and measurement of the relevant vehicle parameters Testing of the vehicles (final report)
ERRI ORE C9/RP8 1967	Interaction between vehicles and track Behaviour of small wheels when driving over a curved crossing R = 450 m 1:9
ERRI ORE C138/RP9 1986	Acceptable maximum values of Y and Q forces and derailment criteria Verification of the limit values, Tests under operational conditions, Comparison of limit values with the actual state (final report)
UIC 432 2008-10	Wagons. Running speeds. Technical conditions to be observed
UIC 515-1 2003-03	Passenger rolling stock - Trailer bogies - Running gear - General provisions applicable to the components of trailers bogies
UIC 518 2009-10	Testing and approval of railway vehicles from the point of view of their dynamic behaviour - Safety - Track fatigue - Running behaviour
UIC 519 2004-12	Method for determining the equivalent conicity
UIC 530-2 2011-12	Wagons - Running safety
UIC 581 1983-01	Wagons - Lifting - Rerailing
TR SP 2006-05	Technical rules for the track guidance of railways in accordance with the Ordinance on the Construction and Operation of Trams
BOStrab- Routing-guidelines 2006-06	Guidelines for the routing of railways in accordance with the Ordinance on the Construction and Operation of Trams

2.1.4.2 Crosswind and aerodynamics - [Locations: BER]

Inspections according to:

TR_RS_P_04.27 2020-11	Environmental crosswind aerodynamics
DIN EN 14067-3 2003-09	Railway applications - Aerodynamics - Part 3: Aerodynamics in tunnels
DIN EN 14067-4 2014-05	Railway applications - Aerodynamics - Part 4: Requirements and test procedures for aerodynamics on open track
DIN EN 14067-4 2019-06	Railway applications - Aerodynamics - Part 4: Requirements and test procedures for aerodynamics on open track
DIN EN 14067-5 2011-01	Railway applications - Aerodynamics - Part 5: Requirements and test procedures for aerodynamics in tunnels
DIN EN 14067-6 2010-05 + 2018-09	Railway applications - Aerodynamics - Part 6: Requirements and test procedures for cross wind assessment

2.1.5 Strength and structural mechanics

Inspections according to:

TR_RS_P_04.03 2012-11	Expert opinion on strength
TR_RS_P_04.06 2012-11	Computational proof Finite element method

2.1.5.1 Vehicle body - [Locations: MUC]

Inspections according to:

TR_RS_P_04.04 2012-11	Proof of strength of vehicle body

Based on the evaluation and specification documentation listed below:

EN 1993-1-9 2010-12	Eurocode 3: Design of steel structures - Part 1-9: Fatigue
DIN EN 12663-1 2015-03	ailway applications - Structural requirements of railway vehicle bodies - Part 1: Locomotives and passenger rolling stock (and alternative method for freight wagons)
DIN EN 12663-2 2010-07	Railway applications - Structural requirements of railway vehicle bodies - Part 2: Freight wagons
EN 15227 2011-01	Railway applications - Crashworthiness requirements for railway vehicle bodies
DIN EN 16404 2016-05	Railway applications - Re-railing and recovery requirements for railway vehicles
DIN 25043-1 2012-02	Railway applications - Measuring of new railway vehicles - Part 1: Measuring principles
DIN 25043-2 2012-02	Railway applications - Measuring of new railway vehicles - Part 2: Measuring processes for bodies of coaches and railcars
ERRI B12 RP17 1997-04	Wagons – Programme of tests to be carried out on wagons with steel underframe and body structure (suitable for being fitted with the automatic buffing an draw coupler) and on their cast steel frame bogies

2.1.5.2 Pulling and pushing equipment - [Locations: MUC]

Inspections according to:

TR_RS_P_04.11 2012-08	Assessment of pulling and pushing devices

Based on the evaluation and specification documentation listed below:

DIN EN 15020 2011-01	Railway applications - Rescue coupler - Performance requirements, specific interface geometry and test methods
DIN EN 15551 2017-05	Railway applications - Railway rolling stock - Buffers

DIN EN 15566 2016-12	Railway applications - Railway rolling stock - Draw gear and screw coupling
DIN EN 16019 2014	Railway applications - Automatic coupler - Performance requirements, specific interface geometry and test method;
UIC 520 2003-12	Wagons, coaches and vans - Draw gear - Standardisation
UIC 522 1990-01	Technical conditions to be fulfilled by the automatic coupler of the UIC and OSJD Member Railways
UIC 522-2 2002-04	Conditions for the acceptance of draw-only automatic couplers
UIC 527-1 2005-04	Coaches, vans and wagons - Dimensions of buffer heads - Track layout on S-curves
UIC 528 2007-09	Buffer gear for coaches
UIC 627-4 1980-07	Regulations relating to buffing and draw gear and the braking system to be used on internal combustion-engined railcars and multiple-unit sets, to enable them to be hauled in an emergency by any tractive unit

2.1.5.3 Bogie / Chassis - [Locations: MUC]

Based on the evaluation and specification documentation listed below:

DIN EN 13749 2011-06	Railway applications - Wheelsets and bogies - Method of specifying the structural requirements of bogie frames
DIN EN 13775-1 2004-09	Railway applications - Measuring of new and modified freight wagons - Part 1: Measuring principles
DIN EN 13775-2 2004-09	Railway applications - Measuring of new and modified freight wagons - Part 2: Freight wagons with bogies

DIN EN 13775-4 2004-09	Railway applications - Measuring of new and modified freight wagons - Part 4: Bogies with 2 wheelsets
DIN EN 15827 2011-06	Railway applications - Requirements for bogies and running gears
UIC 510-1 1978-01	Wagons - Running gear - Normalisation
UIC 510-3 1994-07	Wagons - Strength testing of 2 and 3-axle bogies on test rig
UIC 515-0 2001-04	Passenger rolling stock - Trailer bogies - Running gear
UIC 515-1 2003-03	Passenger rolling stock - Trailer bogies - Running gear - General provisions applicable to the components of trailers bogies
UIC 515-4 1993-01	Passenger rolling stock - Trailer bogies - Running gear - Bogie frame structure strength tests
UIC 615-0 2003-02	Tractive units - Bogies and running gear - General provisions
UIC 615-1 2003-02	Tractive units - Bogies and running gear - General conditions applicable to component parts
UIC 615-4 2003-02	Motive power units - Bogies and running gear - Bogie frame structure strength tests

2.1.5.4 Wheelset / wheelset bearing - [Location: MUC]

Based on the evaluation and specification documentation listed below:

DIN- Paperback 491/1 2013-10	Rolling stock 1 - Wheelsets
DIN 5574 1985-12	Tyres for rail vehicles; width 135 and 140 mm; finished dimensions
DIN 7190 2001-02	Interference fits - Calculation and design rules

DIN 7190-1 2017-02	Interference fits - Part 1: Calculation and design rules for cylindrical self-locking pressfits
DIN 7190-2 2017-02	Interference fits - Part 2: Calculation and design rules for conical self-locking pressfits
DIN EN 12080 2017-11	Railway applications - Axleboxes - Rolling bearings
DIN EN 12081 2017-11	Railway applications - Axleboxes - Lubricating greases
DIN EN 12082 2017-12	Railway applications - Axleboxes - Performance testing
DIN EN 13103 2012-10	Railway applications - Wheelsets and bogies - Non powered axles - Design method
DIN EN 13103-1 2019-02	Railway applications - Wheelsets and bogies - Part 1: Design method for axles with external journals
DIN EN 13104 2013-03	Railway applications - Wheelsets and bogies - Powered axles - Design method
DIN EN 13260 2011-01	Railway applications - Wheelsets and bogies - Wheelsets - Product requirements
DIN EN 13261 2011-01	Railway applications - Wheelsets and bogies - Axles - Product requirements
DIN EN 13262 2011-06 Corrigendum 1 2013-02	Railway applications - Wheelsets and bogies - Wheels - Product requirements
DIN EN 13715 2011-01	Railway applications - Wheelsets and bogies - Wheels - Tread profile
DIN EN 13979-1 2011-06	Railway applications - Wheelsets and bogies - Monobloc wheels - Technical approval procedure - Part 1: Forged and rolled wheels

DIN CEN/TS 13979-2 2011-12	Railway applications - Wheelsets and bogies - Monobloc wheels - Technical approval procedure - Part 2: Cast wheels
DIN EN 15437-1 2010-06	Railway applications - Axlebox condition monitoring - Interface and design requirements - Part 1: Track side equipment and rolling stock axlebox
DIN EN 15437-1 2013-02 Corrigendum 1	Railway applications - Axlebox condition monitoring - Interface and design requirements - Part 1: Track side equipment and rolling stock axlebox
DIN EN 15437-2 2012-12	Railway applications - Axlebox condition monitoring - Interface and design requirements - Part 2: Performance and design requirements of on-board systems for temperature monitoring
UIC 510-2 2002-10	Trailing stock: wheels and wheelsets. Conditions concerning the use of wheels of various diameters
UIC 510-5 2007-05	Technical approval of monobloc wheels - Application document for standard EN 13979-1
UIC 512 1979-01	Rolling stock - Conditions to be fulfilled in order to avoid difficulties in the operation of track circuits and treadles
UIC 515-5 1993-01	Powered and trailing stock - Bogies - Running gear - Tests for axle-boxes
UIC 700 2004-11	Classification of lines – Resulting load limits for wagons
UIC 810-1 2003-01	Technical specification for the supply of rough rolled non-alloy steel tyres for tractive and trailing stock
UIC 810-2 1985-01	Technical specification for the supply of rough tyres for tractive and trailing stock - Tolerances
UIC 810-3 1990-07	Technical specification for the supply of non-alloy flat and sectional steel for tyre retention spring rings

UIC 812-1 1989-01	Technical specification for the supply of rolled or forged wheel centres for tyred wheels for trailing stock. Quality requirements
FKM Guideline 2012	Analytical Strength Assessment for Machine Components (6th edition, 2012)

2.1.5.5 Windows - [Locations: BER; BRA]

Inspections according to:

TR_RS_P_04.15 2013-06	Assessment of system functionality Windows

Based on the evaluation and specification documentation listed below:

DIN 5566-1 2006-09	Railway vehicles - Driver cabs - Part 1: General requirements
DIN 5566-2 2006-09	Railway vehicles - Driver cabs - Part 2: Additional requirements for standards gauge railway vehicles
DIN 5566-3 2006-09	Railway vehicles - Driver cabs - Part 3: Additional requirements for urban and suburban rolling stock
DIN 6163-4 2011-07	Colours and colour limits for signal lights - Part 4: Railway signal lights
DIN EN 15152 2007-11	Railway applications - Front windscreens for train cabs
UIC 564-1 1990-01	Coaches - Windows made from safety glass
UIC 566 1990-01	Loadings of coach bodies and their components
UIC 651 2002-07	Layout of driver´s cabs in locomotives, railcars, multiple-unit trains and driving trailers
UIC 660 2002-02	Measures to ensure the technical compatibility of high-speed trains

Regulation ECE R 43 2014-02	Regulation No 43 of the Economic Commission for Europe of the United Nations (UN/ECE) — Uniform provisions concerning the approval of safety glazing materials and their installation on vehicles

2.1.5.6 Doors / Passenger boarding / Crossings - [Locations: BER; BRA]

Inspections according to:

TR_RS_P_04.14 2019-07	Evaluation of system functionality for vehicle doors

Based on the evaluation and specification documentation listed below:

EN 14752 2015-03	Railway applications - Body side entrance systems
DIN EN 14752 2015-05	Railway applications - Bodyside entrance systems for rolling stock
prEN 14752 2019-02	Railway applications - Bodyside entrance systems for rolling stock
DIN EN 16286-1 2013-06	Railway applications - Gangway systems between vehicles - Part 1: Main applications
DIN EN 16286-2 2013-09	Railway applications - Gangway systems between vehicles - Part 2: Acoustic measurements
UIC 561 1991-1 (V. 1996-01)	MEANS OF INTERCOMMUNICATION FOR COACHES
UIC 566 1990-01	Loadings of coach bodies and their components
UIC 576 1975-07	WAGON DOORS AND SECURING DEVICES (INTERCHANGEABILITY)
VDV 157 2017-02	Requirements for entrapment and injury protection as well as emergency opening devices on doors of passenger vehicles according to BOStrab
Draft VDV 759 2019	Handling procedures in rail passenger transport

TR Spalt 2012-11	Technical rules for determining and assessing the gap between the platform and the vehicle in the passenger boarding area as part of the vehicle commissioning authorisation process

2.1.5.7 Joining technology - [Locations: MUC]

Inspections according to:

TR_RS_P_04.21 2023-01	Assessment of conformity to welding standards

Based on the evaluation and specification documentation listed below:

EN 15085-3 2022	Railway applications - Welding of railway vehicles and components - Part 3: Design requirements
DIN EN 15085-3 2023-02	Railway applications - Welding of railway vehicles and components - Part 3: Design requirements

2.1.6 Functional safety, vehicle control technology - [Locations: MUC]

Inspections according to:

TR_RS_P_04.19 2019-07-08	Functional Safety on Train Level Assessment Process
TR_GD_04.45 2019-07-08	Guidance document Control System for Rolling Stock - Functional Safety Assessment

2.1.6.1 Generic applications - vehicle

Based on the evaluation and specification documentation listed below:

DIN EN 50124-1 VDE 0115 Teil 107-1 2001-10	Railway applications - Insulation coordination - Part 1: Basic requirements; Clearances and creepage distances for all electrical and electronic equipment
DIN EN 50124-2 VDE 0115 Teil 107-2 2001-10	Railway applications - Insulation coordination - Part 2: Overvoltages and related protection

DIN EN 50126-1 VDE 0115-103-1 2018-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 1: Generic RAMS Process
EN 50126-1 2017-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 1: Generic RAMS Process
DIN EN 50126-2 VDE 0115-103-2 2018-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 2: Systems Approach to Safety
EN 50126-2 2017-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 2: Systems Approach to Safety
EN 50128 IEC 62279 VDE 0831-128 2011-06	Railway applications - Communication, signalling and processing systems - Software for railway control and protection systems
DIN EN 50128 VDE 0831-128 2012-03	Railway applications - Communication, signalling and processing systems - Software for railway control and protection systems
DIN EN 50129 VDE 0831-129 2003-12	Railway applications - Communication, signalling and processing systems - Safety related electronic systems for signalling
EN 50129 VDE 0831-129 2003-02	Railway applications - Communication, signalling and processing systems - Safety related electronic systems for signalling
EN 50129 2018-11	Railway applications - Communication, signalling and processing systems - Safety related electronic systems for signalling
IEC 62278 2002-09	Railway applications - Specification and demonstration of reliability, availability, maintainability and safety (RAMS)

IEC 62279 2015-06	Railway applications – Communication, signalling and processing systems – Software for railway control and protection systems

2.1.6.2 Specific applications - vehicle

Based on the evaluation and specification documentation listed below:

DIN EN 14033-3 2014-08	Railway applications - Track - Railbound construction and maintenance machines - Part 3: General safety requirements
DIN EN 50657 VDE 0831-657 2017-11	Railways Applications - Rolling stock applications - Software on Board Rolling Stock
EN 50657 2017-08	Railways Applications - Rolling stock applications - Software on Board Rolling Stock
FprEN 61375-1 2009 DIN EN 61375-1 2009-09 (Draft)	Electronic railway equipment - Train communication network - Part 1: TCN - Train Communication Network General Architecture (IEC 9/1273/CDV:2009)
SIRF 100 2012-06	Vehicle safety guideline - general part
SIRF 200 2013-06	Vehicle safety guideline - Safety verification procedure
SIRF 300 2012-06	Vehicle safety guideline - Safety verification procedure
SIRF 400 2012-06	Vehicle Safety Directive - Requirements for doors in railway vehicles (implementing provisions)
SIRF Anlage 1 2012-06	Technical safety plan (TeSiP)
SIRF Anlage 2 2012-06	Criteria catalogue HW for control functions
SIRF Anlage 3 2012-06	Hazard trees

2.1.6.3 Train radio

Based on the evaluation and specification documentation listed below:

UIC 557 1998-01	Diagnostics on passenger rolling stock
UIC 641 2001-02	Conditions to be fulfilled by automatic vigilance devices used in international traffic
UIC 751-3 2005-07	Technical regulations for international ground-train radio systems
EBA Checkliste Stand 15.03.2010	Checklist Federal Railway Authority 19_other_safety_equipment
DIN EN 50239 2018-08	Railway applications - Radio remote control system of traction vehicle for shunting application
CLC/TR 50452 2007	Railway applications - Radio remote control system of traction vehicle for freight traffic in multiple traction operation

2.1.7 Fire protection, evacuation - [Locations: BER]

Inspections according to:

TR_RS_P_04.12 2020-01-20	Fire protection assessment vehicle

Based on the evaluation and specification documentation listed below:

DIN 5510-1 1988-10	Preventive fire protection in railway vehicles; levels of protection, fire preventive measures and certification
DIN 5510-2 2009-05	Preventive fire protection in railway vehicles - Part 2: Fire behaviour and fire side effects of materials and parts - Classification, requirements and test methods
DIN 5510-4 1988-10	Preventive fire protection in railway vehicles; vehicle design; safety requirements
DIN 5510-5 1988-10	Preventive fire protection in railway vehicles; electrical equipment; safety requirements

DIN 5510-6 1988-10	Preventive fire protection in railway vehicles; auxiliary measures, emergency brake operating function; information systems, fire alarms, fire fighting equipment; safety requirements
DIN EN 45545-1 2013-08	Railway applications - Fire protection on railway vehicles - Part 1: General
DIN EN 45545-2 2020-10	Railway applications - Fire protection on railway vehicles - Part 2: Requirements for fire behavior of materials and components
DIN EN 45545-3 2013-08	Railway applications - Fire protection on railway vehicles - Part 3: Fire resistance requirements for fire barriers
DIN EN 45545-4 2015-11	Railway applications - Fire protection on railway vehicles - Part 4: Fire safety requirements for rolling stock design
DIN EN 45545-5 2016-01	Railway applications - Fire protection on railway vehicles - Part 5: Fire safety requirements for electrical equipment including that of trolley buses, track guided buses and magnetic leviation vehicles
DIN EN 45545-6 2015-11	Railway applications - Fire protection on railway vehicles - Part 6: Fire control and management systems
DIN EN 45545-7 2013-08	Railway applications - Fire protection on railway vehicles - Part 7: Fire safety requirements for flammable liquid and flammable gas installations
DIN EN 50125-1 VDE 0115-108-1 2014-11	Railway applications - Environmental conditions for equipment - Part 1: Rolling stock and on-board equipment
DIN EN 50553 VDE 0115-553 2016-10	Railway applications - Requirements for running capability in case of fire on board of rolling stock
DIN EN 60268-16 2012-05	Sound system equipment - Part 16: Objective rating of speech intelligibility by speech transmission index

UIC 440 2001-12	Public-address systems in coaches (RIC)
UIC 564-2 1991-01	Regulations relating to fire protection and firefighting measures in passenger carrying railway vehicles or assimilated vehicles used on international services
UIC 642 2001-09	Special provisions concerning fire precautions and fire-fighting measures on motive power units and driving trailers in international traffic
UIC 779-9 2003-08	Safety in railway tunnels
UIC 895 1976-07	Technical specification for the supply of insulated electric cables for railway vehicles.
NFPA 130 2020-01	Standard for Fixed Guideway Transit and Passenger Rail Systems
Title 49 of the Code of Federal Regulations, Part 238 2012-01	PASSENGER EQUIPMENT SAFETY STANDARDS Subpart B - §238.103 Fire safety
UNI 11565 2021-07	Railway Vehicles - Design, Installation, Validation And Maintenance Of Fire Detection And Extinguishing Systems To Be Utilized In Rail Vehicles - General Principles
BOStrab-Tunnelbau-Richtlinien 1991-04	Guidelines for the construction of tunnels in accordance with the Ordinance on the Construction and Operation of Trams
TRStrab Brandschutz 2014-06	Technical regulations for trams - Fire protection in underground operating facilities
ARGE Teil 1 2018-11	Fire detection in railway vehicles
ARGE Teil 2 2018-11	Firefighting in railway vehicles
ARGE Teil 3 2018-11	System functionality Fire detection and firefighting
VwV NEA 2007-02-26	Administrative regulation for the testing of emergency entry and exit windows (NEA) in railway vehicles

2.1.8 Vehicle limitation - [Locations: MUC]

Inspections according to:

TR_RS_P_04.25 2019-03-11	Proof of vehicle limitation

Based on the evaluation and specification documentation listed below:

DIN EN 15273-1 2017-10	Railway applications - Gauges - Part 1: General - Common rules for infrastructure and rolling stock
DIN EN 15273-2 2017-10	Railway applications - Gauges - Part 2: Rolling stock gauge
DIN EN 15273-3 2017-10	Railway applications - Gauges - Part 3: Structure gauges
UIC 505-1 2006-05	Railway transport stock - Rolling stock construction gauge
UIC 505-4 2007-11	Effects of the application of the kinematic gauges defined in the 505 series of leaflets on the positioning of structures in relation to the tracks and of the tracks in relation to each other
UIC 505-5 2010-08	History, justification and commentaries on the elaboration and development of UIC leaflets of the series 505 and 506 on gauges
UIC 505-6 2010-08	General rules for interoperable rolling stock gauges (without unloading freight or disembarking passengers) in cross-border traffic between UIC and OSJD Rus
UIC 506 2008-01	Rules governing application of the enlarged GA, GB, GB1, GB2, GC and GI3 gauges
UIC 507 1997-07	WAGONS - CONDITIONS GOVERNING WAGONS CONVEYED ON FERRIES
UIC 521 1987-01	Coaches and vans, wagons, tractive stock - Clearance to be provided at vehicle extremities
UIC 560 2002-01	Doors, footboards, windows, steps, handles and handrails of coaches and luggage vans

UIC 569 1979-07	Regulations to be observed in the construction of coaches and vanssuitable for conveyance by train ferry
UIC 627-5 1980-07	Regulations applicable to the construction of internal combustion-engined railcars accepted on international train ferry services
UIC 741 2007-09	Passenger stations - Height of platforms - Regulations governing thepositioning of platform edges in relation to the trac
BOStrab-Lichtraum-Richtlinie 1996-12	Provisional guidelines for the dimensioning of the clear space of railways in accordance with the Ordinance on the Construction and Operation of Trams
DB RiL 813.0201 2012-05	Designing and dimensioning platforms

2.1.9 Facilities for personal and occupational safety - [Locations: DRE; MUC]

Inspections according to:

TR_RS_P_04.26 2019-10	Occupational safety assessment vehicle

Based on the evaluation and specification documentation listed below:

DIN EN 894-1 2009-01	Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 1: General principles for human interactions with displays and control actuators
EN 894-1 1997 A1:2008	Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 1: General principles for human interactions with displays and control actuators
DIN EN 894-2 2009-02	Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 2: Displays
EN 894-2 1997 A1:2008	Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 2: Displays
DIN EN 894-3 2010-01	Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 3: Control actuators

EN 894-3 2000 A1:2008	Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 3: Control actuators
ISO 3864-1 2011-04	Graphical symbols - Safety colours and safety signs - Part 1: Design principles for safety signs and safety markings
DIN EN ISO 6385 2004-05	Ergonomics principles in the design of work systems
EN ISO 6385 2016	Ergonomics principles in the design of work systems
EN 13129 2016-08	Railway applications - Air conditioning for main line rolling stock - Comfort parameters and type tests
DIN EN 14033-2 2014-08	Railway applications - Track - Railbound construction and maintenance machines - Part 2: Technical requirements for working
DIN EN 14813-1 2011-01	Railway applications - Air conditioning for driving cabs - Part 1: Comfort parameters
EN 16186-1 2014 A1:2018	Railway applications - Driver's cab - Part 1: Anthropometric data and visibility
DIN EN 16186-1 2019-04	Railway applications - Driver's cab - Part 1: Anthropometric data and visibility
EN 50153 2014 A1:2017	Railway applications - Rolling stock - Protective provisions relating to electrical hazards
DIN EN 50153 2018-01	Railway applications - Rolling stock - Protective provisions relating to electrical hazards
UIC 521 1987-01	Coaches and vans, wagons, tractive stock - Clearance to be provided at vehicle extremities
UIC 532 1991-01	Trailing stock - Signal lamp brackets - Coaches - Fixed electric signal lamps
UIC 534 2002-07	Signal lamps and signal-lamp brackets for locomotives, railcars and all tractive and self-propelled stock

UIC 535-1 1972-01	Standardisation of steps and handrails on wagons
UIC 535-2 2006-02	Standardisation and positioning on wagons of steps, end platforms, gangways, handrails, tow hooks, automatic coupler (AC), automatic draw-on coupling and brake valve controls on the UIC member RUs and OSJD member Rus
UIC 536 1996-01	Towing hooks for wagons
UIC 563 1990-01	Fittings provided in coaches in the interests of hygiene and cleanliness
UIC 565-1 2007-03	Special design and fittings features of vehicles accepted for use in international passenger night traffic
UIC 565-2 1997-01	Special comfort and constructional characteristics and rules of hygiene for restaurant-cars accepted in international traffic
UIC 571-3 2004-11	Standard wagons - Special-purpose wagons - Characteristics
UIC 571-4 2014-01	Standard wagons - Wagons for combined transport - Characteristics
UIC 646 1980-07	Standardisation of steps and handrails on diesel and electric shunting powered units
UIC 651 2002-07	Layout of driver´s cabs in locomotives, railcars, multiple-unit trains and driving trailers

2.1.10 Maintenance – [Locations: MUC]

Inspections according to:

TR_RS_P_04.32 2023-01	Inspection procedure

Based on the evaluation and specification documentation listed below:

DIN EN 17023 2019-07	Railway applications - Railway vehicle maintenance - Creation and modification of maintenance plans

2.1.11

2.1.12 Environmental protection

2.1.12.1 Fuel systems - [Location: MUC]

Inspections according to:

TR_RS_P_04.23 2019-11	Proof of fuel systems

Based on the evaluation and specification documentation listed below:

DIN 6600 2007-04	Steel tanks for the storage of water-polluting liquids - Declaration of conformity

2.1.12.2 Acoustics - [Locations: BER; MUC]

Inspections according to:

TR_RS_P_04.05 2012-11-30	Assessment of airborne noise in railway vehicles

Based on the evaluation and specification documentation listed below:

DIN EN ISO 3095 2014-07	Acoustics - Railway applications - Measurement of noise emitted by railbound vehicles (ISO 3095:2013)

DIN EN ISO 3381 2022-09	Railway applications - Acoustics - Measurement of noise inside railbound vehicles (ISO 3381:2005)
DIN EN 15892 2011-05	Railway applications - Noise Emission - Measurement of noise inside driver's cabs
VDV 154 2011-10	Noise from local public transport rail vehicles (LPT)
DIN EN 15461 2011-01	Railway applications - Noise emission - Characterisation of the dynamic properties of track sections for pass by noise measurements
DIN EN 15610 2021-11	Railway applications - Acoustics - Rail and wheel roughness measurement related to rolling noise generation
DIN EN 15153-1 2020-03	Railway applications - External visible and audible warning devices - Part 1: Head, marker and tail lamps for heavy rail
SchLV BGL 1993	Rail Vehicle Noise Reliability Ordinance

2.1.12.3 Environment - [Locations: BER]

Inspections according to:

TR_RS_P_04.16 2014-11	Evaluation of system functionality Environmental protection

Based on the evaluation and specification documentation listed below:

DIN EN 50125-1 VDE 0115-108-1 2014-11	Railway applications - Environmental conditions for equipment - Part 1: Rolling stock and on-board equipment

2.2 Railway infrastructure (INF subsystem) - [Location: GRA]

2.2.1 Overarching requirements for INF installations (note: which cannot be specifically assigned to any of the other sub-areas)

Inspections according to:

TR_RI_P_04.05 2019-10	Inspection procedures for conformity assessment in the rail infrastructure sector

Based on the evaluation and specification documentation listed below:

DB Ril 853 2013	Planning, building and maintaining railway tunnels
PPP 65001_2016 2016	Fixed barrier test programme

2.2.2 Superstructure

Inspections according to:

TR_RI_GD_04.42 2017-06-29	Guideline Assessment of Trackworks

Based on the evaluation and specification documentation listed below:

FprEN 13230-1 2015-12	Railway applications - Track - Concrete sleepers and bearers - Part 1: General requirements
FprEN 13230-2 2015-12	Railway applications - Track - Concrete sleepers and bearers - Part 2: Prestressed monoblock sleepers
FprEN 13230-3 2015-12	Railway applications - Track - Concrete sleepers and bearers - Part 3: Twin-block reinforced sleepers
FprEN 13230-4 2015-12	Railway applications - Track - Concrete sleepers and bearers - Part 4: Prestressed bearers for switches and crossings
FprEN 13230-5 2015-12	Railway applications - Track - Concrete sleepers and bearers - Part 5: Special elements
prEN 13230-6 2016-01	Railway applications - Track - Concrete sleepers and bearers - Part 6: Design
FprEN 16730 2015-12	Railway applications - Track - Concrete sleepers and bearers with under sleeper pads
OR 1-13 1995-12 OR14 2009-08	Superstructure Guidelines (OR) and Superstructure Supplementary Guidelines (OR-Z) of the VDV for railways within the scope of the Ordinance on the Construction and Operation of Tramways

EN 13481-2 2012-08	Railway applications - Track - Performance requirements for fastening systems - Part 2: Fastening systems for concrete sleepers
EN 13481-3 2012-11	Railway applications - Track - Performance requirements for fastening systems - Part 3: Fastening systems for wood sleepers
EN 13481-4 2012-11	Railway applications - Track - Performane requirements for fastening systems - Part 4: Fastening systems for steel sleepers
EN 13481-5 2012-08	Railway applications - Track - Performance requirements for fastening systems - Part 5: Fastening systems for slab track with rail on the surface or rail embedded in a channel
ENV 13481-6 2007-03	Railway applications - Track; Performance requirements for fastening systems - Part 6: Special fastening systems for attenuation of vibration
EN 13481-7 2012-08	Railway applications - Track - Performance requirements for fastening systems - Part 7: Special fastening systems for switches and crossings and check rails
EN 13481-8 2006-06	Railway applications - Track - Performance requirements for fastening systems - Part 8: Fastening systems for track with heavy axle loads
EN 13146-1 2012-06	Railway applications - Track - Test methods for fastening systems - Part 1: Determination of longitudinal rail restraint
EN 13146-2 2012-06	Railway applications - Track - Test methods for fastening systems - Part 2: Determination of torsional resistance
EN 13146-3 2012-06	Railway applications - Track - Test methods for fastening systems - Part 3: Determination of attenuation of impact loads
EN 13146-4 2012-06	Railway applications - Track - Test methods for fastening systems - Part 4: Effect of repeated loading

EN 13146-5 2012-06	Railway applications - Track - Test methods for fastening systems - Part 5: Determination of electrical resistance
EN 13146-6 2012-06	Railway applications - Track - Test methods for fastening systems - Part 6: Effect of severe environmental conditions
EN 13146-7 2012-06	Railway applications - Track - Test methods for fastening systems - Part 7: Determination of clamping force
EN 13146-8 2012-06	Railway applications - Track - Test methods for fastening systems - Part 8: In service testing
EN 13146-9 2011-12	Railway applications - Track - Test methods for fastening systems - Part 9: Determination of stiffness
EN 13230-1 2009-10	Railway applications - Track - Concrete sleepers and bearers - Part 1: General requirements
DIN EN 13230-1 2014-04	Railway applications - Track - Concrete sleepers and bearers - Part 1: General requirements
EN 13230-2 2009-10	Railway applications - Track - Concrete sleepers and bearers - Part 2: Prestressed monoblock sleepers
DIN EN 13230-2 2014-04	Railway applications - Track - Concrete sleepers and bearers - Part 2: Prestressed monoblock sleepers
EN 13230-3 2009-10	Railway applications - Track - Concrete sleepers and bearers - Part 3: Twin-block reinforced sleepers
DIN EN 13230-3 2014-04	Railway applications - Track - Concrete sleepers and bearers - Part 3: Twin-block reinforced sleepers
EN 13230-4 2009-10	Railway applications - Track - Concrete sleepers and bearers - Part 4: Prestressed bearers for switches and crossings

DIN EN 13230-4 2014-04	Railway applications - Track - Concrete sleepers and bearers - Part 4: Prestressed bearers for switches and crossings
EN 13230-5 2009-09	Railway applications - Track - Concrete sleepers and bearers - Part 5: Special elements
DIN EN 13230-5 2014-04	Railway applications - Track - Concrete sleepers and bearers - Part 5: Special elements
EN 13231-1 2006-08	Railway applications - Track - Acceptance of works - Part 1: Works on ballasted track - Plain line
DIN EN 13231-1 2013-07	Railway applications - Track - Acceptance of works - Part 1: Works on ballasted track - Plain line, switches and crossings
EN 13231-2 2006-08	Railway applications - Track - Acceptance of works - Part 2: Works on ballasted track - Switches and crossings
EN 13231-3 2012-04	Railway applications - Track - Acceptance of works - Part 3: Acceptance of reprofiling rails in track
EN 13232-2 2004-01	Railway applications - Track - Switches and crossings for Vignole rails - Part 2: Requirements for geometric design
EN 13232-2 2012-01	Railway applications - Track - Switches and crossings for Vignole rails - Part 2: Requirements for geometric design
DIN EN 13232-2 2014-07	Railway applications - Track - Switches and crossings for Vignole rails - Part 2: Requirements for geometric design
EN 13232-3 2004-01	Railway applications - Track - Switches and crossings for Vignole rails - Part 3: Requirements for wheel/rail interaction
EN 13232-3 2012-01	Railway applications - Track - Switches and crossings for Vignole rails - Part 3: Requirements for wheel/rail interaction

DIN EN 13232-3 2014-07	Railway applications - Track - Switches and crossings for Vignole rails - Part 3: Requirements for wheel/rail interaction
EN 13232-4 2012-01	Railway applications - Track - Switches and crossings for Vignole rails - Part 9: Layouts
DIN EN 13232-4 2014-07	Railway applications - Track - Switches and crossings for Vignole rails - Part 9: Layouts
EN 13232-5 2012-01	Railway applications - Track - Switches and crossings for Vignole rails - Part 5: Switches
DIN EN 13232-5 2014-07	Railway applications - Track - Switches and crossings for Vignole rails - Part 5: Switches
EN 13232-6 2012-01	Railway applications - Track - Switches and crossings - Part 6: Fixed common and obtuse crossings
DIN EN 13232-6 2014-07	Railway applications - Track - Switches and crossings for Vignole rails - Part 6: Fixed common and obtuse crossings
EN 13232-7 2012-01	Railway applications - Track - Switches and crossings - Part 7: Crossings with moveable parts
EN 13232-8 2012-01	Railway applications - Track - Switches and crossings for Vignole rails - Part 8: Expansion devices
DIN EN 13232-8 2014-07	Railway applications - Track - Switches and crossings for Vignole rails - Part 8: Expansion devices
EN 13232-9 2012-01	Railway applications - Track - Switches and crossings - Part 9: Layouts
DIN EN 13232-9 2014-07	Railway applications - Track - Switches and crossings for Vignole rails - Part 9: Layouts
EN 13674-1 2011-04	Railway applications - Track - Rail - Part 1: Vignole railway rails 46 kg/m and above

EN 13674-2 2011-01	Railway applications - Track - Rail - Part 2: Switch and crossing rails used in conjunction with Vignole railway rails 46 kg/m and above
EN 13674-3 2010-12	Railway applications - Track - Rail - Part 3: Check rails
EN 13674-4 2010-04	Railway applications - Track - Rail - Part 4: Vignole railway rails from 27 kg/m to, but excluding 46 kg/m
EN 14811 2010-05	Railway applications - Track - Special purpose rail - Grooved and associated construction
EN 13803-1 2011-03	Railway applications - Track - Track alignment design parameters - Track gauges 1 435 mm and wider - Part 1: Plain line
EN 13803-2 2010-06	Railway applications - Track - Track alignment design parameters - Track gauges 1435 mm and wider - Part 2: Switches and crossings and comparable alignment design situations with abrupt changes of curvature
EN 13848-1 2008-11	Railway applications - Track - Track geometry quality - Part 1: Characterization of track geometry
EN 13848-2 2006-08	Railway applications - Track - Track geometry quality - Part 2: Measuring systems - Track recording vehicles
EN 13848-3 2009-08	Railway applications - Track - Track geometry quality - Part 3: Measuring systems - Track construction and maintenance machines
DIN EN 13848-3 2013-01	Railway applications - Track - Track geometry quality - Part 3: Measuring systems - Track construction and maintenance machines
EN 13848-4 2012-03	Railway applications - Track - Track geometry quality - Part 4: Measuring systems - Manual and lightweight devices
EN 13848-5 2008-04	Railway applications - Track - Track geometry quality - Part 5: Geometric quality levels - Plain line

EN 13848-5 2010-09	Railway applications - Track - Track geometry quality - Part 5: Geometric quality levels - Plain line
DIN EN 13848-6 2014-07	Railway applications - Track - Track geometry quality - Part 6: Characterisation of track geometry quality
EN 14587-1 2007-09	Railway applications - Track - Flash butt welding of rails - Part 1: New R220, R260, R260Mn and R350HTgrade rails in a fixed plant
EN 14587-2 2009-08	Railway applications - Track - Flash butt welding of rails - Part 2: New R220, R260, R260Mn and R350HT grade rails by mobile welding machines at sites other than a fixed plant
DIN EN 14587-3 2013-01	Railway applications - Track - Flash butt welding of rails - Part 3: Welding in association with crossing construction
EN 14730-1 2006-08	Railway applications - Track - Aluminothermic welding of rails - Part 1: Approval of welding processes
EN 14730-1 2010-12	Railway applications - Track - Aluminothermic welding of rails - Part 1: Approval of welding processes
DIN EN 14730-1 2014-05	Railway applications - Track - Aluminothermic welding of rails - Part 1: Approval of welding processes
EN 14730-2 2006-10	Railway applications - Track - Aluminothermic welding of rails - Part 2: Qualification of aluminothermic welders, approval of contractors and acceptance of welds
DB RIL 800 2009-08	Design railway systems
DB RIL 813 2012-05	Planning passenger railway stations
DB RIL 815 2008-11	Planning and maintaining level crossings

DB RIL 807 2006-04	Module 0401-0499
DB RIL 820 2009-04	Basics of the superstructure
DB RIL 821 2012-01	Inspect the superstructure
DB RIL 824 2009-08	Carry out superstructure work
DB RIL 825 2012-04	Using construction machines
DB RIL 826 2012-01	Module 1010-3100
VDV Schrift 604 1995-10	Types and forms of superstructure for local transport railways
VDV Schrift 609 1999-07	Superstructure welding for local transport companies
prEN 16727-1 2016-01	Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Non-acoustic performance - Part 2-1: Mechanical performance under dynamic loadings due to passing trains - Test methods
prEN 16727-3 2015-02	Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Non-acoustic performance - part 3: General safety and environmental requirements
prEN 16727-2-1 2016-01	Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Non-acoustic performance - Part 2-1: Mechanical performance under dynamic loadings due to passing trains - Test methods

FprEN 16727-2-2 2015-12	Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Non-acoustic performance - Part 2-2: Mechanical performance under dynamic loadings caused by passing trains - Calculation method
prEN 13803 2014	ailway applications - Track - Track alignment design parameters - Track gauges 1435 mm and wider
prEN 13848-5 2014	Railway applications - Track - Track geometry quality - part 5: geometric quality levels - Plain line, switches and crossings
prEN 13674-1/A1 2015-04	Railway applications - Track - Rail - Part 1: Vignole railway rails 46 kg/m and above
EN 16273 2014	Railway applications - Track - Forged rail transitions

2.2.3 Substructure / geotechnics

Inspections according to:

TR_RI_GD_04.45 2016-08	Guideline Assessment of Earthworks

Based on the evaluation and specification documentation listed below:

UIC 719 2008-03	Earthworks and track bed for railway lines
RIL 836 2008-10	Earthworks and other geotechnical structures - Design, construction and maintenance
DIN 1054 2005-01	Subsoil - Verification of the safety of earthworks and foundations - Supplementary rules to DIN EN 1997-1
DIN 1054 2010-12	Subsoil - Verification of the safety of earthworks and foundations - Supplementary rules to DIN EN 1997-1
DIN 1055-2 2007-01	Actions on structures - Part 2: Soil properties
DIN 1055-2 2010-11	Actions on structures - Part 2: Soil properties

DIN 4017 2006-03	Soil - Calculation of design bearing capacity of soil beneath shallow foundations
DIN 4019-1 1979-04	Subsoil; analysis of settlements for vertical and centric loading, comment and examples of analysis
DIN 4019-1/ Supplements 1979-04	Subsoil; analysis of settlements for vertical and centric loading, comment and examples of analysis
DIN 4019-2 1981-02	Subsoil; Settlement calculations in the case of inclined and eccentrically acting loading
DIN 4019-2/ Supplements 1981-02	Subsoil; Settlement calculations in the case of inclined and eccentrically acting loading
DIN 4020 2003-09	Geotechnical investigations for civil engineering purposes
DIN 4020/ Beiblätter 2003-10	Geotechnical investigations for civil engineering purposes
DIN 4020 2010-12	Geotechnical investigations for civil engineering purposes - Supplementary rules to DIN EN 1997-2
EN ISO 14688-1 2003-01	Geotechnical investigation and testing - Identification and classification of soil - Part 1: Identification and description
EN ISO 14688-1 2011-06	Geotechnical investigation and testing - Identification and classification of soil - Part 1: Identification and description
DIN EN ISO 14688-1 2013-12	Geotechnical investigation and testing - Identification and classification of soil - Part 1: Identification and description (ISO 14688-1:2002 + Amd 1:2013)
EN ISO 14688-2 2004-11	Geotechnical investigation and testing - Identification and classification of soil - Part 2: Principles for a classification
EN ISO 14688-2 2011-06	Geotechnical investigation and testing - Identification and classification of soil - Part 2: Principles for a classification

DIN EN ISO 14688-2 2013-12	Geotechnical investigation and testing - Identification and classification of soil - Part 2: Principles for a classification (ISO 14688-2:2004 + Amd 1:2013)
EN ISO 14689-1 2004-04	Geotechnical investigation and testing - Identification and classification of rock - Part 1: Identification and description
EN ISO 14689-1 2011-06	Geotechnical investigation and testing - Identification and classification of rock - Part 1: Identification and description
DIN EN ISO 14689-1 2011-06	Geotechnical investigation and testing - Identification and classification of rock - Part 1: Identification and description (ISO 14689-1:2003)
EN ISO 22475-1 2007-01	Geotechnical investigation and testing - Sampling methods and groundwater measurements - Part 1: Technical principles for execution
DIN 4023 2006-02	Geotechnical investigation and testing - Graphical presentation of logs of boreholes, trial pits, shafts and adits
DIN 4084 2009-01	Soil - Calculation of embankment failure and overall stability of retaining structures
DIN V 4084-100/ Supplement 1997-04	Soil - Calculation of slope and embankment failure and overall stability of retaining structures - Part 100: Analysis in accordance with the partial safety factor concept, calculation examples
DIN 18196 2006-06	Earthworks and foundations - Soil classification for civil engineering purposes
DIN 18196 2011-05	Earthworks and foundations - Soil classification for civil engineering purposes
EBGEO 2010-04	Recommendations for geosynthetic reinforcements
DIN ISO 10381-1 2003-08	Soil quality - Sampling - Part 1: Guidance on the design of sampling programmes
DIN ISO 10381-2 2003-08	Soil quality - Sampling - Part 2: Guidance on sampling techniques

DIN ISO 10381-4 2004-04	Soil quality - Sampling - Part 4: Guidance on the procedure for investigation of natural, near-natural and cultivated sites
DIN ISO 10381-5 2007-02	Soil quality - Sampling - Part 5: Guidance on the procedure for the investigation of urban and industrial sites with regard to soil contamination
DIN EN 932-1 1996-11	Test for general properties of aggregates - Part 1: Methods for sampling
DIN 4023 2006-02	Geotechnical investigation and testing - Graphical presentation of drill samples and other direct explorations
Ad-Hoc AG Boden 2005-05	Soil science mapping guide KA 5
Ad-Hoc AG Boden 2009-09	Working aid for addressing soil in pre- and aftercare soil protection

2.2.4 Engineering / Tunnelling

Inspections according to:

TR_RI_GD_04.41 2019-10	Guideline Assessment of Civil Works

Based on the evaluation and specification documentation listed below:

EN 1990 Eurocode (2002 + A1:2005 + A1:2005/AC:2010) 2010-12	Eurocode: Basis of structural design-
DIN EN 1990/NA Eurocode 2010-12	National Annex - Nationally determined parameters - Eurocode: Basis of structural design
EN 1990/NA/A1 Eurocode 2011-07	National Annex - Nationally determined parameters - Eurocode: Basis of structural design; Amendment A1
EN 1990/NA/A1 2012-08	National Annex - Nationally determined parameters - Eurocode: Basis of structural design; Amendment A1

EN 1991-1-1 2010-12	Eurocode 1: Actions on structures - Part 1-1: General actions - Densities, self-weight, imposed loads for buildings
DIN 1055-1 2002-06	Action on structures - Part 1: Densities and weights of building materials, structural elements and stored materials
DIN 1055-3 2006-03	Action on structures - Part 3: Self-weight and imposed load in building
EN 1991-1-2 Eurocode 1 2003-01	Eurocode 1: Actions on structures - Part 1-2: General actions - Actions on structures exposed to fire
EN 1991-1-2 Eurocode 1 2010-12	Eurocode 1: Actions on structures - Part 1-2: General actions - Actions on structures exposed to fire
DIN EN 1991-1-2 2010-12	Eurocode 1: Actions on structures - Part 1-2: General actions - Actions on structures exposed to fire
EN 1991-1-3 Eurocode 1 2004-07	Eurocode 1: Actions on structures - Part 1-3: General actions - Snow loads
EN 1991-1-3 Eurocode 1 2010-12	National Annex - Nationally determined parameters - Eurocode 1: Actions on structures - Part 1-3: General actions - Snow loads
DIN 1055-5 2005-07	Actions on structures - Part 5: Snowloads and ice loads
EN 1991-1-4 Eurocode 1 2005-11	Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions
EN 1991-1-4 Eurocode 1 2010-12	Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions
DIN 1055-4 2005-03	Action on structures - Part 4: Wind loads
EN 1991-1-5 Eurocode 1 2004-07	Eurocode 1: Actions on structures - Part 1-5: General actions - Thermal actions

EN 1991-1-5 Eurocode 1 2010-12	Eurocode 1: Actions on structures - Part 1-5: General actions - Thermal actions
EN 1991-1-6 Eurocode 1 2005-09	Eurocode 1: Actions on structures - Part 1-6: General actions, Actions during execution
EN 1991-1-6 Eurocode 1 2010-12	Eurocode 1: Actions on structures - Part 1-6: General actions, Actions during execution
DIN 1055-8 2003-01	Actions on structures - Part 8: Actions during execution
EN 1991-1-7 Eurocode 1 2007-02	Eurocode 1: Actions on structures - Part 1-7: General actions - Accidental actions
EN 1991-1-7 Eurocode 1 2010-12	Eurocode 1: Actions on structures - Part 1-7: General actions - Accidental actions
EN 1991-2 Eurocode 1 2010-12	Eurocode 1: Actions on structures - Part 2: Traffic loads on bridges
DIN 1055-9 2003-08	Actions on structures - Part 9: Accidental actions
EN 1992-1-1 Eurocode 2 2005-10	Eurocode 2: Design of concrete structures - Part 1-1: General rules and rules for buildings
EN 1992-1-1 Eurocode 2 2011-01	Eurocode 2: Design of concrete structures - Part 1-1: General rules and rules for buildings
EN 1992-1-2 Eurocode 2 2008-04	Eurocode 2: Design of concrete structures - Part 1-2: General rules - Structural fire design
EN 1992-1-2 Eurocode 2 2010-12	Eurocode 2: Design of concrete structures - Part 1-2: General rules - Structural fire design

EN 1992-2 Eurocode 2 2007-02	Eurocode 2: Design of concrete structures - Part 2: Concrete bridges - Design and detailing rules
EN 1992-2 Eurocode 2 2010-12	Eurocode 2: Design of concrete structures - Part 2: Concrete bridges - Design and detailing rules
EN 1992-3 Eurocode 2 2006-11	Eurocode 2: Design of concrete structures - Part 3: Liquid retaining and containment structures
EN 1992-3 Eurocode 2 2011-01	Eurocode 2: Design of concrete structures - Part 3: Liquid retaining and containment structures
DIN 1045-1 2008-08	Concrete, reinforced and prestressed concrete structures - Part 1: Design and construction
DIN 1045-2 2008-08	Concrete, reinforced and prestressed concrete structures - Part 2: Concrete - Specification, properties, production and conformity - Application rules for DIN EN 206-1
DIN 1045-2 2014-08	Concrete, reinforced and prestressed concrete structures - Part 2: Concrete - Specification, performance, production and conformity - Application rules for DIN EN 206
DIN 1045-3 2012-03	Concrete, reinforced and prestressed concrete structures - Part 3: Execution of structures - Application rules for DIN EN 13670
EN 1993-1-1 Eurocode 3 2006-10	Eurocode 3: Design of steel structures - Part 1-1: General rules and rules for buildings
EN 1993-1-1 Eurocode 3 2010-12	Eurocode 3: Design of steel structures - Part 1-1: General rules and rules for buildings
DIN EN 1993-1-1 2014-07	Eurocode 3: Design of steel structures - Part 1-1: General rules and rules for buildings
EN 1993-1-3 Eurocode 3 2007-02	Eurocode 3: Design of steel structures - Part 1-3: General rules - Supplementary rules for cold-formed members and sheeting

EN 1993-1-3 Eurocode 3 2010-12	Eurocode 3: Design of steel structures - Part 1-3: General rules - Supplementary rules for cold-formed members and sheeting
EN 1993-1-5 Eurocode 3 2007-02	Eurocode 3: Design of steel structures - Part 1-5: Plated structural elements
EN 1993-1-5 Eurocode 3 2010-12	Eurocode 3: Design of steel structures - Part 1-5: Plated structural elements
DIN 18800-1 2008-11	Steel structures - Part 1: Design and construction
DIN 18800-2 2008-11	Steel structures - Part 2: Stability - Buckling of bars and skeletal structures
DIN 18800-3 2008-11	Steel structures - Part 3: Stability - Buckling of plates
DIN 18800-4 2008-11	Steel structure - Part 4: Stability - Analysis of safety against buckling of shells
DIN 18800-5 2007-03	Steel structures - Part 5: Composite structures of steel and concrete - Design and construction
DIN 18800-7 2008-11	Steel structures - Part 7: Execution and constructor's qualification
EN 1994-1-1 Eurocode 4 2010-12	Eurocode 4: Design of composite steel and concrete structures - Part 1-1: General rules and rules for buildings
EN 1994-1-2 Eurocode 4 2008-08	Eurocode 4: Design of composite steel and concrete structures - Part 1-2: General rules - Structural fire design
EN 1994-1-2 Eurocode 4 2010-12	Eurocode 4: Design of composite steel and concrete structures - Part 1-2: General rules - Structural fire design

EN 1994-2 Eurocode 4 2006-07	Eurocode 4: Design of composite steel and concrete structures - Part 2: General rules and rules for bridges
EN 1994-2 Eurocode 4 2010-12	Eurocode 4: Design of composite steel and concrete structures - Part 2: General rules and rules for bridges
EN 1995-1-1 Eurocode 5 2008-09	Eurocode 5: Design of timber structures - Part 1-1: General - Common rules and rules for buildings
EN 1995-1-1 Eurocode 5 2010-12	Eurocode 5: Design of timber structures - Part 1-1: General - Common rules and rules for buildings
DIN 1052 2008-12	Design of timber structures - General rules and rules for buildings
EN 1995-1-2 Eurocode 5 2010-12	Eurocode 5: Design of timber structures - Part 1-2: General - Structural fire design
EN 1995-2 Eurocode 5 2004-06	Eurocode 5: Design of timber structures - Part 2: Bridges
EN 1995-2 Eurocode 5 2010-12	Eurocode 5: Design of timber structures - Part 2: Bridges
EN 1996-1-1 Eurocode 6 2010-12	Eurocode 6: Design of masonry structures - Part 1-1: General rules for reinforced and unreinforced masonry structures
DIN EN 1996-1-1 2013-02	Eurocode 6: Design of masonry structures - Part 1-1: General rules for reinforced and unreinforced masonry structures
DIN 1053-100 2007-09	Masonry - Part 100: Design on the basis of semi-probabilistic safety concept

EN 1996-1-2 Eurocode 6 2006-10	Eurocode 6: Design of masonry structures - Part 1-2: General rules - Structural fire design
EN 1996-1-2 Eurocode 6 2011-04	Eurocode 6: Design of masonry structures - Part 1-2: General rules - Structural fire design
EN 1996-3 Eurocode 6 2010-12	Eurocode 6 - Design of masonry structures - Part 3: Simplified calculation methods for unreinforced Masonry structures
EN 1997-1 Eurocode 7 2009-09	Eurocode 7: Geotechnical design - Part 1: General rules
EN 1997-2 Eurocode 7 2007-10	Eurocode 7 - Geotechnical design - Part 2: Ground properties
EN 1997-2 Eurocode 7 2010-10	Eurocode 7 - Geotechnical design - Part 2: Ground properties
EN 206-1 2001-07	Concrete - Part 1: Specification, performance, production and conformity
EN 206-1/A1 2004-10	Concrete - Part 1: Specification, performance, production and conformity
EN 206-1/A2 2005-09	Concrete - Part 1: Specification, performance, production and conformity
DIN EN 206 2014-07	Concrete - Specification, performance, production and conformity
DIN-FB 100 2010-03	Concrete - Compilation of DIN EN 206-1
FB 101 2009-03	DIN Technical Report 101 Actions on bridges
FB 102 2009-03	DIN Technical Report 102 Concrete bridges
FB 103 2009-03	DIN Technical Report 103 Steel bridges

FB 104 2009-03	DIN Technical Report 104 Composite bridges
DB RIL 804 2011-09	Railway bridges (and other engineering structures) Design, build and maintain

2.2.5 Electrical and mechanical systems (except traction power supply) (location: MUC)

Inspections according to:

TR_TE_P_04.01 2016-08	Electromagnetic compatibility according to EN 50121-5

Based on the evaluation and specification documentation listed below:

DIN EN 50121-2 VDE 0115-121-2 2014-04	Railway applications - Electromagnetic compatibility - Part 2: Emission of the whole railway system to the outside world
DIN EN 50121-4 VDE 0115-121-4 2014-04	Railway applications - Electromagnetic compatibility - Part 4: Emission and immunity of the signalling and telecommunications apparatus
EN 50121-5 2016-01	Railway applications - Electromagnetic compatibility - Part 5: Emission and immunity of fixed power supply installations and apparatus
DIN EN 61000 VDE 0839 2003	Electromagnetic compatibility (EMC)
DIN EN 61000-2-2 VDE 0839-2-2 2003-02	Electromagnetic compatibility (EMC) - Part 2-2: Environment - Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems
DIN EN 62305-1 VDE 0185-305-1 2006-10	Protection against lightning - Part 1: General principles
IEC 62305-1 2010 DIN EN 62305-1 VDE 0185-305-1 2011-10	Protection against lightning - Part 1: General principles (modified)

DIN EN 62305-2 VDE 0185-305-2 2006-10	Protection against Lightning – Part 2: Risk management

2.3 <u>On-board</u> train protection, train control, signalling (On-board train control/command and signalling subsystem) - [Locations: MUC]

- **Vehicle equipment class A systems**
- **Vehicle equipment class B systems and comparable ATP systems in the light rail sector**
- **On-board GSM-R systems / radio systems**
- **Interface and interaction with track-side ZZS**
- **Maintenance**

Inspections according to:

TR_P_04.40 2015-08-06	Design and acceptance testing of non-federally owned railways (NE) abroad
DIN EN 50124-1 VDE 0115 Teil 107-1 2001-10	Railway applications - Insulation coordination - Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment
DIN EN 50124-2 VDE 0115 Teil 107-2 2001-10	Railway applications - Insulation coordination - Part 2: Overvoltages and related protection
DIN EN 50126-1 VDE 0115-103-1 2018-10	Railway Applications - The Specification and demonstration of reliability, availability, maintainability and safety (RAMS) - Part 1: generic RAMS process
EN 50126-1 2017-10	Railway Applications - The Specification and demonstration of reliability, availability, maintainability and safety (RAMS) - Part 1: generic RAMS process
DIN EN 50126-2 VDE 0115-103-2 2018-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 2: Systems Approach to Safety

EN 50126-2 2017-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 2: Systems Approach to Safety
EN 50128 IEC 62279 VDE 0831-128 2011-06	Railway applications - Communication, signalling and processing systems - Software for railway control and protection systems
DIN EN 50128 VDE 0831-128 2012-03	Railway applications - Communication, signalling and processing systems - Software for railway control and protection systems
DIN EN 50129 VDE 0831-129 2003-12	Railway applications - Telecommunications technology, signalling technology and data processing systems - Safety-related electronic systems for signalling technology
EN 50129 VDE 0831-129 2003-02	Railway applications - Telecommunications technology, signalling technology and data processing systems - Safety-related electronic systems for signalling technology
EN 50129 2018-11	Railway applications - Communication, signalling and processing systems - Safety related electronic systems for signalling
EN 50657 2017-08	Railways Applications - Rolling stock applications - Software on Board Rolling Stock
IEC 62278 2002-09	Railway applications - Specification and demonstration of reliability, availability, maintainability and safety (RAMS)
IEC 62279 2015-06	Railway applications – Communication, signalling and processing systems – Software for railway control and protection systems

2.4 Trackside train protection, train control, signalling - [Locations: BRA; DRE; MUC]

- **Interlocking technology Indoor systems**
- **Interlocking technology Outdoor systems**
- **Remote control technology**
- **Railway crossing safety technology**
- **Track equipment class A systems**
- **Trackside equipment class B systems and comparable ATP systems in the light rail sector**
- **Trackside GSM-R systems / radio equipment**
- **Interface and interaction with on-board CCS**
- **Maintenance**

2.4.1 Functional safety - signalling

2.4.1.1 Generic applications - signalling technology

Inspections according to:

TR_SI_GD_04.48 2019-02	Guide ISA - Generic applications

Based on the evaluation and specification documentation listed below:

DIN EN 50124-1 VDE 0115 Teil 107-1 2001-10	Railway applications - Insulation coordination - Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment
DIN EN 50124-2 VDE 0115 Teil 107-2 2001-10	Railway applications - Insulation coordination - Part 2: Overvoltages and related protection
DIN EN 50126-1 VDE 0115-103-1 2018-10	Railway Applications - The Specification and demonstration of reliability, availability, maintainability and safety (RAMS) - Part 1: generic RAMS process
EN 50126-1 2017-10	Railway Applications - The Specification and demonstration of reliability, availability, maintainability and safety (RAMS) - Part 1: generic RAMS process
DIN EN 50126-2 VDE 0115-103-2 2018-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 2: Systems Approach to Safety

EN 50126-2 2017-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 2: Systems Approach to Safety
EN 50128 IEC 62279 VDE 0831-128 2011-06	Railway applications - Communication, signalling and processing systems - Software for railway control and protection systems
DIN EN 50128 VDE 0831-128 2012-03	Railway applications - Communication, signalling and processing systems - Software for railway control and protection systems
DIN EN 50129 VDE 0831-129 2003-12	Railway applications - Telecommunications technology, signalling technology and data processing systems - Safety-relevant electronic systems for signalling technology
EN 50129 VDE 0831-129 2003-02	Railway applications - Telecommunications technology, signalling technology and data processing systems - Safety-related electronic systems for signalling technology
EN 50129 2018-11	Railway applications - Communication, signalling and processing systems - Safety related electronic systems for signalling
IEC 62278 2002-09	Railway applications - Specification and demonstration of reliability, availability, maintainability and safety (RAMS)
IEC 62279 2015-06	Railway applications – Communication, signalling and processing systems – Software for railway control and protection systems
EN 50159 2010-09	Railway applications - Communication, signalling and processing systems - Safety-related communication in transmission systems
DIN EN 50159 VDE 0831-159 2011-04	Railway applications - Communication, signalling and processing systems - Safety-related communication in transmission systems
IEC 62280 2014-02	Railway applications – Communication, signalling and processing systems – Safety related communication in transmission systems

IEC 62425 2007-09	Railway applications - Communication, signalling and processing systems - Safety related electronic systems for signalling

2.4.1.2 Specific application - signalling technology

Inspections according to:

TR_SI_P_04.01 2019-11	Design and acceptance testing of non-federally owned railways (NE) abroad

Based on the evaluation and specification documentation listed below:

Mü 8004 2007-02	Technical principles for the approval of safety installations
ERRI A 158/RP 3 1996-12	Specifications for individual and collective warning systems for persons in the track area
EBO 2012-07	Railway construction and operating regulations
ESO 2006-10	Railway signal order
VV BAU-STE 2014-08	Administrative regulation for the construction supervision of signalling, telecommunications and electrical installations
DIN VDE V 0831-102 VDE V 0831-102 2013-12	Electric signalling systems for railways - Part 102: Protection profile for technical functions in railway signalling

3 Evaluation of the suitability, application and results of risk management procedures for rolling stock, train control, train protection, signalling, system integration and maintenance [locations: BER; BRA; MUC]

Inspections according to:

TR_P_04.02 2022-10	CSM Assessment

Based on the evaluation and specification documentation listed below:

402/2013/EU 2013-04	Commission Implementing Regulation (EU) No 402/2013 of 30 April 2013 on the common safety method for risk evaluation and assessment and repealing Regulation (EC) No 352/2009
2015/1136/EU 2015-07	Commission Implementing Regulation (EU) 2015/1136 of 13 July 2015 amending Implementing Regulation (EU) No 402/2013 on the common safety method for risk evaluation and assessment

4 IT-Security [Standorte: MUC]

Inspections according to:

TR_ES_P_04.03 2014-06	Certification Program for Industrial IT Security
TR_GD_04.150 2020-08-31	Security

Based on the evaluation and specification documentation listed below:

IEC/TS 62443-1-1 2009-07	Industrial communication networks - Network and system security - Part 1-1: Terminology, concepts and models
IEC 62443-2-1 2010-11	Industrial communication networks - Network and system security - Part 2-1: Establishing an industrial automation and control system security program
IEC/TR 62443-3-1 2009-07	Industrial communication networks - Network and system security - Part 3-1: Security technologies for industrial automation and control systems

IEC 62443-3-3 2013-08	Industrial communication networks - Network and system security - Part 3-3: System security requirements and security levels

Abbreviations used:

AOPDDR	Active Opto-electronic Protective Device responsive to Diffuse Reflection
CCS	Control-, Command and Signalling
CCO	Control, Command, Signalling onboard
CCT	Control, Command, Signalling trackside
CDV	Committee Draft for Voting
CEN/TS	European Committee for Standardization / Technical Specifications
CLC	Cenelec
CR	Conventional Rail
DB RIL	Deutsche Bahn guideline
DIN	German Institute for Standardisation e.V.
EBA	Federal Railway Authority
EBGEO	Recommendations for geosynthetic reinforcements
ECE	Economic Commission for Europe
EN	European standard
ENE	Energy supply
ERA	European Railway Agency
ERRI	European Rescue and Recovery Initiative
ES	Embedded Systems
EVU	Rail transport company
FKM	Forschungskuratorium Maschinenbau e.V.
FprEN	Final draft European Standard
HGV	High-speed transport
HS	High Speed
IEC	International Electrotechnical Commission
INF	Infrastructure
IS	Inspection body
ISO	International Organization for Standardization
LOC&PAS	Locomotives and Passenger
MAI	Maintenance, Instandhaltung
MSR	Measurement and control technology
Mü	Munich
NAMUR	Interest group automation technology of the process industry
NFPA	National Fire Protection Association (USA)
NNTR-A	Notified National Technical Rules Austria
NNTR-D	Notified National Technical Rules Germany
NOI	Noise

ORE	Office de Recherches et d'Essasis - International Research and Testing Centre
OSShd	Organisation for the Cooperation of Railways
P	Prozedure
PPP65001	Test programme of the TÜV SÜD Product Service certification body
prEN	draft European Standard, europäische Vornorm
PRM	Persons with reduced mobility
RAMS	Reliability, Availability, Maintainability, Safety
Rev	Revision
RM	Rail Maintenance
RS	Rolling Stock in use at TÜV SÜD Rail
RST	Rolling Stock according to TSI
SAS	Sectoral accreditation scheme
SI	Signalling
SRT	Safety in railway tunnels
SZS	Sectoral certification scheme
TR	TÜV SÜD Rail
TR_P	Inspection instruction of the inspection body
TS	Technical specification
TSI	Technical specification for interoperability
UIC	International Union of Railways
V-BKS	Composite brake pads
VBPD	Image-processing protective devices
VBPDST	image-processing protective devices with stereoscopic viewing methods
VDE	Verband der Elektrotechnik, Elektronik und Informationstechnik / Association of Electrical Engineering, Electronics and Information Technology
VDV	German Transport Association
WAG	Freight wagons

Locations:

BER	Berlin
BRA	Brunswick
DRE	Dresden
GRA	Graz
MUC	Munich