

Referência	Título / Campo de Aplicação	Emissor	Observações
IEC 60077-1:1999	Railway applications – Electric equipment for rolling stock Part 1: General service conditions and general rules	IEC/TC 9	
IEC 60077-2:1999	Railway applications – Electric equipment for rolling stock Part 2: Electrotechnical components – General rules	IEC/TC 9	
IEC 60077-3:2001	Railway applications – Electric equipment for rolling stock Part 3: Electrotechnical components – Rules for d.c. circuit-breakers	IEC/TC 9	
IEC 60077-4:2003	Railway applications – Electric equipment for rolling stock Part 4: Electrotechnical components – Rules for AC circuit-breakers	IEC/TC 9	
IEC 60077-5:2003	Railway applications – Electric equipment for rolling stock Part 5: Electrotechnical components – Rules for HV fuses	IEC/TC 9	
IEC 60310:2004	Railway applications – Traction transformers and inductors on board rolling stock	IEC/TC 9	
IEC 60322:2001	Railway applications – Electric equipment for rolling stock – Rules for power resistors of open construction	IEC/TC 9	
IEC 60349-1:1999 + A1: 2002	Electric traction - Rotating electrical machines for rail and road vehicles Part 1: Machines other than electronic convertor-fed alternating current motors	IEC/TC 9	

Referência	Título / Campo de Aplicação	Emissor	Observações
IEC 60349-2:2002	Electric traction - Rotating electrical machines for rail and road vehicles Part 2: Electronic convertor-fed alternating current motors	IEC/TC 9	
IEC/TS 60349-3:1995	Electric traction - Rotating electrical machines for rail and road vehicles Part 3: Determination of the total losses of convertor-fed alternating current motors by summation of the component losses (...) applies to machines complying with IEC 60349-2. The total losses of a convertor-fed motor may be determined by summation of the component losses derived from no-load and load tests. The total input power is the sum of the power at the fundamental frequency and at all other frequencies. In all practical cases the latter input includes the losses resulting from the voltage and current harmonics in the convertor supply by using suitable instrumentation it can be derived from measurement of the total and fundamental frequency power inputs when the machine is load. The losses supplied at the fundamental frequency cannot be measured directly and so are derived from measurement of the fundamental frequency no-load power input.	IEC/TC 9	
IEC 60494-1:2002	Railway applications - Rolling stock - Pantographs - Characteristics and tests Part 1: Pantographs for mainline vehicles (...) defines the general assembly characteristics which are to be applied to pantographs for main line vehicles, to enable current collection from the overhead line system. It also defines the tests the pantographs have to perform, excluding insulators. (...) does not apply to pantograph dielectric test, which are to be performed on the pantograph installed on the vehicle roof. (...) does not apply to pantographs used on isolated metros and light rail systems: the pantographs are considered in IEC 60494-2.	IEC/TC 9	
IEC 60494-2:2002	Railway applications - Rolling stock - Pantographs - Characteristics and tests Part 2: Pantographs for metros and light rail vehicles (...) defines the general assembly characteristics which are to be applied to pantographs for metros and light rail vehicles, to enable current collection from the overhead line system. It also defines the tests the pantographs have to perform, excluding insulators. (...) does not apply to pantograph dielectric test, which are to be performed on the pantograph installed on the vehicle roof. These rules in so far as they are applicable are also valid for trolley buses. (...) (...) relates to conventional suspended overhead line systems and accessories. The systems (on part of them) which are rigidly suspended will require special consideration between the customer and the supplier.	IEC/TC 9	

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IEC 60571:1998+ A1:2006	<p>Electronic equipment used on rail vehicles</p> <p>(...) applies to all electronic equipment for control, regulation, protection, supply, etc., installed on rail vehicles and associated with</p> <ol style="list-style-type: none"> a. either the accumulator battery of the vehicle; b. or a low-voltage power supply source with or without a direct connection to the contact system (transformer, potentiometer device, auxiliary supply) with the exception of electronic power circuits, which conform to IEC 61287-1. <p>(...) covers the conditions of operation, design, construction, and testing of electronic equipment, as well as basic hardware and software requirements considered necessary for competent, reliable equipment.</p> <p>Additional requirements in other standards or individual specifications may complement this standard, if they are justified. (...).</p> <p>For the purpose of this standard, electronic equipment is defined as equipment mainly composed of semiconductor devices and recognized associated components. These components will mainly be mounted on printed boards. (...).</p>	IEC/TC 9	
IEC/TR 60638:1979	<p>Criteria for assessing and coding of the commutation of rotating electrical machines for traction</p> <p>(...) applies to all machines covered by IEC Publication 349, Rules for Rotating Electrical Machines for Rail and Road Vehicles, and having cylindrical commutators.</p> <p>It complets IEC Publication 349 as regards:</p> <ul style="list-style-type: none"> - the criteria for assessment of commutation; - the definition of the tests during the course of which the observations shall be made; - the code recommended for the specification of these observations. <p>Slip rings of traction machines are at present excluded from this report.</p>	IEC/TC 9	
IEC 60850:2007	<p>Railway applications - Supply voltages of traction systems</p> <p>(...) applies to line voltages to traction systems under normal operating conditions.</p> <p>It is concerned with the mean value of d.c. voltage or the r.m.s. value of the fundamental (1st harmonic) a.c. voltage.</p> <p><i>NOTE Specifications in other international documents referring to "the maximum voltage value specified in IEC 60850" have to be interpreted as referring to U_{max1} until such time as these documents have determined the appropriate definition of maximum voltage following the publication of IEC 60850.</i></p> <p>For urban transit networks, in France which complied with the relevant national standard prior to the publication of this standard , this former standard may be applied to partial renewals of equipment for those networks in so far as mixing is demonstrable, till 2011-03-01.</p>	IEC/TC 9	

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IEC 60913:1988	<p>Electric traction overhead lines</p> <p>(...) is applicable to electric traction overhead lines (in accordance with the definition given in Sub-clause 1.2.1) for railways, tramways and trolleybuses. It is not applicable to feeders remote from the track.</p> <p>It is recommended that these provisions should be applied to electric traction overhead lines of new construction or when complete transformation of existing lines takes place.</p> <p>In the absence of national regulations or standards, this standard shall be complied with.</p>	IEC/TC 9	
IEC 61133:2006	<p>Electric traction - Rolling stock - Test methods for electric and thermal/electric rolling stock on completion of construction and before entry into service</p> <p>(specifies general criteria to demonstrate by testing that newly constructed complete railway vehicles conform with standards or other normative documents.</p> <p>(...), as a whole or in part , applies to all railway vehicles except special purpose vehicles such as track-laying machines, ballast cleaners and personal carriers. The extent of application of the standard for particular vehicles will be specifically mentioned in the contract.</p> <p>NOTE 1 The parts of the standard which are applicable will depend on the type of vehicle (e.g. passenger, freight, powered trailer, etc.).</p> <p>NOTE 2 (...) excludes railbound and road/rail vehicles for construction and maintenance of railway infrastructure.</p> <p>NOTE 3 (...) does not deal with tests carried out on components or equipment before fitting to the vehicle.</p> <p>Insofar as this standard is applicable it may be used for the following:</p> <ul style="list-style-type: none"> - generator sets mounted on a vehicle provided for auxiliary purposes; - the electrical transmission used on trolley buses or similar vehicles; - control and auxiliary equipment of vehicles with non-electrical propulsion systems; - vehicles guided, supported or electrically propelled by systems which do not use the adhesion between wheel and rail. 	IEC/TC 9	
IEC 61287-1:2005	<p>Power converters installed on board railway rolling stock</p> <p>Part 1: Characteristics and test methods</p>	IEC/TC 9	

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IEC/TS 61287-2:2001	<p>Power convertors installed on board railway rolling stock Part 2: Additional technical information</p> <p>This technical specification shows basic circuit configurations, control methods, operation modes and behaviour of electric power convertors for rolling stock such as external commutated rectifiers, self-commutated rectifiers, choppers and inverters. It describes typical charts and methods, but does not claim to be exhaustive. (...) intended to provide supplementary technical information in the standards of the IEC 61287 series. The main purpose of this specification is to calculate power quantities such as input/output voltage, input/output current, frequency spectrum of voltage/ current, voltage/ current ripple and voltage/ current harmonics.</p>	IEC/TC 9	
IEC 61373:1999	Railway applications – Rolling stock equipment – Shock and vibration tests	IEC/TC 9	
IEC 61375-1:2007	<p>Electric railway equipment - Train bus Part 1: Train communication network</p> <p>(...) applies to data communication in Open Trains, i.e. it covers data communication between vehicles of the said open trains and data communication within the vehicles of the said open trains. The applicability of this standard to the train communication bus (WTB) allows for interoperability of individual vehicles within Open Trains in international traffic. The data communication bus inside vehicles (MVB) is given as recommended solution to cope with the said TCN. In any case, proof of compatibility between WTB and a proposed vehicle bus will have to be brought by the supplier. (...) may be additionally applicable to closed trains and multiple unit trains when so agreed between purchaser and supplier.</p> <p>NOTE 1 For a definition of Open Trains, Multiple Unit Trains and Closed Trains, see 1.3. NOTE 2 Road vehicles such as buses and trolley buses are not considered in this standard.</p>	IEC/TC 9	
IEC 61375-2:2007	<p>Electric railway equipment - Train bus Part 2: Train communication network conformance testing</p> <p>(...) applies to all equipment and devices implemented according to IEC 61375-1, i.e. it covers the procedure to be applied to such equipment and devices when the conformance should be proven. The applicability of this standard to a TCN implementation allows for individual conformance checking of the implementation itself and is a pre-requisite for further interoperability checking between different TCN implementations.</p> <p>NOTE 1 For a definition of TCN implementation see 1.3.</p>	IEC/TC 9	

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IEC 61377-1:2006	Railway applications – Rolling stock Part 1: Combined testing of inverter-fed alternating current motors and their control system	IEC/TC 9	
IEC 61377-2:2002	Railway applications – Rolling stock Part 2: Chopper-fed direct current traction motors and their control	IEC/TC 9	
IEC 61377-3:2002	Railway applications – Rolling stock Part 3: Combined testing of alternating current motors, fed by an indirect convertor, and their control system	IEC/TC 9	
IEC 61881:1999	Railway applications – Rolling stock equipment – Capacitors for power electronics	IEC/TC 9	
IEC 61991:2000	Railway applications - Rolling stock - Protective provisions against electrical hazards (...) applied in the design and manufacture of electrical installations and equipment to be used on rolling stock so as to protect the persons from electric shocks. The methods used to satisfy the rules may differ, in accordance with the procedures and practices of the operating organization. (...) applicable to vehicles of rail transport systems, road vehicles powered by an external supply (trolley buses), magnetic levitated vehicles and to the electrical equipment installed in these vehicles. (...). Testing of vehicles against the requirements of IEC 61991 is not included. For this, refer to IEC 61133.	IEC/TC 9	
IEC 61992-1:2006	Railway applications – Fixed installations – DC switchgear Part 1: General (...) specifies requirements for d.c. switchgear and controlgear and is intended to be used in fixed electrical installations with nominal voltage not exceeding 3 000 V d.c. which supply electrical power to vehicles for public guided transport, i.e. railway vehicles, tramway vehicles, underground vehicles and trolley-buses. This Part 1 specifies general requirements.	IEC/TC 9	

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IEC 61992-2:2006	Railway applications – Fixed installations – DC switchgear Part 2: Circuit-breakers (...) specifies requirements for d.c. circuit-breakers for use in fixed installations of traction systems. NOTE Switchgear assemblies, electromagnetic compatibility (EMC) and dependability are not covered in this standard, but by other parts of this standard or by other standards, as indicated in IEC 61992-1.	IEC/TC 9	
IEC 61992-3:2006	Railway applications – Fixed installations – DC switchgear Part 3: Indoor d.c. disconnectors, switch disconnectors and earthing switches (...) specifies requirements for d.c. disconnectors, switch-disconnectors and earthing switches for use in outdoor fixed installations of traction systems. NOTE 1 Switchgear assemblies, electromagnetic compatibility (EMC) and dependability are not covered in this standard, but rather by other parts of the IEC 61992 series or other documents as indicated in IEC 61992-1. NOTE 2 In this standard the word "unit" means "disconnectors and/or switch-disconnector and/or earthing switch" as defined in 3.1.5, 3.1.6 and 3.1.7 of IEC 61992-1. NOTE 3 Disconnectors, switch-disconnectors and earthing switches may have electrically latched mechanisms and, in such cases, may be indicated with the current term of "power contactors".	IEC/TC 9	
IEC 61992-4:2006	Railway applications – Fixed installations – DC switchgear Part 4: Outdoor d.c. disconnectors, switch disconnectors and earthing switches (...) specifies requirements for d.c. disconnectors, switch-disconnectors and earthing switches for use in outdoor fixed installations of traction systems. NOTE 1 EN 50121-5 specifies requirements for electromagnetic compatibility (EMC). NOTE 2 In this standard the word "unit" means "switch-disconnectors and/or disconnector and/or earthing switch" as defined in 3.1.5, 3.1.6 and 3.1.7 of IEC 61992-1.	IEC/TC 9	

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IEC 61992-5:2006	<p>Railway applications – Fixed installations – DC switchgear Part 5: Surge arresters and low-voltage limiters for specific use in d.c. systems</p> <p>Clauses 4, 5 and 6 of this part of IEC61992 cover particular requirements for surge arresters (following named arresters) for specific use in fixed installations of d.c. traction systems. These are surge arresters consisting of one or more non-linear resistors which may be in series with single or multiple spark gaps.</p> <p>Low-voltage limiters are covered under Clause 7. These are protective devices mainly used in fixed installations of d.c. traction systems to connect certain portions of the circuit, when, owing to an abnormal situation, the voltage across the device exceeds a predetermined limited value. They may be associated with other devices such as contactors for self-restoring arrangements. They are not used in general to provide surge protection.</p> <p>The following are the main uses of Low-Voltage Limiters (LVL):</p> <ul style="list-style-type: none"> - connection to the rail of metallic masses; - protection of rail circuits; - earthing of rails in the substation; - protection of cathodic circuits; - protection of cable shields. 	IEC/TC 9	
IEC 61992-6:2006	<p>Railway applications – Fixed installations – DC switchgear Part 6: DC switchgear assemblies</p> <p>(...) covers d. c. metal-enclosed and non-metallic enclosed switchgear assemblies used in indoor stationary installations of traction systems, with nominal voltage not exceeding 3 000 V.</p> <p>It is intended that individual items of equipment, for example circuit breakers, housed in the assembly are designed, manufactured and individually tested (simulating the enclosure when necessary) in accordance with their respective parts of IEC 61992 or, when appropriate, with another applicable standard.</p> <p>NOTE 1 The requirements covered in this part of IEC 61992 are those concerning the assembly as such, its enclosure and the mutual influence of the equipment enclosed.</p> <p>NOTE 2 EMC requirements are covered by IEC 62236-5 and additional requirements concerning dependability (RAMS) are covered by IEC 62278.</p>	IEC/TC 9	

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IEC 61992-7-1:2006	Railway applications – Fixed installations – DC switchgear Part 7-1: Measurement, control and protection devices for specific use in d.c. traction systems – Application guide	IEC/TC 9	
	(...) provides assistance, guidance and requirements for the design of protection, control and measuring systems in d.c. installations intended to provide a power supply to traction systems. This application guide identifies the characteristics and parameters of equipment used in the measurement, control and protection of d.c. traction systems. Guidance is given concerning the appropriate application of electrical protection systems.		
IEC 61992-7-2:2006	Railway applications – Fixed installations – DC switchgear Part 7-2: Measurement, control and protection devices for specific use in d.c. traction systems – Isolating current transducers and other current measuring devices	IEC/TC 9	
	(...) gives the requirements for isolating current transducers and other current measuring devices used in d.c. railway applications, fixed installations. This transducer is normally positioned between the sensor in the live switchboard conductor or rail and the secondary device, giving galvanic insulation between the input and the output.		
IEC 61992-7-3:2006	Railway applications – Fixed installations – DC switchgear Part 7-3: Measurement, control and protection devices for specific use in d.c. traction systems – Isolating voltage transducers and other voltage measuring devices	IEC/TC 9	
	(...) gives the requirements for isolating voltage transducers and other voltage measuring devices used in d.c. railway applications, fixed installations. This transducer is normally positioned between the voltage on the live switchboard conductor or rail and the secondary device, giving galvanic insulation between the input and the output.		

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IEC 62128-1:2003	<p>Railway applications - Fixed installations Part 1: Protective provisions relating to electrical safety and earthing</p> <p>(...) specifies requirements for the protective provisions relating to electrical safety in fixed installations associated with a.c. and d.c.traction systems and to any installation that may be endangered by the traction power supply system. It also applies to all fixed installations that are necessary to ensure electrical safety during maintenance work within electric traction systems. <i>NOTE Other provisions to protect work sites for maintenance purposes which are not included in this standard may be required.</i></p> <p>(...) applies to all new lines and to all major revisions to existing lines for the following electric traction systems:</p> <ul style="list-style-type: none"> - railways; - guided mass transport systems such as : tramways, elevated and underground railways, mountain railways, trolleybus systems and magnetic levitated systems; - material transportation systems. <p>(...) does not apply to:</p> <ul style="list-style-type: none"> - traction systems in underground mines; - cranes, transportable platforms and similar transportation equipment on rails, temporary structures (for example: exhibition structures) in so far as these are not supplied directly or via transformers from the contact line system and are not endangered by the traction power supply system; - suspended cable cars; - funicular railways; - maintenance work. 	IEC/TC 9	

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IEC 62128-2:2003	<p>Railway applications - Fixed installations Part 2: Protective provisions against the effects of stray currents caused by d.c. traction systems</p> <p>(...) specifies requirements for protective provisions against the effects of stray currents which result from the operation of d.c. traction systems.</p> <p>As the experience of several decades has not shown evident corrosion effects from a.c. traction systems and actual investigations are not completed, this standard only deals with stray currents flowing from a d.c. traction system.</p> <p>(..) applies to all metallic fixed installations which form part of the traction system, and also to any other metallic components located in any position in the earth, which may carry stray currents resulting from the operation of the railway system.</p> <p>(...) applies to all new electrification of a d.c. railway system. The principles may also be applied to existing electrified systems where it is necessary to consider the effects of stray currents.</p> <p>The range of application includes:</p> <ul style="list-style-type: none"> - railways; - guided mass transport systems such as: tramways, elevated and underground railways, mountain railways, trolleybus systems and magnetic levitated systems; - material transportation systems <p>(...).</p>	IEC/TC 9	
IEC 62236-1:2008	<p>Railway applications – Rolling stock Part 1: General</p>	IEC/TC 9	
IEC 62236-2:2008	<p>Railway applications – Rolling stock Part 2: Emission of the whole railway system to the outside world</p>	IEC/TC 9	
IEC 62236-3-1:2008	<p>Railway applications - Electromagnetic compatibility Part 3-1: Rolling stock - Train and complete vehicle</p>	IEC/TC 9	

Referência	Título / Campo de Aplicação	Emissor	Observações
IEC 62236-3-2:2008	Railway applications - Electromagnetic compatibility Part 3-2: Rolling stock - Apparatus	IEC/TC 9	
IEC 62236-4:2008	Railway applications - Electromagnetic compatibility Part 4: Emission and immunity of the signalling and telecommunications apparatus	IEC/TC 9	
IEC 62236-5:2008	Railway applications - Electromagnetic compatibility Part 5: Emission and immunity of fixed power supply installations and apparatus	IEC/TC 9	
IEC 62267:2009	Railway applications – Automated Urban Guided Transport (AUGT) – Safety requirements	IEC/TC 9	

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IEC 62278:2002	Railway applications - Specification and demonstration of reliability, availability, maintainability and safety (RAMS)	IEC/TC 9	
<p>(...)</p> <ul style="list-style-type: none"> - defines RAMS in terms of reliability, availability, maintainability and safety and their interaction; - defines a process, based on the system life cycle and tasks within it, for managing RAMS; - enables conflicts between RAMS elements to be controlled and managed effectively; - defines a systematic process for specifying requirements for RAMS and demonstrating that these requirements are achieved; - addresses railway specifics; - does not define RAMS targets, quantities, requirements or solutions for specific railway applications; - does not specify requirements for ensuring system security; - does not defines rules or processes pertaining to the certification of railway products against the requirements of this standard; - does not define an approval process by the safety regulatory authority. <p>(...) is applicable</p> <ul style="list-style-type: none"> - to the specification and demonstration of RAMS for all railway applications and at all levels of such an application, as appropriate, from complete railway routes to major systems within a railway route, and to individual and combined sub-systems and components within these major systems, including those containing software; in particular <ul style="list-style-type: none"> • to new systems, • to new systems integrated into existing in operation prior to the creation of this standard, although it is not generally applicable to other aspects of the existing system, • to modifications of existing systems in operation prior to the creation of this standard; although it is not generally applicable to other aspects of the existing system; - at all relevant phases of the life cycle of an application; - for use by Railway Authorities and railway support industry. <p><i>NOTE Guidance on the applicability is given in the requirements of this standard.</i></p>			

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IEC 62279:2002	Railway applications - Communications, signalling and processing systems - Software for railway control and protection systems	IEC/TC 9	
<p>(...) specifies procedures and technical requirements for the development of programmable electronic systems for use in railway control and protection applications. It is aimed at use in any area where there are safety implications. These may range from the very critical, such as safety signalling to the non-critical, such as management information systems. These systems may be implemented using dedicated microprocessors, programmable logic controllers, multiprocessor distributed systems, larger scale central processor systems or other architectures.</p> <p>(...) is applicable exclusively to software and the interaction between software and the system of which it is part.</p> <p>(...) Software safety integrity levels above zero are for use in systems in which the consequences of failure could include loss of life. Economic or environmental considerations, however, may also justify the use of higher software safety integrity levels.</p> <p>(...) applies to all software used in development and implementation of railway control and protection systems including</p> <ul style="list-style-type: none"> - application programming; - operating systems; - support tools; - firmware. <p>Application programming comprises high-level programming, low-level programming and special-purpose programming (for example, Programmable Logic Controller ladder logic).</p> <p>(...) The use of standard, commercially available software and tools is also addressed in this standard.</p> <p>(...) also addresses the requirements for systems configured by application data.</p> <p>(...) is not intended to address commercial issues. These should be addressed as an essential part of any contractual agreement. All the clauses of this standard will need careful consideration in any commercial situation.</p> <p>(...) is not intended to be retrospective. It therefore applies primarily to new developments and only applies in its entirety to existing systems if these are subjected to major modifications. For minor changes, only clause 16 applies.</p>			

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IEC 62280-1:2002	<p>Railway applications - Communication, signalling and processing systems Part 1: Safety-related communication in closed transmission systems</p> <p>(...) is applicable to safety-related electronic systems using a closed transmission system for communication purposes. It gives the basic requirements needed in order to achieve safety-related communication between safety-related equipment connected to the transmission system.</p> <p>(...) is applicable to the safety requirement specification and design of the communication system in order to obtain the assigned safety integrity level (SIL).</p> <p>The safety requirement specification is a precondition of the safety case of a safety-related electronic system for which the required evidence is defined in ENV 50129. Evidence of safety management and quality management has to be taken from ENV 50129. Evidence of functional and technical safety is the subject of this standard.</p> <p>(...) is not applicable to existing systems which had already been accepted prior to the release of this standard. However, as far as is reasonably practicable, this standard shall be applied to modifications and extensions to existing systems, subsystems and equipment.</p> <p>(...) applies to a closed transmission system with the following preconditions, for which evidence shall be provided:</p> <ul style="list-style-type: none"> - only approved access is permitted; - there is a Known maximum number of connectable participants; - the transmission media is known and fixed. <p>Closed transmission systems are not necessarily data buses. They can also include for instance balise links or simple serial links between two safety-related computers.</p> <p>In particular this standard does not define</p> <ul style="list-style-type: none"> - the transmission system; - the equipment connected to the transmission system; - specific solutions (e.g. for interoperability); - which kinds of data are safety-related and which are not. 	IEC/TC 9	

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IEC 62280-2:2002	<p>Railway applications - Communication, signalling and processing systems Part 2: Safety-related communication in open transmission systems</p> <p>(...) is applicable to safety-related electronic systems using an open transmission system for communication purposes. It gives the basic requirements needed, in order to achieve safety-related transmission between safety-related equipment connected to the open transmission system.</p> <p>(...) is applicable to the safety requirement specification of the safety-related equipment, connected to the open transmission system, in order to obtain the allocated safety integrity level.</p> <p>The properties and behaviour of the open transmission system are only used for the definition of the performance, but not for safety. Therefore, from the safety point of view, the open transmission system can potentially have any property, as various transmission ways, storage of messages, unauthorized access, etc. The safety process shall only rely on properties, which are demonstrated in the safety case. The safety requirement specification is a precondition of the safety case of a safety-related electronic system for which the required evidence is defined in ENV 50129. Evidence of safety management and quality management has to be taken from ENV 50129. The communication related requirements for evidence of functional and technical safety are the subject of this standard.</p> <p>(...) is not applicable to existing systems which had already been accepted prior to the release of this standard.</p> <p>(...) does not specify</p> <ul style="list-style-type: none"> - the open transmission system; - equipment connected to the open transmission system; - solutions (e.g. for interoperability); - which kinds of data are safety-related and which are not. 	IEC/TC 9	
IEC 62290-1:2006	<p>Railway applications – Urban guided transport management and command/control/systems Part 1: System principles and fundamental concepts</p>	IEC/TC 9	
IEC 62313:2009	<p>Railway applications – Power supply and rolling stock – Technical criteria for the coordination between power supply (substation) and rolling stock</p>	IEC/TC 9	

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IEC 62425:2007	Railway applications – Communication, signalling and processing systems – Safety related electronic systems for signalling	IEC/TC 9	
<p>(...) is applicable to safety-related electronic systems (including sub-systems and equipment) for railway signalling applications.</p> <p>(...) is intended to apply to all safety-related railway signalling systems/ sub-systems /equipment. However, the hazard analysis and risk assessment processes defined in IEC62278 and this standard are necessary for all railway signalling systems/ sub-systems /equipment, in order to identify any safety requirements. If analysis reveals that no safety requirements exist (i.e.: that the situation is non-safety-related), and provided the conclusion is not revised as a consequence of later changes, this safety standard ceases to be applicable.</p> <p>(...) applies to the specification, design, construction, installation, acceptance, operation, maintenance and modification/extension phases of complete signalling systems, and also to individual sub-systems and equipment within the complete system. Annex C includes procedures relating to electronic hardware components.</p> <p>(...) applies to generic sub-systems and equipment (both application-independent and those intended for a particular class of application), and also to systems/ sub-systems /equipment for specific specifications.</p> <p>(...) is not applicable to existing systems/ sub-systems /equipment (i.e. those which had already been accepted prior to the creation of this standard). However, as far as reasonably practicable, this standard should be applied to modifications and extensions to existing systems, sub-systems and equipment.</p> <p>(...) is primarily applicable to systems/ sub-systems /equipment which have been specifically designed and manufactured for railway signalling applications. It should also be applied, as far as reasonably practicable, to general-purpose or industrial equipment (e.g.: power supplies, modems, etc.), which is procured for use as part of a safety-related signalling system. As a minimum, evidence shall be provided in such cases to demonstrate</p> <ul style="list-style-type: none"> - either that the equipment is not relied on for safety, - or that the equipment can be relied on for those functions which relate to safety. <p>(...) is applicable to the functional safety of railway signalling systems. It is not intended to deal with the occupational health and safety of personnel; this subject is covered by other standards.</p>			

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IEC 62427:2007	<p>Railway applications – Compatibility between rolling stock and train detection systems</p> <p>(...) describes a procedure for mutual acceptance of rolling stock to run over specific routes. It describes the methods of measurement of interference currents, the methods of measurement of the susceptibility of train detection systems, the characterisation of traction power supplies and the procedure for acceptance. The result of the acceptance procedure is a structured justification document referred to as a “compatibility case”, which documents the evidence that the conditions for compatibility have been satisfied.</p> <p>The procedure is also applied to modifications of rolling stock, traction power supply or train detection systems which are considered to affect compatibility.</p> <p>The scope of the compatibility case is restricted to the demonstration of compatibility of rolling stock with a train detection system’s characteristics (e.g.gabarit). Train detection system in this standard refers only to a track circuit or those using wheel detector.</p>	IEC/TC 9	
IEC 62499:2008	<p>Railway applications – Current collection systems – Pantographs, testing methods for carbon contact strips</p>	IEC/TC 9	
IEC 62505-1:2009	<p>Railway applications – Fixed installations – Particular requirements for a.c. switchgear Part 1: Single-phase circuit-breakers with Un above 1 kV</p>	IEC/TC 9	
IEC 62505-2:2009	<p>Railway applications – Fixed installations – Particular requirements for a.c. switchgear Part 2: Single-phase disconnectors, earthing switches and switches with Un above 1 kV</p>	IEC/TC 9	
IEC 62505-3-1:2009	<p>Railway applications – Fixed installations – Particular requirements for a.c. switchgear Part 3-1: Measurement, control and protection devices for specific use in a.c. tractions systems – Application guide</p>	IEC/TC 9	

Referência	Título / Campo de Aplicação	Emissor	Observações
IEC 62505-3-2:2009	Railway applications – Fixed installations – Particular requirements for a.c. switchgear Part 3-2: Measurement, control and protection devices for specific use in a.c. tractions systems – Single-phase current transformers	IEC/TC 9	
IEC 62505-3-3:2009	Railway applications – Fixed installations – Particular requirements for a.c. switchgear Part 3-3: Measurement, control and protection devices for specific use in a.c. tractions systems – Single-phase inductive voltage transformers	IEC/TC 9	