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Products subject to quality inspection

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Part 2: Defining the minimum scope of the quality assurance measures for products (elements, components and systems)

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Part 1: General rules

1 Purpose, general information

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| <p>(1) The list of products subject to quality inspection (LgP) is part of Deutsche Bahn AG's (DB AG) Policy 120.0381 "Quality assurance in procurement". It includes all infrastructure products to be procured in the subsystem concerned that are subject to mandatory quality assurance by DB AG and specifies the quality assurance measures and their scope.</p> | Basis |
| <p>(2) The rules in place apply to the procurement of these products both by DB AG and its affiliated companies, and by Contractor or its subcontractors for the purposes of orders placed by DB AG and its affiliated companies.</p> | |
| <p>(3) The list of products subject to quality inspection (LgP) consists of</p> <ul style="list-style-type: none"> - Part 1: General rules - Part 2: Defining the minimum scope of the quality assurance measures for products (elements, components and systems) | Constituent parts |
| <p>(4) This LgP applies to the procurement of products for the construction of new equipment used in control-command and signalling as well as for maintenance measures performed on existing equipment used in this field, i.e. it also applies to contractors engaged in overhaul and repair work.</p> | Scope |
| <p>(5) The contractually agreed provisions (e.g. SCC, DIN, European standards, UIC, DBS, drawings, checklists, drawings) constitute the basis for action.</p> | Basis for action |

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2 Products subject to inspection

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| <p>(1) The LgP is drawn up jointly by a team of subject matter experts and representatives of the relevant product line support team from the end user and the quality assurance department at DB AG.</p> | Creation |
| <p>(2) The products subject to inspection are evaluated according to the following criteria and the resulting risks, with the results being documented internally in an evaluation matrix:</p> <ol style="list-style-type: none"> 1. Safety 2. Reliability 3. Supply reliability 4. Special processes/production methods 5. Expenses for unscheduled maintenance work 6. Customer relevance | Evaluation criteria |
| <p>(3) According to this risk assessment, the products subject to inspection are assigned to inspection levels (IL) I or II. The quality assurance measures to be carried out by Contractor result from the inspection level. Products assigned to</p> <ol style="list-style-type: none"> 1. IL I: are always subject to product-specific inspection 2. IL II: products do not require continuous product-specific inspection. | Meaning of the inspection levels |
| <p>(4) Corresponding appropriate quality assurance measures shall be allocated to new products that are not listed in Part 2 but are comparable with the products listed.</p> | New products |
| <p>(5) COTS (<i>commercial off-the-shelf</i> or <i>components-off-the-shelf</i>) products that are not manufactured in large quantities specifically for DB or the railway market (non-railway-specific requirements) and which can be used unchanged are generally not subject to inspection and are therefore generally not subject to quality assurance measures.</p> | COTS products |

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3 Quality capability of Contractor

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| (1) DB AG's quality assurance department assesses Contractor's quality capability and categorises the contractor as Q1, Q2 or Q3 (quality capability classification). | Quality capability of Contractor |
| (2) Quality capability is assessed by (system, process and product) audits on Contractor's premises, both at central production sites and at production sites relevant to the products concerned. The questionnaires used in the audits are available on the Supplier Portal of Deutsche Bahn AG. | Audits, audit locations |
| (3) This quality capability classification is usually valid for one year and can be updated on a regular basis if necessary. The rating is updated on the basis of an evaluation of the quality data (e.g. complaints, product proving, quality data) and/or with reference to the result of unscheduled audits (see "Regular inspections"). | Updating |
| (4) The quality capability classification can be changed at any time in the event of changes in the quality capability of Contractor or its subcontractors, in the quality of the products or in company ownership. | Change |
| (5) If a contractor does not achieve the Q1 category in the quality capability classification or if a contractor has been downgraded to Q2, measures will be taken to stabilise or develop Contractor in consultation with the end user and the procurement department. Procurement from Contractor cannot continue until the DB AG Quality Assurance department has carried out a paid acceptance inspection. | Failure to achieve Q1, downgrading |
| (6) Contractors of DB AG with no Q-rating shall be treated as Q3 contractors. | Contractors with no Q-rating |
| (7) DB AG's quality assurance department performs a quality capability classification on all contractors who introduce products subject to inspection into the infrastructure, i.e. this also includes contractors who do not manufacture or overhaul products subject to inspection themselves but merely procure them from subcontractors, e.g. dealers/distributors. | Overhaul contractors, dealers/distributors |
| (8) Separate quality assurance measures may be required for special processes/production methods in accordance with ISO TS 22163:2018-01 Section 8.5.1.2, e.g. manufacturer-related product qualification. | Special processes |
| (9) In some cases or under certain conditions, remote audits are also possible instead of on-site visits | Remote audits |

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4 Inspection levels

- (1) Allocation of the products to IL I or IL II and Contractor's quality capability classification - Q1, Q2 or Q3 - determine the type and scope of the quality assurance measures to be carried out by DB AG's quality assurance department and by Contractor. **Scope**
- (2) The basic scope of the quality assurance measures is shown in the following tables.

Table 1: Quality assurance measures for products allocated to inspection level I

Products with inspection level	Contractor's Q-rating	Quality assurance measures
I	Q1	DB AG carries out sample testing of the deliveries for product inspection purposes. Delivery with inspection certificate 3.1 and DB AG delivery approval/inspection certificate.
	Q2	DB AG checks every delivery. Delivery with inspection certificate 3.1 and DB AG delivery approval/inspection certificate.
	Q3	Contractor is barred

Table 2: Quality assurance measures for products allocated to inspection level II

Products with inspection level	Contractor's Q-rating	Quality assurance measures
II	Q1	DB AG accepts full inspection by Contractor. Regular inspections of Contractor by DB AG. Delivery with proof of conformity according to DIN EN ISO/IEC 17050-1*
	Q2	DB AG carries out sample testing of the deliveries for product inspection purposes. Delivery with inspection certificate 3.1 and DB AG delivery approval/inspection certificate.
	Q3	Contractor is barred

(*As a rule, these remain with the manufacturer and must be made available on request. Legal retention periods must be observed.)

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5 Processes for product creation, measuring equipment, special processes/production methods

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| (1) | The complete product creation process – from enquiry to production and inspection to product shipment – is considered during the quality capability classification audits or regular review of Contractor's quality capability (see Regular inspections). DB AG's QA department can carry out or specify audits of the product development process (for new developments and, if necessary, for modification developments) for certain products. This applies in particular to vendor-neutral interfaces. Section 13 sets out more detailed provisions for the discipline concerned. | Processes, product development |
| (2) | Monitoring inspection criteria is a key task of quality assurance. Suitable measuring and inspection equipment is required to ensure the reproducibility of measurement and inspection results. Calibration is carried out by appropriate methods and institutions. | Measuring equipment |
| (3) | Where appropriate, the general requirements placed on the competency of inspection and calibration laboratories in accordance with DIN ISO 17025 are critical in quality assurance for all railway-specific and standard measuring and testing equipment. Where appropriate, Section 13 sets out more detailed provisions for the discipline concerned. | Testing laboratories |
| (4) | If special processes/production methods are used in production at Contractor's or subcontractor's company, special quality assurance measures such as a manufacturer-related product qualification (HPQ) may be required. These are regulated in the relevant norms and DB standards. | Special processes |

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- (5) Special processes/production methods are generally considered to be those production methods in which the conformity of the manufactured product cannot be easily (e.g. only destructively) verified or cannot be verified cost-effectively. With regard to quality assurance for DB AG, this includes processes and methods such as:

- Casting
- Forging
- Welding
- Rolling
- Heat treatment
- Concrete processing
- Soldering
- Crimping
- Wire wrap connections

6 Manufacturer-related product qualification (HPQ)

- (1) The manufacturer-related product qualification is a quality assurance tool used by DB AG and normally based on requirements from German and international railway-specific standards, regulations, and guidelines.
- (2) The aim of the HPQ is to ensure that products manufactured using special processes/production methods are only supplied by manufacturers who have proven that they can fulfil requirements in terms of safety, reliability and process capability. The HPQ is usually required from manufacturers for special processes/production methods that supply directly or indirectly to DB AG. The products concerned are identified in Part 2 of this document.
- (3) The HPQ is subject to a fee and must be applied for by the manufacturer of the products concerned in accordance with Part 2 of this document.
- (4) If, as part of an HPQ, production methods or production lines are inspected that are used in exactly the same way for different products subject to HPQ, the inspection applies to all products subject to HPQ that are manufactured using this production method or production line, even if the product concerned is not manufactured at the time HPQ is performed.

Basis

Objective

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- (5) The HPQ is normally valid for three years. An HPQ must be re-acquired: **Validity**
- If production is relocated
 - If production methods or process cycles are changed
 - In the case of subcontractors with no direct supply relationships with DB AG after expiry of the 3-year validity period
 - After 6 years at the latest (a one-off extension can be granted after 3 years if the assumptions on the basis of which the HPQ was issued have not changed).

7 Regular inspections

- (1) The RI examines Contractor's quality capability. **Regular inspections at Contractors' premises**
- (2) The DB AG quality assurance department carries out RIs at all contractors manufacturing products subject to inspection that have an IL II and a Q1 classification. The table in Part 2 shows the number of RIs to be performed for each product subject to inspection.
- (3) Product and/or process audits (including inspection process or product inspection) are carried out as part of this RI. Audits can also take place in the form of unannounced inspections. The questionnaires used in the audits are available on the Supplier Portal of Deutsche Bahn AG.
- (4) If quality risks or quality shortcomings are identified during RIs, this can result in a change in the Q-rating and/or retraction of the HPQ. Purchasing will review the direct impact on existing delivery and performance contracts once the results are available and initiate appropriate action to stabilise or develop Contractor.
- (5) If, as part of an RI, production methods or production lines are inspected that are used in exactly the same way for different products subject to inspection, the inspection applies to all products subject to inspection that are manufactured using this production method or production line, even if the product concerned is not manufactured at the time RI is performed.

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- (4) In addition to the above-mentioned standards, the following scale should be used to assess the importance of an error:

Table 1: Importance of error

1	Very minor , very minor functional impairment, only detectable by skilled personnel
2-3	Minor , minor functional impairment of the components, elimination during the next maintenance session, functional limitation of operating and comfort systems
4-6	Moderate , functionality of components limited, immediate error-elimination not absolutely necessary, functional limitation of important operating and comfort systems, alternatives possible
7-8	Severe , severe functional limitation of components, immediate elimination mandatory, functional limitation of important subsystems, trains forced to run slowly or unable to run
9-10	Very severe , safety risk, statutory requirements not met, disproportionately high cost of replacement in the event of breakdown, damage, or maintenance work

- (5) The existing process FMEAs must be kept constantly up to date, with account taken of field data, test results and internal and external complaints in particular. Furthermore, revision of the process FMEA is necessary in the following cases:

Updating

- Relocation of production
- Change in production methods or process cycles

- (6) The effectiveness of the measures resulting from the process FMEA must be verified by annual reviews by Contractor.

- (7) Upon request, the process FMEAs shall be submitted to DB AG for viewing. Product or design FMEAs shall only be considered with regard to measures effecting production. For certain products, however, an inspection may be necessary.

Inspection

- (8) When carrying out an HPQ, the process FMEA is reviewed before the first series production run.

Initial check

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9 8D report

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| <p>(1) DB AG may request an 8D report from Contractor in the event of complaints. The process should include the following elements:</p> <ul style="list-style-type: none"> D1: Team definition D2: Error description D3a: Immediate measures by DB AG D3b: Immediate measures by supplier D4: Error causes D5: Possible remedial measures D6: Remedial measures implemented D7: Preventive measures D8: Documentation, lessons learned | Basis |
| <p>(2) The 8D reports must be prepared in accordance with the usual rules and standards.</p> | Implementation |
| <p>(3) The printed form 120.0381V30 entitled "Guideline & Form for 8D Report" in the annex to the guideline should be used internally to prepare the 8D report (see also DB Netz process portal: LN24-01-07). A separate external guideline can also be found in the supplier portal.</p> | Manual in the supplier portal |

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10 Documentation and proofs of conformity

- (9) With regard to products according to this list Part 2, Contractor shall always prepare documentation/document proof of conformity according to Table 1 and Table 2 depending on the products inspection level (IL I or IL II) and its quality capability classification (Q1 or Q2) for each delivery or partial delivery. Contractor must retain the proofs of conformity for at least 10 years.
- (10) A proof of conformity documents that the product supplied by Contractor corresponds to:
 - The requirements from the purchase order/order and/or
 - The condition approved by the regulatory authorities/DB AG.
- (11) Separate documents such as material certificates may be required for raw materials that may be further processed in special processes/production methods by Contractor/subcontractor. Where appropriate, Section 13 sets out more detailed provisions for the discipline concerned.
- (12) A TSI proof of conformity may be required for certain products. These proofs of conformity serve as verification for DB AG or the EBA and the supplier that the agreed quality assurance measures have been carried out and the products meet the quality requirements. They should also ensure the identification and unequivocal allocation of products in the event of defect notifications. Where appropriate, Section 13 sets out more detailed provisions for the discipline concerned.

Inspection certificate

11 Marking

- (1) Special markings such as U-EBA marking, CE marking or special machine-readable markings may be required for certain products. The products concerned are identified accordingly in Part 2 of this document. Where appropriate, Section 13 sets out more detailed provisions for the discipline concerned.

Possible marking

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12 Contractor's dealings with subcontractors

- (1) The Contractor shall evaluate its subcontractors using risk-based criteria, irrespective of the products or services to be provided.
- (2) If a Contractor supplying products subject to inspection to DB and its affiliated companies is not the manufacturer of these products but procures them from subcontractors, the following rules apply:
 - If the subcontractor supplying products subject to inspection to Contractor has no direct business relationship with DB AG or its affiliated companies, the Contractor concerned must carry out the quality capability classification and the defined number of RIs itself at the subcontractor's company (see "Guideline on regular inspections" in Purchasing's Supplier Portal). DB AG must be provided with evidence of the planning and results of the quality capability classification/RIs (including findings and measures) as part of the assessment of quality capability or of the RIs.
 - A quality capability classification and the corresponding RIs by Contractor on the subcontractor's premises are not required if the subcontractor has a valid HPQ or if the subcontractor maintains direct business relationships with DB AG or its affiliated companies.
- (3) If risks and/or shortcomings are identified with regard to subcontractors, the impact on the Q-rating of one or more contractor(s) and further measures to be taken re the subcontractor(s) shall be determined by Purchasing in coordination with Contractor's quality assurance team. Contractor shall bear any additional expenses incurred by DB AG as a result of this.

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13 Specific regulations for the CCS subsystem/product segment

- (1) If the software contained in products is subject to inspection in accordance with Part 2 of this LgP, the following distinction is made (in a highly simplified manner) to delimit the corresponding processes:
 - System/application software
 - Project planning data
- (2) System and application software may be subject to regulatory approval and release processes, which are the responsibility of Contractor/subcontractor in conjunction with the respective bodies. Such software components are therefore only subject to process audits (not expert appraisals or the like) as part of the audits relating to the quality capability classification and regular inspections of the Contractor by DB AG's quality assurance department. These can be, for example:
 - CENELEC process as per DIN EN 5012x
 - Conformity with interface specifications and corresponding verification (e.g. in test centres/shops, laboratories)
 - General software handling in production (e.g. installation, testing, configuration management) and possibly also in the field (e.g. for updates)
- (3) The regular inspections performed by DB AG's quality assurance department review sample projects to examine the processes involved in the creation of project planning data in the project planning process as well as the handling of such data in production and, if appropriate, in the field. Inspection processes based on VV BAU STE (administrative regulations governing construction control for signalling, telecommunications and electrotechnical systems) or EIGV (German Railway Commissioning Authorisation Regulation) are not affected by this.
- (4) If, as part of an RI, production methods or production lines are inspected that are used in exactly the same way for different products subject to inspection, the inspection applies to all products subject to inspection that are manufactured using this production method or production line, even if the product concerned is not manufactured at the time RI is performed. These products are marked with an asterisk (*) in Part 2 in the column "Number of RI/year". This applies, for example, to the manufacture and testing of printed circuit assemblies, computers and computer cabinets.

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- (5) Process audits of the associated product development processes are carried out as required to ensure vendor-neutral compatibility of interfaces (e.g. SCI-xx, block section or level crossing adaptations). Provisions on vendor-neutral interfaces are set out in Section 17 of the sector guideline. This refers to new developments and any necessary modification developments, e.g. in the event of obsolescence or new use cases/connection options etc.
- (6) With regard to the digital interlocking, integrated control-command system and ETCS (infrastructure part) digital control-command and signalling core systems as well as with regard to the supporting systems such as the railway IP network (bbIP) and ITsec, it is necessary for the purposes of DB InfraGO AG's overall system responsibility and for ensuring conformity at specified interfaces according to Eulynx or SCI-xx to audit contractors according to DIN EN 5012x as early as the product development process.
- (7) With regard to products 1.2.6.1 and 1.2.6.2, specifications regarding the manufacturer's mark as defined in this guideline are contained in DBS 918 121.

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14 List of abbreviations

AIAG	Automotive Industry Action Group
DB AG	Deutsche Bahn AG
DB PB	Inspection certificate from DB AG
DBS	Deutsche Bahn standard
DIN	German Institute for Standardisation
EBA	German Federal Railway Authority
EN	European norm
EVB	Supplementary Contractual Conditions
FMEA	Failure Mode and Effects Analysis
HPQ	Manufacturer-related product qualification
LgP	List of products subject to quality inspection
LF	Delivery approval (German: Lieferfreigabe)
IL I	Inspection level 1
IL II	Inspection level 2
QE	Quality engineering
RI	Regular inspection
TSI	Technical specifications for interoperability
UIC	(French) Union International des Chemins de Fer (International Union of Railways)
VDA	German Association of the Automotive Industry

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	Product groups/products	Other applicable documents	HPQ	In-specification level	RI per year	Documentation	Manufacturer's mark	Commodity group	Remarks
1	Switch setting and monitoring systems								
1.1	Local mechanical locking devices for switches								
1.1.1	Locks and blocking devices for points	Standard drawing DBS 918 121	No	II	1	DIN EN ISO/IEC 17050-1	No	10750110	Locking device, blade lock, deadbolt lock, HV 73, point lock, manual locking device, lockable detector slide
1.1.2	Derailer	Standard drawing DBS 918 121	No	II	1	DIN EN ISO/IEC 17050-1	No	10750110	
1.2	Mechanical components of the switch setting and monitoring system								
1.2.1	Mechanical point machine	Standard CCS drawing DBS 918 121	No	II	1	DIN EN ISO/IEC 17050-1	No	10750110	
1.2.2	Mechanical point lock and switch detector	Standard CCS drawing DBS 918 121	No	II	1	DIN EN ISO/IEC 17050-1	No	10750110	

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	Product groups/products	Other applicable documents	HPQ	In-spection level	RI per year	Documentation	Manufacturer's mark	Commodity group	Remarks
1.2.3	Sleeper mount (steel flat bar, drop-forged)	Standard CCS drawing DBS 918 121	No	II	1	DIN EN ISO/IEC 17050-1	No	10750110	Drop-forged bearing plates can only be identified by the standard drawing, not by the designation
1.2.4	Switch stand for point machine, points signal	Standard CCS drawing DBS 918 121	No	II	1	DIN EN ISO/IEC 17050-1	No	10750110	
1.2.5	Bearing blocks (forged) for bell crank	Standard CCS drawing DBS 918 121 DBS 918 125	Yes	II	1	DIN EN ISO/IEC 17050-1	Yes	10750110	
1.2.6	Rods for the switch setting and monitoring system,	Standard CCS drawing DBS 918 121	No	II	1	DIN EN ISO/IEC 17050-1	No	10750110	
1.2.6.1	Rods for the switch setting and monitoring system, (welded, forged)	Standard CCS drawing DBS 918 121 DBS 918 125	Yes	II	2	DIN EN ISO/IEC 17050-1	Yes	10750110	Operating rod, supporting rod, lock bar, stretcher bar, bell crank connecting rod Detector rod, coupling rod (from LgP on permanent way material, product 5.6.1.2)
1.2.6.2	Rods for the switch setting and monitoring system (mounted)	Standard CCS drawing DBS 918 121	No	II	2	DIN EN ISO/IEC 17050-1	Yes, if applicable (with plate)	10750110	Operating rod, bell crank connecting rod

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	Product groups/products	Other applicable documents	HPQ	In- spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
1.2.7	Fork head/rod fork (forged)	Standard CCS drawing DBS 918 121 DBS 918 125	Yes	II	1	DIN EN ISO/IEC 17050-1	Yes	10750110	Possibly also coupling fork
1.2.8	Bell crank (forged)	Standard CCS drawing DBS 918 121 DBS 918 125	Yes	II	1	DIN EN ISO/IEC 17050-1	Yes	10750110	
1.2.9	Plastic parts for the switch setting and monitoring system	Standard CCS drawing DBS 918 121	No	II	1	DIN EN ISO/IEC 17050-1	No	10750110	E.g. bushings, rollers, insulating parts
1.3	Electrical components of the switch setting and monitoring system								
1.3.1	Electric point machine		No	II	1	DIN EN ISO/IEC 17050-1	No	11801150 10750110	
1.3.2	Point detector contact		No	II	1	DIN EN ISO/IEC 17050-1	No	11801150 10750110	Point detector, end position detector
1.3.3	Switch monitoring system (complete)		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150 10750110	Switch monitoring system, SI-WES, housing with relay group for switch control
1.3.3.1	Relay sets, electronic assemblies for switch monitoring system	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150 10750110	E.g. relay group for switch control, switching devices (trailing detection device, position indicator, detection summing device)

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	Product groups/products	Other applicable documents	HPQ	In-specification level	RI per year	Documentation	Manufacturer's mark	Commodity group	Remarks
2	Signals								
2.1	Colour-light signals and semaphore signals (complete)	Standard drawing	No	II	1	DIN EN ISO/IEC 17050-1	No	11801150 11101400	Also level crossing monitoring signal, light signal, points position detector, shunting signal, humping indicator
2.2	Concrete signal foundation	Standard drawing							See LgP on civil engineering products/materials, product 1.6
2.3	Mast base adapter	Standard drawing	No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	
2.4	Steel signal posts	Standard drawing	No	II	1	DIN EN ISO/IEC 17050-1	No	11801150 10750110	Tubular mast, narrow mast, mast with curved mast arm, lower mast, upper mast, lattice mast, boom, top-mounted mast
2.5	Concrete signal posts	Standard drawing							See LgP on civil engineering products/materials, product 1.7
2.6	Signal gantry/boom	DBS 918 005							See DBS 918 005 Table 39
2.7	Mechanical and electric signal drive	Standard drawing	No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	

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	Product groups/products	Other applicable documents	HPQ	In- spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
2.8	Signal head	Standard drawing	No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	Also German Ls colour light blocking signal housing, additional indicator/substitute signal head/light strip head, signal lamp housing
2.9	Signal elements with LED or incandescent lights	Standard drawing DBS 918 410	No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	Signal lamp (single signal, dual signal, secondary signal) for incandescent lamp, LED signalling unit
2.10	Incandescent signal lamps		No	II	1	DIN EN ISO/IEC 17050-1	No	10750140	
2.11	Signal background/sign	Signal rule book, standard drawing	No	II	1	DIN EN ISO/IEC 17050-1	No	10750160	Signals from signal rule book, St. Andrew's cross
2.11.1	Metal post/base for signal background, signal sign, switch boxes, trackside connection box	Standard drawing	No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	Tubular mast, also for speed check equipment, switch monitoring system, signalling cubicle, key release unit
2.11.2	Concrete post for signal background, signal sign, switch boxes, trackside connection box	Standard drawing							See LgP on civil engineering products/materials, product 1.7 Also for speed check equipment, switch monitoring system, signalling cubicle, key release unit

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	Product groups/products	Other applicable documents	HPQ	In-specification level	RI per year	Documentation	Manufacturer's mark	Commodity group	Remarks
2.11.3	Concrete foundation/base for signal background/sign posts, switch box, trackside connection box	Standard drawing							See LgP on civil engineering products/materials, product 1.6 Also for speed check equipment, switch monitoring system, signalling cubicle, key release unit
2.12	Signalling cubicle (complete)		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150	Also terminal box for field devices, terminal cabinet for field devices
2.12.1	Computers, relay sets, electronic assemblies inside the signalling cubicle	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150	E.g. SIMO, FAMA, GRUMO, IMO, signal insert, signal group, (S)OC, MSTT, PZB box, apparatus set
2.12.1.1	Software for computer in signalling cubicle		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150	See software for electronic interlocking computer, product 5.4.1.1
2.12.2	Housing for (signal) switch box (empty)		No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	Also for terminal box for field devices, terminal cabinet for field devices, switch monitoring system switch box, speed check equipment, key release unit, LZB trackside equipment, line-side electronic unit

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	Product groups/products	Other applicable documents	HPQ	In- spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
3	Train detection systems and track-in- stalled switching devices								Axle counting systems, track circuits, wheel speed sensors, vehicle sensors
3.1	Train detection systems/track-installed switching devices (trackside equip- ment)								
3.1.1	Trackside connection box (complete) for train detection system/track-installed switching devices		No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	For axle counting systems, track circuits, wheel speed sensor, ve- hicle sensors, e.g. EAK, track- side connection box
3.1.1.1	Computers and electronic assemblies in trackside connection boxes	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150	Electronic insert in the trackside connection box
3.1.1.1.1	Software for computers in the trackside connection box		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150	See software for electronic inter- locking computer, product 5.4.1.1
3.1.1.2	Impedance bond	DBS 918 410	No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	
3.1.1.3	Trackside connection boxes (empty)		No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	
3.1.2	Treadle/track-installed switching devices		No	II	1	DIN EN ISO/IEC 17050-1	No	11801150 11101400	Counting point, axle counter head, wheel speed sensor, vehi- cle sensor, magnetic treadle, treadle SK44, insulated rail

* Explanation in Part 1 of the LgP (Section 13 Specific regulations for the CCS subsystem/product segment)

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	Product groups/products	Other applicable documents	HPQ	In-spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
3.1.2.1	Rail foot clamp for treadle/track-installed switching devices		No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	
3.2	Train detection system (for use inside switchgear building)								
3.2.1	Computers, relay sets and electronic as-semblies for use inside switchgear build-ings for train detection systems and/or track-installed switching devices	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	Axle counting evaluation, axle counter evaluator, tubular track relay set, TCM, ACM
3.2.1.1	Software for train detection systems and/or track-installed switching devices that runs on computers inside switchgear buildings		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	See software for electronic inter-locking computer, product 5.4.1.1f
3.2.2	Motor relay	DBS 918 410	No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	Also electronic track relay

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	Product groups/products	Other applicable documents	HPQ	In-specification level	RI per year	Documentation	Manufacturer's mark	Commodity group	Remarks
4	Train control systems								
4.1	Intermittent automatic train-running control (PZB)								
4.1.1	Track magnet/track-installed switching magnet		No	II	1	DIN EN ISO/IEC 17050-1	No	11801150 10750120 10920306	
4.1.1.1	Track magnet bracket		No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	Track magnet bracket, track magnet mount, clamp
4.1.2	Speed monitoring system (complete)		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150	Speed monitoring equipment
4.1.2.1	Computers, relay sets, electronic assemblies for speed monitoring equipment	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150	
4.1.2.1.1	Software for speed monitoring computers		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	See software for electronic interlocking computer, product 5.4.1.1
4.1.3	S-Bahn train stop (lineside)		No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	

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	Product groups/products	Other applicable documents	HPQ	In- spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
4.2	Continuous automatic train-running control (LZB)								
4.2.1	LZB control centre/for use inside switchgear building								
4.2.1.1	Cabinets/frames (complete) for LZB control centre/for use inside switchgear building		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	Also power supply components, computer cabinet, I/O cabinet, transmission cabinet, LZB centralised traffic control frame, LAN-COP
4.2.1.1.1	Computers and electronic assemblies for LZB control centre/for use inside switchgear building	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	Also electronics from control unit
4.2.1.1.2	Software for computers for LZB control centre/for use inside switchgear building		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	See software for electronic interlocking computer, product 5.4.1.1
4.2.1.2	Special Thales keypad for LZB operating unit, local and in operations centre		No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	

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	Product groups/products	Other applicable documents	HPQ	In- spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
4.2.2	LZB trackside equipment								
4.2.2.1	Cabinets for LZB trackside equipment (complete)		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150	Also power supply components, short-loop remote feeding device, lineside device at beginning and end of LZB, repeater, potential isolation outside cabinet for LZB
4.2.2.1.1	Electronic assemblies for LZB trackside equipment	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150	
4.3	European Train Control System (ETCS)								
4.3.1	Radio Block Centre (RBC)/ETCS equipment for use inside switchgear building								
4.3.1.1	Cabinets/frames for RBC (complete)		No	II	1*	DIN EN ISO/IEC 17050-1	No	10321100 11801100	
4.3.1.1.1	Computers and electronic assemblies for RBC	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	10321100 11801100	
4.3.1.1.2	Software for RBC computers		No	II	1*	DIN EN ISO/IEC 17050-1	No	10321100 11801100	See software for electronic interlocking computer, product 5.4.1.1

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	Product groups/products	Other applicable documents	HPQ	In-spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
4.3.2	ETCS trackside equipment								Also for ZBS, GNT
4.3.2.1	Balise (fixed, switchable)		No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	Also vehicle coupling coils, fixed data balise, switchable balise
4.3.2.1.1	Balise mount/bracket		No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	Mounting, balise bracket
4.3.2.2	Lineside electronic unit (LEU), complete		No	II	1	DIN EN ISO/IEC 17050-1	No	10321100 11801150	
4.3.2.2.1	Computer and electronic assembly for LEU	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	10321100 11801150	
4.3.2.2.2	Software for LEU computer		No	II	1*	DIN EN ISO/IEC 17050-1	No	10321100 11801150	See software for electronic interlocking computer, product 5.4.1.1

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	Product groups/products	Other applicable documents	HPQ	In-specification level	RI per year	Documentation	Manufacturer's mark	Commodity group	Remarks
5	Interlocking (for use inside switchgear building)								
5.1	Mechanical interlocking								
5.1.1	Lever, winch	Standard drawing	No	II	1	DIN EN ISO/IEC 17050-1	No	10750110	Switch lever, signal lever, signal winch, manual remote locking and derail lever, lever for German Ls colour light blocking signal, route lever
5.1.2	Block instrument	Standard drawing	No	II	1	DIN EN ISO/IEC 17050-1	No	10750110	AC block instrument, DC block instrument
5.1.3	Wire rope transmission								Also for mechanical barrier
5.1.3.1	Wire compensator for wire rope transmission	Standard drawing	No	II	1	DIN EN ISO/IEC 17050-1	No	10750110	
5.1.3.2	Steel wire, wire rope for wire rope transmission	DBS 918 134	No	II	1	DIN EN ISO/IEC 17050-1	No	10750110	

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	Product groups/products	Other applicable documents	HPQ	In- spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
5.2	Electromechanical interlocking								
5.3	Relay interlocking								
5.3.1	Side table, notice board		No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	Also desks for level crossing safety system
5.3.2.	Relay sets for relay interlockings	DBS 918 410 GL 892.04	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	
5.3.3	Individual relays (type N/class I, type C/class II) for interlockings	"Individual relay" equipment collec- tion, I.NPS 331_version 0.9 dated 3 July 2018	No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	VES, Siemens AG: K44, mechanically latching relay K51, K50, mechanically latching relay K50, high-current relay K50, magnetically latching relay, cradle relay S, positively driven Lorenz, SEL, Alcatel, Thales AG: Signal relay 56, mechani- cally latching relay 56, signal re- lay 72, mechanically latching re- lay 72 WSSB, Siemens: Design I, small-size relay design II Normal-size toggle and me- chanically latching relay design II, signal relay N3, signal relay P3

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	Product groups/products	Other applicable documents	HPQ	In- spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
5.4	Electronic interlockings and/or digital interlocking								
5.4.1	Computers and electronic assemblies for electronic interlockings/digital interlockings	DBS 918 410 GL 892.04	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	Also element operating mod- ules, object controllers
5.4.1.1	Software for computers for electronic inter- lockings/digital interlockings		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	Software handling, project plan- ning data, implementation of SCI-xx interfaces
5.5	Other systems								
5.5.1	Block systems, block adaptations		No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	Automatic block, German cen- tralised automatic block system, electronic high-performance block, relay block
5.5.1.1	Relay sets, computers and electronic as- semblies for block systems	DBS 918 410 GL 892.04	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	
5.5.1.2	Individual relays (safety relays, signal re- lays) for block systems	DBS 918 410	No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	E.g. block relay
5.5.2	Centralised traffic controls		No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	F 70, DUS 50x/60x, OC 15, F L90
5.5.2.1	Relay sets, computers and electronic as- semblies for centralised traffic controls	DBS 918 410 GL 892.04	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	

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5.5.3	Transmission systems		No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	SIMIS DTS, Vital 21, DCS 560, EF/MF
5.5.3.1	Relay sets, computers and electronic assemblies for transmission systems	DBS 918 410 GL 892.04	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	
5.5.4	Announcement systems		No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	AKA L90
5.5.4.1	Relay sets, computers and electronic assemblies for announcement systems	DBS 918 410 GL 892.04	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	

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	Product groups/products	Other applicable documents	HPQ	In- spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
5.6	Components for CCS for use inside switchgear building and in trackside equipment								Also for block signalling, centralised traffic controls, transmission systems, announcement systems
5.6.1	Cabinets/frames for CCS for use inside switchgear building and in trackside equipment		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	Points frame, connection frame, cable termination frame, axle counter frame, block frame, motor relay frame, Also frames in switch boxes for switch monitoring system/signal/speed check equipment/terminal box for field devices/terminal cabinet for field devices, Also cabinets/frames for LZB for use inside switchgear building and in trackside equipment, ETCS, LEU
5.6.2	System cable for CCS for use inside switchgear building and in trackside equipment		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	System cable, standardised cables for geographical relay interlockings, internal cable (inside frame/cabinet), frame cabling, Also internal wiring of switch boxes for switch monitoring system/signal/speed check equipment/terminal box for field devices/terminal cabinet for field devices Also for LZB for use inside switchgear building and in trackside equipment, ETCS, LEU
5.7	Concrete modular building for CCS systems								See LgP on civil engineering products/materials, product 1.11

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	Product groups/products	Other applicable documents	HPQ	In- spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
6	Control and operating system								
6.1	Operating station systems								
6.1.1	Computers/servers for control and operating system		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	E.g. operating station computer, reference computer, central data server operating station, communication server, ZCOMS, RCOMS, central documentation computer, documentation computer, automatic route setting computer, train describer computer, admin. PC for security gateway, security translator, station computer, route computer, admin PC, train recording computer, ICOM, ILT, LLPV, iBS-Z, iBS-R
6.1.1.1	Software for computers/servers for control and operating system		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	See software for electronic interlocking computer, product 5.4.1.1
6.2	Train describer systems								ZNS 800, ZNS 801, ZNS 901 R, ZNL 800, ZNE L2000, ZNP 801, ZNA, ...
6.2.1	Relay sets, computers and electronic assemblies for train describer systems	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	
6.2.2	Operation and indication for train describer systems	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	

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	Product groups/products	Other applicable documents	HPQ	In- spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
6.3	Load management centre components and transmission systems								
6.3.1	Computers/servers for load management centre		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	E.g. ZVD, LPV, DMS
6.3.1.1	Software for computers/servers for load management centre		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	See software for electronic interlocking computer, product 5.4.1.1
6.3.2	Computers/servers for transmission systems		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	E.g. NTP, broker, integrated control-command system gateway
6.3.2.1	Software for computers/servers for transmission systems		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	See software for electronic interlocking computer, product 5.4.1.1

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	Product groups/products	Other applicable documents	HPQ	In-specification level	RI per year	Documentation	Manufacturer's mark	Commodity group	Remarks
7	Shunting systems								
7.1	Marshalling yard control towers, hump cabins, decentralised electric points								
7.1.1	Relay sets, computers and electronic assemblies for shunting systems	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	11101300	Also element operating modules, power electronics, super-cap, route computer, process computer
7.1.1.1	Software for shunting system computers		No	II	1*	DIN EN ISO/IEC 17050-1	No	11101300	See software for electronic interlocking computer, product 5.4.1.1
7.1.2	Axle counter heads for shunting systems		No	II	1	DIN EN ISO/IEC 17050-1	No	11101400	E.g. twin wheel sensor, rail head contact
7.1.3	Sensors for shunting systems		No	II	1	DIN EN ISO/IEC 17050-1	No	11101400	Radar equipment, light curtain system, slit-type position encoder, others are COTS
7.1.4	Balise for shunting systems (not ETCS)		No	II	1	DIN EN ISO/IEC 17050-1	No	11101400	
7.1.5	Control points for shunting systems		No	II	1	DIN EN ISO/IEC 17050-1	No	11101400	Locally controlled areas, point control panels, route setting panels, palm buttons

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	Product groups/products	Other applicable documents	HPQ	In-specification level	RI per year	Documentation	Manufacturer's mark	Commodity group	Remarks
7.2	Control systems for humping process (for use inside switchgear building)								
7.2	Relay sets and electronic assemblies for brake control systems, control units for closing-up systems and radio remote control systems for hump locos	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	11101300	
7.3	Shunting equipment (trackside equipment)								
7.3.1	Retarders		No	II	1	DIN EN ISO/IEC 17050-1	No	11101100	Beam retarders, rubber retarders, screw retarder, weight-responsive retarder, retarder without centralised control
7.3.2	Closing-up systems		No	II	1	DIN EN ISO/IEC 17050-1	No	11101200	Single-sided closing-up system, combined closing-up system
7.3.3	Retractable/moveable buffer stops		No	II	1	DIN EN ISO/IEC 17050-1	No	11101100	

* Explanation in Part 1 of the LgP (Section 13 Specific regulations for the CCS subsystem/product segment)

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	Product groups/products	Other applicable documents	HPQ	In-specification level	RI per year	Documentation	Manufacturer's mark	Commodity group	Remarks
7.4	Track stops								
7.4.1	Buffer stops		No	II	1	Insp. cert. 3.1	No	10404120	Fixed buffer stops, friction buffer stops
7.4.2	Track reinforcement		No	II	1	Insp. cert. 3.1	No	10404120	
7.4.3	Drag shoe, chock		No	II	1	DIN EN ISO/IEC 17050-1	No	10404120	
8	Level crossing safety systems								
8.1	Level crossing trackside equipment								
8.1.1	Electric barrier drive systems		No	II	1	DIN EN ISO/IEC 17050-1	No	10930210	Also retrofit electric barrier drive
8.1.2	Plastic and/or metal barrier booms	DBS 918 412	No	II	1	DIN EN ISO/IEC 17050-1	No	10750110 10930210	
8.1.3	Acoustic warning systems for pedestrians	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	10930210	

* Explanation in Part 1 of the LgP (Section 13 Specific regulations for the CCS subsystem/product segment)

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	Product groups/products	Other applicable documents	HPQ	In-specification level	RI per year	Documentation	Manufacturer's mark	Commodity group	Remarks
8.1.4	Hazard zone monitoring	DBS 918 410	No	II	1	DIN EN ISO/IEC 17050-1	No	10930210	
8.1.5	Manual switching equipment		No	II	1*	DIN EN ISO/IEC 17050-1	No	10930210	
8.1.6	Radio-operated approach indicator	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	10930210	
8.1.7	Concrete switchgear building for level crossing and CCS systems								See LgP on civil engineering products/materials, product 1.10
8.2	Level crossing equipment mounted inside switchgear buildings								
8.2.1	Relay sets, computers and electronic assemblies for level crossing safety systems	DBS 918 410	No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150	
8.2.1.1	Software for computers for level crossing safety systems		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	See software for electronic interlocking computer, product 5.4.1.1

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	Product groups/products	Other applicable documents	HPQ	In- spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
9	Power supply for control-command and signalling/telecommunications systems								General power supply system, not for end-user device/electrical loads
9.1	Uninterruptible power supply (UPS) for control-command and signalling systems/telecommunications		No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	
9.2	Control unit, electronic assembly for power supply for control-command and signalling systems/telecommunications		No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	E.g. mains switch cabinet, electrical ballasts for lights
9.3	Voltage transformers (AC/DC, DC/AC and DC/DC) for power supply for control and command technology and telecommunications systems		No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	Rectifier, inverter, compact UPS, battery charger, no plug-in units
9.4	Transformers for power supply for control-command and signalling and telecommunications		No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	As a component of the higher-level power supply system
9.5	Battery systems for power supply for control-command and signalling and telecommunications	Approval list	No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	
9.6	Converter/frequency converter for power supply for control-command and signalling/telecommunications		No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	Static, rotating, as a component of a higher-level power supply system
9.7	Emergency generators for power supply for control-command and signalling/telecommunications		No	II	1	DIN EN ISO/IEC 17050-1	No	11801100	Diesel genset, fuel cell, etc.

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	Product groups/products	Other applicable documents	HPQ	In-spec-tion level	RI per year	Documen-tation	Manufac-turer's mark	Commod-ity group	Remarks
10	Signal cable								
10.1	Signal cable (CU and fibre optic)	Specifications DBS 918 131	No	II	1	DIN EN ISO/IEC 17050-1	No	10570010	Control-command and signalling outdoor cable for trough, conduit or underground installation: standard signalling cable, PZB cable, LZB cable, rail base cable, balise cable, combination cable (DuoTrack cable), aerial cable
10.2	Cable accessories for control-command and signalling		No	II	1	DIN EN ISO/IEC 17050-1	No	10570010	Cable accessories for signalling, such as signalling cable distributors (e.g. SKV, SEW), cable cabinets (e.g. KVz)

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	Product groups/products	Other applicable documents	HPQ	In-spec-tion level	RI per year	Documen-tation	Manufac-turer's mark	Commod-ity group	Remarks
11	Operational hazard alarm systems: hot axle box detector, hot wheel detector, wind measuring system, air-flow measuring system								Hot axle box detector, hot wheel detector, wind measuring system, air-flow measuring system
11.1	Hazard alarm system, for use inside switchgear building								
11.1.1	Computers and electronic assemblies for hazard alarm systems		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	E.g. SCT computer, ZMS PC, link card, interface, modules, modems, adaptation to data transmission (connection of MAS90 reporting system/ZMS MüV, evaluation electronics, data transmission system)
11.1.1.1	Software for hazard alarm system computers		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801100	
11.2	Hazard alarm system, trackside equipment								
11.2.1	Sensor system for hazard alarm systems		No	II	1	DIN EN ISO/IEC 17050-1	No	11801150	E.g. infrared measuring unit for hot axle box detector and hot wheel detector
11.3	Cables for hazard alarm systems		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150	With customised connection assembly, e.g. connecting cable for link card/boards, sensor cable, not electric train supply cable

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	Product groups/products	Other applicable documents	HPQ	In- spec- tion level	RI per year	Documen- tation	Manufac- turer's mark	Commod- ity group	Remarks
12	Railway-specific control-command and signalling measuring devices								
12.1	Measuring devices for train control systems and train detection systems		No	II	1*	DIN EN ISO/IEC 17050-1	No	11801150	E.g. phase angle measuring device for track circuits, test device for motor relays, test and adjustment device for track circuits and axle counters, insulated rail joint test device, test group for axle counter heads (Thales), track magnet test device (case), LZB test device (test transmitter), test and programming device for balises, setting force measuring device