

EULYNX Initiative

Requirements specification for subsystem TDS



Document number: Eu.Doc.43 Version: 4.1 (0.A)

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| Requirements spe | ecification | for subsystem TDS | | |
|------------------|-------------|--|--------------------|---------------|
| ID | Туре | Requirement Part 1 | Requirement Part 2 | Func. Pkg. |
| Eu.TDS.1 | Head | 1 Introduction | | |
| Eu.TDS.2 | Head | 1.1 Release information | | |
| Eu.TDS.3 | Info | [Eu.Doc.43] Requirements specification for subsystem TDS CENELEC Phase: 4 Version: 4.1 (0.A) Approval date: 15.06.2023 | | |
| Eu.TDS.4 | Info | Version history | | |
| Eu.TDS.7081 | Info | version number: 4.0 (0.A) date: 19.05.2022 author: Marie Gehrmann model version: 18 generic profile version: 36 Generic interface and subsystem requirements version: 4.0 (0.A) Generic interface and subsystem requirements for SCI version: 1.0 (0.A) review: CCB changes: EUTDS-390, EUTDS-404, EUTDS-405, EUTDS-409, EUTDS-412, EUTDS-413 | | |
| Eu.TDS.7091 | Info | version number: 4.0 (1.A) date: 08.03.2023 author: Marie Gehrmann model version: 21 Generic interface and subsystem requirements version: 4.0 (0.A) Generic interface and subsystem requirements for SCI version: 1.0 (0.A) review: changes: EUTDS-420, EUTDS-427, EUTDS-428, EUTDS-429, EUTDS-430 | | |
| Eu.TDS.7126 | Info | version number: 4.0 (2.A) date: 06.04.2023 author: Marie Gehrmann model version: 21 Generic interface and subsystem requirements version: 4.0 (1.A) Generic interface and subsystem requirements for SCI version: 1.0 (1.A) review: Cluster changes: EUTDS-431, EUTDS-432, EUTDS-436, EUTDS-438, EUTDS-438, EUTDS-439 | | |
| Eu.TDS.7165 | Info | version number: 4.1 (0.A) date: 27.06.2023 author: Marie Gehrmann model version: 22 Generic interface and subsystem requirements version: 4.0 (3.A) Generic interface and subsystem requirements for SCI version: 1.0 (3.A) review: TACS Mirror Group changes: EUTDS-440, EUTDS-441, EUTDS-442, EUTDS-444, EUTDS-445, EUTDS-450, EUTDS-451, EUTDS-452, EUTDS-455, EUTDS-460, EUTDS-461, EUTDS-462 | | |
| Eu.TDS.8 | Head | 1.2 Impressum | | |
| Eu.TDS.9 | Info | Publisher: Europe's Rail Joint Undertaking https://rail-research.europa.eu/ EULYNX Initiative A full list of the EULYNX Partners can be found on www.eulynx.eu/index.php/members | | |
| Eu.TDS.10 | Info | Responsible for this document: EU-Rail System Pillar Trackside Assets Control and Supervision domain | | |
| Eu.TDS.2122 | Info | Copyright EULYNX Partners All information included or disclosed in this document is licensed under the European Union Public Licence EUPL, Version 1.2 or later. | | |
| Eu.TDS.11 | Head | 1.3 Purpose | | |
| Eu.TDS.12 | Info | The purpose of the document is the specification of functional requirements for the Subsystem - Train Detection System. | | |
| Eu.TDS.2045 | Info | This document describes functional, non-functional and technical requirements for the Subsystem – Train Detection System and functional requirements for interface SCI-TDS. | | |
| Eu.TDS.13 | Info | This document is intended for the following users: safety authorities infrastructure managers safety assessors signalling system suppliers validators | | |
| Eu.TDS.14 | Info | This document is the basis for the implementation by the supplier and for approval by the infrastructure manager. | | |
| Eu.TDS.7166 | Info | This document is applicable for both the EU-Rail System Pillar target architecture and the EULYNX architecture. The document is delivered as a single specification fitting both the System Pillar documentation sets and the EULYNX documentation sets. EU-Rail System Pillar is the technical authority for this document. | | |
| Eu.TDS.15 | Head | 1.4 Applicable standards and regulations | | |
| Eu.TDS.16 | Info | A list of applicable standards and regulations used in EULYNX is listed in the EULYNX Reference Document List [Eu.Doc.12]. | | |
| Eu.TDS.17 | Head | 1.5 Applicable documents | | |
| © FUI YNX Partn | erc | | | Page 1 of 143 |

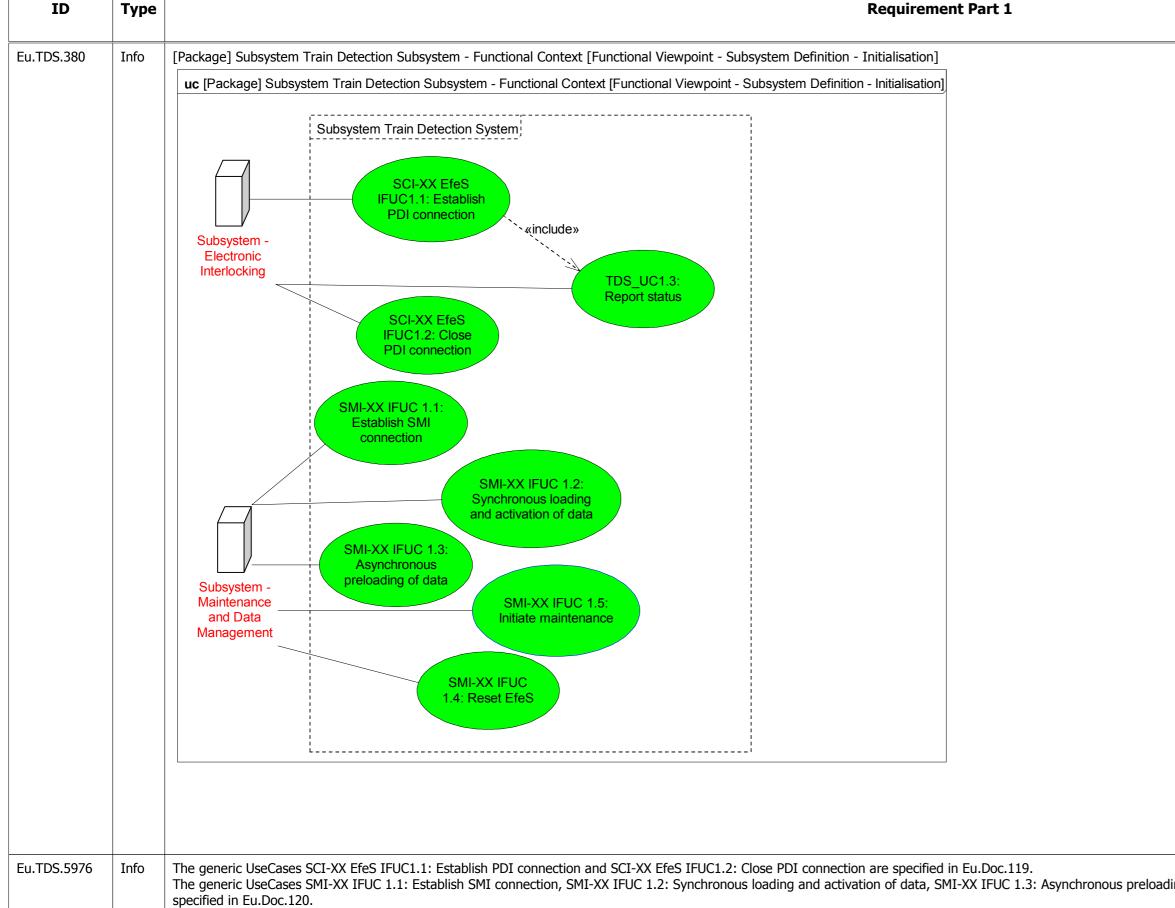
| ID | Туре | Requirement Part 1 |
|-------------|------|---|
| Eu.TDS.18 | Info | The current versions of documents used as input or related to this document are listed in the EULYNX Documentation Plan [Eu.Doc.11]. The relationships between the doc |
| Eu.TDS.28 | Head | 1.6 Terms and abbreviations |
| Eu.TDS.29 | Info | The terms and abbreviations are listed in the EULYNX Glossary [Eu.Doc.9]. |
| Eu.TDS.1139 | Head | 1.7 Variability management |
| Eu.TDS.1140 | Info | This document describes harmonised requirements. Variability management is not applicable. |
| Eu.TDS.2117 | Head | 1.8 Definition of object types |
| Eu.TDS.2118 | Info | The following definition for object types is applied in this document: |
| Eu.TDS.2119 | Info | "Req" - This denotes a mandatory requirement. |
| Eu.TDS.2120 | Info | • "Info" - This denotes additional information to help understand the specification. These objects do not specify any additional requirements. |
| Eu.TDS.2121 | Info | • "Head" - This denotes chapter headings. |
| Eu.TDS.30 | Head | 1.9 Modelling |
| Eu.TDS.31 | Info | The section "Functional requirements specification" follows a model based systems engineering process using Systems Modelling Language (SysML) and defines the functi stimulus-response form. Furthermore the information objects (stimuli and responses) exchanged over the interfaces of the Subsystem - Train Detection System are defined |
| Eu.TDS.32 | Info | The diagrams presented in this document are modelled in SysML [SysML]. |
| Eu.TDS.2369 | Info | The rules for the interpretation of the model based parts of specification are defined in [Eu.Doc.29]. |
| Eu.TDS.2355 | Info | In chapter 3 "Functional requirements specification" the functional system requirements, defined in the form of a SysML model in the PTC Integrity Modeler are depicted a |
| Eu.TDS.2356 | Info | A requirement thereby consists of the respective SysML model element, for instance a SysML diagram, and if necessary an additional extension of the requirement. |
| Eu.TDS.2471 | Info | In the column "Requirement Part 1" the particular SysML model element is depicted and in the column "Requirement Part 2" the corresponding extension of the definition "Requirement Part 2". |
| Eu.TDS.2357 | Info | There are requirements with type "Req" given, where the column "Requirement Part 2" or a part of it is provided with the heading "Information". In this case, the defined 2", which is not labelled as "Information". |
| Eu.TDS.33 | Head | 2 Conditions of use |
| Eu.TDS.5729 | Req | All references to Eu.Doc.20 refer to version 4.0 (3.A) of that document. |
| Eu.TDS.7075 | Req | All references to Eu.Doc.119 refer to version 1.0 (3.A) of that document. |
| Eu.TDS.7076 | Info | References to Eu.Doc.120 do not refer to a concrete version of that document. The applicable version shall be defined by national specifications. Note: In future phases of the System Pillar, national specifications will be replaced by harmonised specifications. |
| Eu.TDS.34 | Info | The specifications defined in this document shall follow the requirements of the EULYNX System Architecture Specification [Eu.Doc.16]. |
| Eu.TDS.7064 | Head | 2.1 Functional packages |
| Eu.TDS.7065 | Info | The specifications in this document are divided into functional packages. There are two types of packages related to the product capabilities. |
| Eu.TDS.7066 | Info | 'Basic packages': One or more packages, at least one of them must be implemented. It is allowed to combine and implement more than one 'basic package' in a product. |
| Eu.TDS.7067 | Info | 'Optional package': One or more packages that can be optionally implemented in addition to one or more basic packages. |
| Eu.TDS.7068 | Info | The specifications of the Subsystem – Train Detection System are divided into the following functional packages: |
| Eu.TDS.7069 | Info | TDS for basic axle counter functionality (basic package) [Basic TDS AC] |
| Eu.TDS.7070 | Info | TDS for Train Detection Point functionality (basic package) [Basic TDS TDP] |
| Eu.TDS.7072 | Info | TDS for track circuit functionality (basic package) [Basic TDS TC] |
| Eu.TDS.7071 | Info | Handling FC-P and FC-P-A commands (optional package that can be combined with the basic package TDS for basic axle counter functionality) [Option FC-P/-A] |
| Eu.TDS.7073 | Info | Handling 'update filling level' (optional package that can be combined with the basic package TDS for basic axle counter functionality) [Option Update FL] |
| Eu.TDS.199 | Head | 3 Functional requirements specification |
| Eu.TDS.6525 | Head | 3.1 Subsystem Train Detection System - General Infos and Assumptions |
| Eu.TDS.7149 | Info | The configuration of a TVPS which works with axle counters distinguishes between two different behaviours while having a disturbance with an operational reason. The two different behaviours while having a disturbance with an operational reason. |
| Eu.TDS.7150 | Info | The behaviour of both variants is defined in detail by the sequence and state machine diagrams. The main differences are stated below. |
| Eu.TDS.7151 | Info | Initial state of the TVPS after a (re)booting the system: |
| | | • Variant A: The initial state of the TVPS is disturbed with an operational reason and able to be forced to clear. |
| | | • Variant B: The initial state of the TVPS is disturbed with an operational reason and unable to be forced to clear. |

| | Requirement Part 2 | Func. Pkg. |
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| cuments are displayed in the Appendix A1 Documentation plan and structure [Eu.Doc.11 | | |
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| onal system requirements for the Subsystem - Train Detection System operational in d. | | |
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| s a surrogate of this model in the form of DOORS-objects. | | |
| | | |
| is given. The stated object type normally applies both to "Requirement Part 1" and to | | |
| type only applies to the column "Requirement Part 1" and the part of "Requirement Part | | |
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| o functional variants are called Variant A and B. | | Basic TD AC |
| | | Basic TD |
| | | AC Basic TD |
| | | AC |

| ID | Туре | Requirement Part 1 |
|-------------|------|--|
| Eu.TDS.7152 | Info | The handling of ability to be forced to clear while having a disturbance with an operational reason: |
| | | • Variant A: The TVPS is always able to be forced to clear after expiration of the inhibition timer (independent from the last detected passing (incoming wheel, outg |
| | | Variant B: The ability to be forced to clear depends on the last detected passing (incoming wheel, outgoing wheel or uninterpretable pattern) and the inhibition time forced to clear after the expiration of the inhibition timer. If the last detected Wheel was an incoming Wheel or an uninterpretable or undefined pattern, the TVPS and the DRFC command is allowed. |
| Eu.TDS.1112 | Head | 3.2 Subsystem Train Detection System - Logical Viewpoint |
| Eu.TDS.6859 | Head | 3.2.1 Subsystem Train Detection System - Logical Context |
| | Info | [Package] Subsystem Train Detection System - Logical Context [Logical Viewpoint - Subsystem Definition] |
| | | bdd [Package] Subsystem Train Detection System - Logical Context [Logical Viewpoint - Subsystem Definition] |
| | | «logical structural entity» Subsystem Electronic Interlocking 1 1 |
| | | SCI-TDS SCI-TDS |
| | | 1 1 [*] |
| | | «logical structural entity» SMI-TDS SMI-TDS Subsystem Maintenance and Data 1 1 |
| | | Management I I SDI-TDS SDI-TDS |
| | | «logical structural entity» |
| | | Subsystem Security Services Platform 1 1 |
| | | SSI-TDS SSI-TDS SSI-TDS 1 * * * * * * * * * * * * * * * * * * |
| | | «environmental structural entity» TDS2 TDS2 |
| | | Basic Data Identifier 1 1 TDS1 TDS1 |
| | | |
| | | «environmental structural entity» Maintainer * 1 1 Power Supply |
| | | TDS6 TDS6 TDS5 |
| | | |
| | | |
| | | |
| | | |
| | | |
| Eu.TDS.5964 | Head | 3.3 Subsystem Train Detection System - Functional Viewpoint |
| Eu.TDS.1211 | Head | 3.3.1 Definition of time values |
| Eu.TDS.7077 | Info | The generic time values for SCI are specified in Eu.Doc.119. |
| | | |
| | | |
| Eu.TDS.7078 | Info | The generic time values for SMI are specified in Eu.Doc.120 |
| | | |
| | | |
| Eu.TDS.1212 | Req | Con_t_Inhibition_Timer |
| LU.103.1212 | Req | |
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| | Requirement Part 2 | Func. Pkg. |
|--|--|--|
| ming wheel, outgoing wheel or uninterpretable pattern)). d the inhibition timer. If the last detected Wheel was an outgoing Wheel, the TVPS is able to be pattern, the TVPS remains unable to be forced to clear after the expiration of the inhibition timer, | | Basic TDS AC |
| | | |
| | The Subsystem - Train Detection System has to provide the technical interfaces which are pictured in "[Package] Subsystem Train Detection System - Logical Context [Logical Viewpoint - Subsystem Definition]" , to the pictured Actors. The amount of Actors that should be able to be connected are defined in the pictured multiplicities. The Interface SCI-ACS may be defined in later deliveries. | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | | |
| | | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | Con_t_Inhibition_Timer is a configurable delay, defining the duration between the detection of a passing for a TVPS (incoming wheel, outgoing wheel or uninterpretable pattern) and the moment that the state of a TVPS is considered stable. Cd_Cancel is not rejected during inhibition timer. Until expiration of this timer, all FC, DRFC and UFL commands to the TVPS are rejected. - Proposed resolution: steps of 100 ms - Proposed range: from 100 ms up to 10 s | Basic TDS AC |

| ID | Туре | | Requirement Part 1 Requirement Part 2 | Func. Pkg. |
|-------------|------|---|--|--------------------|
| Eu.TDS.1213 | Req | Con_t_Delay_Of_Notification_Of_Availability | Con_t_Delay_Of_Notification_Of_Availability is a configurable delay of reporting vacant from the Subsystem - Train Detection System to the Subsystem - Train Detection System to the Subsystem - Electronic Interlocking, following the state change of a TVPS from occupied to vacant. The delay of notification is only effective if the state change was triggered by a train not by a FC-command. Until expiration of this timer all commands to the TVPS are rejected. Proposed resolution: steps of 100 ms Proposed range: from 0 s up to 10 s | |
| Eu.TDS.1214 | Req | Con_t_Max_FC_P_or_FC_P_A | Con_t_Max_FC_P_or_FC_P_A is a configurable timer, defining the maximum time between detecting a sweeping train and confirmation of a succesfull sweeping. - Proposed resolution: steps of 1 s - Proposed range: from 0 s up to 7200 s | Option FC-P/-A |
| Eu.TDS.1215 | Req | Con_t_Min_FC_P_or_FC_P_A | Con_t_Min_FC_P_or_FC_P_A is a configurable timer, which starts with the first detected incomming Wheel. This timer can be used for plausibility check. E.g. the timeout can be configured with the minimal time the sweeping train plausibly needs to transit the section with a maximal allowed sweeping train speed (e.g. 40km/h). With this timeout another train (not the sweeping train) can be detected which could generate outgoing axles. An outgoing Wheel before expiration of Con_t_C_P_or_FC_P_A leads to an unsuccessful sweeping. Proposed resolution: steps of 0,5 s Proposed range: from 0 s up to 3600 s | |
| Eu.TDS.5452 | Req | Con_t_TDP_Delay | Con_t_TDP_Delay is a configurable delay, defining the duration of a passed TDP and the message, that the TDP is in state "TDP not passed". - Proposed resolution: steps of 100 ms - Proposed range: from 0 s up to 10 s | Basic TDS P TDP |
| Eu.TDS.5965 | Req | Con_t_TDP_Undefinded_Pattern_Delay | Con_t_TDP_Undefinded_Pattern_Delay is a configurable delay, defining the duration after an undefined pattern was detected till the TDP is reported as Disturbed. When a passing is detected during the duration of Con_t_TDP_Undefinded_Pattern_Delay the TDP will report this passing and no disturbance. - Proposed resolution: steps of 100 ms - Proposed range: from 0 s up to 10 s | TDP |
| Eu.TDS.238 | Head | 3.3.2 Subsystem Train Detection System - Functional Context | | |

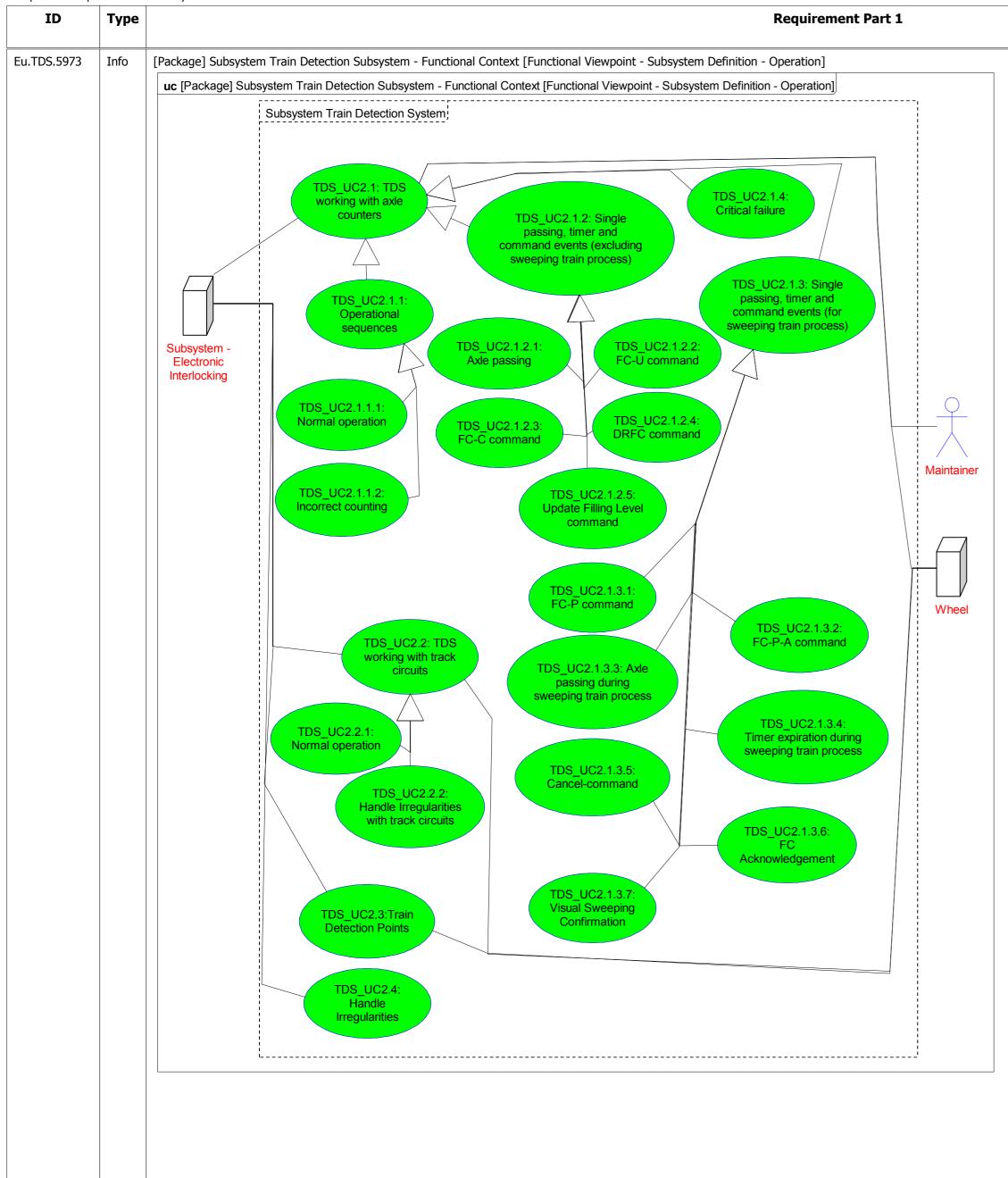


| Eu.TDS.1305 Info | TDS_UC1.3: Report status |
|------------------|--------------------------|

| | Requirement Part 2 | Func. Pkg. | |
|--|---|--|--|
| | | Basic TDS AC Basic TDS TDP Basic TDS TC | |
| | | | |
| | | | |
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| | | | |
| | | | |
| ing of data, SMI-XX IFUC 1.4: Reset EfeS and SMI-XX IFUC 1.5: Initiate maintenance are | | Basic TDS AC Basic TDS TDP Basic TDS TC | |
| | The Subsystem-UseCase "TDS_UC1.3: Report status" defines a scenario about the transmission of status data of Subsystem - Train Detection System to the Subsystem - Electronic Interlocking, while Process Data Interface protocol connection is establishing. | Basic TDS AC Basic TDS TDP Basic TDS TC | |

| ID | Туре | | | Requirement Part 1 |
|-------------|------|---|--------|--|
| Eu.TDS.1954 | Info | TDS SD 1.3.1 | | |
| | | TDS_UC1.3: Report status | 7 | |
| | | Subsystem | - Elec | tronic Interlocking |
| | | Main Success Scenario: Report status [TDS SD 1.3.1] | | |
| | | alt [PDI connection establishment during initialisation (after system restart) of the TDS and the TDS is configured as Variant A] alt | | |
| | | 1.a1 The Subsystem - Train Detection System reports each TVPS in state "TVPS disturbed and able to be forced to clear with an operational reason" to the Subsystem - Electronic Interlocking or "TVPS disturbed and unable to be forced to clear with a technical reason" if the relevant TVPS has a critical failure. | | Msg_TVPS_Occupancy_Status(Disturbed, Able to be forced to clear, Operatio |
| | | 1.a2 The Subsystem - Train Detection System reports the current status of the TDP to the Subsystem - Electronic Interlocking. | | Msg_TDP_Status(Current status) |
| | | else alt [PDI connection establishment during initialisation (after system restart) of the TDS and the TDS is configured as Variant B] | | |
| | | 1.b1 The Subsystem - Train Detection System reports each TVPS in state "TVPS disturbed and unable to be forced to clear with an operational reason" to the Subsystem - Electronic Interlocking or "TVPS disturbed and unable to be forced to clear with a technical reason" if the relevant TVPS has a critical failure. | | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear, Opera |
| | | 1.b2 The Subsystem - Train Detection System reports the current status of the TDP to the Subsystem - Electronic Interlocking. | | Msg_TDP_Status(Current status) |
| | | else alt [PDI connection re-establishment (without system restart)] | | |
| | | 1.c1 The Subsystem - Train Detection System reports for each TVPS the current state to the Subsystem - Electronic Interlocking. The status includes the occupancy status and whether the TVPS is able to be forced to clear. | | Msg_TVPS_Occupancy_Status(Current status) |
| | | 1.c2 The Subsystem - Train Detection System reports the current status of the TDP to the Subsystem - Electronic Interlocking. | [| Msg_TDP_Status(Current status) |
| | | else alt [TVPS works with track circuit] | | |
| | | 1.d1 The Subsystem - Train Detection System reports for each TVPS which works with track circuit the current status to the Subsystem - Electronic Interlocking. The status includes the occupancy status and whether the TVPS is able to be forced to clear. | | Msg_TVPS_Occupancy_Status(Current status) |
| | | end alt | | |

| | Requirement Part 2 | Func. Pkg. |
|---|---|--|
| :Subsystem - Train Detection System | During initialisation, changes of occupancy states shall be reported immediately to the Subsystem - Electronic Interlocking. The correct sequence shall be ensured and no changes of states missed. | Basic TDS AC Basic TDS TDP Basic TDS TC |
| tional reason or Disturbed, Unable to be forced to clear, Technical reason) | | |
| | | |
| rational reason or Disturbed, Unable to be forced to clear, Technical reason) | | |
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| Requirement Part 2 | Func. Pkg. |
|--------------------|--|
| | Basic TDS AC Basic TDS TDP Basic TDS TC Option FC-P/-A Option Update FL |
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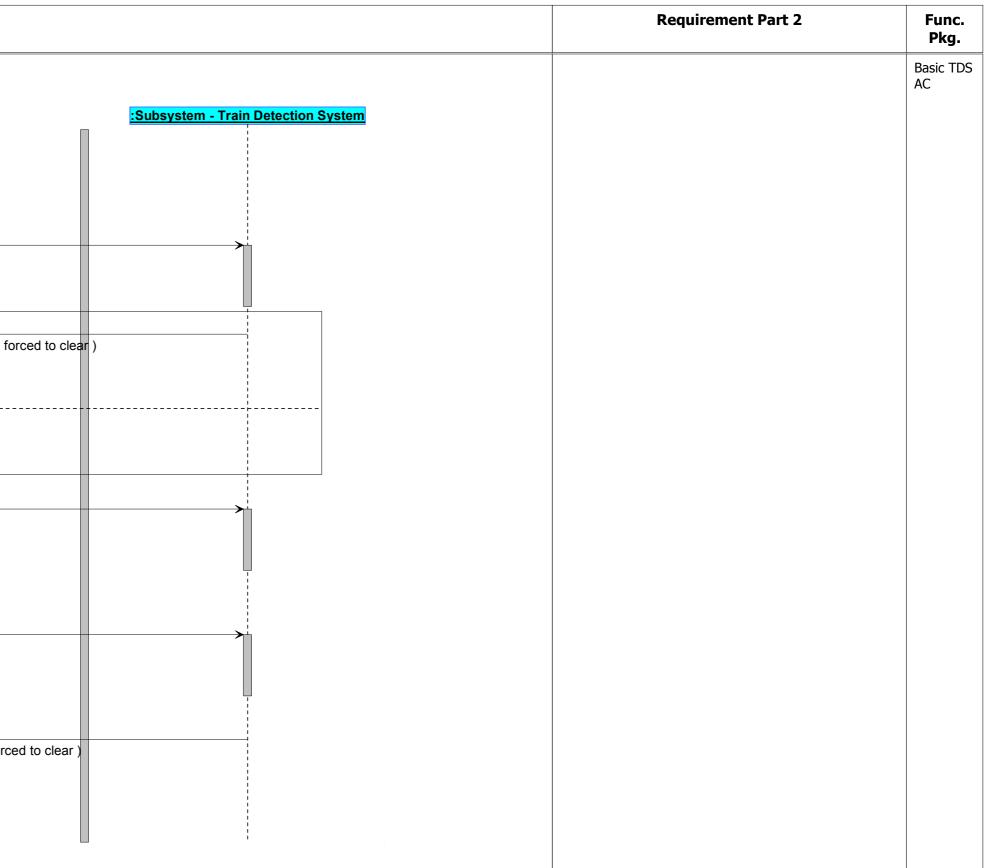
| | Туре | | | Requirement Part 1 | | Requirement Part 2 | Func Pkg. |
|-------------|------|--|------------------------|--|-------------------------------------|--|------------------|
| Eu.TDS.6043 | Info | TDS_UC2.1: TDS working with axle counters | | | | The Subsystem-UseCase "TDS_UC2.1: TDS working with axle counters" defines the behaviour of the Subsystem - Train Detection System which works with axle counters. The behaviour will be defined in the following UseCases: TDS_UC2.1.1: Operational sequences TDS_UC2.1.2: Single passing, timer and command events (excluding sweeping train process) TDS_UC2.1.3: Single passing, timer and command events (for sweeping train process) TDS_UC2.1.4: Critical failure | - AC . Option |
| Eu.TDS.5989 | Info | TDS_UC2.1.1: Operational sequences | | | | The Subsystem-UseCase "TDS_UC2.1.1: Operational sequences" defines the behaviour of operational sequences of the Subsystem - Train Detection System which works with axle counters. The behaviour will be defined in the following UseCases: TDS_UC2.1.1.1: Normal operation TDS_UC2.1.1.2: Incorrect counting | Basic TI AC |
| Eu.TDS.5977 | Info | TDS_UC2.1.1.1: Normal operation | | | | The Subsystem-UseCase "TDS_UC2.1.1.1: Normal | Basic TI |
| | | | | | | operation" defines the behaviour of the Subsystem - Train Detection System while a Train passing through the section. | AC he |
| Eu.TDS.5979 | Info | TDS SD 2.1.1.1.1 | | | | If the Con_t_Delay_Of_Notification_Of_Availability is | Basic TI |
| | | TDS_UC2.1.1.1: Normal operation | <u>گر</u> | e contraction of the second seco | | configured with the value 0, the reporting of the new status vacant will be sent immediately after the detection | AC on |
| | | | Vheel Subsystem - Elec | ctronic Interlocking | :Subsystem - Train Detection System | of the last outgoing Wheel. | |
| | | Main Success Scenario: Train passing through section [TDS SD 2.1.1.1.1] Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". Interaction 2.1.1.1.1.A: | | | | | |
| | | 1. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | Passing_Detected | | | | |
| | | par 2.a1 The Subsystem - Train Detection System reports the current state of the | | | | | |
| | | TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied and unable to be forced to clear". | | Msg_TVPS_Occupancy_Status(Occupied, Unable to be forced to clear | | | |
| | | - 2.b1 The Subsystem - Train Detection System starts the | | A | | | |
| | | Inhibition Timer. end par | | {< Con_t_Inhibition_Timer} | | | |
| | | 3. - One Wheel is passing a Detection Point of the Subsystem - Train Detection | | | | | |
| | | System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | Passing_Detected | | | | |
| | | 4. The Subsystem - Train Detection System starts the Inhibition Timer. Interaction 2.1.1.1.1.B: | | ▲ after {Con_t_Inhibition_Timer} | | | |
| | | 5. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant | Passing_Detected | ▼ | | | |
| | | TVPS. 6. The Subsystem - Train Detection System starts the Inhibition Timer. | | <pre>{< Con_t_Inhibition_Timer}</pre> | | | |
| | | Interaction 2.1.1.1.1.C:7 One Wheel is passing a Detection Point of the Subsystem - Train Detection | | ↓ | | | |
| | | System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The sum of incoming and outgoing Wheels is zero. | Passing_Detected | after {Con_t_Delay_Of_Notification_Of_Availability} | | | |
| | | 8. The Subsystem - Train Detection System reports, after Delay of notification of availability, the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS vacant and unable to be forced to clear". | | Msg_TVPS_Occupancy_Status(Vacant, Unable to be forced to clear) | | | |
| | | Postcondition: The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". | | | | | |

| ID | Туре | | Req | uirement Part 1 | | Requirement Part 2 | Func Pkg |
|-----------|------|---|--------------------------------------|--|-------------------------------------|---|---------------|
| .TDS.5978 | Info | TDS SD 2.1.1.1.2 | <u> </u> | | | If the Con_t_Delay_Of_Notification_Of_Availability is configured with the value 0, the reporting of the new | Basic T AC |
| | | TDS_UC2.1.1.1: Normal operation | Wheel Subsystem - Electronic Interlo | ocking | :Subsystem - Train Detection System | status vacant will be sent immediately after the detection of the last outgoing Wheel. | ו |
| | | Alternative Scenario: Train passing through short section [TDS SD 2.1.1.1.2] | | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". | | | | | |
| | | Interaction 2.1.1.1.2.A: | | | | | |
| | | 1. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | Passing_Detected | | | | |
| | | par | par | | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied and unable to be forced to clear". | | PS_Occupancy_Status(Occupied, Unable to be forced to clear) | | | |
| | | also par | | | | | |
| | | 2.b1 The Subsystem - Train Detection System starts the Inhibition Timer. | | <pre>{<con_t_inhibition_timer}< pre=""></con_t_inhibition_timer}<></pre> | | | |
| | | end par | | | | | |
| | | Interaction 2.1.1.1.2.B: 3 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant | Passing_Detected | ★ | | | |
| | | TVPS. 4. The Subsystem - Train Detection System starts the | | ▲ | | | |
| | | Inhibition Timer. | | { <con_t_inhibition_timer}< td=""><td></td><td></td><td></td></con_t_inhibition_timer}<> | | | |
| | | Interaction 2.1.1.1.2.C:5 One Wheel is passing a Detection Point of the Subsystem - Train Detection | | | > | | |
| | | System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | Passing_Detected : | | | | |
| | | 6. The Subsystem - Train Detection System starts the Inhibition Timer. | | ▲ { <con_t_inhibition_timer}< p=""></con_t_inhibition_timer}<> | | | |
| | | Interaction 2.1.1.1.2.D: | | · · · · · · · · · · · · · · · · · · · | | | |
| | | 7. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | Passing_Detected : | • | | | |
| | | 8. The Subsystem - Train Detection System starts the Inhibition Timer. | | ↑ | | | |
| | | Interaction 2.1.1.1.2.E: | | <pre>{<con_t_inhibition_timer}< pre=""></con_t_inhibition_timer}<></pre> | | | |
| | | 9. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | Passing_Detected : | | | | |
| | | 10. The Subsystem - Train Detection System starts the Inhibition Timer. | | ▲ | | | |
| | | Interaction 2.1.1.1.2.F: | | { <con_t_inhibition_timer}< td=""><td></td><td></td><td></td></con_t_inhibition_timer}<> | | | |
| | | 11. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant | Passing_Detected | | | | |
| | | TVPS. The sum of incoming and outgoing Wheels is zero. 12. The Subsystem - Train Detection System reports, after Delay of notification of | | after {Con_t_Delay_Of_Notification_Of_Availability} ▼ | ļ | | |
| | | availability, the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS vacant and unabl to be forced to clear". | | PS_Occupancy_Status(Vacant, Unable to be forced to clear) | | | |
| | | Postcondition: The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". | | | | | |
| | | | | | 1 | | |
| 5.5980 | Info | TDS_UC2.1.1.2: Incorrect counting | | | | The Subsystem-UseCase "TDS_UC2.1.1.2: Incorrect | Bas |
| | | | | | | counting" defines the behaviour of the Subsystem - Train Detection System while a Train passing through the section but the count is incorrect. | n AC |

Туре

ID

| Eu.TDS.5981 | Info | TDS SD 2.1.1.2.1 | | | |
|-------------|------|---|-----------------------|-----------------------|--|
| | | TDS_UC2.1.1.2: Incorrect counting | £ | ∱. | |
| | | | Wheel Subsystem - Ele | ectronic Interlocking | |
| | | Alternative Scenario: Incomplete counting out [TDS SD 2.1.1.2.1] Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". | | | |
| | | Interaction 2.1.1.2.1.A: | | | |
| | | 1. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | Passing_Detected : | | |
| | | par | par J | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied and unable to be forced to clear". | | Msg_TVPS_Occup | pancy_Status(Occupied, Unable to be for |
| | | also par | - - | | |
| | | 2.b1 The Subsystem - Train Detection System starts the Inhibition Timer. | | | ▲ {< Con_t_Inhibition_Timer} |
| | | end par | | | |
| | | Interaction 2.1.1.2.1.B: | | | |
| | | 3. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | Passing_Detected : | | v |
| | | 4. The Subsystem - Train Detection System starts the Inhibition Timer. | | | ↑ |
| | | Interaction 2.1.1.2.1.C: | | | <pre>{< Con_t_Inhibition_Timer}</pre> |
| | | 5. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | Passing_Detected | | • |
| | | 6. The Subsystem - Train Detection System starts the Inhibition Timer. | | | after {Con_t_Inhibition_Timer} |
| | | 7. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied and able to be forced to clear". | | Msg_TVPS_Occup | bancy_Status(Occupied, Able to be force |
| | | Postcondition: | | | |
| | | The relevant TVPS is in the state "TVPS occupied and able to be forced to clear". | | 1 | |



| | Туре | | | Requirement I | Part 1 |
|-------------|------|--|-----------------------------------|----------------------|--|
| Eu.TDS.5983 | Info | TDS SD 2.1.1.2.2 | | | |
| | | TDS_UC2.1.1.2: Incorrect counting | $\stackrel{\bullet}{}$ | £ | |
| | | N | Wheel Subsystem - Elec | ctronic Interlocking | |
| | | Alternative Scenario: Negative counting "TVPS vacant and unable to be forced to | | | |
| | | clear" [TDS SD 2.1.1.2.2] Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | | |
| | | The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". | | | |
| | | Interaction 2.1.1.2.2.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection | Dessing Detected | 1 1 1 | |
| | | System. The Subsystem - Train Detection Point of the Subsystem - Train Detection direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | Passing_Detected | | |
| | | par | bar | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". | | Msg_TVPS_Occupancy_ | _Status(Disturbed, Unable to be for |
| | | also par | | | |
| | | 2.b1 The Subsystem - Train Detection System starts the | | ▲ | |
| | | Inhibition Timer. | | after {Con_t_li | nhibition_Timer} |
| | | end par | | V | |
| | | 3. The Subsystem - Train Detection System detects the expiration of the Inhibition Timer. | | | |
| | | 4. The Subsystem - Train Detection System reports the | | Msg_TVPS_Occupancy_ | _Status(Disturbed, Able to be force |
| | | current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state | | | |
| | | "TVPS disturbed and able to be forced to clear with an operational reason". | l | | |
| | | Postcondition: The relevant TVPS is in the state | | | |
| | | "TVPS disturbed and able to be forced to clear with an operational reason". | | | |
| | | | | | |
| Eu.TDS.5982 | Info | TDS SD 2.1.1.2.3 | 0 | 0 | |
| | | TDS_UC2.1.1.2: Incorrect counting | <u> </u> | Ť | |
| | | | Wheel Subsystem - Elec | ctronic Interlocking | |
| | | | 1 | | |
| | | Alternative Scenario: Negative counting "TVPS occupied and unable to be forced to clear" [TDS SD 2.1.1.2.3] | | | |
| | | clear" [TDS SD 2.1.1.2.3] Precondition: | | | |
| | | clear" [TDS SD 2.1.1.2.3] | | | |
| | | clear" [TDS SD 2.1.1.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". Interaction 2.1.1.2.3.A: | | | |
| | | clear" [TDS SD 2.1.1.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". | Passing_Detected | | <pre></pre> {< Con_t_Delay_Of_Notification_ |
| | | clear" [TDS SD 2.1.1.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". Interaction 2.1.1.2.3.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant | | | <pre></pre> {< Con_t_Delay_Of_Notification_ |
| | | clear" [TDS SD 2.1.1.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". Interaction 2.1.1.2.3.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The sum of incoming and outgoing Wheels is zero. Interaction 2.1.1.2.3.B: 2 One Wheel is passing a Detection Point of the Subsystem - Train Detection System before expiration or exactly in the moment of expiration of Con_t_Delay_Of_Notification_Of_Availability. The Subsystem - Train Detection | | | <pre>{< Con_t_Delay_Of_Notification_</pre> |
| | | clear" [TDS SD 2.1.1.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". Interaction 2.1.1.2.3.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The sum of incoming and outgoing Wheels is zero. Interaction 2.1.1.2.3.B: 2 One Wheel is passing a Detection Point of the Subsystem - Train Detection System before expiration or exactly in the moment of expiration of | Passing_Detected | | <pre></pre> {< Con_t_Delay_Of_Notification_ |
| | | clear" [TDS SD 2.1.1.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". Interaction 2.1.1.2.3.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The sum of incoming and outgoing Wheels is zero. Interaction 2.1.1.2.3.B: 2 One Wheel is passing a Detection Point of the Subsystem - Train Detection System before expiration or exactly in the moment of expiration of Con_t_Delay_Of_Notification_Of_Availability. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel for the relevant of counted outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheels is greater than the amount of counted incoming Wheels. | Passing_Detected Passing_Detected | | <pre></pre> {< Con_t_Delay_Of_Notification_ |
| | | clear" [TDS SD 2.1.1.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". Interaction 2.1.1.2.3.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The sum of incoming and outgoing Wheels is zero. Interaction 2.1.1.2.3.B: 2 One Wheel is passing a Detection Point of the Subsystem - Train Detection System before expiration or exactly in the moment of expiration of Con_t_Delay_Of_Notification_Of_Availability. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant of system recognises, by means of the direction of passing, that the passing Wheel is subsystem - Train Detection System before expiration or exactly in the moment of expiration of Con_t_Delay_Of_Notification_Of_Availability. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel is greater than the amount of counted incoming Wheels. | Passing_Detected Passing_Detected | | |
| | | clear" [TDS SD 2.1.1.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". Interaction 2.1.1.2.3.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The sum of incoming and outgoing Wheels is zero. Interaction 2.1.1.2.3.B: 2 One Wheel is passing a Detection Point of the Subsystem - Train Detection System before expiration or exactly in the moment of expiration of Con_t_Delay_Of_Notification_Of_Availability. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel is an outgoing Wheel for the relevant TVPS. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheels is greater than the amount of counted incoming Wheels. par 3.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state | Passing_Detected Passing_Detected | | |
| | | clear" [TDS SD 2.1.1.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". Interaction 2.1.1.2.3.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The sum of incoming and outgoing Wheels is zero. Interaction 2.1.1.2.3.B: 2 One Wheel is passing a Detection Point of the Subsystem - Train Detection System before expiration or exactly in the moment of expiration of Con_t_Delay_Of_Notification_Of_Availability. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel is an outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is an outgoing Wheel is an outgoing Wheel is is greater than the amount of counted incoming Wheels. par 3.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". | Passing_Detected Passing_Detected | | Status(Disturbed, Unable to be for |
| | | clear" [TDS SD 2.1.1.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". Interaction 2.1.1.2.3.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The sum of incoming and outgoing Wheels is zero. Interaction 2.1.1.2.3.B: 2 One Wheel is passing a Detection Point of the Subsystem - Train Detection System before expiration or exactly in the moment of expiration of Con_t_Delay_Of_Notification_Of_Availability. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheel is greater than the amount of counted incoming Wheels. par 3.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". also par 3.b1 The Subsystem - Train Detection System starts the | Passing_Detected Passing_Detected | | Status(Disturbed, Unable to be for |
| | | clear" [TDS SD 2.1.1.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". Interaction 2.1.1.2.3.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The sum of incoming and outgoing Wheels is zero. Interaction 2.1.1.2.3.B: 2 One Wheel is passing a Detection Point of the Subsystem - Train Detection System before expiration or exactly in the moment of expiration of Con_t_Delay_Of_Notification_Of_Availability. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The amount of counted outgoing Wheels is greater than the amount of counted incoming Wheels. par 3.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Train Detection System starts the Inhibition Timer. end par 4. The Subsystem - Train Detection System reports, after waiting for expiration of the Inhibition Timer, the current state of the TVPS to Subsystem - Train Detection System reports in the state "TVPS disturbed and able to be forced to clear with an operational reason". | Passing_Detected Passing_Detected | Msg_TVPS_Occupancy_ | Status(Disturbed, Unable to be for |
| | | clear" [TDS SD 2.1.1.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". Interaction 2.1.1.2.3.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. The sum of incoming and outgoing Wheels is zero. Interaction 2.1.1.2.3.B: 2 One Wheel is passing a Detection Point of the Subsystem - Train Detection System before expiration or exactly in the moment of expiration of Con_t_Delay_Of_Notification_Of_Availability. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheels. par 3.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Train Detection System reports the state of the TVPS to Subsystem - Train Detection System reports the state of the Information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". also par 3.b1 The Subsystem - Train Detection System starts the Inhibition Timer. end par 4. The Subsystem - Train Detection System reports, after waiting for expiration of the Inhibition Timer, the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state | Passing_Detected Passing_Detected | Msg_TVPS_Occupancy_ | <pre> {< Con_t_Delay_Of_Notification_ Status(Disturbed, Unable to be fore after {Con_t_Inhibition_Timer} </pre> |

| | Requirement Part 2 | Func. Pkg. |
|---------------------------------------|--------------------|-----------------|
| | | Basic TDS AC |
| :Subsystem - Train Detection System | | |
| | | |
| forced to clear, Operational reason) | | |
| | | |
| ced to clear, Operational reason) | | |
| :Subsystem - Train Detection System | | Basic TDS AC |
| n_Of_Availability} | | |
| orced to clear. Operational reason) | | |
| r} | | |
| rced to clear, Operational reason) | | |
| | | |

| requiremente spec | ecification to | or subsystem TDS | | | | | | |
|-------------------|----------------|--|------------------------|---|--------------------|------------------|---|---------------|
| ID | Туре | | | Requirement Part 1 | | | Requirement Part 2 | Func. Pkg. |
| Eu.TDS.7083 | Info | TDS SD 2.1.1.2.4 | | | | | | Basic TDS |
| | | TDS_UC2.1.1.2: Incorrect counting | | | | | | AC |
| | | Whee | el | :Subsystem - Train Detection System | | | | |
| | | Alternative Scenario: Additional incoming axle while waiting for Delay of | | | | | | |
| | | Notification of Availability [TDS SD 2.1.1.2.4] | | | | | | |
| | | Precondition: | | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS occupied and unable to be forced to | | | | | | |
| | | clear" with a running Delay of Notification of Availability. | | | | | | |
| | | Interaction 2.1.1.2.4.A: | | | | | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the | Passing_Detected | | | | | |
| | | direction of passing, that the passing Wheel is an incoming Wheel for the relevant | | | | | | |
| | | TVPS. | | | | | | |
| | | 2. The Subsystem - Train Detection System stops the Delay of Notification of Availability and starts the Inhibition Timer. | | | | | | |
| | | Postcondition: | | | | | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be forced to | | | | | | |
| | | clear" with a running Inhibition Timer. | | | | | | |
| Eu.TDS.7082 | Info | TDS SD 2.1.1.2.5 | | | | | | Basic TDS |
| | | TDS_UC2.1.1.2: Incorrect counting | £ £ | <u>_</u> | | | | AC |
| | | | Wheel Subsystem - Elec | tronic Interlocking | :Subsystem - Train | Detection System | | |
| | | | | | | | | |
| | | Alternative Scenario: Additional counting in state "TVPS occupied and able to be forced to clear" [TDS SD 2.1.1.2.5] | | | | | | |
| | | Precondition: | | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | | | | | |
| | | The relevant TVPS is in the state "TVPS occupied and able to be forced to clear". The difference between incoming and outgoing Wheels is bigger than one. | | | | | | |
| | | Interaction 2.1.1.2.5.A: | | | | | | |
| | | alt | alt | | | | | |
| | | 1.a1 - One Wheel is passing a Detection Point of the Subsystem - Train Detection | Passing_Detected | | | | | |
| | | System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant | | | | | | |
| | | TVPS. | | | Ļ | | | |
| | | else alt | | | i | | | |
| | | 1.b1 - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the | Passing_Detected | | | | | |
| | | direction of passing, that the passing Wheel is an incoming Wheel for the relevant | | | | | | |
| | | TVPS. end alt | | | 4 | | | |
| | | | | | | | | |
| | | par | par | <u> </u> | | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. | | Msg_TVPS_Occupancy_Status(Occupied, Unable to be forced to cle | ar) | | | |
| | | The status includes the information that the TVPS is in the state "TVPS occupied and unable to be forced to clear". | | | | | | |
| | | also par | |] | | | | |
| | | 2.b1 The Subsystem - Train Detection System starts the | | | | | | |
| | | Inhibition Timer. | | | | | | |
| | | end par | | | | | | |
| | | Postcondition: | | | | | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear" with a running Inhibition Timer. | | | | | | |
| | | | 1 | l l | | | | |
| Eu.TDS.6015 | Info | TDS_UC2.1.2: Single passing, timer and command events (excluding sweeping train pro | ocess) | | | | The Subsystem-UseCase "TDS_UC2.1.2: Single passing, | Basic TDS |
| | | | | | | | timer and command events (excluding sweeping train | AC |
| | | | | | | | process)" defines the behaviour of single passing, timer and command events (excluding sweeping train process) | |
| | | | | | | | of the Subsystem - Train Detection System. The behaviour will be defined in the following UseCases: | - |
| | | | | | | | TDS_UC2.1.2.1: Axle passing | |
| | | | | | | | TDS_UC2.1.2.2: FC-U command TDS_UC2.1.2.3: FC-C command | |
| | | | | | | | TDS_UC2.1.2.4: DRFC command | |
| | | | | | | | TDS_UC2.1.2.5: Update Filling Level command | |
| Eu.TDS.5990 | Info | TDS_UC2.1.2.1: Axle passing | | | | | The Subsystem-UseCase "TDS_UC2.1.2.1: Axle passing" | |
| | | | | | | | defines the behaviour of the Subsystem - Train Detection System detecting incoming or outgoing Wheels and | n AC |
| I | | | | | | | STATELL RECEIPTING THEORING OF OULDUING WHEELS AND | |

| Requirements speci | ification fo | r subsystem TDS | | |
|--------------------|--------------|---|---|---------------|
| ID | Туре | Requirement Part 1 | Requirement Part 2 | Func. Pkg. |
| u.TDS.7083 | Info | TDS SD 2.1.1.2.4 | | Basic TDS |
| | | TDS_UC2.1.1.2: Incorrect counting | | AC |
| | | Wheel Subsystem - Train Detection System | | |
| | | | | |
| | | Alternative Scenario: Additional incoming axle while waiting for Delay of Notification of Availability [TDS SD 2.1.1.2.4] | | |
| | | Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear" with a running Delay of Notification of Availability. | | |
| | | Interaction 2.1.1.2.4.A: | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection Passing_Detected | | |
| | | System. The Subsystem - Train Detection System recognises, by means of the | | |
| | | direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | | |
| | | 2. The Subsystem - Train Detection System stops the Delay of Notification of | | |
| | | Availability and starts the Inhibition Timer. | | |
| | | Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear" with a running Inhibition Timer. | | |
| | | | | |
| Eu.TDS.7082 | Info | TDS SD 2.1.1.2.5 | | Basic TDS |
| | - | TDS_UC2.1.1.2: Incorrect counting | | AC |
| | | Wheel Subsystem - Electronic Interlocking | | |
| | | | | |
| | | Alternative Scenario: Additional counting in state "TVPS occupied and able to be forced to clear" [TDS SD 2.1.1.2.5] | | |
| | | Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | |
| | | The relevant TVPS is in the state "TVPS occupied and able to be forced to clear". | | |
| | | The difference between incoming and outgoing Wheels is bigger than one. Interaction 2.1.1.2.5.A: | | |
| | | alt | | |
| | | 1.a1 - One Wheel is passing a Detection Point of the Subsystem - Train Detection | | |
| | | System. The Subsystem - Train Detection System recognises, by means of the | | |
| | | direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | | |
| | | else alt | | |
| | | 1.b1 - One Wheel is passing a Detection Point of the Subsystem - Train Detection Passing_Detected | | |
| | | System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant | | |
| | | TVPS. | | |
| | | end alt | | |
| | | par par | | |
| | | 2.a1 The Subsystem - Train Detection System reports the Msg_TVPS_Occupancy_Status(Occupied, Unable to be forced to clear) | | |
| | | current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state | | |
| | | "TVPS occupied and unable to be forced to clear". | | |
| | | also par | | |
| | | 2.b1 The Subsystem - Train Detection System starts the Inhibition Timer. | | |
| | | end par | | |
| | | | | |
| | | Postcondition: The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear" with | | |
| | | a running Inhibition Timer. | | |
| | | | | |
| Eu.TDS.6015 | Info | TDS_UC2.1.2: Single passing, timer and command events (excluding sweeping train process) | The Subsystem-UseCase "TDS_UC2.1.2: Single passing, | Basic TDS |
| | | | timer and command events (excluding sweeping train | AC |
| | | | process)" defines the behaviour of single passing, timer and command events (excluding sweeping train process) | |
| | | | of the Subsystem - Train Detection System. | |
| | | | The behaviour will be defined in the following UseCases: TDS_UC2.1.2.1: Axle passing | |
| | | | TDS_UC2.1.2.2: FC-U command | |
| | | | TDS_UC2.1.2.3: FC-C command TDS_UC2.1.2.4: DRFC command | |
| | | | TDS_UC2.1.2.5: Update Filling Level command | |
| Eu.TDS.5990 | Info | TDS_UC2.1.2.1: Axle passing | The Subsystem-UseCase "TDS_UC2.1.2.1: Axle passing" | Basic TDS |
| | | | defines the behaviour of the Subsystem - Train Detection | |
| | | | System detecting incoming or outgoing Wheels and uninterpretable pattern of a Wheel. | |
| | | | | |

| Eu.TDS.5990 | Info | TDS_UC2.1.2.1: Axle passing |
|-------------|------|-----------------------------|
| | | |

| Requirements spe | ecification f | for subsystem TDS | | | 1 | |
|------------------|---------------|--|---|-----------------------------------|--------------------|-----------------|
| ID | Туре | | Requirement Part 1 | | Requirement Part 2 | Func. Pkg. |
| Eu.TDS.5992 | Info | TDS SD 2.1.2.1.1 TDS UC2.1.2.1: Axle passing | ج ۲ ۲ | | | Basic TDS AC |
| | | | Wheel Subsystem - Electronic Interlocking | :Subsystem - Train Dete | ection System | |
| | | Alternative Scenario: Incoming axle detected (to state Occupied Unable FC) [TDS SD 2.1.2.1.1] | | | | |
| | | Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". Interaction 2.1.2.1.1.A: | | | | |
| | | 1. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | Passing_Detected | | | |
| | | par 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied and unable to be forced to clear". | par Msg_TVPS_Occupancy_Status(Occupied, Unable to be forced to | | | |
| | | also par 2.b1 The Subsystem - Train Detection System starts the Inhibition Timer. end par | after {Con_t_Inhibition_Timer} | | | |
| | | 3. The Subsystem - Train Detection System detects the expiration of the Inhibition Timer. | ₩ | | | |
| | | Postcondition: The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". | | | | |
| Eu.TDS.5991 | Info | TDS SD 2.1.2.1.2 | | | | Basic TDS |
| | | TDS_UC2.1.2.1: Axle passing | Vheel Subsystem - Electronic Interlocking | :Subsystem - Train Detection | n System | AC |
| | | Alternative Scenario: Incoming axle detected (to state Disturbed Unable FC) [TDS SI 2.1.2.1.2] | | | | |
| | | Precondition: | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The Subsystem - Train Detection System is configured as Variant B. The relevant TVPS is in the state "TVPS disturbed and able to be forced to clear with an operational reason". | n line line line line line line line lin | | | |
| | | Interaction 2.1.2.1.2.A: | | | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | Passing_Detected | | | |
| | | par | par | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be force | ed to clear, Operational reason) | | |
| | | also par | | | | |
| | | 2.b1 The Subsystem - Train Detection System starts the Inhibition Timer.end par | after {Con_t_Inhibition_Timer} | | | |
| | | | | | | |
| | | 3. The Subsystem - Train Detection System detects the expiration of the Inhibition Timer. Postcondition: | | | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear w | <i>i</i> th | | | |

| ID | Туре | | | Requirement Part 1 | | Requirement Part 2 | Fur Pk |
|------------|------|--|---------------------------------|---|-------------------------------------|--------------------|-------------|
| I.TDS.5992 | Info | TDS SD 2.1.2.1.1 | 0 0 | | | | Basic AC |
| | | TDS_UC2.1.2.1: Axle passing | <u> </u> | | | | AC |
| | | | Wheel Subsystem - Electronic In | terlocking | :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Incoming axle detected (to state Occupied Unable FC) [TDS SD 2.1.2.1.1] | | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". Interaction 2.1.2.1.1.A: | | | | | |
| | | 1. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | Passi | ng_Detected | | | |
| | | par | par | | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied and unable to be forced to clear". | | TVPS_Occupancy_Status(Occupied, Unable to be forced to clear | | | |
| | | also par 2.b1 The Subsystem - Train Detection System starts the Inhibition Timer. | | after {Con_t_Inhibition_Timer} | | | |
| | | end par | | ▼ | | | |
| | | 3. The Subsystem - Train Detection System detects the expiration of the Inhibition Timer. | | • | | | |
| | | Postcondition: | | | | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". | | | | | |
| FDS.5991 | Info | TDS SD 2.1.2.1.2 | | | | | Basio |
| | | TDS UC2.1.2.1: Axle passing | £ £ | | | | AC |
| | | | Wheel Subsystem - Electroni | c Interlocking | :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Incoming axle detected (to state Disturbed Unable FC) [TDS S 2.1.2.1.2] | D | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The Subsystem - Train Detection System is configured as Variant B. The relevant TVPS is in the state "TVPS disturbed and able to be forced to clear wit an operational reason". | h | | | | |
| | | Interaction 2.1.2.1.2.A: | | | | | |
| | | 1. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | Pa | assing_Detected | | | |
| | | par | par | | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". | | sg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to c | clear, Operational reason) | | |
| | | also par | | | | | |
| | | 2.b1 The Subsystem - Train Detection System starts the Inhibition Timer. | | ▲ after {Con_t_Inhibition_Timer} | | | |
| | | end par | | | | | |
| | | 3. The Subsystem - Train Detection System detects the expiration of the Inhibition Timer. | | * | | | |
| | | | | | | | |
| | | Postcondition: The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear v | | | | | |

| ID | Туре | | Requirement Part 1 | Requirement Part 2 Fi |
|----------|------|---|--|---|
| TDS.5995 | Info | TDS SD 2.1.2.1.3 | | Basi |
| | | TDS_UC2.1.2.1: Axle passing | <u> </u> | AC |
| | | Wheel Subsy | stem - Electronic Interlocking :Subsystem - Train Detection System | |
| | | Alternative Scenario: Outgoing axle detected (to state Occupied Able FC) [TDS SD | | |
| | | 2.1.2.1.3] Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be forced to | | |
| | | clear". Interaction 2.1.2.1.3.A: | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection | etected | |
| | | System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant | after {Con_t_Inhibition_Timer} | |
| | | TVPS. The amount of counted incoming Wheels is greater than the amount of | | |
| | | counted outgoing Wheels.2. The Subsystem - Train Detection System reports, after waiting for expiration of | | |
| | | the Inhibition Timer, the current state of the TVPS to Subsystem - Electronic | Msg_TVPS_Occupancy_Status(Occupied, Able to be forced to clear) | |
| | | Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied and able to be forced to clear". | | |
| | | Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS occupied and able to be forced to clear". | | |
| | | | | |
| TDS.5994 | Info | TDS SD 2.1.2.1.4 | 0 | Basi AC |
| | | TDS_UC2.1.2.1: Axle passing | | AC |
| | | Wheel Subsyste | m - Electronic Interlocking | |
| | | Alternative Scenario: Outgoing axle detected (to state Disturbed Able FC) [TDS | | |
| | | SD 2.1.2.1.4] | | |
| | | Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. | | |
| | | The Subsystem - Train Detection System is configured as Variant B. | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". | | |
| | | Interaction 2.1.2.1.4.A: | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the | Passing_Detected | |
| | | direction of passing, that the passing Wheel is an outgoing Wheel for the relevant | after {Con_t_Inhibition_Timer} | |
| | | TVPS. 2. The Subsystem - Train Detection System reports, after waiting for expiration of | | |
| | | the Inhibition Timer, the current state of the TVPS to Subsystem - Electronic | Msg_TVPS_Occupancy_Status(Disturbed, Able to be forced to clear, Operational reason) | |
| | | Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and able to be forced to clear with an operational reason". | | |
| | | Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS disturbed and able to be forced to clear with an operational reason". | | |
| | | | | |
| TDS.5993 | Info | TDS SD 2.1.2.1.5 | | If the Con_t_Delay_Of_Notification_Of_Availability is Bas |
| | | TDS_UC2.1.2.1: Axle passing | <u>关</u> | configured with the value 0, the reporting of the new AC status vacant will be sent immediately after the detection |
| | | Wheel Subsyste | m - Electronic Interlocking | of the last outgoing Wheel. |
| | | Alternative Scenario: Last outgoing axle detected (to state Vacant) [TDS SD | | |
| | | 2.1.2.1.5] | | |
| | | Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". | | |
| | | Interaction 2.1.2.1.5.A: | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection | Passing_Detected | |
| | | System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant | after {Con_t_Delay_Of_Notification_Of_Availability} | |
| | | TVPS.The sum of incoming and outgoing Wheels is zero. | | |
| | | 2. The Subsystem - Train Detection System reports, after Delay of notification of availability, the current state of the TVPS to Subsystem - Electronic Interlocking. | Msg_TVPS_Occupancy_Status(Vacant, Unable to be forced to clear) | |
| | | The status includes the information that the TVPS is in the state "TVPS vacant | | |
| | | and unable to be forced to clear". Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". | | |
| | | | | |

| ID | Туре | | Requirement Part 1 | Req | uirement Part 2 Fu Pl |
|---------|------|---|---|-------------------------------------|--|
| DS.5995 | Info | TDS SD 2.1.2.1.3 | | | Basic |
| | | TDS_UC2.1.2.1: Axle passing | 犬 | | AC |
| | | Wheel Sub | system - Electronic Interlocking | :Subsystem - Train Detection System | |
| | | Alternative Scenario: Outgoing axle detected (to state Occupied Able FC) [TDS SD | | | |
| | | 2.1.2.1.3] | | | |
| | | Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. | | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". | | | |
| | | Interaction 2.1.2.1.3.A: | | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection | Detected | | |
| | | System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant | after {Con t Inhibition Timer} | | |
| | | TVPS. The amount of counted incoming Wheels is greater than the amount of | | | |
| | | counted outgoing Wheels.2. The Subsystem - Train Detection System reports, after waiting for expiration of | | | |
| | | the Inhibition Timer, the current state of the TVPS to Subsystem - Electronic | Msg_TVPS_Occupancy_Status(Occupied, Able to be forced to clear) | | |
| | | Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied and able to be forced to clear". | | | |
| | | Postcondition: | | | |
| | | The relevant TVPS is in the state "TVPS occupied and able to be forced to clear". | | | |
| | | | | | |
| DS.5994 | Info | TDS SD 2.1.2.1.4 | | | Ba |
| | | TDS_UC2.1.2.1: Axle passing | <u> </u> | | AC |
| | | Wheel Subsys | tem - Electronic Interlocking | :Subsystem - Train Detection System | |
| | | Alternative Scenario: Outgoing axle detected (to state Disturbed Able FC) [TDS | | | |
| | | SD 2.1.2.1.4] Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | | |
| | | The Subsystem - Train Detection System is configured as Variant B. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to | | | |
| | | clear with an operational reason". | | | |
| | | Interaction 2.1.2.1.4.A: | | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the | Passing_Detected | | |
| | | direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | after {Con_t_Inhibition_Timer} | | |
| | | 2. The Subsystem - Train Detection System reports, after waiting for expiration of | Status(Disturbed, Able to be forced to clear, Ope | rational reason) | |
| | | the Inhibition Timer, the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state | | | |
| | | "TVPS disturbed and able to be forced to clear with an operational reason". | | | |
| | | Postcondition: | | | |
| | | The relevant TVPS is in the state "TVPS disturbed and able to be forced to clear with an operational reason". | | | |
| | | | | | |
| DS.5993 | Info | TDS SD 2.1.2.1.5 | | | Of_Notification_Of_Availability is ralue 0, the reporting of the new AC |
| | | TDS_UC2.1.2.1: Axle passing | <u> </u> | status vacant will be | sent immediately after the detection |
| | | Wheel Subsys | tem - Electronic Interlocking | :Subsystem - Train Detection System | /heel. |
| | | Alternative Scenario: Last outgoing axle detected (to state Vacant) [TDS SD | | | |
| | | 2.1.2.1.5] Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". | | | |
| | | Interaction 2.1.2.1.5.A: | | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the | Passing_Detected | | |
| | | direction of passing, that the passing Wheel is an outgoing Wheel for the relevant | after {Con_t_Delay_Of_Notification_Of_Availability} | | |
| | | TVPS. The sum of incoming and outgoing Wheels is zero. | | | |
| | | 2. The Subsystem - Train Detection System reports, after Delay of notification of availability, the current state of the TVPS to Subsystem - Electronic Interlocking. | Msg_TVPS_Occupancy_Status(Vacant, Unable to be forced to clear) | | |
| | | The status includes the information that the TVPS is in the state "TVPS vacant and unable to be forced to clear". | | | |
| | | Postcondition: | Ψ | | |
| 1 | | The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". | | | |
| | | | · · | | 1 |

| ID | Туре | | | Requirement Part 1 | | Requirement Part 2 | Fun Pkg |
|----------|------|--|------------------------|---|-------------------------------------|--------------------|--------------------------|
| TDS.5996 | Info | TDS SD 2.1.2.1.6 | | | | | Basic |
| | | TDS_UC2.1.2.1: Axle passing | <u>گ</u> | ² | | | AC |
| | | | Wheel Subsystem - Ele | stronic Interlocking | :Subsystem - Train Detection System | | |
| | | | | | | | |
| | | Alternative Scenario: Uninterpretable pattern detected (to state Disturbed Able FC) for Variant A [TDS SD 2.1.2.1.6] | | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | | | | |
| | | The Subsystem - Train Detection System is configured as Variant A. | | | | | |
| | | The relevant TVPS is in the states: - "TVPS vacant and unable to be forced to clear", | | | | | |
| | | - "TVPS vacant and unable to be forced to clear", | | | | | |
| | | "TVPS occupied and able to be forced to clear" or "TVPS disturbed and able to be forced to clear with an operational reason". | | | | | |
| | | Interaction 2.1.2.1.6.A: | | | | | |
| | | One Wheel is passing a Detection Point of the Subsystem - Train Detection | | | | | |
| | | System. The Subsystem - Train Detection System recognises that a sensor of a | | Passing_Detected | | | |
| | | detection point received an uninterpretable or undefined pattern. | | 1 1 1 | | | |
| | | par | par | | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the | | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear | , Operational reason) | | |
| | | information that the TVPS is in the state | | | | | |
| | | "TVPS disturbed and unable to be forced to clear with an operational reason". | | | | | |
| | | also par 2.b1 The Subsystem - Train Detection System starts the | | • | | | |
| | | Inhibition Timer. | | T T | | | |
| | | end par | | after {Con_t_Inhibition_Timer} | | | |
| | | 3. The Subsystem - Train Detection System reports, after waiting for expiration of | | | | | |
| | | the Inhibition Timer, the current state of the TVPS to Subsystem - Electronic | | Msg_TVPS_Occupancy_Status(Disturbed, Able to be forced to clear, C | perational reason) | | |
| | | Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and able to be forced to clear with an operational reason". | | | | | |
| | | Postcondition: | | | | | |
| | | The relevant TVPS is in the state "TVPS disturbed and able to be forced to clear | | | | | |
| | | with an operational reason". | | | | | |
| | | | | | | | |
| TDS.5997 | | TDS SD 2.1.2.1.7 | <u> </u> | | | | Basic ⁻ AC |
| | | TDS_UC2.1.2.1: Axle passing | | | | | |
| | | | Wheel Subsystem - Elec | tronic Interlocking | :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Uninterpretable pattern detected (to state Disturbed Unable | | | | | |
| | | FC) for Variant B [TDS SD 2.1.2.1.7] | | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The Subsystem - Train Detection System is configured as Variant B. | | | | | |
| | | The relevant TVPS is in the states: | | | | | |
| | | "TVPS vacant and unable to be forced to clear", "TVPS occupied and unable to be forced to clear", | | | | | |
| | | - "TVPS occupied and able to be forced to clear", | | | | | |
| | | - "TVPS disturbed and able to be forced to clear with an operational reason" or - "TVPS disturbed and unable to be forced to clear with an operational reason". | | | | | |
| | | Interaction 2.1.2.1.7.A: | | | | | |
| | | 1. - One Wheel is passing a Detection Point of the Subsystem - Train Detection | | Deceipe Detected | > | | |
| | | System. The Subsystem - Train Detection System recognises that a sensor of a | | Passing_Detected | | | |
| | | | | | | | |
| | | detection point received an uninterpretable or undefined pattern. | | | | | |
| | | detection point received an uninterpretable or undefined pattern. par | par | | | | |
| | | detection point received an uninterpretable or undefined pattern. | 1 | | | | |
| | | detection point received an uninterpretable or undefined pattern. par opt [The relevant TVPS was not in the state "TVPS disturbed and unable to be forced to clear with an operational reason" 2.a1.1 The Subsystem - Train Detection System reports the current state | e opt | Msg. TVPS. Occupancy. Status(Disturbed. Unable to be forced to clear | Operational reason) | | |
| | | detection point received an uninterpretable or undefined pattern. par opt [The relevant TVPS was not in the state "TVPS disturbed and unable to be forced to clear with an operational reason" 2.a1.1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. | e opt | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear | , Operational reason) | | |
| | | detection point received an uninterpretable or undefined pattern. par opt [The relevant TVPS was not in the state "TVPS disturbed and unable to be forced to clear with an operational reason" 2.a1.1 The Subsystem - Train Detection System reports the current state | e opt | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear | , Operational reason) | | |
| | | detection point received an uninterpretable or undefined pattern. par opt [The relevant TVPS was not in the state "TVPS disturbed and unable to be forced to clear with an operational reason" 2.a1.1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state | e opt | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear | , Operational reason) | | |
| | | detection point received an uninterpretable or undefined pattern. par opt [The relevant TVPS was not in the state "TVPS disturbed and unable to be forced to clear with an operational reason" 2.a1.1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational rease end opt | e opt | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear | | | |
| | | detection point received an uninterpretable or undefined pattern. par opt [The relevant TVPS was not in the state "TVPS disturbed and unable to be forced to clear with an operational reason" 2.a1.1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason" | e opt | | | | |
| | | <pre>detection point received an uninterpretable or undefined pattern. par opt [The relevant TVPS was not in the state "TVPS disturbed and unable to be forced to clear with an operational reason" 2.a1.1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational rease end opt also par</pre> | e opt | | | | |
| | | detection point received an uninterpretable or undefined pattern. par opt [The relevant TVPS was not in the state "TVPS disturbed and unable to be forced to clear with an operational reason" 2.a1.1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational rease end opt also par 2.b1 The Subsystem - Train Detection System starts the | e opt | | | | |
| | | detection point received an uninterpretable or undefined pattern. par opt [The relevant TVPS was not in the state "TVPS disturbed and unable to be forced to clear with an operational reason" 2.a1.1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational rease end opt also par 2.b1 The Subsystem - Train Detection System starts the Inhibition Timer. | e opt | | | | |
| | | detection point received an uninterpretable or undefined pattern. par opt [The relevant TVPS was not in the state "TVPS disturbed and unable to be forced to clear with an operational reason" 2.a1.1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational rease end opt also par 2.b1 The Subsystem - Train Detection System starts the Inhibition Timer. end par 3. The Subsystem - Train Detection System detects the expiration of the Inhibition Timer. | e opt | | | | |
| | | detection point received an uninterpretable or undefined pattern. par opt [The relevant TVPS was not in the state "TVPS disturbed and unable to be forced to clear with an operational reason" 2.a1.1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational rease end opt also par 2.b1 The Subsystem - Train Detection System starts the Inhibition Timer. end par 3. The Subsystem - Train Detection System detects the expiration of the Inhibition Timer. | e opt | | | | |
| | | detection point received an uninterpretable or undefined pattern. par opt [The relevant TVPS was not in the state "TVPS disturbed and unable to be forced to clear with an operational reason" 2.a1.1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational rease end opt also par 2.b1 The Subsystem - Train Detection System starts the Inhibition Timer. end par 3. The Subsystem - Train Detection System detects the expiration of the Inhibition Timer. | e opt | | | | |

| Requirements sp | pecification | for subsystem TDS | | | |
|-----------------|--------------|--|---|-----------|---------------|
| ID | Туре | | Requirement Part 1 | • | Func. Pkg. |
| Eu.TDS.5996 | Info | TDS SD 2.1.2.1.6 | | Bas | isic TDS |
| | | TDS_UC2.1.2.1: Axle passing | $\hat{\chi}$ $\hat{\chi}$ | AC | |
| | | | Wheel Subsystem - Electronic Interlocking :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Uninterpretable pattern detected (to state Disturbed Able FC) | | | |
| | | for Variant A [TDS SD 2.1.2.1.6] | | | |
| | | Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. | | | |
| | | The Subsystem - Train Detection System is configured as Variant A. | | | |
| | | The relevant TVPS is in the states: - "TVPS vacant and unable to be forced to clear", | | | |
| | | "TVPS occupied and unable to be forced to clear", "TVPS occupied and able to be forced to clear" or | | | |
| | | - "TVPS disturbed and able to be forced to clear with an operational reason". | | | |
| | | Interaction 2.1.2.1.6.A: | | | |
| | | 1. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises that a sensor of a | Passing_Detected | | |
| | | detection point received an uninterpretable or undefined pattern. | | | |
| | | par2.a1 The Subsystem - Train Detection System reports the current state of the | par Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear, Operational reason) | | |
| | | TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state | msg_rvPS_Occupancy_status(Disturbed, Onable to be forced to clear, Operational reason) | | |
| | | "TVPS disturbed and unable to be forced to clear with an operational reason". | | | |
| | | also par | | | |
| | | 2.b1 The Subsystem - Train Detection System starts the Inhibition Timer. | | | |
| | | end par | after {Con_t_Inhibition_Timer} | | |
| | | 3. The Subsystem - Train Detection System reports, after waiting for expiration of | Msg_TVPS_Occupancy_Status(Disturbed, Able to be forced to clear, Operational reason) | | |
| | | the Inhibition Timer, the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state | | | |
| | | "TVPS disturbed and able to be forced to clear with an operational reason". | | | |
| | | Postcondition: The relevant TVPS is in the state "TVPS disturbed and able to be forced to clear | | | |
| | | with an operational reason". | | | |
| | | | | | |
| Eu.TDS.5997 | Info | TDS SD 2.1.2.1.7 | \mathbf{P} \mathbf{P} | Bas AC | sic TDS |
| | | TDS_UC2.1.2.1: Axle passing | Neel Subsystem - Electronic Interlocking Subsystem - Train Detection System | | |
| | | | | | |
| | | Alternative Scenario: Uninterpretable pattern detected (to state Disturbed Unable FC) for Variant B [TDS SD 2.1.2.1.7] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The Subsystem - Train Detection System is configured as Variant B. | | | |
| | | The relevant TVPS is in the states: | | | |
| | | "TVPS vacant and unable to be forced to clear", "TVPS occupied and unable to be forced to clear", | | | |
| | | "TVPS occupied and able to be forced to clear", "TVPS disturbed and able to be forced to clear with an operational reason" or | | | |
| | | - "TVPS disturbed and unable to be forced to clear with an operational reason". | | | |
| | | Interaction 2.1.2.1.7.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection | | | |
| | | System. The Subsystem - Train Detection System recognises that a sensor of a | Passing_Detected | | |
| | | detection point received an uninterpretable or undefined pattern. par | | | |
| | | opt [The relevant TVPS was not in the state "TVPS disturbed and unable to be | par opt | | |
| | | forced to clear with an operational reason" 2.a1.1 The Subsystem - Train Detection System reports the current state | | | |
| | | of the TVPS to Subsystem - Electronic Interlocking. | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear, Operational reason) | | |
| | | The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reaso | | | |
| | | end opt | | | |
| | | also par | | | |
| | | 2.b1 The Subsystem - Train Detection System starts the Inhibition Timer. | | | |
| | | end par | after {Con_t_Inhibition_Timer} | | |
| | | 3. The Subsystem - Train Detection System detects the expiration of the Inhibition | | | |
| | | Timer. | | | |
| | | Postcondition: The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear | | | |
| | | with an operational reason". | | | |
| | | | | | |
| | | | | | |

| ID | Туре | | Requirement Part 1 |
|-------------|------|---|--|
| Eu.TDS.5998 | Info | TDS_UC2.1.2.2: FC-U command | |
| Eu.TDS.6001 | Info | TDS SD 2.1.2.2.1 TDS_UC2.1.2.2: FC-U command | <u>گ</u> |
| | | | Maintainer Subsystem - Electronic Interlocking |
| | | Main Success Scenario: Successful execution of FC-U [TDS SD 2.1.2.2.1] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-U. The relevant TVPS is in the states: - "TVPS occupied and able to be forced to clear", - "TVPS disturbed and able to be forced to clear with an operational reason", - "TVPS disturbed and unable to be forced to clear", - "TVPS disturbed and unable to be forced to clear", - "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B, - "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B, - "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to clear", - "TVPS is in state sweeping train detected and unable to be forced to clear" or - "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear". For the relevant TVPS the inhibition timer is not running. For the relevant TVPS the delay of notification of availability timer is not running | |
| | | Interaction 2.1.2.2.1.A: | |
| | | alt 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-U-command. else alt | alt Cd_FC(FC_U) |
| | | 1.b1 - The Subsystem - Train Detection System receives from the Maintainer a FC-U-comma | nd. Cd_FC(FC_U) |
| | | else alt | |
| | | 1.c1 - The Subsystem - Train Detection System receives from internal a FC-U-command. end alt | |
| | | par | par |
| | | alt [FC-U-command was received from the Subsystem - Electronic Interlocking] 2.a1.a1 The Subsystem - Train Detection System reports the current state of the TVPS Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS vacant and unable to be forced to clear". The filling level of the relevant TVPS is set to zero. | alt |
| | | else alt [FC-U-command was received from the Maintainer] 2.a1.b1 The Subsystem - Train Detection System reports the current state of the TVPS Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS vacant and unable to be forced to clear". The filling level of the relevant TVPS is set to zero. | to Msg_TVPS_Occupancy_Status(Vacant, |
| | | else alt [FC-U-command was received from internal] 2a1.c1 The Subsystem - Train Detection System reports the current state of the TVPS Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS vacant and unable to be forced to clear". The filling level of the relevant TVPS is set to zero. | to Msg_TVPS_Occupancy_Status(Vacant, |
| | | end alt | |
| | | also par alt [The Last command before the FC-U-command was a FC-P-command] 2.b1.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic | |
| | | Interlocking that the execution of the previously sent FC-P command was not successful. The telegram contains the information that the process was cancelled. else alt [The Last command before the FC-U-command was a FC-P-A-command] | Msg_TVPS_FC_P_failed(Process canc |
| | | 2.b1.b1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P-A command was not successful. The telegram contains the information that the process was cancelled. | Msg_TVPS_FC_P_A_failed(Process ca |
| | | end alt | |
| | | end par | |
| | | Postcondition: The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". | |

| | Requirement Part 2 | Func. Pkg. |
|---|--------------------|---------------------------|
| | | Basic TDS AC |
| | | Basic TDS AC Option |
| Subsystem - Train Detection System | | FC-P/-A |
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| | | |
| Cd_FC(FC_U) | | |
| | | |
| , Unable to be forced to clear, Command from EIL) | | |
| | | |
| | | |
| , Unable to be forced to clear, Command from Maintainer) | | |
| | | |
| t, Unable to be forced to clear, Internal trigger) | | |
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| celled) | | |
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| ancelled) | | |
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| ID | Туре | | Requiremen | t Part 1 | | | | Requirement Part 2 | Fu Pl |
|---------|------|--|------------|-------------------|---------------------------|--------------|------------------------|--------------------|----------|
| DS.5999 | Info | TDS SD 2.1.2.2.2 | | | | | | | Basio |
| | | TDS_UC2.1.2.2: FC-U command | £ | f | | | | | AC |
| | | <u>105_002.1.2.2.10-0 command</u> | Maintainer | Subsystem - Elect | ronic Interlocking | :Subsystem - | Frain Detection System | | |
| | | | | | | | | | |
| | | Alternative Scenario: Unsuccessful execution of FC-U (operational reason) [TDS SD 2.1.2.2.2] Precondition: | | | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-U. The relevant TVPS is in the states: - "TVPS vacant and unable to be forced to clear", - "TVPS occupied and unable to be forced to clear" with a running Inhibition Timer or running Delay of Notification of Availability, - "TVPS disturbed and unable to be forced to clear with an operational reason" with a running Inhibition Timer, - "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to clear" with a running Inhibition Timer, - "TVPS is in state sweeping train detected and unable to be forced to clear" with a running Inhibition Timer. | | | | | | | |
| | | Interaction 2.1.2.2.2.A: | | 1 | | | | | |
| | | alt 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-U-command. | alt | ſ | Cd_FC(FC_U) | | | | |
| | | else alt | | | | | ب | | |
| | | 1.b1 - The Subsystem - Train Detection System receives from the Maintainer a FC-U-command. | Cd F | FC(FCU) | | | | | |
| | | else alt | | | | | | | |
| | | 1.c1 - The Subsystem - Train Detection System receives from internal a FC-U-command. end alt | | | | | Cd_FC(FC_U) | | |
| | | alt [FC-U-command was received from the Subsystem - Electronic Interlocking] | alt | | | | | | |
| | | 2.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previousl sent command was rejected with an operational reason. | y | Ĺ | Msg_Command_Rejected | Operational) | | | |
| | | else alt [FC-U-command was received from the Maintainer] | | | | | | | |
| | | 2.b1 The Subsystem - Train Detection System reports to the Maintainer that the previously sent command was rejected with an operational reason. | | Msg_Comman | d_Rejected(Operational) | | | | |
| | | end alt | | 1 | | | | | |
| | | Postcondition: | | | | | | | |
| | | | | 1 | | | | | |
| | | Note: This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Train Detection System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after the command has been sent. | , | | | | | | |

| ID | Туре | R | equirement Part 1 | Requirement Part 2 | Func. Pkg. |
|-----------|------|---|--|--|---------------|
| .TDS.6000 | Info | TDS SD 2.1.2.2.3 TDS_UC2.1.2.2: FC-U command | ¹ / _× ¹ / | | Basic T AC |
| | | Alternative Scenario: Unsuccessful execution of FC-U (technical reason) [TDS SD 2.1.2.2.3] Procondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.2.2.3.A: alt 1.41 - The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-U-command. else alt 1.51 - The Subsystem - Train Detection System receives from the Maintainer a FC-U-command. else alt 1.51 - The Subsystem - Train Detection System receives from internal a FC-U-command. else alt 1.51 - The Subsystem - Train Detection System receives from internal a FC-U-command. else alt 1.51 - The Subsystem - Train Detection System receives from internal a FC-U-command. else alt 1.51 - The Subsystem - Train Detection System receives from internal a FC-U-command. else alt 1.51 - The Subsystem - Train Detection System receives from internal a FC-U-command. else alt 1.51 - The Subsystem - Train Detection System receives from internal a FC-U-command. else alt 1.51 - The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was received from the Maintainer] 2.11 The Subsystem - Train Detection System reports to the Maintainer that the previously sent command was rejected with technical reason. else alt [FC-U-command was received from the Maintainer] 2.15 The Subsystem - Train Detection System reports to the Maintainer that the previously sent command was rejected with technical reason. else alt [FC-U-command was received from the Maintainer] Train Detection System reports to the Maintainer that the previously sent command was rejected with technical reason. else alt [FC-U-command was | alt Cd_FC(FC_U) Cd_FC(FC_U) Cd_FC(FC_U) alt Msg_Command_Rejected(Technical) Msg_Command_Rejected(Technical) Msg_Command_Rejected(Technical) | | |
| TDS.6002 | Info | TDS_UC2.1.2.3: FC-C command | | The Subsystem-UseCase "TDS_UC2.1.2.3: FC-C command" defines the behaviour of the Subsystem - Train Detection System after receiving a FC-C- command from the Subsystem - Electronic Interlocking or from the Maintainer. | Basic T AC |

| ID | Туре | | | | | Requi | rement Part 1 | |
|-------------|------|--|-------------|---------|------------------|------------|--------------------------------|---------------------|
| Eu.TDS.6005 | Info | TDS SD 2.1.2.3.1 | | | | | | |
| | | TDS_UC2.1.2.3: FC-C command | | £ | | £ | | |
| | | | Subsystem - | Electro | nic Interlocking | Maintaine | r | |
| | | Main Success Scenario: Successful execution of FC-C [TDS SD 2.1.2.3.1] | | | | | - | |
| | | Precondition: | | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-C. The relevant TVPS is in the states: - "TVPS occupied and able to be forced to clear" or - "TVPS disturbed and able to be forced to clear with an operational reason". For the relevant TVPS the inhibition timer is not running. For the relevant TVPS the delay of notification of availability timer is not running. | | | | | | |
| | | Interaction 2.1.2.3.1.A: | | | | | | |
| | | alt | | alt | | | | |
| | | 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-C-command. | em | | Cd_FC(FC_C |) | | |
| | | else alt | | | | | | |
| | | 1.b1 - The Subsystem - Train Detection System receives from the Maintain FC-C-command. | ner a | | | Cd | _FC(FC_C) | |
| | | end alt | | | | | | |
| | | alt [FC-C-command received from the Subsystem - Electronic Interlocking] | | alt | | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of | the | | lsg_TVPS_Oc | cupancy_St | atus(Vacant, Unable to be for | orced to clear, Con |

TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS vacant and unable to be forced

2.b1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the

information that the TVPS is in the state "TVPS vacant and unable to be forced

to clear". The filling level of the relevant TVPS is set to zero.

to clear". The filling level of the relevant TVPS is set to zero.

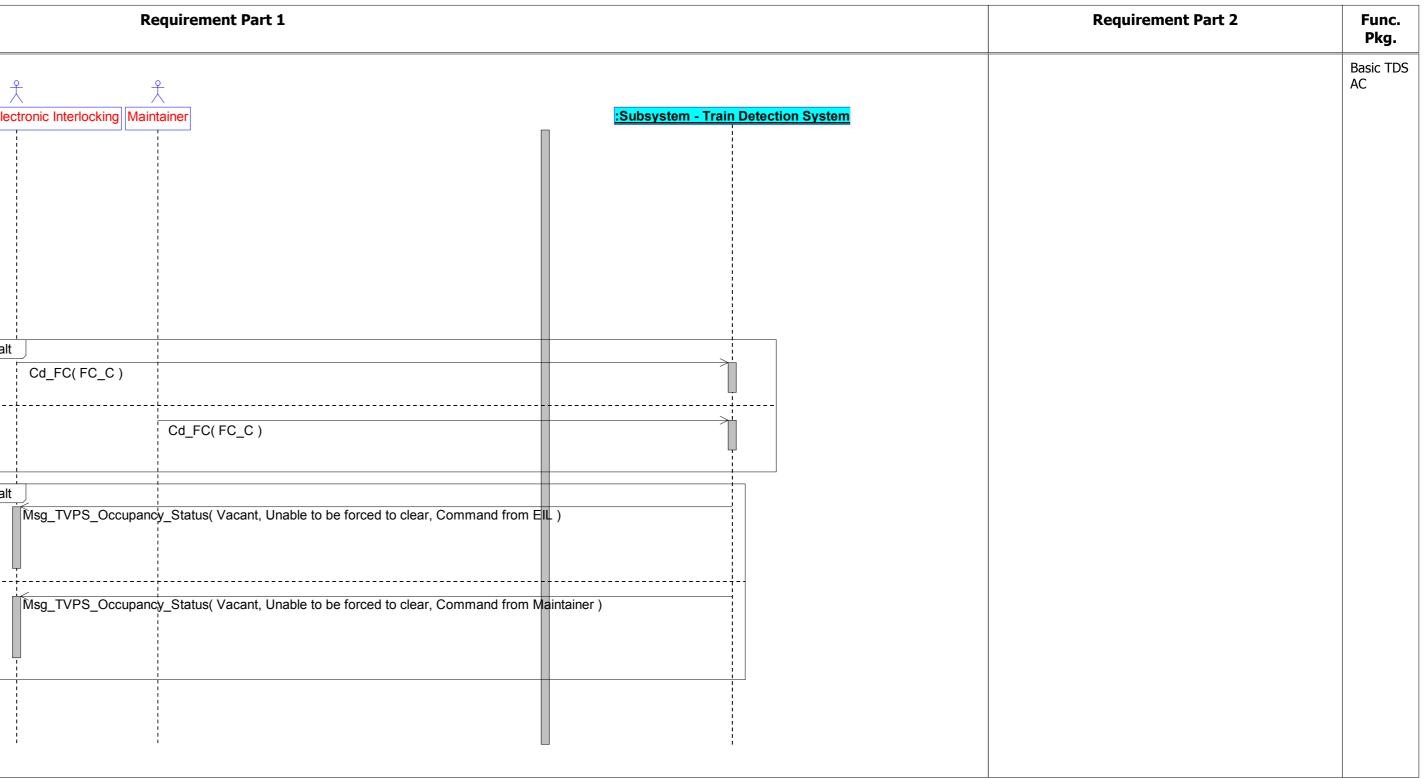
The relevant TVPS is in the state "TVPS vacant and unable to be forced to

else alt [FC-C-command received from the Maintainer]

end alt

clear".

Postcondition:



| Requirements sp | ecification f | for subsystem TDS | | | | | |
|-----------------|---------------|---|------------------------|-------------------------------------|-------------------------------------|--------------------|---------------|
| ID | Туре | | Requirem | ent Part 1 | | Requirement Part 2 | Func. Pkg. |
| Eu.TDS.6003 | Info | TDS SD 2.1.2.3.2 | | | | | Basic TDS |
| | | TDS_UC2.1.2.3: FC-C command | Å | 犬 | | | AC |
| | | Π | Aaintainer Subsystem - | - Electronic Interlocking | :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Unsuccessful execution of FC-C (operational reason) [TDS SD 2.1.2.3.2] | | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-C. | | | | | |
| | | The relevant TVPS is in the states: - "TVPS vacant and unable to be forced to clear", | | | | | |
| | | "TVPS occupied and unable to be forced to clear" "TVPS is in state sweeping train detected and unable to be forced to clear", | | | | | |
| | | - "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to | | | | | |
| | | clear" - "TVPS is waiting for an acknowledgement after FC-P-A command and unable to be forced to clear" or | | | | | |
| | | - "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B. | | | | | |
| | | Interaction 2.1.2.3.2.A: | , , , 1+ | | | | |
| | | 1.a1 - The Subsystem - Train Detection System receives from the | | Cd_FC(FC_C) | | | |
| | | Subsystem - Electronic Interlocking a FC-C-command. | | | | | |
| | | else alt 1.b1 - The Subsystem - Train Detection System receives from the Maintainer a FC-C-command. | | | | | |
| | | end alt | Cd_FC(FC_C) | | | | |
| | | alt [FC-C-command received from the Subsystem - Electronic Interlocking] | llt | | | | |
| | | 2.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with an operational reason. | | Msg_Command_Rejected(Operational) | | | |
| | | | , , , , | | | | |
| | | 2.b1 The Subsystem - Train Detection System reports to the Maintainer | | Msg_Command_Rejected(Operational) | | | |
| | | that the previously sent command was rejected with an operational reason. end alt | | | | | |
| | | Postcondition: | | | | | |
| | | | | | | | |
| | | Note: This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to | | | | | |
| | | check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Train Detection | | | | | |
| | | System have different opinions on the ability to force the section to clear condition, such as when the | | | | | |
| | | condition changes soon after the command has been sent. | | ÷ | | | |
| Eu.TDS.6004 | Info | TDS SD 2.1.2.3.3 | | | | | Basic TDS |
| | 11110 | TDS_UC2.1.2.3: FC-C command | £ | £ | | | AC |
| | | | Aaintainer Subsystem - | - Electronic Interlocking | :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Unsuccessful execution of FC-C (technical reason) [TDS SD 2.1.2.3.3] | | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-C. | | | | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical | | | | | |
| | | reason". Interaction 2.1.2.3.3.A: | | | | | |
| | | | lt l | | | | |
| | | 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-C-command. | | Cd_FC(FC_C) | | | |
| | | else alt | | | | | |
| | | 1.b1 - The Subsystem - Train Detection System receives from the Maintainer a FC-C-command. | Cd_FC(FC_C) | | | | |
| | | end alt | | | | | |
| | | alt [FC-C-command received from the Subsystem - Electronic Interlocking] 2.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking | | | | | |
| | | that the previously sent command was rejected with a technical reason. | | Msg_Command_Rejected(Technical) | | | |
| | | else alt [FC-C-command received from the Maintainer] 2.b1 The Subsystem - Train Detection System reports to the Maintainer | ····· | | | | |
| | | that the previously sent command was rejected with a technical reason. | Ļ | Msg_Command_Rejected(Technical) | | | |
| | | end alt | | | | | |
| | | Postcondition: | | | | | |
| | | Note: | | | | | |
| | | This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to | | | | | |
| | | check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Train Detection | | | | | |
| | | System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after the command has been sent. | | | | | |
| | | | | - | · · | | |
| L | 1 | | | | | | I |

| ID | Туре | | | Requirer | nent Part 1 | Requirement Part 2 | Func Pkg. |
|-----------|------|--|---------------------|-----------------------------|--|---|---------------------|
| .TDS.6006 | Info | TDS_UC2.1.2.4: DRFC command | | | | The Subsystem-UseCase "TDS_UC2.1.2.4: DRFC command" defines the behaviour of the Subsystem - Train Detection System after receiving a DRFC-command from the Subsystem - Electronic Interlocking or from the Maintainer. | Basic TE AC d |
| .TDS.6010 | Info | TDS SD 2.1.2.4.1 | | | | | Basic TE |
| | | TDS_UC2.1.2.4: DRFC command | laintainer Subsyste | m - Electronic Interlocking | :Subsystem - Train Detection Syst | tom | AC |
| | | | Subsyster | | .Subsystem - Main Detection System | | |
| | | Main Success Scenario: DRFC command received and accepted (to state Occupied Able FC) [TDS SD 2.1.2.4.1] | | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear". For the relevant TVPS the inhibition timer is not running | | | | | |
| | | For the relevant TVPS the delay of notification of availability timer is not running | | | | | |
| | | Interaction 2.1.2.4.1.A: | | | | | |
| | | alt | alt | | | | |
| | | 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a DRFC-command. | | Cd_DRFC | | | |
| | | else alt 1.b1 - The Subsystem - Train Detection System receives from the Maintainer a DRFC-command. | Cd_DRFC | | | | |
| | | end alt | | | | | |
| | | alt [DRFC-command was received from Subsystem - Electronic Interlocking] | alt | | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status include the information that the TVPS is in the state "TVPS occupied and able to be forced to clear". | | Msg_TVPS_Occup | ancy_Status(Occupied, Able to be forced to clear, Command from EIL) | | |
| | | else alt [DRFC-command was received from Maintainer] | | | | | |
| | | 2.b1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status include the information that the TVPS is in the state "TVPS occupied and able to be forced to clear". | | Msg_TVPS_Occup | ancy_Status(Occupied, Able to be forced to clear, Command from Maintainer) | | |
| | | end alt | | Ψ | | | |
| | | Postcondition: The relevant TVPS is in the state "TVPS occupied and able to be forced to clear". | | | | | |

| | Туре | | | | | Red | luiremen | nt Part 1 | | |
|-------------|-------|--|---|-----------------|---------------------------------|---------|----------------|----------------|----------------------|-------|
| Eu.TDS.6009 | Info | TDS SD 2.1.2.4.2 | | | | | | | | |
| | | TDS_UC2.1.2.4: DRFC command | / | Ĵ | | | £ | | | |
| | | | Main | ntainer | Subsys | tem - E | lectronic Ir | nterlocking | | |
| | | Alternative Scenario: DRFC command received and accepted (to state Disturbed Able | | | | | | | | |
| | | FC,reason operational Variant B) [TDS SD 2.1.2.4.2] | | | | | | | | |
| | | Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. | | | | | | | | |
| | | The Subsystem - Train Detection System is configured as Variant B. | | | | | | | | |
| | | The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with an | | | | | | | | |
| | | operational reason" for Variant B. For the relevant TVPS the inhibition timer is not running | | | | | | | | |
| | | For the relevant TVPS the delay of notification of availability timer is not running | | 1 1 1 | | | | | | |
| | | Interaction 2.1.2.4.2.A: alt | | | | | | | | |
| | | 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic | alt | | | | Cd_DF | PEC | | |
| | | Interlocking a DRFC-command. | | | | | | AFC | | |
| | | else alt 1.b1 - The Subsystem - Train Detection System receives from the Maintainer a DRFC- | | | | | · <u>+</u> | | | |
| | | command. | | ¦Cd_ | DRFC | | | | | |
| | | end alt | | | | | | | | |
| | | alt [DRFC-command was received from Subsystem - Electronic Interlocking] | alt | <u> </u> | | | | | | |
| | | 2.a1. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS | | 1 | | | Msg_ | TVPS_Occup | ancy_Status(Distu | urbec |
| | | is in the state "TVPS disturbed and able to be forced to clear with an operational reason". | | | | | Ļ | | | |
| | | else alt [DRFC-command was received from Maintainer] | | 1 | | | · | | | |
| | | 2.b1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS | | | | | Msg_ | TVPS_Occup | ancy_Status(Distu | urbed |
| | | is in the state "TVPS disturbed and able to be forced to clear with an operational reason". end alt | | | | | | | | |
| | | | | | | | | | | |
| | | Postcondition: The relevant TVPS is in the state "TVPS disturbed and able to be forced to clear with an | | | | | | | | |
| | | operational reason". | | 1 | | | | | | |
| u.TDS.6007 | Trafa | | | | | | | | | |
| | Info | TDS SD 2.1.2.4.3 | | | | | | | | |
| | Info | TDS SD 2.1.2.4.3 TDS_UC2.1.2.4: DRFC command | | | | 5 | <u>-</u> | - | £ | |
| | Info | | | | | Maint | ainer Su | bsystem - Ele | | |
| | | TDS_UC2.1.2.4: DRFC command | | | | Maint | ainer Su | bsystem - Ele | ctronic Interlocking |] |
| | Info | | | | | Maint | ainer Su | bsystem - Ele | ctronic Interlocking | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. | | | | Maint | ainer Su | bsystem - Ele | ctronic Interlocking | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: | | | | Maint | ainer Su | bsystem - Ele | ctronic Interlocking | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: - "TVPS vacant and unable to be forced to clear", | | | | Maint | ainer Su | ibsystem - Ele | ctronic Interlocking | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: - "TVPS vacant and unable to be forced to clear", - "TVPS is in state sweeping train detected and unable to be forced to clear", | force | ed to c | lear" | Maint | ainer Su | bsystem - Ele | ctronic Interlocking | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: - "TVPS vacant and unable to be forced to clear", - "TVPS occupied and able to be forced to clear" - "TVPS is in state sweeping train detected and unable to be forced to clear", - "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be - "TVPS is waiting for an acknowledgement after FC-P-A command and unable to be forced to clear", | | ed to c | lear" | Maint | ainer | bsystem - Ele | ctronic Interlocking | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: - "TVPS vacant and unable to be forced to clear", - "TVPS is in state sweeping train detected and unable to be forced to clear", - "TVPS is in state sweeping train detected and unable to be forced to clear", - "TVPS is in state sweeping train after FC-P-A or FC-P command and unable to be | ear" | | | Maint | ainer | ibsystem - Ele | ctronic Interlocking | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear", "TVPS occupied and able to be forced to clear" "TVPS is in state sweeping train detected and unable to be forced to clear", "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be "TVPS disturbed and able to be forced to clear with an operational reason", "TVPS disturbed and unable to be forced to clear" with a running Inhibition Timer or running Dela | ear" ay of I | Notific | ation of | | ainer | ibsystem - Ele | ctronic Interlocking | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear", "TVPS is in state sweeping train detected and unable to be forced to clear", "TVPS is in state sweeping train detected and unable to be forced to clear", "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be "TVPS is waiting for an acknowledgement after FC-P-A command and unable to be forced to clear", "TVPS disturbed and able to be forced to clear with an operational reason", "TVPS occupied and unable to be forced to clear with a running Inhibition Timer or running Delational reason", | ear" ay of I | Notific | ation of | | ainer | bsystem - Ele | ctronic Interlocking | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear", "TVPS occupied and able to be forced to clear" "TVPS is in state sweeping train detected and unable to be forced to clear", "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be "TVPS disturbed and able to be forced to clear" with a running Inhibition Timer or running Dela Availability or "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B with Timer. Interaction 2.1.2.4.3.A: | ear" ay of I | Notific | ation of | | ainer | bsystem - Ele | ctronic Interlocking | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear", "TVPS occupied and able to be forced to clear" "TVPS is in state sweeping train detected and unable to be forced to clear", "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be "TVPS is waiting for an acknowledgement after FC-P-A command and unable to be forced to clear", "TVPS is suiting for an acknowledgement after FC-P-A command and unable to be forced to clear", "TVPS disturbed and able to be forced to clear" with an operational reason", "TVPS occupied and unable to be forced to clear" with a running Inhibition Timer or running Dela Availability or "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B with Timer. Interaction 2.1.2.4.3.A: | ear" ay of I a run | Notific | ation of nhibition | alt | ainer | ibsystem - Ele | | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear", "TVPS occupied and able to be forced to clear" "TVPS is in state sweeping train detected and unable to be forced to clear", "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be "TVPS disturbed and able to be forced to clear" with a running Inhibition Timer or running Dela Availability or "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B with Timer. Interaction 2.1.2.4.3.A: | ear" ay of I a run | Notific | ation of nhibition | alt | ainer | ibsystem - Ele | ctronic Interlocking | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear", "TVPS soccupied and able to be forced to clear" "TVPS is in state sweeping train detected and unable to be forced to clear", "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear " "TVPS is waiting for an acknowledgement after FC-P-A command and unable to be forced to clear " "TVPS disturbed and able to be forced to clear" with a noperational reason", "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B with Timer. Interaction 2.1.2.4.3.A: alt 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic I command. else alt | ear" ay of I a run | Notific | ation of nhibition | - alt | | | | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear", "TVPS soccupied and able to be forced to clear" "TVPS is in state sweeping train detected and unable to be forced to clear", "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear", "TVPS is waiting for an acknowledgement after FC-P-A or FC-P command and unable to be forced to clear "IVPS disturbed and able to be forced to clear" with a noperational reason", "TVPS disturbed and unable to be forced to clear" with a running Inhibition Timer or running Dela Availability or "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B with Timer. Interaction 2.1.2.4.3.A: alt 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic I command. | ear" ay of I a run | Notific | ation of nhibition | - alt | ainer Su | | | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear", "TVPS occupied and able to be forced to clear" "TVPS is in state sweeping train detected and unable to be forced to clear", "TVPS is waiting for an acknowledgement after FC-P-A or FC-P command and unable to be forced to clear" "TVPS disturbed and able to be forced to clear" with an operational reason", "TVPS disturbed and unable to be forced to clear" with a running Inhibition Timer or running Dela Availability or "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B with Timer. Interaction 2.1.2.4.3.A: alt 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic I command. else alt 1.b1 - The Subsystem - Train Detection System receives from the Maintainer a DRFC-commend alt | ear" ay of I a run | Notific | ation of nhibition | - alt | | | | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear". "TVPS is in state sweeping train detected and unable to be forced to clear". "TVPS is in state sweeping train detected and unable to be forced to clear". "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be "TVPS disturbed and able to be forced to clear" with a running Inhibition Timer or running Dela Availability or "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B with Timer. Interaction 2.1.2.4.3.A: alt 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic I command. else alt 1.b1 - The Subsystem - Train Detection System receives from the Maintainer a DRFC-commend alt alt [DRFC-command was received from Subsystem - Electronic Interlocking] 2.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking] | ear" ay of I a run nterlo nand. | Notific | ation of nhibition a DRFC | - alt | | | Cd_DRFC | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear", "TVPS occupied and able to be forced to clear" "TVPS is in state sweeping train detected and unable to be forced to clear", "TVPS disturbed and able to be forced to clear" durating for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear", "TVPS disturbed and able to be forced to clear" durating for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear "TVPS disturbed and able to be forced to clear" with an operational reason", "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B with Timer. Interaction 2.1.2.4.3.A: alt 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic I command. else alt 1.b1 - The Subsystem - Train Detection System receives from the Maintainer a DRFC-commend alt alt [DRFC-command was received from Subsystem - Electronic Interlocking] 2.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking] | ear" ay of I a run nterlo nand. | Notific | ation of nhibition a DRFC | - alt | | | | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear". "TVPS is in state sweeping train detected and unable to be forced to clear". "TVPS is in state sweeping train detected and unable to be forced to clear". "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be "TVPS disturbed and able to be forced to clear" with a running Inhibition Timer or running Dela Availability or "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B with Timer. Interaction 2.1.2.4.3.A: alt 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic I command. else alt 1.b1 - The Subsystem - Train Detection System receives from the Maintainer a DRFC-commend alt alt [DRFC-command was received from Subsystem - Electronic Interlocking] 2.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking] | ear" ay of I a run nterlo nand. | Notific | ation of nhibition a DRFC | - alt | Cd_DRFC | | Cd_DRFC | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear", "TVPS soccupied and able to be forced to clear" "TVPS is in state sweeping train detected and unable to be forced to clear", "TVPS is in state sweeping train after FC-P-A or FC-P command and unable to be forced to clear" with an operational reason", "TVPS disturbed and unable to be forced to clear with an operational reason", "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B with Timer. Interaction 2.1.2.4.3.A: alt 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic I command. else alt 1.b1 - The Subsystem - Train Detection System receives from the Maintainer a DRFC-commend alt alt [DRFC-command was received from Subsystem - Electronic Interlocking] 2.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking] 2.a1 The Subsystem - Train Detection System reports to the Maintainer a DRFC-commend as rejected with an operational reason. | ear" ay of I a run nterlo nand. | Notific | ation of nhibition a DRFC | - alt | Cd_DRFC | | Cd_DRFC | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear". "TVPS occupied and able to be forced to clear". "TVPS is in state sweeping train detected and unable to be forced to clear". "TVPS disturbed and able to be forced to clear with an operational reason". "TVPS disturbed and able to be forced to clear" with a running Inhibition Timer or running Dela Availability or "TVPS disturbed and unable to be forced to clear" with an operational reason" for Variant B with Timer. Interaction 2.1.2.4.3.A: att 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic I command. else alt 1.b1 - The Subsystem - Train Detection System receives from the Maintainer a DRFC-commend att att [DRFC-command was received from Subsystem - Electronic Interlocking] 2.a1 The Subsystem - Train Detection System receives from the Maintainer a DRFC-commend att att [DRFC-command was received from Maintainer] 2.b1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking] 2.b1 The Subsystem | ear" ay of I a run nterlo nand. | Notific | ation of nhibition a DRFC | - alt | Cd_DRFC | | Cd_DRFC | |
| | | TDS_UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (operational reason) [TDS SD 2.1.2.4.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute DRFC. The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear", "TVPS soccupied and able to be forced to clear" "TVPS is in state sweeping train detected and unable to be forced to clear", "TVPS is in state sweeping train after FC-P-A or FC-P command and unable to be forced to clear" with an operational reason", "TVPS disturbed and unable to be forced to clear with an operational reason", "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B with Timer. Interaction 2.1.2.4.3.A: alt 1.a1 - The Subsystem - Train Detection System receives from the Subsystem - Electronic I command. else alt 1.b1 - The Subsystem - Train Detection System receives from the Maintainer a DRFC-commend alt alt [DRFC-command was received from Subsystem - Electronic Interlocking] 2.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking] 2.a1 The Subsystem - Train Detection System reports to the Maintainer a DRFC-commend as rejected with an operational reason. | ear" ay of I a run nterlo nand. | Notific | ation of nhibition a DRFC | - alt | Cd_DRFC | | Cd_DRFC | |

| | Requirement Part 2 | Func. Pkg. |
|--|--------------------|-----------------|
| | | Basic TDS AC |
| :Subsystem - Train Detection System | | |
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| | | Basic TDS |
| :Subsystem - Train Detection System | | AC |
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| ejected(Operational) | | |
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| ID | Туре | Requirement Part 1 | |
|-------------------|-------------------|--|--|
| ID Eu.TDS.6008 | Type Info | Requirement Part 1 TDS SD 2.1.2.4.4 TDS UC2.1.2.4: DRFC command Alternative Scenario: DRFC command rejected (technical reason) [TDS SD 2.1.2.4.4] Precondition: The relevant TVPS is onfigured to execute DRFC. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.2.4.A: alt 1.a1 - The Subsystem - Train Detection System receives from the Subsystem receives from the Subsystem receives from the Maintainer or DRFC-command. else alt 1.b1 - The Subsystem - Train Detection System receives from the Maintainer or DRFC-command. | |
| | | end alt alt [DRFC-command was received from Subsystem - Electronic Interlocking] 2.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. else alt [DRFC-command was received from Maintainer] 2.b1 The Subsystem - Train Detection System reports to the Maintainer that the previously sent command was rejected with a technical reason. end alt Postcondition: | |

Eu.TDS.6011InfoTDS_UC2.1.2.5: Update Filling Level command

| Eu.TDS.6014 | Info | TDS SD 2.1.2.5.1 | | |
|-------------|------|--|---------------------|-------------------------------|
| | | TDS_UC2.1.2.5: Update Filling Level command | <u>جُ</u> | |
| | | | Subsystem - Electro | nic Interlocking |
| | | Main Success Scenario: Update Filling Level command received [TDS SD 2.1.2.5.1] Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute UFL. The relevant TVPS is in the states: - "TVPS occupied and able to be forced to clear", - "TVPS disturbed and able to be forced to clear with an operational reason", - "TVPS occupied and unable to be forced to clear", - "TVPS disturbed and unable to be forced to clear", - "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B, - "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B, - "TVPS is in state sweeping train detected and unable to be forced to clear", - "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to clear" or - "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear". For the relevant TVPS the inhibition timer is not running. For the relevant TVPS the delay of notification of availability timer is not running Interaction 2.1.2.5.1.A: | | |
| | | 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a Update Filling Level - command. | g | Cd_Update_Filling_Level |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the current Filling Level. | Ň | lsg_TVPS_Occupancy_Status(Ci |
| | | Postcondition: | 1 | |

| | Requirement Part 2 | Func. Pkg. |
|---|--|---------------------|
| tection System | | Basic TDS AC |
| | The Subsystem-UseCase "TDS_UC2.1.2.5: Update Filling Level command" defines the behaviour of the Subsystem - Train Detection System after receiving a Update Filling Level-command from the Subsystem - Electronic Interlocking. | Option Update FL |
| Irrent status including Filling level) | | Option Update FL |

| ID | Туре | | Requirement Part 1 | |
|-------------|------|--|-------------------------------------|-------------|
| Eu.TDS.6012 | Info | TDS SD 2.1.2.5.2 | | |
| | | TDS_UC2.1.2.5: Update Filling Level command | <u>گ</u> | |
| | | | Subsystem - Electronic Interlocking | tem - Train |
| | | Alternative Scenario: Update Filling Level command rejected (operational reason) [TDS SD | | |
| | | 2.1.2.5.2] | | |
| | | Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. | | |
| | | The relevant TVPS is configured to execute UFL. | | |
| | | The relevant TVPS is in the states: - "TVPS vacant and unable to be forced to clear", | | 1 1 1 |
| | | - "TVPS occupied and unable to be forced to clear" with a running Inhibition Timer or running Delay of Notification of Availability, | | |
| | | - ""TVPS disturbed and unable to be forced to clear with an operational reason" with a | | 1 |
| | | running Inhibition Timer, - "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to | | |
| | | clear" with a running Inhibition Timer, - "TVPS is in state sweeping train detected and unable to be forced to clear" with a running | | |
| | | Inhibition Timer. | | |
| | | Interaction 2.1.2.5.2.A: | | |
| | | 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a Update Filling Level - command. | Cd_Update_Filling_Level | |
| | | 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with an operational reason. | Msg_Command_Rejected(Operational) | |
| | | Postcondition: | | |
| | | | | |
| Eu.TDS.6013 | Info | TDS SD 2.1.2.5.3 | | |
| 20112010010 | 1 | TDS UC2.1.2.5: Update Filling Level command | £ | |
| | | | Subsystem - Electronic Interlocking | tem - Train |
| | | Alternative Scenario: Update Filling Level command rejected (technical reason) [TDS SD | | |
| | | 2.1.2.5.3] | | |
| | | Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute UFL. | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". | | |
| | | Interaction 2.1.2.5.3.A: | | |
| | | 1. - The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a Update Filling Level - command. | Cd_Update_Filling_Level | |
| | | 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. | Msg_Command_Rejected(Technical) | |
| | | Postcondition: | | |
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| Eu.TDS.6016 | Info | TDS_UC2.1.3: Single passing, timer and command events (for sweeping train process) | | |
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| Eu.TDS.6018 | Info | TDS_UC2.1.3.1: FC-P command | | |
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| | Requirement Part 2 | Func. Pkg. |
|--------------------|---|--|
| n Detection System | | Option Update FL |
| n Detection System | The Subsystem-UseCase "TDS_UC2.1.3: Single passing, timer and command events (for sweeping train process)" defines the behaviour of single passing, timer and command events (for sweeping train process) of the Subsystem - Train Detection System. The behaviour will be defined in the following UseCases: | Option Update FL Option FC-P/-A |
| | The behaviour will be defined in the following UseCases: TDS_UC2.1.3.1: FC-P command TDS_UC2.1.3.2: FC-P-A command TDS_UC2.1.3.3: Axle passing during sweeping train process TDS_UC2.1.3.4: Timer expiration during sweeping train process TDS_UC2.1.3.5: Cancel-command TDS_UC2.1.3.6: FC Acknowledgement TDS_UC2.1.3.7: Visual Sweeping Confirmation The Subsystem-UseCase "TDS_UC2.1.3.1: FC-P command" defines the behaviour of the Subsystem - Train Detection System after receiving a FC-P- command from the Subsystem - Electronic Interlocking. | Option FC-P/-A |

| ID | Туре | | Requiremen | t Part 1 | | Requirement Part 2 | Fu Pl |
|------------|------|--|------------------------------------|--|-------------------------------------|--------------------|----------|
| ı.TDS.5987 | Info | TDS SD 2.1.3.1.1 | | | | | Optic |
| | | TDS_UC2.1.3.1: FC-P command | χ χ | | | | FC-P, |
| | | Subsyste | m - Electronic Interlocking Wheel | _ | :Subsystem - Train Detection System | | |
| | | Main Success Scenario: Successful execution of FC-P [TDS SD 2.1.3.1.1] | | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the states: - "TVPS occupied and able to be forced to clear", - "TVPS disturbed and able to be forced to clear with an operational | | | | | |
| | | reason", - "TVPS occupied and unable to be forced to clear", - "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B. For the relevant TVPS the inhibition timer is not running. | | | | | |
| | | For the relevant TVPS the delay of notification of availability timer is not running | | | | | |
| | | Interaction 2.1.3.1.1.A: | | | | | |
| | | 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P command. | | Cd_FC(FC_P) | | | |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear". | Msg_TVPS_Occupancy_Status(Waiting | for a sweeping train, Unable to be forced to clear) | | | |
| | | Interaction 2.1.3.1.1.B: | | | | | |
| | | 3. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | after {Co | Passing_Detected | | | |
| | | 4. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS is in state sweeping | Msg_TVPS_Occupancy_Status(Sweeping | g train detected, Unable to be forced to clear) | | | |
| | | train detected and unable to be forced to clear". | | < {Con_t_Max_FC_P_or_FC_P_A} | | | |
| | | Interaction 2.1.3.1.1.C: | | | | | |
| | | 5. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | | Passing_Detected | | | |
| | | 6. The Subsystem - Train Detection System receives the internal trigger that the sweeping was successful. | | · · | Sweeping_Successful | | |
| | | 7. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS is in state vacant and unable to be forced to clear". | Msg_TVPS_Occupancy_Status(Vacant | Unable to be forced to clear) | | | |
| | | Postcondition: | | | | | |
| | | The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". | | | | | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence diagram. | | | | | |

| ID | Туре | Requirement Part 1 | | | Requirement Part 2 | Func Pkg. |
|------------|------|--|-----------------------------------|-------------------------------------|--|--------------|
| u.TDS.7000 | Info | TDS SD 2.1.3.1.2 | | | | Option |
| | | TDS_UC2.1.3.1: FC-P command | <u>گ</u> | | | FC-P/- |
| | | Su | bsystem - Electronic Interlocking | :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Unsuccessful execution of FC-P (operational reason) [TDS SD 2.1.3.1.2] | | | | |
| | | Precondition: | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the states: - "TVPS vacant and unable to be forced to clear", - "TVPS occupied and unable to be forced to clear" with a running Inhibition Timer or running Delay of Notification of Availability, - "TVPS disturbed and unable to be forced to clear with an operational reason" with a running Inhibition Timer, - "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to clear", - "TVPS is in state sweeping train detected and unable to be forced to clear" or - "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear". | | | | |
| | | Interaction 2.1.3.1.2.A: | | | | |
| | | 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-command. | Cd_FC(FC_P) | | | |
| | | 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with an operational reason. | Msg_Command_Rejecte | ed(Operational) | | |
| | | Postcondition: | | | | |
| | | Note: This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Train Detection System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after the command has been sent. | | | | |
| DS.7001 | Info | TDS SD 2.1.3.1.3 | | | | Opti |
| | | TDS_UC2.1.3.1: FC-P command | 关 | | | FC-P |
| | | Su | bsystem - Electronic Interlocking | :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Unsuccessful execution of FC-P (technical reason) [TDS SD 2.1.3.1.3] | | | | |
| | | Precondition: | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". | | | | |
| | | Interaction 2.1.3.1.3.A: | | | | |
| | | 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-command. | Cd_FC(FC_P) | | | |
| | | 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. | Msg_Command_Rejecte | d(Technical) | | |
| | | Postcondition: | | | | |
| | | Note: This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Train Detection System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after the command has been sent. | | | | |
| DS.6021 | Info | TDS UC2.1.3.2: FC-P-A command | | | The Subsystem-UseCase "TDS_UC2.1.3.2: FC-P-A | Opti |
| | | | | | command" defines the behaviour of the Subsystem - Train Detection System after receiving a FC-P-A- command from the Subsystem - Electronic Interlocking. | FC-P/ |

| Eu.TDS.6021 | Info | TDS_UC2.1.3.2: FC-P-A command |
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| ID | Туре | | | Requirement Part 1 |
|-------------|------|--|-----------------|--|
| Eu.TDS.5988 | Info | TDS SD 2.1.3.2.1 | | |
| | | TDS_UC2.1.3.2: FC-P-A command | | 犬 犬 犬 |
| | | | Subsystem - Ele | ectronic Interlocking Wheel |
| | | Main Success Scenario: Successful execution of FC-P-A [TDS SD 2.1.3.2.1] | | |
| | | Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | |
| | | The relevant TVPS is configured to execute FC-P-A. The relevant TVPS is in the states: - "TVPS occupied and able to be forced to clear", - "TVPS disturbed and able to be forced to clear with an operational reason". | | |
| | | "TVPS occupied and unable to be forced to clear", "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B. For the relevant TVPS the inhibition timer is not running. For the relevant TVPS the delay of notification of availability timer is not running | | |
| | | Interaction 2.1.3.2.1.A: | | |
| | | 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. | | Cd_FC(FC_P_A) |
| | | The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear". | | Msg_TVPS_Occupancy_Status(Waiting for a sweeping train, Unable to be for |
| | | Interaction 2.1.3.2.1.B: | | |
| | | 3. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | | Passing_Detected |
| | | 4. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS is in state sweeping train detected and unable to be forced to clear". | | Msg_TVPS_Occupancy_Status(Sweeping train detected, Unable to be forced after {Con_t_Min_FC_P_or_FC_P_ |
| | | Interaction 2.1.3.2.1.C: | | |
| | | 5. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | | Passing_Detected <{Con_t_Max_FC_P_0 |
| | | 6. The Subsystem - Train Detection System receives the internal trigger that the sweeping was successful. | | |
| | | 7. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to clear". | | Msg_TVPS_Occupancy_Status(Waiting for acknowledgment, Unable to be |
| | | Interaction 2.1.3.2.1.D: | | |
| | | 8 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking an Acknowledgement after FC-P-A command. | | Cd_FC(Acknowledgement) |
| | | 9. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS vacant and unable to be forced to clear". The filling level of the relevant TVPS is set to zero. Postcondition: |) | Msg_TVPS_Occupancy_Status(Vacant, Unable to be forced to clear) |
| | | The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". | | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence diagram. | | |

| | | | Requirement Part 2 | Func. Pkg. |
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| | | | | Option FC-P/-A |
| <u>:s</u> | ubsystem - Train | Detection System | | |
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| rced to clear) | | | | |
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| e forced to clear) | | 2 | | |
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| ID 1 | Гуре | Requirement Part 1 | | Requirement Part 2 |
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| TDS.7002 I | nfo | TDS SD 2.1.3.2.2 | 0 | Or FC |
| | | TDS_UC2.1.3.2: FC-P-A command | | |
| | | | Subsystem - Electronic Interlocking | |
| | | Alternative Scenario: Unsuccessful execution of FC-P-A (operational reason) [TDS SD 2.1.3.2.2] | | |
| | | Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | |
| | | The relevant TVPS is configured to execute FC-P-A. The relevant TVPS is in the states: | | |
| | | - "TVPS vacant and unable to be forced to clear", | | |
| | | "TVPS occupied and unable to be forced to clear" with a running Inhibition Timer or running Delay of Notification of Availability, "TVPS disturbed and unable to be forced to clear with an operational reason" with a running Inhibition Timer, | | |
| | | - "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to clear", | | |
| | | "TVPS is in state sweeping train detected and unable to be forced to clear" or "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear". | | |
| | | Interaction 2.1.3.2.2.A: | | |
| | | 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a | | |
| | | FC-P-A-command. | Cd_FC(FC_P_A) | |
| | | 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with an operational reason. | Msg_Command_Rejected(Operational) | |
| | | Postcondition: | | |
| | | | | |
| | | Note: | | |
| | | This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear | | |
| | | condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Train Detection System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after | | |
| | | India Detection System have unletent opinions on the ability to force the section to clear condition, such as when the condition changes soon after | | |
| | | the command has been sent. | | |
| DS.7003 I | | the command has been sent. TDS SD 2.1.3.2.3 | <u>۹</u> | 0 FC |
| DS.7003 I | | the command has been sent. | یل Subsystem - Electronic Interlocking :Subsystem - Train Detection System | |
| DS.7003 I | nfo | the command has been sent. TDS SD 2.1.3.2.3 <u>TDS_UC2.1.3.2: FC-P-A command</u> | Subsystem - Electronic Interlocking | |
| S.7003 I | nfo | the command has been sent. TDS SD 2.1.3.2.3 TDS UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] | Subsystem - Electronic Interlocking | |
| DS.7003 I | nfo | the command has been sent. TDS SD 2.1.3.2.3 TDS_UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: | Subsystem - Electronic Interlocking | |
| DS.7003 I | 'nfo | the command has been sent. TDS SD 2.1.3.2.3 <u>TDS_UC2.1.3.2: FC-P-A command</u> Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. | Subsystem - Electronic Interlocking | |
| 9S.7003 I | nfo | the command has been sent. TDS SD 2.1.3.2.3 TDS UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". | Subsystem - Electronic Interlocking | |
| S.7003 I | 'nfo | the command has been sent. TDS SD 2.1.3.2.3 TDS UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: | Subsystem - Electronic Interlocking | |
| 9S.7003 I | 'nfo | the command has been sent. TDS SD 2.1.3.2.3 TDS_UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. | Subsystem - Electronic Interlocking | |
| DS.7003 I | înfo | the command has been sent. TDS SD 2.1.3.2.3 TDS_UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a | | |
| S.7003 I | nfo | the command has been sent. TDS SD 2.1.3.2.3 TDS UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously | Cd_FC(FC_P_A) | |
| DS.7003 I | nfo | the command has been sent. TDS SD 2.1.3.2.3 TDS UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1. The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: | Cd_FC(FC_P_A) | |
| DS.7003 I | nfo | the command has been sent. TDS SD 2.1.3.2.3 TDS UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1. The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: Note: | Cd_FC(FC_P_A) | |
| S.7003 I | info | the command has been sent. TDS SD 2.1.3.2.3 TDS UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1. The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: | Cd_FC(FC_P_A) | |
| DS.7003 I | info | the command has been sent. TDS SD 2.1.3.2.3 TDS UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.4: 1. The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: Note: This Scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking a subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking a subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - condition System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after | Cd_FC(FC_P_A) | |
|)S.7003 I | info | the command has been sent. TDS SD 2.1.3.2.3 TDS UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is configured to execute FC-P. Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: Note: This scenario should normally be axoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear This scenario should normally be axoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Electron | Cd_FC(FC_P_A) | |
| | înfo | the command has been sent. TDS SD 2.1.3.2.3 TDS UC2.1.3.2.7 FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.4: 1. The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: Note: This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Train Detection System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after the command has been sent. | Cd_FC(FC_P_A) | |
| | înfo | the command has been sent. TDS SD 2.1.3.2.3 TDS UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.4: 1. The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: Note: This Scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking a stepstem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking a subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - condition System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after | Cd_FC(FC_P_A) | The Subsystem-UseCase "TDS_UC2.1.3.3: Axle passing C |
| | înfo | the command has been sent. TDS SD 2.1.3.2.3 TDS UC2.1.3.2.7 FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.4: 1. The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: Note: This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Train Detection System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after the command has been sent. | Cd_FC(FC_P_A) | |

| | Туре | Requirement Part 1 | | Requirement Part 2 Fu |
|----------------------------|------|---|--|-----------------------|
| Eu.TDS.7002 | Info | TDS SD 2.1.3.2.2 | <u> </u> | Opti FC-F |
| | | TDS_UC2.1.3.2: FC-P-A command | bsystem - Electronic Interlocking | |
| | | Alternative Scenario: Unsuccessful execution of FC-P-A (operational reason) [TDS SD 2.1.3.2.2] | | |
| | | Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P-A. | | |
| | | The relevant TVPS is in the states: | | |
| | | - "TVPS vacant and unable to be forced to clear", - "TVPS occupied and unable to be forced to clear" with a running Inhibition Timer or running Delay of Notification of Availability, | | |
| | | - "TVPS disturbed and unable to be forced to clear with an operational reason" with a running Inhibition Timer, | | |
| | | - "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to clear", | | |
| | | "TVPS is in state sweeping train detected and unable to be forced to clear" or "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear". | | |
| | | Interaction 2.1.3.2.2.A: | | |
| | | 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a | Cd_FC(FC_P_A) | |
| | | FC-P-A-command. | | |
| | | 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with an operational reason. | Msg_Command_Rejected(Operational) | |
| | | Postcondition: | | |
| | | | | |
| | | Note: This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear | | |
| | | condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - | | |
| | | Train Detection System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after the command has been sent. | | |
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| Eu.TDS.7003 | Info | TDS SD 2.1.3.2.3 | 0 | Opti FC-E |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command | <u><u>+</u></u> | Opti FC-F |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command | bsystem - Electronic Interlocking | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command | bsystem - Electronic Interlocking | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command | bsystem - Electronic Interlocking :Subsystem - Train Detection System | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command S Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. | ÷ System - Electronic Interlocking is system - Electronic Interlocking | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command S Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. | bsystem - Electronic Interlocking | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command S Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". | bsystem - Electronic Interlocking | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a | bsystem - Electronic Interlocking Cd_FC(FC_P_A) | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously | Cd_FC(FC_P_A) | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. | | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously | Cd_FC(FC_P_A) | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: | Cd_FC(FC_P_A) | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: — Mote: This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear | Cd_FC(FC_P_A) | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: Note: This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - | Cd_FC(FC_P_A) | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: — Mote: This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear | Cd_FC(FC_P_A) | |
| Eu.TDS.7003 | Info | TDS_UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: Note: This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Train Detection System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after | Cd_FC(FC_P_A) | |
| | | TDS_UC2.1.3.2: FC-P-A command Atternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: - Mete: This Scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Train Detection System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after the command has been sent. | Cd_FC(FC_P_A) | FC-F |
| Eu.TDS.7003 Eu.TDS.6024 | Info | TDS_UC2.1.3.2: FC-P-A command Alternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: Note: This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Train Detection System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after | Cd_FC(FC_P_A) | FC-F |
| | | TDS_UC2.1.3.2: FC-P-A command Atternative Scenario: Unsuccessful execution of FC-P-A (technical reason) [TDS SD 2.1.3.2.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.2.3.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. Postcondition: - Mete: This Scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the ability to force section to clear condition before sending the FC command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Train Detection System have different opinions on the ability to force the section to clear condition, such as when the condition changes soon after the command has been sent. | Cd_FC(FC_P_A) | FC-F |

| ID | Туре | | Requirement Part 1 | Requirement Part 2 Fun Pkg |
|--------|------|--|--|-------------------------------|
| S.6034 | Info | TDS SD 2.1.3.3.1 | | Optior |
| | | TDS_UC2.1.3.3: Axle passing during sweeping train process | | FC-P/- |
| | | Subsystem | - Electronic Interlocking Wheel :Subsystem - T | rain Detection System |
| | | Main Success Scenario: Correct incoming axle detected [TDS SD | | |
| | | 2.1.3.3.1] Precondition: | | |
| | | The Subsystem - Train Detection System is in the state | | |
| | | OPERATIONAL. | | |
| | | The relevant TVPS is in the states "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced | | |
| | | to clear". | | |
| | | Interaction 2.1.3.3.1.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train | | |
| | | Detection System. The Subsystem - Train Detection System | Passing_Detected | |
| | | recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | | |
| | | 2. The Subsystem - Train Detection System reports the current state of | Msg_TVPS_Occupa ['] ncy_Status(Sweeping train detected, Unable to be forced to clear) | |
| | | the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS is in state sweeping | | |
| | | train detected and unable to be forced to clear". | | |
| | | Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS is in state sweeping train detected and unable to be forced to clear". | | |
| | | | | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the | | |
| | | inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence | | |
| | | diagram. | | |
| | | | | |
| 6026 | Info | TDS SD 2.1.3.3.2 | | Opt |
| | | TDS_UC2.1.3.3: Axle passing during sweeping train process | \uparrow | FC-I |
| | | Subsyste | n - Electronic Interlocking Wheel | Detection System |
| | | Alternative Scenario: Incoming axle detected while waiting for ackn. (to | | |
| | | no process state, Occupied Unable FC) [TDS SD 2.1.3.3.2] Precondition: | | |
| | | The Subsystem - Train Detection System is in the state | | |
| | | OPERATIONAL. | | |
| | | The relevant TVPS is in the state "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to | | |
| | | clear". Before Sweeping Train Process the relevant TVPS was in states "TVPS | | |
| | | occupied and able to be forced to clear" or "TVPS occupied and unable | | |
| | | to be forced to clear". | | |
| | | Interaction 2.1.3.3.2.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train | | |
| | | Detection System. The Subsystem - Train Detection System | Passing_Detected | |
| | | recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | | |
| | | par | par J | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes | Msg_TVPS_Occupancy_Status(Occupied, Unable to be forced to clear) | |
| | | the information that the TVPS is in the state "TVPS occupied and unable | | |
| | | to be forced to clear". | | |
| | | also par 2.b1 The Subsystem - Train Detection System reports to the Subsystem | | |
| | | - Electronic Interlocking that the execution of the previously sent FC-P-A | Msg_TVPS_FC_P_A_failed(Incorrect count) | |
| | | command was not successful. The telegram contains that the reason for the cancelation was an incorrect count. | | |
| | | end par | | |
| | | Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be | | |
| | | forced to clear" with a running Inhibition Timer. | | |
| | | Note: The detection and the behaviour of the detection of | | |
| | | incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 | | |
| | | are still valid and work in parallel but are not shown in this Sequence | | |
| | l | diagram. | | |

| ID | Туре | | | Requirement Part 1 | | Requirement Part 2 | Fui Pk |
|--------|------|---|-------------------------------------|---|-------------------------------------|--------------------|-----------|
| S.6034 | Info | TDS SD 2.1.3.3.1 | <u>^</u> | 0 | | | Optio |
| | | TDS_UC2.1.3.3: Axle passing during sweeping train process | <u> </u> | <u>×</u> | | | FC-P/ |
| | | Su | ubsystem - Electronic Interlocking | Nheel | :Subsystem - Train Detection System | | |
| | | Main Success Scenario: Correct incoming axle detected [TDS SD 2.1.3.3.1] | | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state | | | | | |
| | | OPERATIONAL. The relevant TVPS is in the states "TVPS is in state waiting for a | | | | | |
| | | sweeping train after FC-P-A or FC-P command and unable to be forced to clear". | | | | | |
| | | Interaction 2.1.3.3.1.A: | | | | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train | | Passing_Detected | | | |
| | | Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | | | | | |
| | | 2. The Subsystem - Train Detection System reports the current state of | Msg_TVPS_Occu | pancy_Status(Sweeping train detected, Unable to be forced to clear) | | | |
| | | the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS is in state sweeping train detected and unable to be forced to clear". | | | | | |
| | | Postcondition: | | | | | |
| | | The relevant TVPS is in the state "TVPS is in state sweeping train detected and unable to be forced to clear". | | | | | |
| | | Note: The detection and the behaviour of the detection of | | | | | |
| | | incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 | | | | | |
| | | are still valid and work in parallel but are not shown in this Sequence | | | | | |
| | | diagram. | i | i | | | |
| .6026 | Info | TDS SD 2.1.3.3.2 | | | | | Opt |
| .0020 | 1110 | TDS_UC2.1.3.3: Axle passing during sweeping train process | ÷ | ₽ ₽ | | | FC-I |
| | | | Subsystem - Electronic Interlocking | Wheel | :Subsystem - Train Detection System | | |
| | | Alternative Secondria: Incoming cyle detected while waiting for column (to | | | | | |
| | | Alternative Scenario: Incoming axle detected while waiting for ackn. (to no process state, Occupied Unable FC) [TDS SD 2.1.3.3.2] | | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | | | | |
| | | The relevant TVPS is in the state "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to | | | | | |
| | | clear". | | | | | |
| | | Before Sweeping Train Process the relevant TVPS was in states "TVPS occupied and able to be forced to clear" or "TVPS occupied and unable | | | | | |
| | | to be forced to clear". | | | | | |
| | | Interaction 2.1.3.3.2.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train | | | | | |
| | | Detection System. The Subsystem - Train Detection System | | Passing_Detected | | | |
| | | recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | | | | | |
| | | par | par | | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status include | te les | Msg_TVPS_Occupancy_Status(Occupied, Unable to be forced to clear) | | | |
| | | the information that the TVPS is in the state "TVPS occupied and unab to be forced to clear". | | | | | |
| | | also par | | | | | |
| | | 2.b1 The Subsystem - Train Detection System reports to the Subsystee - Electronic Interlocking that the execution of the previously sent FC-P- command was not successful. The telegram contains that the reason for | Р-А | Msg_TVPS_FC_P_A_failed(Incorrect count) | | | |
| | | the cancelation was an incorrect count. end par | | | | | |
| | | Postcondition: | | | | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be | | | | | |
| | | forced to clear" with a running Inhibition Timer. | | | | | |
| | | | | | | | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the | | | | | |
| | | Note: The detection and the behaviour of the detection of | | | | | |

| ID | Туре | | Requirement Part 2 | Fun Pkg | | | |
|------------|------|--|-----------------------------------|---|-------------------------------------|--|--------|
| u.TDS.6025 | Info | TDS SD 2.1.3.3.3 | | | | | Option |
| | | TDS_UC2.1.3.3: Axle passing during sweeping train process | | $\overset{\circ}{}$ | | | FC-P/- |
| | | | bsystem - Electronic Interlocking | Wheel | :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Incoming axle detected while waiting for ackn. (to no process state, Disturbed Unable FC) [TDS SD 2.1.3.3.3] | | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | | | | |
| | | The relevant TVPS is in the state "TVPS is waiting for an acknowledgement after FC-P-A command and unable to be forced to clear". | | | | | |
| | | Before Sweeping Train Process the relevant TVPS was in state "TVPS disturbed and able to be forced to clear with an operational reason" or "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B. | | | | | |
| | | Interaction 2.1.3.3.3.A: | | | | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | | Passing_Detected | | | |
| | | par | par | | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status include the information that the TVPS is in the state "TVPS disturbed and unab to be forced to clear with an operational reason". | s I | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to cl | lear, Operational reason) | | |
| | | also par | | | | | |
| | | 2.a2 The Subsystem - Train Detection System reports to the Subsyste - Electronic Interlocking that the execution of the previously sent FC-P- command was not successful. The telegram contains that the reason for the cancelation was an incorrect count. | A | Msg_TVPS_FC_P_A_failed(Incorrect count) | | | |
| | | end par | | | | | |
| | | Postcondition: | | | | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason" with a running Inhibition Timer. | | | | | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence | | | | | |
| | | diagram. | | 1 | | | |

| ID | Туре | Requirement Part 1 Requirement Part 2 | | | | |
|------------|-------------------|--|---|---|--|--|
| I.TDS.6033 | Info ⁻ | TDS SD 2.1.3.3.4 | | C | | |
| | | TDS_UC2.1.3.3: Axle passing during sweeping train process | Ť. | F | | |
| | | | onic Interlocking Wheel :Subsystem - Train Detection System | | | |
| | | Alternative Scenario: Not-permitted incoming axle detected (to no process state, Occupied Unable FC) [TDS SD 2.1.3.3.4] | | | | |
| | | Precondition: | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state: - "TVPS is in state sweeping train detected and unable to be forced to clear", - "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear" or - "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to clear". Before Sweeping Train Process the relevant TVPS was in states "TVPS occupied and able to be forced to clear"or "TVPS occupied and unable to be forced to clear". | | | | |
| | | Interaction 2.1.3.3.4.A: | | | | |
| | | 1. The Subsystem - Train Detection System recognises a passing of a detection point which is configured as not permitted for FC-P-A or FC-P. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | Not_Permitted_Passing_Detected | | | |
| | | par par | | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied and unable to be forced to clear". | Msg_TVPS_Occupancy_Status(Occupied, Unable to be forced to clear) | | | |
| | | also par | | | | |
| | | alt [The previous received command was a FC-P-Command] | | | | |
| | | 2.b1.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P command was not successful. The telegram contains that the reason for the cancelation was a not permitted passing. | Msg_TVPS_FC_P_failed(Not permitted passing) | | | |
| | | else alt [The previous received command was a FC-P-A-Command] | | | | |
| | | 2.b1.b1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P-A command was not successful. The telegram contains that the reason for the cancelation was a not permitted passing. | Msg_TVPS_FC_P_A_failed(Not permitted passing) | | | |
| | | end alt | | | | |
| | | end par | | | | |
| | | Postcondition: | | | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear" with a running Inhibition Timer. | | | | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence diagram. | | | | |

| ID | Туре | e Requirement Part 1 Requirement Part 2 | | | | | |
|---------|------|---|--|------|--|--|--|
| DS.6027 | Info | TDS SD 2.1.3.3.5 | | 0 | | | |
| | | TDS_UC2.1.3.3: Axle passing during sweeping train process | χ χ | FC | | | |
| | | | m - Electronic Interlocking Wheel :Subsystem - Train Detection Sys | stem | | | |
| | | | | | | | |
| | | Alternative Scenario: Not-permitted incoming axle detected (to no process state, Disturbed Unable FC) [TDS SD 2.1.3.3.5] | | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state: - "TVPS is in state sweeping train detected and unable to be forced to clear", - "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear" or - "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to clear". Before Sweeping Train Process the relevant TVPS was in states "TVPS disturbed and able to be forced to clear with an operational reason" or "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B. | | | | | |
| | | Interaction 2.1.3.3.5.A: | | | | | |
| | | The Subsystem - Train Detection System recognises a passing of a detection point which is configured as not permitted for FC-P-A or FC-P. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | Not_Permitted_Passing_Detected | | | | |
| | | par | | | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear, Operational reason) | | | | |
| | | also par | ····· | | | | |
| | | alt [The previous received command was a FC-P-Command] | | | | | |
| | | 2.b1.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P command was not successful. The telegram contains that the reason for the cancelation was a not permitted passing. | Msg_TVP\$_FC_P_failed(Not permitted passing) | | | | |
| | | else alt [The previous received command was a FC-P-A-Command] | | | | | |
| | | 2.b2.b1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P-A command was not successful. The telegram contains that the reason for th cancelation was a not permitted passing. | Msg_TVPS_FC_P_A_failed(Not permitted passing) | | | | |
| | | end alt | | | | | |
| | | end par | | | | | |
| | | Postcondition: | | | | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason" with a running Inhibition Timer. | | | | | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence diagram. | | | | | |

| ID | Туре | | irement Part | 1 | | |
|-------------|------|---|----------------------------|--------------|-----------------|---|
| Eu.TDS.6029 | Info | TDS SD 2.1.3.3.6 | | | | |
| | | TDS_UC2.1.3.3: Axle passing during sweeping train process | | Å | Ĵ | <u>></u> |
| | | S | Subsystem | - Electronic | Interlocking Wh | eel |
| | | Alternative Scenario: Outgoing axle detected while waiting for sweeping train or acknowledgement (to no process state, Occupied Unable FC) [TDS SD 2.1.3.3.6] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state: - "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear" or - "TVPS is in state waiting for an acknowledgment after FC-P-A command and unable to be forced to clear". Before Sweeping Train Process the relevant TVPS was in states "TVPS occupied and able to be forced to clear". Interaction 2.1.3.3.6.A: 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. par 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied and unable to be forced to clear". also par alt [The previous received command was a FC-P-Command] 2.b1.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interr that the execution of the previously sent FC-P command and su not successful. The telegram co that the reason for the cancelation was an incorrect count. else alt [The previous received command was a FC-P-A-Command] 2.b1.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interr that the execution of the previously sent FC-P-A command and su successful. The telegram co that the reason for the cancelation was an incorrect count. end alt end par Postcondition: The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear" with a running inhibition Timer. Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification | n - rlocking ontains | par alt | Mş | Passing_Detected sg_TVPS_Occupancy_Status(g_TVPS_FC_P_failed(Incorrection) g_TVPS_FC_P_A_failed(Incorrection) |

| | Requirement Part 2 | Func. Pkg. |
|---|--------------------|-------------------|
| | | Option FC-P/-A |
| :Subsystem - Train Detection System | | |
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| ID Typ | yhe | Requirement Part 1 | | | | | Requirement Part 2 | Func Pkg. |
|--------------|-----|--|----------------------|--|-------------------------------|--|--------------------|--------------|
| DS.6028 Info | fo | TDS SD 2.1.3.3.7 TDS_UC2.1.3.3: Axle passing during sweeping train process Subsyste | | | | | | |
| | | Subsyste Alternative Scenario: Outgoing axle detected while waiting for sweeping train or acknowledgement (to no process state, Disturbed Unable FC) [TDS SD 2.1.3.3.7] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state: "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear" or "TVPS is waiting for an acknowledgement after FC-P-A command and unable to be forced to clear." Before Sweeping Train Process the relevant TVPS was in state "TVPS disturbed and able to be forced to clear with an operational reason" or TVPS disturbed and unable to be forced to clear with an operational reason" or TVPS disturbed and unable to be forced to clear with an operational reason" or TVPS disturbed and unable to be forced to clear with an operational reason" or TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B. Interaction 2.1.3.3.7.A: 1. One Wheel is passing a Detection Point of the Subsystem - Train Detection System. Train Detection System receives, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. par 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". also par alt [The previous received command was a FC-P-Command] 2.b1.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the reason for | par Msg_TVPS_Occu | Passing_Detected pancy_Status(Disturbed, Unable to be forced to nsg_TVPS_FC_P_failed(Incorrect count) | o clear, Operational reason) | | | |

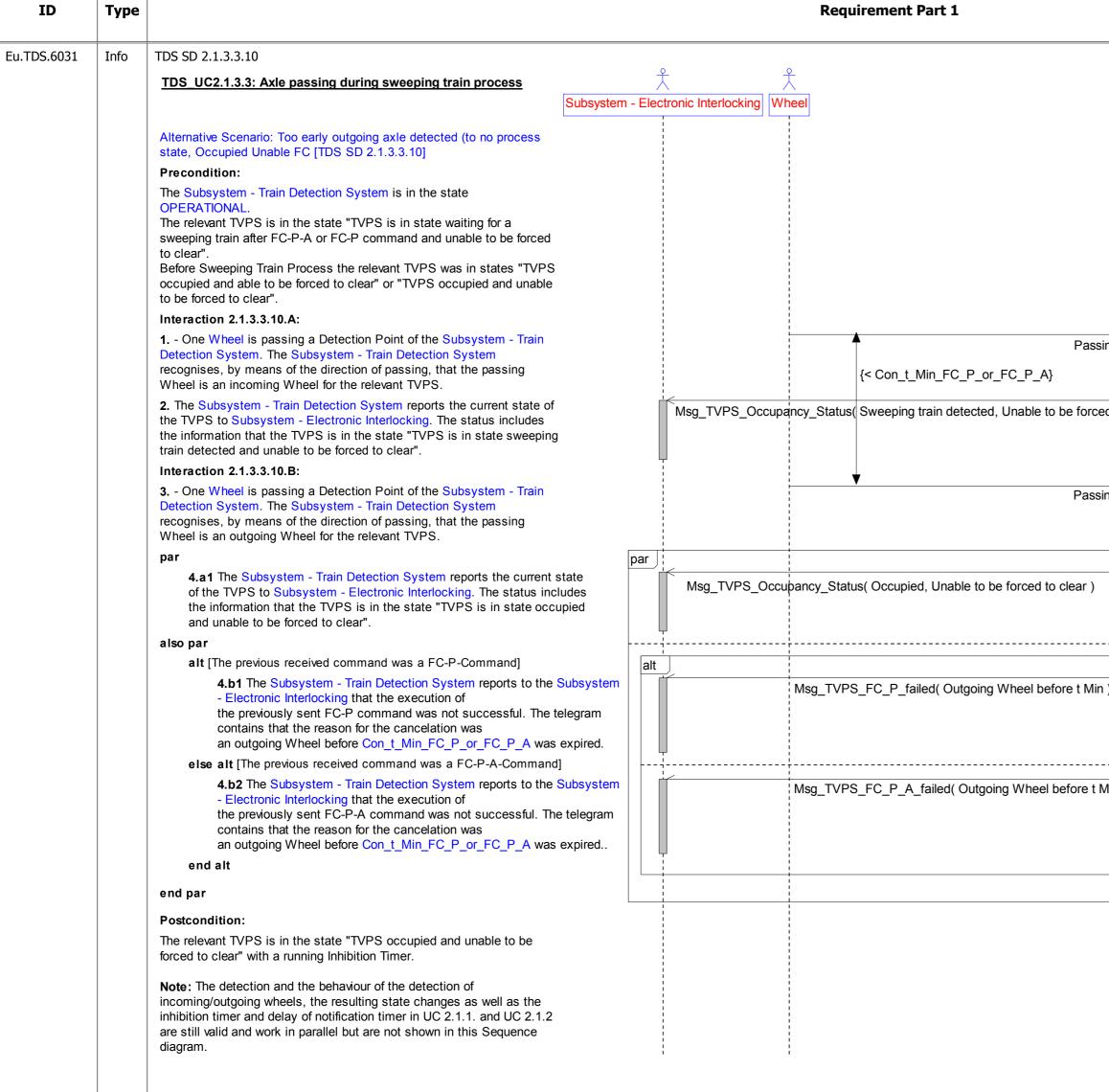
| ID | Туре | Requirement Part 1 | Requirement Part 2 | Fun Pkg |
|------------|------|---|--------------------|------------|
| u.TDS.6032 | Info | TDS SD 2.1.3.3.8 | | Option |
| | | TDS_UC2.1.3.3: Axle passing during sweeping train process | | FC-P/- |
| | | Subsystem - Electronic Interlocking Wheel :Subsystem - Train De | etection System | |
| | | Alternative Scenario: Uninterpretable pattern detected (to state Disturbed Unable FC) [TDS SD 2.1.3.3.8] | | |
| | | Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state: - "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear", - "TVPS is in the state sweeping train detected and unable to be forced to clear" or - "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to clear". Before Sweeping Train Process the relevant TVPS was in state "TVPS disturbed and able to be forced to clear with an operational reason" or "TVPS disturbed and unable to be forced to clear mathematical teason" or "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B | | |
| | | Interaction 2.1.3.3.8.A: | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises that a sensor of a detection point received an uninterpretable or undefined pattern. | | |
| | | par par | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to be forced to clear, Operational reason) clear with an operational reason". | | |
| | | also par | | |
| | | alt [The previous received command was a FC-P-Command] | | |
| | | 2.b1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P command was not successful. The telegram contains that the reason for the cancelation was an incorrect count. | | |
| | | else alt [The previous received command was a FC-P-A-Command] | | |
| | | 2.b2 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P-A command was not successful. The telegram contains that the reason for the cancelation was an incorrect count. | | |
| | | end alt | | |
| | | end par | | |
| | | Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason" with a running Inhibition Timer. | | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence diagram. | | |

Туре

ID

| | Type | | | |
|-------------|------|--|--------|---|
| Eu.TDS.6030 | Info | TDS SD 2.1.3.3.9 | | |
| | | TDS_UC2.1.3.3: Axle passing during sweeping train process | 7 | گر |
| | | Subsystem | - Elec | ctronic Interlocking Wheel |
| | | Alternative Scenario: Too early outgoing axle detected (to no process state, Disturbed Unable FC) [TDS SD 2.1.3.3.9] | | |
| | | Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear". Before Sweeping Train Process the relevant TVPS was in states "TVPS disturbed and able to be forced to clear with an operational reason" or "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B. | | |
| | | Interaction 2.1.3.3.9.A: | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | | Passin {< Con_t_Min_FC_P_or_FC_P_A} |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS is in state sweeping train detected and unable to be forced to clear". | | Msg_TVPS_Occupancy_Status(Sweeping train detected, Unable to be forced |
| | | Interaction 2.1.3.3.9.B: | | \checkmark |
| | | One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | | Passin |
| | | par | par | |
| | | 4.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". | | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear, Op |
| | | also par | | |
| | | alt [The previous received command was a FC-P-Command] | alt | |
| | | 4.b1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P command was not successful. The telegram contains that the reason for the cancelation was an outgoing Wheel before Con_t_Min_FC_P_or_FC_P_A was expired. | | Msg_TVPS_FC_P_failed(Outgoing Wheel before t Min) |
| | | else alt [The previous received command was a FC-P-A-Command] | | |
| | | 4.b2 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P-A command was not successful. The telegram contains that the reason for the cancelation was an outgoing Wheel before Con_t_Min_FC_P_or_FC_P_A was expired | | Msg_TVPS_FC_P_A_failed(Outgoing Wheel before t Mi |
| | | end alt | | |
| | | end par | | |
| | | Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason" with a running Inhibition Timer. | | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence diagram. | | |

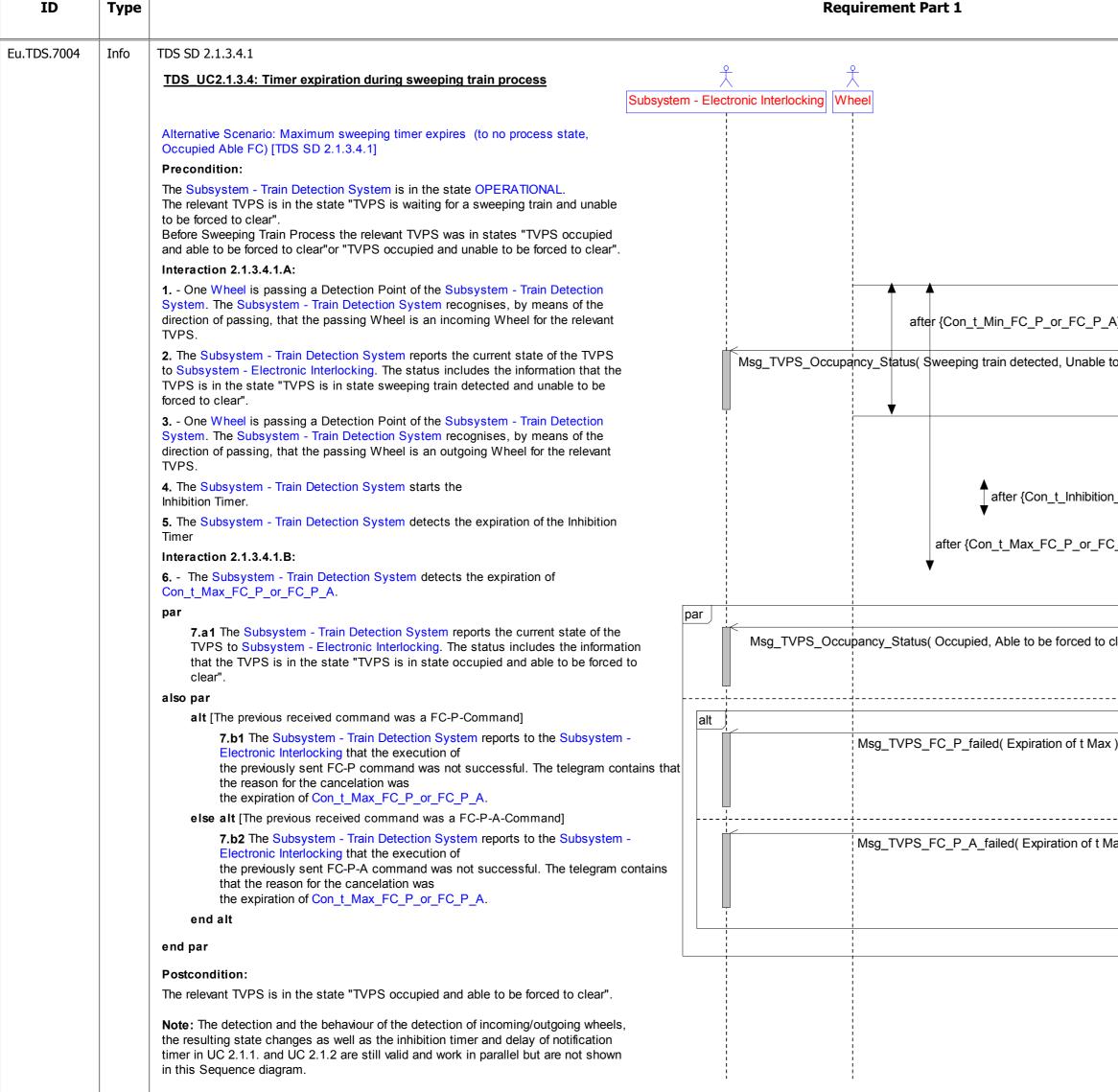
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| ng_Detected in) | | | | | Option FC-P/-A |
| it to clear) in) in) | <u>:St</u> | <u>ıbsystem - Train I</u> | Detection System | | |
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| | | Requirement Part 2 | Func. Pkg. |
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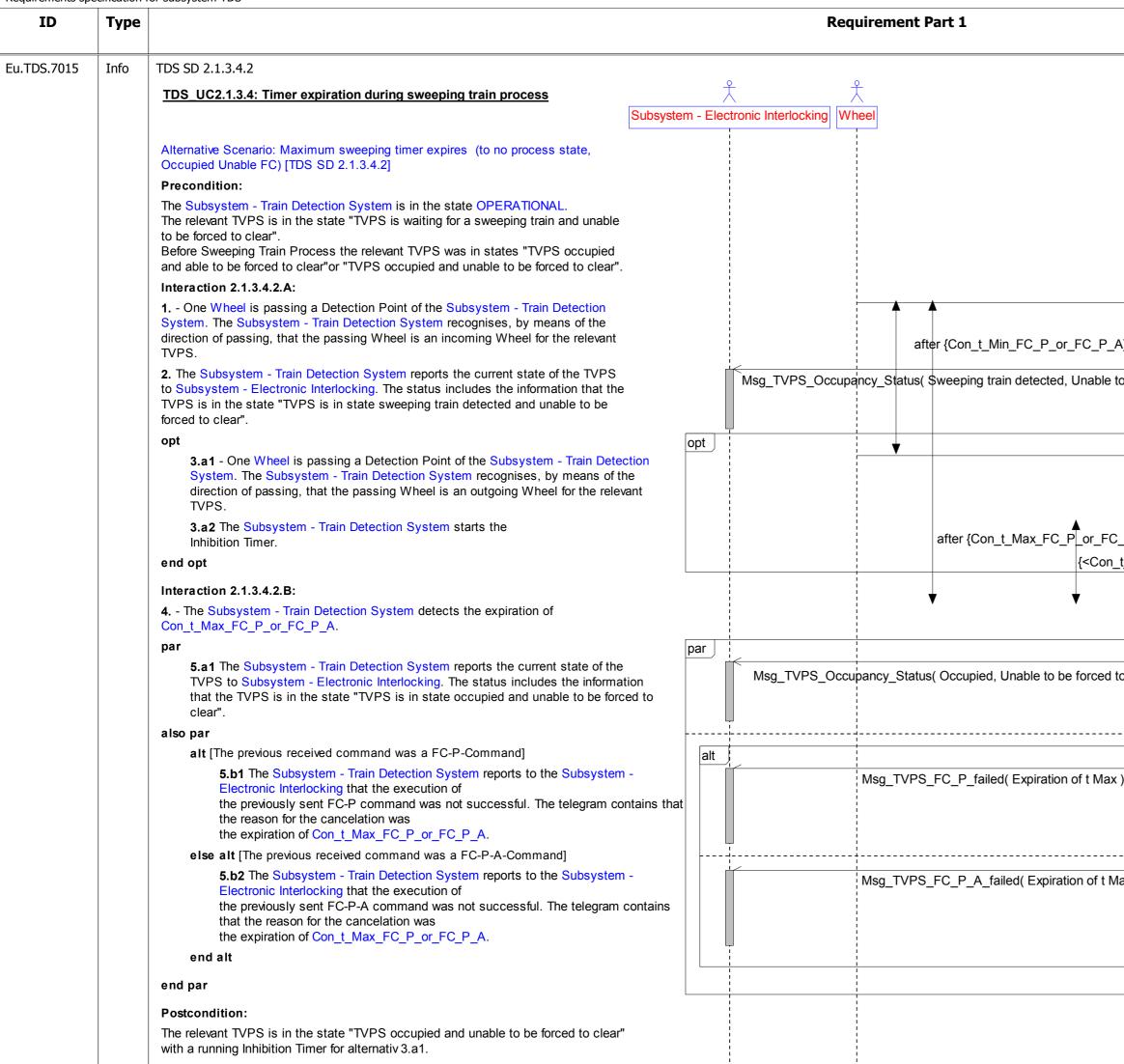
| ID | Туре | Requirement Part | 1 | Requirement Part 2 | Fui Pk |
|-----------|------|--|---|--------------------|-----------|
| .TDS.7043 | Info | TDS SD 2.1.3.3.11 | | | Optio |
| | | TDS_UC2.1.3.3: Axle passing during sweeping train process | <u>گ</u> | | FC-P/ |
| | | | onic Interlocking Wheel <u>:Subsystem - Train Detection System</u> | | |
| | | Alternative Scenario: Not-permitted outgoing axle detected (to no process state, Occupied Unable FC) [TDS SD 2.1.3.3.11] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state: - "TVPS is in state sweeping train detected and unable to be forced to clear", - "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear" or - "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to clear". Before Sweeping Train Process the relevant TVPS was in states "TVPS occupied and able to be forced to clear"or "TVPS occupied and unable to be forced to clear". | | | |
| | | Interaction 2.1.3.3.11.A: | | | |
| | | 1. The Subsystem - Train Detection System recognises a passing of a detection point which is configured as not permitted for FC-P-A or FC-P. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | Not_Permitted_Passing_Detected | | |
| | | par par | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied and unable to be forced to clear". | Msg_TVPS_Occupancy_Status(Occupied, Unable to be forced to clear) | | |
| | | also par | | | |
| | | alt [The previous received command was a FC-P-Command] | | | |
| | | 2.b1.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P command was not successful. The telegram contains that the reason for the cancelation was a not permitted passing. | Msg_TVPS_FC_P_failed(Not permitted passing) | | |
| | | else alt [The previous received command was a FC-P-A-Command] | | | |
| | | 2.b1.b1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P-A command was not successful. The telegram contains that the reason for the cancelation was a not permitted passing. | Msg ^l _TVPS_FC_P_A_failed(Not permitted passing) | | |
| | | end alt | | | |
| | | end par | | | |
| | | Postcondition: | | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear" with a running Inhibition Timer. | | | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence diagram. | | | |

| ID | Туре | F | Requirement Part 1 | Requirement Part 2 | Fund Pkg |
|------------|------|--|--|---|-------------|
| u.TDS.7042 | Info | TDS SD 2.1.3.3.12 | | | Option |
| | | TDS_UC2.1.3.3: Axle passing during sweeping train process | $\dot{\chi}$ $\dot{\chi}$ | | FC-P/- |
| | | S | Subsystem - Electronic Interlocking Wheel :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Not-permitted outgoing axle detected (to no process state, Disturbed Unable FC) [TDS SD 2.1.3.3.12] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state: - "TVPS is in state sweeping train detected and unable to be forced to clear", - "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear" or - "TVPS is waiting for an acknowledgment after FC-P-A command and unable to be forced to clear". Before Sweeping Train Process the relevant TVPS was in states "TVPS disturbed and able to be forced to clear with an operational reason" or "TVPS disturbed and unable to be forced to clear with B. | | | |
| | | Interaction 2.1.3.3.5.A: | | | |
| | | 1. The Subsystem - Train Detection System recognises a passing of a detection point which is configured as not permitted for FC-P-A or FC-P. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | Not_Permitted_Passing_Detected | | |
| | | par | | | |
| | | 2.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear, Operational reason) | | |
| | | also par | | | |
| | | alt [The previous received command was a FC-P-Command] | alt | | |
| | | 2.b1.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P command was not successful. The telegram contains that the reason for cancelation was a not permitted passing. | | | |
| | | else alt [The previous received command was a FC-P-A-Command] | | | |
| | | 2.b2.b1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P-A command was not successful. The telegram contains that the reason cancelation was a not permitted passing. | | | |
| | | end alt | | | |
| | | end par | | | |
| | | Postcondition: | | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason" with a running Inhibition Timer. | | | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence diagram. | | | |
| TDS.6035 | Info | TDS_UC2.1.3.4: Timer expiration during sweeping train process | | The Subsystem-UseCase "TDS_UC2.1.3.4: Timer expiration during sweeping train process" defines the behaviour of the Subsystem - Train Detection System while Timer expiration during sweeping train process | em |



| | | Requirement Part 2 | Func. Pkg. |
|------------------------|----------------|--------------------|-------------------|
| | | | Option FC-P/-A |
| :Subsystem - Train De | tection System | | |
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Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence diagram.

| | | | Requirement Part 2 | Func. Pkg. |
|----------------------|--------------------|------------------|--------------------|-------------------|
| | | | | Option FC-P/-A |
| - | :Subsystem - Train | Detection System | | |
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| Passing_Detected | | | | |
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| be forced to clear) | | | | |
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| Passing_Detected | | | | |
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| P_A} | | | | |
| _Inhibition_Timer} | | | | |
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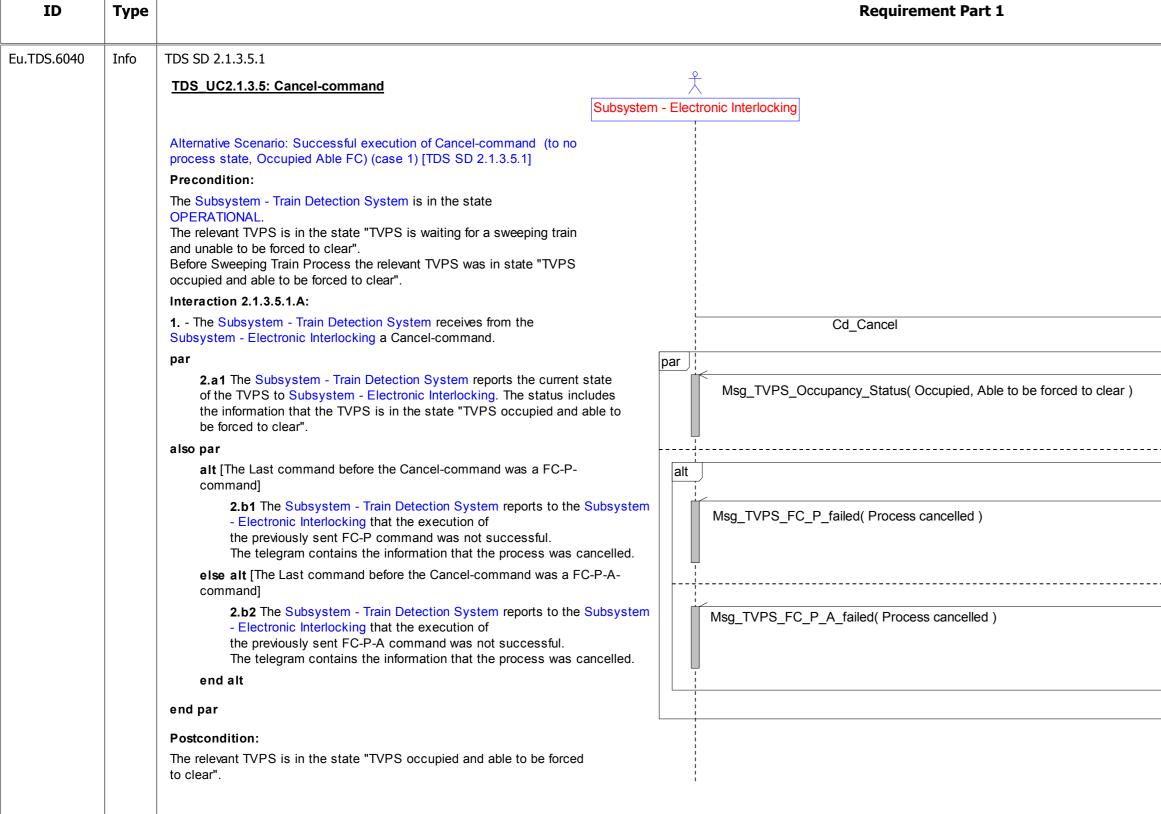
| ID | Туре | | Requirement Part 1 |
|-------------|------|--|---|
| Eu.TDS.7013 | Info | TDS SD 2.1.3.4.3 | |
| | | TDS_UC2.1.3.4: Timer expiration during sweeping train process | J J Subsystem - Electronic Interlocking Wheel |
| | | Alternative Scenario: Maximum sweeping timer expires (to no process state, Disturbed Able FC) [TDS SD 2.1.3.4.3] | |
| | | Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS is waiting for a sweeping train and unable to be forced to clear". Before Sweeping Train Process the relevant TVPS was in states "TVPS disturbed and able to be forced to clear with an operational reason" or "TVPS disturbed and unable to be forced to clear with an operational reason" or "TVPS disturbed and unable to be forced to clear with an operational reason" or "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B. Interaction 2.1.3.4.3.A: | |
| | | One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | after {Con_t_Min_FC_P_or_FC_P_A} |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS is in state sweeping train detected and unable to be forced to clear". | Msg_TVPS_Occupancy_Status(Sweeping train detected, Unable to |
| | | 3. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | |
| | | 4. The Subsystem - Train Detection System starts the Inhibition Timer. | after {Con |
| | | 5. The Subsystem - Train Detection System detects the expiration of the Inhibition Timer Interaction 2.1.3.4.3.B: | after {Con_t_Max |
| | | 6. - The Subsystem - Train Detection System detects the expiration of Con_t_Max_FC_P_or_FC_P_A. | · · · · · |
| | | par | par J |
| | | 7.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS in the state "TVPS disturbed and able to be forced to clear with an operational reason" | S is Msg_TVPS_Occupancy_Status(Disturbed, Able to be forced to cl |
| | | also par | |
| | | alt [The previous received command was a FC-P-Command] | alt |
| | | 7.b1 The Subsystem - Train Detection System reports to the Subsystem - Electr Interlocking that the execution of the previously sent FC-P command was not successful. The telegram contains th reason for the cancelation was the expiration of Con_t_Max_FC_P_or_FC_P_A. | |
| | | else alt [The previous received command was a FC-P-A-Command] | · · · · · · · · · · · · · · · · · · · |
| | | 7.b2 The Subsystem - Train Detection System reports to the Subsystem - Electr Interlocking that the execution of the previously sent FC-P-A command was not successful. The telegram contains reason for the cancelation was the expiration of Con_t_Max_FC_P_or_FC_P_A. end alt | |
| | | end par | |
| | | end par | |
| | | Postcondition: The relevant TVPS is in the state "TVPS disturbed and able to be forced to clear with an operational reason". | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence diagram. | |

| | | Requirement Part 2 | Func. Pkg. |
|---------------------------------------|-------------------------------|--------------------|-------------------|
| | | | Option FC-P/-A |
| :Subsy | stem - Train Detection System | | |
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| Passing_Detected | > | | |
| r_FC_P_A} | | | |
| , Unable to be forced to clear) | | | |
| Passing_Detected | | | |
| after {Con_t_Inhibition_Timer} | | | |
| Con_t_Max_FC_P_or_FC_P_A} | | | |
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| forced to clear, Operational reason) | | | |
| orceu to clear, Operational reason) | | | |
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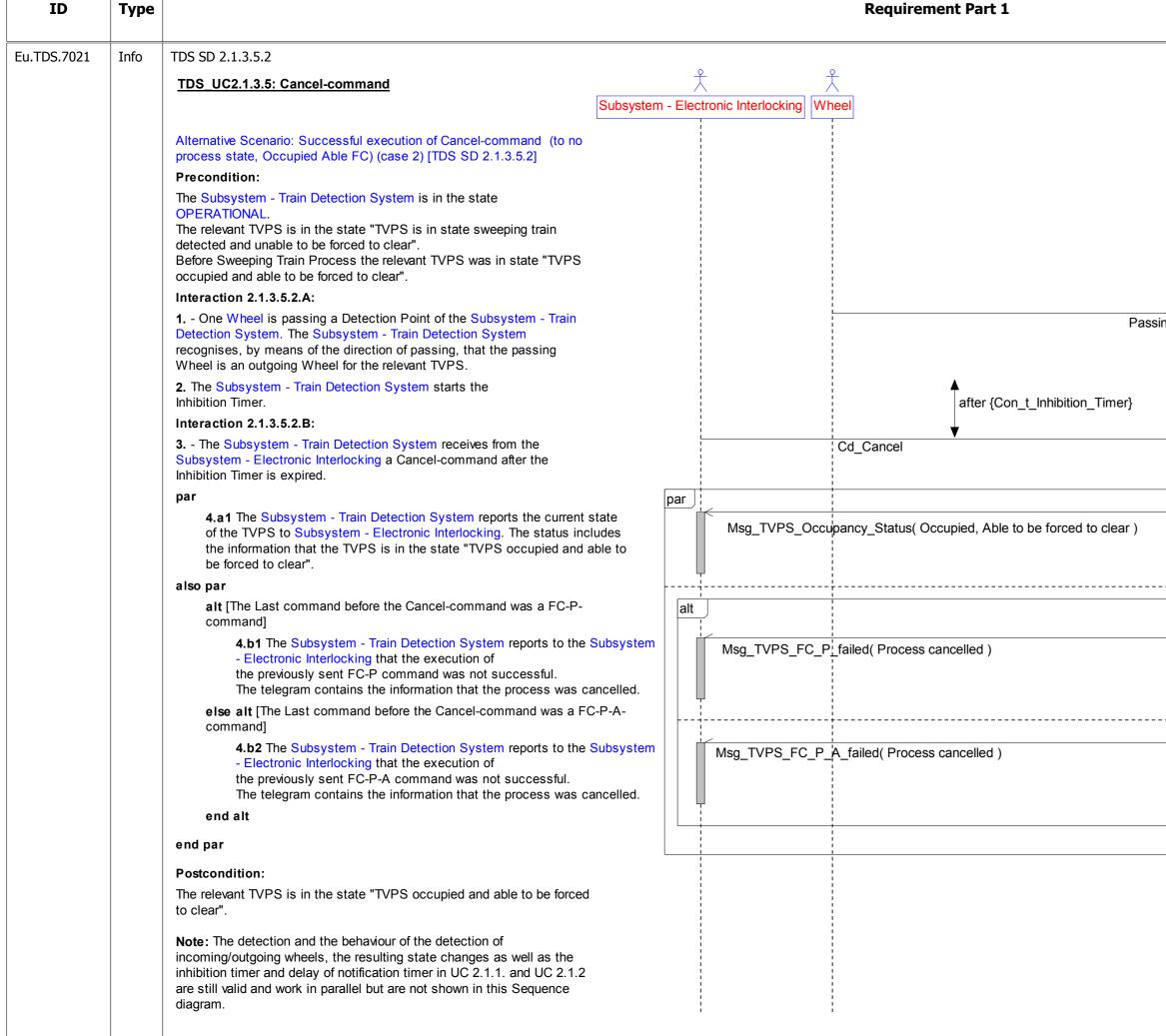
| ID | Туре | | | | Req | uiren | nent F | Part 1 |
|-------------|------|---|------------|---------------|------------------------|-----------------------|----------|--|
| Eu.TDS.7014 | Info | TDS SD 2.1.3.4.4 | | | | | | |
| | | TDS_UC2.1.3.4: Timer expiration during sweeping train process | | Ţ | <u>-</u> | £ | | |
| | | Sub | system - I | Elec | tronic Interlocking WI | neel | | |
| | | Alternative Scenario: Maximum sweeping timer expires (to no process state, Disturbed Unable FC) [TDS SD 2.1.3.4.4] | | | | | | |
| | | Precondition: | | | | 1 1 1 | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The Subsystem - Train Detection System is configured as Variant B. The relevant TVPS is in the state "TVPS is waiting for a sweeping train and unable to be forced to clear". Before Sweeping Train Process the relevant TVPS was in states "TVPS disturbed and able to be forced to clear with an operational reason" or "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B. | | | | | | |
| | | Interaction 2.1.3.4.4.A: | | 1 | | | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | | | | | aft | er {Con_t_Min_FC_P_or_FC_P_A} |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS is in state sweeping train detected and unable to be forced to clear". | | | Msg_TVPS_Occupa | ancy_S | tatus(s | Sweeping train detected, Unable to b |
| | | opt | 0 | pt | | - | ▼ | |
| | | 3.a1 - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | | | | | | |
| | | 3.a2 The Subsystem - Train Detection System starts the Inhibition Timer. | | | | 1 1 1 1 1 | | after {Con_t_Max_FC_P_or_FC_P_ |
| | | end opt | | | | | | { <con_t_i< th=""></con_t_i<> |
| | | Interaction 2.1.3.4.4.B: | | I | | | , | ¥ ¥ |
| | | 4 The Subsystem - Train Detection System detects the expiration of Con_t_Max_FC_P_or_FC_P_A. | | | | | | |
| | | par | par | Ţ | | | | |
| | | 5.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". | | | Msg_TVPS_Occu | pancy_ | _Status | s(Disturbed, Unable to be forced to c |
| | | also par | | ب ا ۱ ۱ | | | | |
| | | alt [The previous received command was a FC-P-Command] | a | lt | | 1 | | |
| | | 5.b1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P command was not successful. The telegram contains the reason for the cancelation was the expiration of Con_t_Max_FC_P_or_FC_P_A. | s that | | | Msg_ | TVPS | _FC_P_failed(Expiration of t Max) |
| | | else alt [The previous received command was a FC-P-A-Command] | | ; | | ; + | | |
| | | 5.b2 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P-A command was not successful. The telegram conta that the reason for the cancelation was the expiration of Con_t_Max_FC_P_or_FC_P_A. | ins | | | Msg_ | TVPS | _FC_P_A_failed(Expiration of t Max |
| | | end alt | | ר ו ו | | | | |
| | | end par | | 1 | | | | |
| | | Postcondition: | | 1 1 | | 1 | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason" with a running Inhibition Timer for alternativ 3.a1. | | | | | | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence diagram. | | | | | | |

| Eu.TDS.6039 | Info ⁻ | TDS_UC2.1.3.5: Cancel-command |
|-------------|-------------------|-------------------------------|

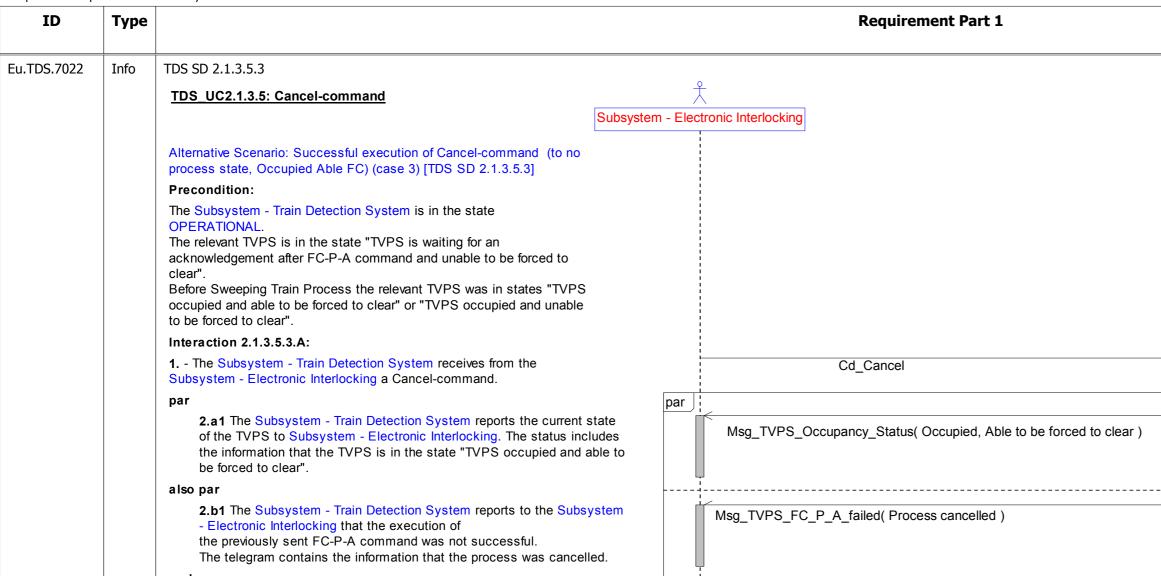
| | Requirement Part 2 | Func. Pkg. |
|---|---|-------------------|
| | | Option FC-P/-A |
| :Subsystem - Train Detection System | | |
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| or_FC_P_A} <con_t_inhibition_timer}< td=""><td></td><td></td></con_t_inhibition_timer}<> | | |
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| | The Subsystem-UseCase "TDS_UC2.1.3.5: Cancel- command" defines the behaviour of the Subsystem - Train Detection System after receiving a Cancel- command from the Subsystem - Electronic Interlocking. | Option FC-P/-A |



| | Requirement Part 2 | Func Pkg. |
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| Culture Train Date stice System | | Option FC-P/-A |
| :Subsystem - Train Detection System | | |
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| | Requirement Part 2 | Func. Pkg. |
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| :Subsystem - Train Detection System | | Option FC-P/-A |
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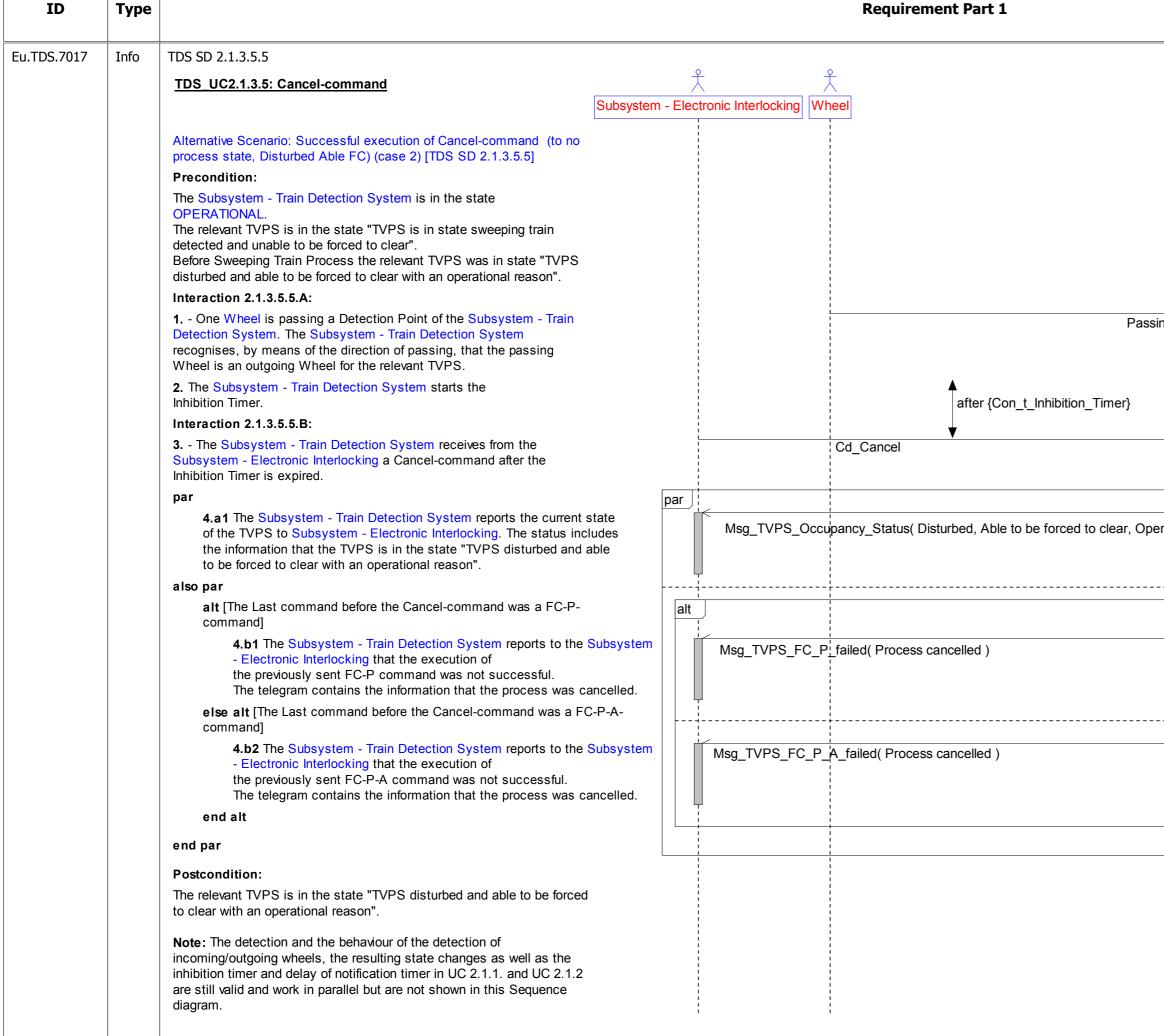


end par Postcondition:

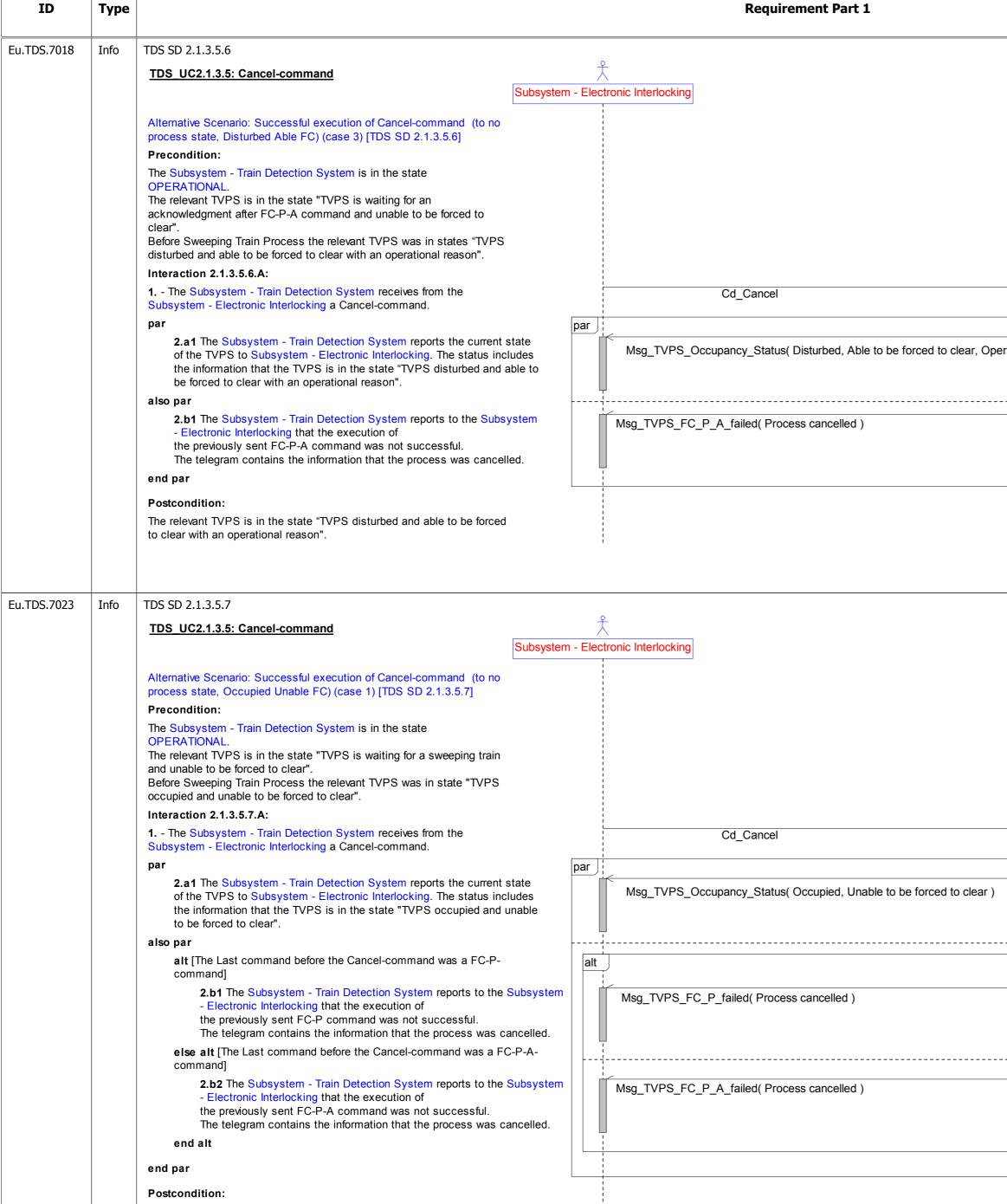
The relevant TVPS is in the state "TVPS occupied and able to be forced to clear".

| Eu.TDS.7016 | Info | TDS SD 2.1.3.5.4 | | | |
|-------------|------|--|-----------|----------------|--|
| | | TDS_UC2.1.3.5: Cancel-command | | Ĵ | |
| | | ٤ | Subsystem | - Elec | tronic Interlocking |
| | | Alternative Scenario: Successful execution of Cancel-command (to no process state, Disturbed Able FC) (case 1) [TDS SD 2.1.3.5.4] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS is waiting for a sweeping train and unable to be forced to clear". Before Sweeping Train Process the relevant TVPS was in state "TVPS disturbed and able to be forced to clear with an operational reason". | | | |
| | | Interaction 2.1.3.5.4.A: | | | |
| | | 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a Cancel-command. | | | Cd_Cancel |
| | | par | | par | <i>,</i> |
| | | 2.a1 The Subsystem - Train Detection System reports the current sta of the TVPS to Subsystem - Electronic Interlocking. The status inclue the information that the TVPS is in the state "TVPS disturbed and ab to be forced to clear with an operational reason". | des | | Msg_TVPS_Occupancy_Status(Disturbed, Able to be forced to clear, Oper |
| | | also par | - | ا لـــــــ | |
| | | alt [The Last command before the Cancel-command was a FC-P- command] | | alt | J |
| | | 2.b1 The Subsystem - Train Detection System reports to the Su - Electronic Interlocking that the execution of the previously sent FC-P command was not successful. The telegram contains the information that the process was can | | | Msg_TVPS_FC_P_failed(Process cancelled) |
| | | else alt [The Last command before the Cancel-command was a FC-F command] | P-A- | | · |
| | | 2.b2 The Subsystem - Train Detection System reports to the Su - Electronic Interlocking that the execution of the previously sent FC-P-A command was not successful. The telegram contains the information that the process was can | | | Msg_TVPS_FC_P_A_failed(Process cancelled) |
| | | end alt | | | |
| | | end par | | 1 | |
| | | Postcondition: | L | 1 | |
| | | The relevant TVPS is in the state "TVPS disturbed and able to be forced to clear with an operational reason". | | | |
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| | Requirement Part 2 | Func. Pkg. |
|---|--------------------|-------------------|
| Subsystem - Train Detection System | | Option FC-P/-A |
| Subsystem - Train Detection System isubsystem - Train Detection System < | | Option FC-P/-A |



| | Requirement Part 2 | Func Pkg. |
|-------------------------------------|--------------------|-------------------|
| :Subsystem - Train Detection System | | Option FC-P/-A |
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| rational reason) | | |
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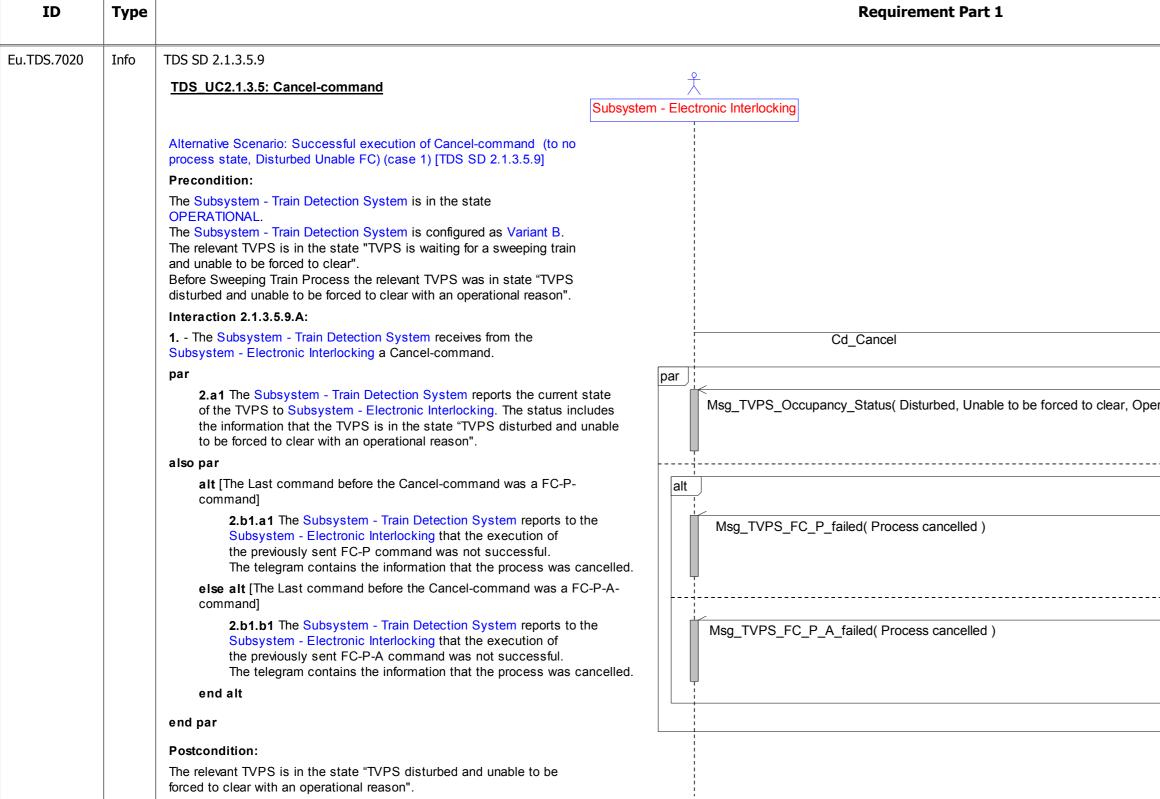
The relevant TVPS is in the state "TVPS occupied and unable to be

forced to clear".

| | Requirement Part 2 | Func. Pkg. |
|--|--------------------|-------------------|
| Subsystem - Train Detection System Image: Subsystem - Train Detection System | | Option FC-P/-A |
| Subsystem - Train Detection System | | Option FC-P/-A |
| | | |

| ID | Туре | | | | | Requireme | ent Part 1 |
|-------------|------|---|------|------|--|---|---|
| Eu.TDS.7024 | Info | TDS SD 2.1.3.5.8 | | | | | |
| | | TDS_UC2.1.3.5: Cancel-command | | | | £ | |
| | | | em - | Elec | tronic Interlocking Wh | neel | |
| | | Alternative Scenario: Successful execution of Cancel-command (to no process state, Occupied Unable FC) (case 2) [TDS SD 2.1.3.5.8] Precondition: | | | 1 1 1 1 1 1 1 1 | 1 1 1 1 1 1 1 1 1 | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. he relevant TVPS is in the state "TVPS is waiting for a sweeping train and unable to be forced to clear". Before Sweeping Train Process the relevant TVPS was in state "TVPS | | | | | |
| | | occupied and unable to be forced to clear". Interaction 2.1.3.5.8.A: | | | 1 1 1 | | |
| | | 1. - One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an incoming Wheel for the relevant TVPS. | | | I I I I I I I I I | I I I I I I I I I | Passing_I |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS is in state sweeping train detected and unable to be forced to clear". | | | Msg_TVPS_Occupa | ancy_Status(Swee | bing train detected, Unable to be forced to |
| | | opt 3.a1 One Wheel is passing a Detection Point of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | 0 | opt | | | Passing_I |
| | | 3.a2 The Subsystem - Train Detection System starts the Inhibition Timer. | | | | | ▲ {< Con_t_Inhibition_Timer} |
| | | end opt | | | 1 1 1 | | |
| | | Interaction 2.1.3.5.8.B: | | | 1 1 1 | | |
| | | 3. - The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a Cancel-command. | | | 1 | Cd_Cancel | • |
| | | par 4.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied and unable to be forced to clear". | p | oar | Msg_TVPS_Occu | ipancy_Status(Occ | upied, Unable to be forced to clear) |
| | | also par | | | T | , | |
| | | alt [The Last command before the Cancel-command was a FC-P- command] | | alt | | - - - - - - | |
| | | 4.b1.a1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P command was not successful. The telegram contains the information that the process was cancelled. | | | Msg_TVPS_FC_P | failed(Process ca | ncelled) |
| | | else alt [The Last command before the Cancel-command was a FC-P-A- command] | | | | | |
| | | 4.b1.b1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of the previously sent FC-P-A command was not successful. The telegram contains the information that the process was cancelled. | | | Msg_TVPS_FC_P_ | A_failed(Process o | cancelled) |
| | | end alt | | | 1 1 1 | | |
| | | end par | | | | | |
| | | Postcondition: | | | | | |
| | | The relevant TVPS is in the state "TVPS occupied and unable to be forced to clear" with a running Inhibition Timer for alternativ 3.a1. | | | | | |
| | | Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still valid and work in parallel but are not shown in this Sequence diagram. | | | | - - - - - - - - - - - - - - - - - - - | |
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| | Requirement Part 2 | Func. Pkg. |
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| | | Option FC-P/-A |
| :Subsystem - Train Detection System | | , |
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| | Requirement Part 2 | Func. Pkg. |
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| :Subsystem - Train Detection System | | Option FC-P/-A |
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| rational reason) | | |
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|) | Туре | | | Requirement Part 1 | | Requirement Part 2 | Fu P |
|------|------|--|-------------------------------|--|-------------------------------------|--------------------|---------|
| 7019 | Info | TDS SD 2.1.3.5.10 | | | | | Opt |
| | | TDS_UC2.1.3.5: Cancel-command | £ | <u>ڳ</u> | | | FC-I |
| | | Subsystem | n - Electronic Interlocking W | 'heel | :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Successful execution of Cancel-command (to no | | | | | |
| | | process state, Disturbed Unable FC) (case 2) [TDS SD 2.1.3.5.10] | | | | | |
| | | Precondition: | | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | | | | |
| | | The Subsystem - Train Detection System is configured as Variant B. | | | | | |
| | | The relevant TVPS is in the state "TVPS is waiting for a sweeping train and unable to be forced to clear". | | | | | |
| | | Before Sweeping Train Process the relevant TVPS was in state "TVPS disturbed and unable to be forced to clear with an operational reason". | | | | | |
| | | Interaction 2.1.3.5.10.A: | | | | | |
| | | 1 One Wheel is passing a Detection Point of the Subsystem - Train | | Passing_Detected | | | |
| | | Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing | | | | | |
| | | Wheel is an incoming Wheel for the relevant TVPS. | | | | | |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes | Msg_TVPS_Occup | ancy_Status(Sweeping train detected, Unable to be forced to clear) | | | |
| | | the information that the TVPS is in the state "TVPS is in state sweeping | | | | | |
| | | train detected and unable to be forced to clear". opt | | | | | |
| | | 3.a1 One Wheel is passing a Detection Point of the Subsystem - Train | opt | Passing_Detected | | | |
| | | Detection System. The Subsystem - Train Detection System | | i assiig_Detected | | | |
| | | recognises, by means of the direction of passing, that the passing Wheel is an outgoing Wheel for the relevant TVPS. | | | | | |
| | | 3.a2 The Subsystem - Train Detection System starts the | | ▲ | | | |
| | | Inhibition Timer. end opt | | {< Con_t_Inhibition_Timer} | | | |
| | | Interaction 2.1.3.5.10.B: | | | | | |
| | | 3. - The Subsystem - Train Detection System receives from the | | ▼ Cd_Cancel | | | |
| | | Subsystem - Electronic Interlocking a Cancel-command. | | | | | |
| | | par | par | | | | |
| | | 4.a1 The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes | Msg_TVPS_Occup | ancy_Status(Disturbed, Unable to be forced to clear, Operational reason) | | | |
| | | the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". | | | | | |
| | | also par | | | | | |
| | | alt [The Last command before the Cancel-command was a FC-P- | alt | | | | |
| | | command] 4.b1.a1 The Subsystem - Train Detection System reports to the | | | | | |
| | | Subsystem - Electronic Interlocking that the execution of | Msg_TVPS_FC_I | P_failed(Process cancelled) | | | |
| | | the previously sent FC-P command was not successful. The telegram contains the information that the process was cancelled. | | | | | |
| | | else alt [The Last command before the Cancel-command was a FC-P-A- | | | | | |
| | | command] | | | | | |
| | | 4.b1.b1 The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the execution of | Msg_TVPS_FC_P | _A_failed(Process cancelled) | | | |
| | | the previously sent FC-P-A command was not successful. The telegram contains the information that the process was cancelled. | | | | | |
| | | end alt | | | | | |
| | | end par | | | | | |
| | | Postcondition: | | | | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be | | | | | |
| | | forced to clear with an operational reason" with a running Inhibition Timer for alternativ 3.a1. | | | | | |
| | | Note: The detection and the behaviour of the detection of | | | | | |
| | | incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 | | | | | |
| | | are still valid and work in parallel but are not shown in this Sequence | | | | | |
| | | diagram. | 1 | : L | | | |

| | Туре | Requirement Part 1 | Requi | irement Part 2 | Func. Pkg. |
|-------------|------|---|---|----------------|-------------------|
| Eu.TDS.7025 | Info | TDS SD 2.1.3.5.11 | | | Option |
| | | TDS_UC2.1.3.5: Cancel-command | <u> </u> | | FC-P/-A |
| | | Subsyste | n - Electronic Interlocking :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Unsuccessful execution of Cancel-command (operational reason) [TDS SD 2.1.3.5.11] Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P or FC-P-A. The relevant TVPS is in the states: - "TVPS vacant and unable to be forced to clear", - "TVPS occupied and able to be forced to clear", - "TVPS occupied and unable to be forced to clear", - "TVPS disturbed and able to be forced to clear with an operational reason" or - "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B. | | | |
| | | Interaction 2.1.3.5.11.A: | | | |
| | | 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a Cancel-command. | Cd_Cancel | | |
| | | 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with an operational reason. | Msg_Command_Rejected(Operational) | | |
| | | Postcondition: | | | |
| | | Note: This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the process state before sending the Cancel command. This SD is included to cover scenarios where the Subsystem - Electronic Interlocking and Subsystem - Train Detection System have different opinions on the process state, such as when the condition changes soon after the command has been sent. | | | |
| | | | | | |
| Eu.TDS.7026 | Info | TDS SD 2.1.3.5.12 | | | Option |
| Eu.TDS.7026 | Info | TDS SD 2.1.3.5.12 TDS UC2.1.3.5: Cancel-command | Ť. | | Option FC-P/-A |
| Eu.TDS.7026 | Info | TDS_UC2.1.3.5: Cancel-command | n - Electronic Interlocking :Subsystem - Train Detection System | | |
| Eu.TDS.7026 | Info | TDS_UC2.1.3.5: Cancel-command Subsyste Alternative Scenario: Unsuccessful execution of Cancel-command (technical reason) [TDS_SD 2.1.3.5.12] | | | |
| Eu.TDS.7026 | Info | TDS_UC2.1.3.5: Cancel-command Subsyste | n - Electronic Interlocking | | |
| Eu.TDS.7026 | Info | TDS_UC2.1.3.5: Cancel-command Subsyste Alternative Scenario: Unsuccessful execution of Cancel-command (technical reason) [TDS SD 2.1.3.5.12] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P or FC-P-A. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.5.12.A: | n - Electronic Interlocking | | |
| Eu.TDS.7026 | Info | TDS_UC2.1.3.5: Cancel-command Subsyste Alternative Scenario: Unsuccessful execution of Cancel-command (technical reason) [TDS SD 2.1.3.5.12] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P or FC-P-A. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.5.12.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a Cancel-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously | n - Electronic Interlocking Cd_Cancel Msg_Command_Rejected(Technical) | | |
| Eu.TDS.7026 | Info | TDS_UC2.1.3.5: Cancel-command Subsyste Alternative Scenario: Unsuccessful execution of Cancel-command (technical reason) [TDS SD 2.1.3.5.12] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P or FC-P-A. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.5.12.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a Cancel-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. | Cd_Cancel | | |
| Eu.TDS.7026 | Info | TDS_UC2.1.3.5: Cancel-command Subsyste Alternative Scenario: Unsuccessful execution of Cancel-command (technical reason) [TDS SD 2.1.3.5.12] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P or FC-P-A. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.5.12.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a Cancel-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously | Cd_Cancel | | |
| Eu.TDS.7026 | Info | TDS_UC2.1.3.5: Cancel-command Subsyste Alternative Scenario: Unsuccessful execution of Cancel-command (technical reason) [TDS SD 2.1.3.5.12] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P or FC-P-A. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.5.12.A: 1 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a Cancel-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with a technical reason. | Cd_Cancel | | |

| ID | Туре | | Requirement Part 1 |
|-------------|------|---|-------------------------------------|
| Eu.TDS.7027 | Info | TDS SD 2.1.3.6.1 | |
| | | TDS_UC2.1.3.6: FC Acknowledgement | Ļ |
| | | | Subsystem - Electronic Interlocking |
| | | Alternative Scenario: Unsuccessful execution of FC-Acknowledgement (operational reason) [TDS SD | |
| | | 2.1.3.6.1] Precondition: | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | |
| | | The relevant TVPS is configured to execute FC-P-A. The relevant TVPS is in the states: | |
| | | "TVPS vacant and unable to be forced to clear", "TVPS occupied and able to be forced to clear", | |
| | | "TVPS disturbed and able to be forced to clear with an operational reason", "TVPS occupied and unable to be forced to clear", | |
| | | "TVPS disturbed and unable to be forced to clear with an operational reason" for Variant B, "TVPS is waiting for sweeping train and unable to be forced to clear" or | |
| | | - "TVPS is in state sweeping train detected and unable to be forced to clear". | |
| | | Interaction 2.1.3.6.1.A: 1 The Subsystem - Train Detection System receives from the | Cd_FC(Acknowledgement) |
| | | Subsystem - Electronic Interlocking a FC-Acknowledgement-command. | |
| | | 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the previously sent command was rejected with an operational reason. | Msg_Command_Rejected(Operational) |
| | | Postcondition: | |
| | | Note: | |
| | | This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the process state before sending the FC command. This SD is included to cover scenarios where | |
| | | the Subsystem - Electronic Interlocking and Subsystem - Train Detection System have different opinions on the process state, such as when the condition changes soon after the command has been sent. | |
| | | on the process state, such as when the condition onlyges soon alter the command has been sent. | |
| | | | |
| Eu.TDS.7028 | Info | TDS SD 2.1.3.6.2 | |
| | | TDS_UC2.1.3.6: FC Acknowledgement | Ļ |
| | | | Subsystem - Electronic Interlocking |
| | | Alternative Scenario: Unsuccessful execution of FC-Acknowledgement (technical reason) [TDS SD | |
| | | 2.1.3.6.2] Precondition: | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | |
| | | The relevant TVPS is configured to execute FC-P-A. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical | |
| | | reason". Interaction 2.1.3.6.2.A: | |
| | | 1 The Subsystem - Train Detection System receives from the | Cd_FC(Acknowledgement) |
| | | Subsystem - Electronic Interlocking a FC-Acknowledgement-command. 2. The Subsystem - Train Detection System reports to the Subsystem - Electronic Interlocking that the | Msg_Command_Rejected(Technical) |
| | | previously sent command was rejected with a technical reason. | |
| | | Postcondition: | |
| | | Note: | |
| | | This scenario should normally be avoided because the Subsystem - Electronic Interlocking is expected to check the process state before sending the FC command. This SD is included to cover scenarios where | |
| | | the Subsystem - Electronic Interlocking and Subsystem - Train Detection System have different opinions on the process state, such as when the condition changes soon after the command has been sent. | |
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| Eu.TDS.7061 | Info | TDS_UC2.1.3.7: Visual Sweeping Confirmation | |
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| | Requirement Part 2 | Func. Pkg. |
|-------------------------------------|---|-------------------|
| | | Option FC-P/-A |
| :Subsystem - Train Detection System | | |
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| | | Option FC-P/-A |
| :Subsystem - Train Detection System | | |
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| | The Subsystem-UseCase "TDS_UC2.1.3.7: Visual Sweeping Confirmation" defines the behaviour of the Subsystem - Train Detection System after receiving a Visual Sweeping Confirmation - command from the Maintainer. | Option FC-P/-A |

| ID Type | pe | | Requirement Part 1 | | Requirement Part 2 | Fun Pke |
|-----------------|--|---|--|-------------------------------------|--------------------|------------|
| u.TDS.7040 Info | D TDS | S SD 2.1.3.7.1 | | | | Option |
| | <u>TD</u> S | OS_UC2.1.3.7: Visual Sweeping Confirmation Subsystem - | Lectronic Interlocking Maintainer | :Subsystem - Train Detection System | | FC-P/- |
| | SweePre-TheOPETheThe- "TV- "TV< | emative Scenario: Successful execution of FC-P with Visual reeping Confirmation from Maintainer [TDS SD 2.1.3.7.1] encondition: a Subsystem - Train Detection System is in the state terRATIONAL. a relevant TVPS is configured to execute FC-P. a relevant TVPS is in the states: TVPS occupied and able to be forced to clear", TVPS disturbed and unable to be forced to clear with an operational ison", TVPS disturbed and unable to be forced to clear with an operational ison" for Variant B. r the relevant TVPS the inhibition timer is not running. r the relevant TVPS the delay of notification of availability timer is not ning eraction 2.1.3.7.1.A: The Subsystem - Train Detection System receives from the baystem - Electronic Interlocking a FC-P command. The Subsystem - Train Detection System reports the current state of "TVPS to Subsystem - Electronic Interlocking. The status includes a information that the TVPS is in the state "TVPS is in state waiting for weeping train after FC-P-A or FC-P command and unable to be forced to clear". The Subsystem - Train Detection System receives from the intainer a visual sweeping confirmation. The Subsystem - Train Detection System receives from the intainer a visual sweeping confirmation. The Subsystem - Train Detection System receives from the intainer a visual sweeping confirmation. The Subsystem - Train Detection System receives from the intainer a visual sweeping confirmation. The Subsystem - Train Detection System receives from the intainer a visual sweeping confirmation. The Subsystem - Train Detection System receives from the intainer a visual sweeping confirmation. The Subsystem - Train Detection System receives from the intainer a visual sweeping confirmation. The Subsystem - Train Detection System receives from the intainter a visual sweeping confirmation. The Subs | Cd_FC(FC_P) Msg_TVPS_Occupancy_Status(Waiting for a sweeping train, Unable to be forced to clear) Visual_Sweeping_Confirmed Msg_TVPS_Occupancy_Status(Vacant, Unable to be forced to clear) | | | |

| ID | Туре | | Requirement Part 1 |
|-------------|------|---|---|
| Eu.TDS.7041 | Info | TDS SD 2.1.3.7.2 | |
| | | TDS_UC2.1.3.7: Visual Sweeping Confirmation | Subsystem - Electronic Interlocking Maintainer |
| | | Alternative Scenario: Successful execution of FC-P-A with Visual Sweeping Confirmation from Maintainer [TDS SD 2.1.3.7.2] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is configured to execute FC-P-A. The relevant TVPS is in the states: - "TVPS occupied and able to be forced to clear", - "TVPS disturbed and able to be forced to clear with an operational reason", - "TVPS occupied and unable to be forced to clear with an operational reason", - "TVPS occupied and unable to be forced to clear with an operational reason" for Variant B. For the relevant TVPS the inhibition timer is not running. For the relevant TVPS the delay of notification of availability timer is not running Interaction 2.1.3.7.2.A: 1. - The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking a FC-P-A-command. 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS is in state waiting for a sweeping train after FC-P-A or FC-P command and unable to be forced to clear". Interaction 2.1.3.7.2.B: 3. - The Subsystem - Train Detection System receives from the Maintainer a visual sweeping confirmation. 4. The Subsystem - Train Detection System receives from the Maintainer a visual sweeping confirmation. | Subsystem - Electronic Interlocking Maintainer Cd_FC(FC_P_A) Cd_FC(FC_P_A) Msg_TVPS_Occupancy_Status(Waiting for a sweeping train, Unable to be fore Visual_Sweeping_Confirmed |
| | | acknowledgment after FC-P-A command and unable to be forced to clear". Interaction 2.1.3.7.2.C: 5 The Subsystem - Train Detection System receives from the Subsystem - Electronic Interlocking an Acknowledgement after FC-P-A command. 6. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS vacant and unable to be forced to clear". The filling level of the relevant TVPS is set to zero. Postcondition: The relevant TVPS is in the state "TVPS vacant and unable to be forced to clear". Note: The detection and the behaviour of the detection of incoming/outgoing wheels, the resulting state changes as well as the inhibition timer and delay of notification timer in UC 2.1.1. and UC 2.1.2 are still uplid and work in parallel but are pet shown in this Sequence. | |
| | | are still valid and work in parallel but are not shown in this Sequence diagram. | |
| Eu.TDS.7062 | Info | TDS SD 2.1.3.7.3 | |
| | | TDS_UC2.1.3.7: Visual Sweeping Confirmation Alternative Scenario: Unsuccessful execution Sweeping Confirmation fro 2.1.3.7.3] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL The relevant TVPS is in the states: "TVPS vacant and unable to be forced to clear", "TVPS occupied and able to be forced to clear", "TVPS disturbed and able to be forced to clear with an operational reas "TVPS disturbed and able to be forced to clear with an operational reas "TVPS disturbed and unable to be forced to clear with an operational reas "TVPS is waiting for an acknowledgment after FC-P-A command and u "TVPS is in state sweeping train detected and unable to be forced to clear with an operational reas "TVPS is in state sweeping train detected and unable to be forced to clear with an operational reas "TVPS is in state sweeping train detected and unable to be forced to clear with an operational reas "TVPS is in state sweeping train detected and unable to be forced to clear "TVPS is in state sweeping train detected and unable to be forced to clear "TVPS is in state sweeping train detected and unable to be forced to clear "TVPS is in state sweeping train detected and unable to be forced to clear The Subsystem - Train Detection System receives from the Maintainer for command was rejected with an operational reason. | L. son", eason" for Variant B, inable to be forced to clear" or clear". ner a visual sweeping confirmation. Visual_Sweeping_Confirmed |

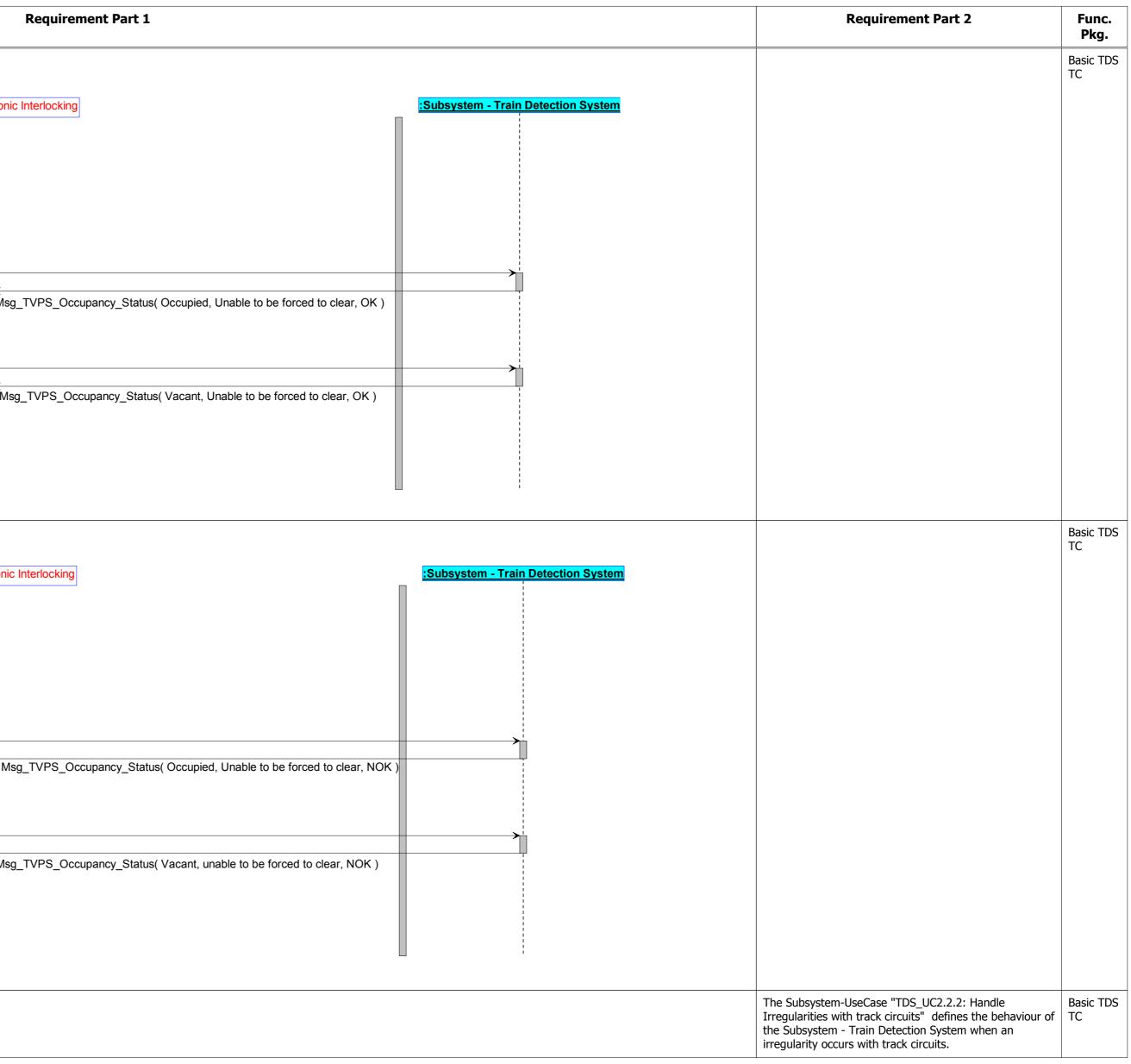
| | Requirement Part 2 | Func. |
|-------------------------------------|--------------------|-------------------|
| | - | Pkg. |
| | | Option FC-P/-A |
| :Subsystem - Train Detection System | | |
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| :Subsystem - Train Detection System | | |
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| ID | Туре | Requirem | ent Part 1 |
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| Eu.TDS.7063 | Info | TDS_UC2.1.3.7: Visual Sweeping Confirmation Image: Alternative Scenario: Unsuccessful execution Sweeping Confirmation from Maintainer (technical reason) [TDS_SD_2.1.3.7.4] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.1.3.7.4.2: 1 The Subsystem - Train Detection System receives from the Maintainer a visual sweeping confirmation. 2. The Subsystem - Train Detection System receives from the Maintainer a visual sweeping confirmation. | er Visual_Sweeping_Confirmed Msg_Command_Rejected(Technical) |
| Eu.TDS.6042 | Info | TDS_UC2.1.4: Critical failure | |
| Eu.TDS.6860 | Info | TDS_UC2.1.4: Critical failure Image: Alternative Scenario: Handle and report of critical failure of a TVPS [TDS SD 2.1.4.1] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. Interaction 2.1.4.1.8: 1 The Subsystem - Train Detection System recognises a critical failure of a TVPS or a hardware failure of the components of the Subsystem - Train Detection System. 2. The Subsystem - Train Detection System recognises a critical failure of a TVPS or a hardware failure of the components of the Subsystem. | /PS_Occupancy_Status(Disturbed, Unable |
| Eu.TDS.7036 | Info | TDS_UC2.2: TDS working with track circuits | |
| Eu.TDS.6044 | Info | TDS_UC2.2.1: Normal operation | |

| | Requirement Part 2 | Func. Pkg. |
|------------------------------------|--|-------------------|
| ed (Technical) | | Option FC-P/-A |
| | The Subsystem-UseCase "TDS_UC2.1.4: Critical failure" defines the behaviour of the Subsystem - Train Detection System after a critical failure. | Basic TDS AC |
| Subsystem - Train Detection System | | Basic TDS |
| | The Subsystem-UseCase "TDS_UC2.2: TDS working with track circuits" defines the behaviour of the Subsystem - Train Detection System which works with track circuits. The behaviour will be defined in the following UseCases: TDS_UC2.2.1: Normal operation TDS_UC2.2.2: Handle Irregularities with track circuits | Basic TDS TC |
| | The Subsystem-UseCase "TDS_UC2.2.1: Normal operation" describe the content of the occupancy status of "TVPS occupied", "TVPS vacant" and "TVPS disturbed" to the Subsystem - Electronic Interlocking and the detection of the occupancy status by a track circuit. | Basic TD TC |

| ID | Туре | | | Requirement Part 1 |
|-------------|------|--|------------|---|
| Eu.TDS.555 | Info | TDS SD 2.2.1.1 | | |
| | | TDS_UC2.2.1: Normal operation | ⊥ Wheel | Subsystem - Electronic Interlocking |
| | | Alternative Scenario: Handle and report of the TVPS occupancy status with track circuit [TDS SD 2.2.1.1] | | |
| | | Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply OK". The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply OK". | | |
| | | Interaction 2.2.1.1.A: | | |
| | | 1 One Wheel enters the TVPS of the Subsystem - Train Detection System. | Oc | ccupancy_Detected |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply OK". | | Msg_TVPS_Occupancy_Status(Occupied, Unable to be for |
| | | Interaction 2.2.1.1.B: | | |
| | | 3. - The last Wheel leaves the TVPS of the Subsystem - Train Detection System. | | cupancy_Detected |
| | | 4. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply OK". | | Msg_TVPS_Occupancy_Status(Vacant, Unable to be force |
| | | Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply OK". | | |
| Eu.TDS.4157 | Info | TDS SD 2.2.1.2 | | |
| | | TDS UC2.2.1: Normal operation | Ĵ | |
| | | | Wheel | Subsystem - Electronic Interlocking |
| | | Alternative Scenario: Handle and report of the TVPS occupancy status with track circuit [TDS SD 2.2.1.2] | | |
| | | Precondition: | | |
| | | | 1 | |

| | | circuit [TDS SD 2.2.1.2] | | I I |
|-------------|------|--|--------------------|----------------|
| | | Precondition: | | 1 |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply NOK". | | |
| | | Interaction 2.2.1.2.A: | | |
| | | 1 One Wheel enters the TVPS of the Subsystem - Train Detection System. | Occupancy_Detected | |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply NOK". | | Ms |
| | | Interaction 2.2.1.2.B: | | |
| | | 3 The last Wheel leaves the TVPS of the Subsystem - Train Detection System. | Occupancy Detected | |
| | | 4. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply NOK". | | Msg |
| | | Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply NOK". | | |
| Eu.TDS.6045 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits | | |
| | | | | |



| ID | Туре | | Requirement Part 1 | Requirement Part 2 F P P |
|-------------|------|--|--|--|
| Eu.TDS.2574 | Info | TDS SD 2.2.2.1 | | Bas |
| | | TDS_UC2.2.2: Handle Irregularities with track circuits | <u></u> | TC |
| | | Subs | system - Electronic Interlocking | |
| | | Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 1) [TDS SD 2.2.2.1] | | |
| | | Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply OK". The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply OK". The relevant TVPS is occupied by at least one Wheel. | | |
| | | Interaction 2.2.2.1.A: | | |
| | | 1. - The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. | | |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply OK". | Msg_TVPS_Occupancy_Status(Occupied, Unable to be forced to clear, OK) | |
| | | Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS occupied, unable to be forced to clear and | | |
| u.TDS.2583 | Info | power supply OK". TDS SD 2.2.2.2 | | Bas |
| u.TDS.2583 | Info | TDS SD 2.2.2.2 <u>TDS_UC2.2.2: Handle Irregularities with track circuits</u> | | Bas TC |
| Eu.TDS.2583 | Info | TDS SD 2.2.2.2 <u>TDS_UC2.2.2: Handle Irregularities with track circuits</u> | L Subsystem - Electronic Interlocking | |
| u.TDS.2583 | Info | TDS SD 2.2.2.2 <u>TDS_UC2.2.2: Handle Irregularities with track circuits</u> Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 2) [TDS_SD 2.2.2.2] | Subsystem - Electronic Interlocking | |
| Eu.TDS.2583 | Info | TDS SD 2.2.2.2 <u>TDS_UC2.2.2: Handle Irregularities with track circuits</u> Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 2) [TDS SD 2.2.2.2] Precondition: | Subsystem - Electronic Interlocking | |
| Eu.TDS.2583 | Info | TDS SD 2.2.2.2 <u>TDS_UC2.2.2: Handle Irregularities with track circuits</u> Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 2) [TDS_SD 2.2.2.2] | Subsystem - Electronic Interlocking | |
| Eu.TDS.2583 | Info | TDS SD 2.2.2.2 TDS_UC2.2.2: Handle Irregularities with track circuits Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 2) [TDS SD 2.2.2.2] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to the failure of the TVPS power supply or a failure of the POM. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". | Subsystem - Electronic Interlocking | |
| u.TDS.2583 | Info | TDS SD 2.2.2.2 TDS_UC2.2.2: Handle Irregularities with track circuits Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 2) [TDS SD 2.2.2.2] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to the failure of the TVPS power supply or a failure of the POM. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is occupied by at least one Wheel. Interaction 2.2.2.A: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. | Subsystem - Electronic Interlocking | |
| u.TDS.2583 | Info | TDS SD 2.2.2.2 TDS UC2.2.2: Handle Irregularities with track circuits Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 2) [TDS SD 2.2.2.2] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to the failure of the TVPS power supply or a failure of the POM. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is occupied by at least one Wheel. Interaction 2.2.2.A: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is | Subsystem - Electronic Interlocking Subsystem - Electronic Interlocking Msg_TVPS_Occupancy_Status(Occupied, Unable to be forced to clear, NOK) | |
| Eu.TDS.2583 | Info | TDS SD 2.2.2.2 <u>TDS_UC2.2.2: Handle Irregularities with track circuits</u> Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 2) [TDS SD 2.2.2.2] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to the failure of the TVPS power supply or a failure of the POM. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is occupied by at least one Wheel. Interaction 2.2.2.A: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS | | |

| | Туре | | Requirement Part 1 | | Requirement Part 2 | Func Pkg. |
|----------|------|---|---|-------------------------------------|--------------------|---------------|
| TDS.3541 | Info | TDS SD 2.2.2.3 | | | | Basic TI |
| | | TDS UC2.2.2: Handle Irregularities with track circuits | \uparrow | | | TC |
| | | Subsystem | n - Electronic Interlocking | :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 3) [TDS SD 2.2.2.3] | | | | |
| | | Precondition: | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply OK". The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply OK". The relevant TVPS is not occupied by a Wheel. | | | | |
| | | Interaction 2.2.2.3.A: | | | | |
| | | 1. - The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. | | | | |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply OK". | Msg_TVPS_Occupancy_Status(Vacant, Unable to be forced to clear, OK) | | | |
| | | Postcondition: | | | | |
| | | The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply OK". | | | | |
| TDS.3550 | Info | TDS SD 2.2.2.4 | | | | Basic |
| TDS.3550 | Info | TDS SD 2.2.2.4 TDS UC2.2.2: Handle Irregularities with track circuits | ۶ | | | Basic TC |
| TDS.3550 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits | em - Electronic Interlocking | :Subsystem - Train Detection System | | |
| TDS.3550 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits | em - Electronic Interlocking | :Subsystem - Train Detection System | | |
| TDS.3550 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsyst Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 4) [TDS SD 2.2.2.4] Precondition: | em - Electronic Interlocking | :Subsystem - Train Detection System | | |
| TDS.3550 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 4) [TDS SD 2.2.2.4] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to a failure of the power | em - Electronic Interlocking | :Subsystem - Train Detection System | | Basic T TC |
| TDS.3550 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 4) [TDS SD 2.2.2.4] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. | em - Electronic Interlocking | Subsystem - Train Detection System | | |
| TDS.3550 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 4) [TDS SD 2.2.2.4] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to a failure of the power supply of the relevant TVPS. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". | em - Electronic Interlocking | Subsystem - Train Detection System | | |
| rds.3550 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 4) [TDS SD 2.2.2.4] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to a failure of the power supply of the relevant TVPS. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is not occupied by a Wheel. Interaction 2.2.2.4.A: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. | em - Electronic Interlocking | :Subsystem - Train Detection System | | |
| TDS.3550 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 4) [TDS SD 2.2.2.4] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to a failure of the power supply of the relevant TVPS. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is not occupied by a Wheel. Interaction 2.2.2.4.2: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status depends on the power supply of the relevant TVPS. The status includes the information that the TVPS is in the | em - Electronic Interlocking Msg_TVPS_Occupancy_Status(Occupied, Unable to be forced to clear, NO | | | |
| TDS.3550 | Info | TDS UC2.2.2: Handle Irregularities with track circuits Subsystem Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 4) [TDS SD 2.2.2.4] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to a failure of the power supply of the relevant TVPS. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is not occupied by a Wheel. Interaction 2.2.2.4.A: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status depends on the power supply | | | | |
| TDS.3550 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 4) [TDS SD 2.2.2.4] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to a failure of the power supply of the relevant TVPS. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is not occupied by a Wheel. Interaction 2.2.2.4.A: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status depends on the power supply of the relevant TVPS. The status includes the information that the TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply NOK". | | | | |
| TDS.3550 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 4) [TDS SD 2.2.2.4] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to a failure of the power supply of the relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is not occupied by a Wheel. Interaction 2.2.4.A: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status depends on the power supply of the relevant TVPS. The status includes the information that the TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply NOK". Postcondition: The relevant TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply NOK". | | | | |
| DS.3550 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 4) [TDS SD 2.2.2.4] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to a failure of the power supply of the relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is not occupied by a Wheel. Interaction 2.2.4.A: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status depends on the power supply of the relevant TVPS. The status includes the information that the TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply NOK". Postcondition: The relevant TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply NOK". | | | | |

| ID | Туре | | Requirement Part 1 Requirement Part 2 | 2 Func. Pkg. |
|-------------|------|---|---|-----------------|
| Eu.TDS.3523 | Info | TDS SD 2.2.2.5 | | Basic TDS |
| | | TDS_UC2.2.2: Handle Irregularities with track circuits | | TC |
| | | Subsystem - Electron | ic Interlocking :Subsystem - Train Detection System | |
| | | Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 1) [TDS SD 2.2.2.5] | | |
| | | Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply OK". The relevant TVPS is in the state "TVPS vacant, unable to | | |
| | | be forced to clear and power supply OK". | | |
| | | Interaction 2.2.2.5.A: | | |
| | | The Subsystem - Train Detection System recognises a failure of a TVPS, e.g. a hardware failure of the components of the Subsystem - Train Detection System. | | |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply OK". | Isg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear, Technical reason, OK) | |
| | | Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply OK". The Subsystem - Train Detection System knows that the reason for the disturbance of the relevant TVPS is a failure | | |
| | | | | |
| Eu.TDS.4208 | Info | TDS SD 2.2.2.6 | | Basic TDS |
| | | TDS_UC2.2.2: Handle Irregularities with track circuits | χ | TC |
| | | | Subsystem - Electronic Interlocking | |
| | | Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 2) [TDS SD 2.2.2.6] | | |
| | | Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to a failure of the POM. | | |
| | | The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply NOK". | | |
| | | Interaction 2.2.2.6.A: | | |
| | | 1. - The Subsystem - Train Detection System recognises a failure of a TVPS, e.g. a hardware failure of the components of the Subsystem - Train Detection System. | | |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". | e Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear, Technical reason, NOK) | |
| | | Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear | | |

| ID | Туре | | Requirement Part 1 | Requirement Part 2 | Fun Pkg |
|-------------|------|---|---|--------------------|--------------------------|
| Eu.TDS.3532 | Info | TDS SD 2.2.2.7 | | | Basic ⁻ TC |
| | | TDS_UC2.2.2: Handle Irregularities with track circuits | <u> </u> | | |
| | | Subsyste | em - Electronic Interlocking :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 3) [TDS SD 2.2.2.7] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply OK". The relevant TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply OK". | | | |
| | | Interaction 2.2.2.7.A: | | | |
| | | The Subsystem - Train Detection System recognises a critical failure of a TVPS, e.g. a hardware failure of the components of the Subsystem - Train Detection System. | | | |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply OK". | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear, Technical reason, OK) | | |
| | | Postcondition: | | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply OK". The Subsystem - Train Detection System knows that the reason for the disturbance of the relevant TVPS is a failure | | | |
| .TDS.4217 | Info | TDS SD 2.2.2.8 | | | Basi |
| | | TDS_UC2.2.2: Handle Irregularities with track circuits | 犬 | | TC |
| | | Subsyste | em - Electronic Interlocking :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 4) [TDS SD 2.2.2.8] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to a failure of the power supply of the TVPS or a failure of the POM. The relevant TVPS is in the state "TVPS occupied, unable to be forced to clear | | | |
| | | and power supply NOK". | | | |
| | | and power supply NOK". Interaction 2.2.2.8.A: | | | |
| | | | | | |
| | | Interaction 2.2.2.8.A: 1 The Subsystem - Train Detection System recognises a critical failure of a TVPS, e.g. a hardware failure of the components of the Subsystem - Train | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear, Technical reason, NOK) | | |
| | | Interaction 2.2.2.8.A: 1 The Subsystem - Train Detection System recognises a critical failure of a TVPS, e.g. a hardware failure of the components of the Subsystem - Train Detection System. 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear, Technical reason, NOK) | | |
| | | Interaction 2.2.2.8.A: 1 The Subsystem - Train Detection System recognises a critical failure of a TVPS, e.g. a hardware failure of the components of the Subsystem - Train Detection System. 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear, Technical reason, NOK) | | |

| ID | Туре | | Requirement Part 1 | Requirement Part 2 | Func Pkg. |
|----------|------|---|---|--------------------|----------------|
| TDS.4226 | Info | TDS SD 2.2.2.9 | 0 | | Basic TI TC |
| | | TDS_UC2.2.2: Handle Irregularities with track circuits | <u> </u> | | |
| | | Subs | ystem - Electronic Interlocking | | |
| | | Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 5) [TDS SD 2.2.2.9] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply OK". The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply OK". | | | |
| | | Interaction 2.2.2.9.A: | | | |
| | | 1. The POM reports "power supply NOK", due to a failure of the power supply of the TVPS or a failure of the POM. | | | |
| | | 2. The Subsystem - Train Detection System recognizes a failure of the power supply of the TVPS or a failure of the POM reporting "power supply NOK". | | | |
| | | 3. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced to clear, Technical reason, NOK) | | |
| | | Postcondition: | | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK" due to a failure of the power supply of the TVPS or a failure of the POM. | | | |
| TDS.4169 | Info | TDS SD 2.2.2.10 | | | Basic |
| TDS.4169 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits | Subsystem - Train Detection System | | Basic TC |
| DS.4169 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits | Electronic Interlocking :Subsystem - Train Detection System | | Basic TC |
| DS.4169 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem - Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 5) [TDS SD 2.2.2.10] | | | Basic TC |
| DS.4169 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem - Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 5) [TDS SD 2.2.2.10] Precondition: | Electronic Interlocking | | Basic TC |
| DS.4169 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem - Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 5) [TDS SD 2.2.2.10] | Electronic Interlocking :Subsystem - Train Detection System | | Basic |
| DS.4169 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem - Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 5) [TDS SD 2.2.2.10] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". | | | Basic TC |
| DS.4169 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem - Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 5) [TDS SD 2.2.2.10] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is not occupied by a Wheel. | Electronic Interlocking Subsystem - Train Detection System | | Basic TC |
| DS.4169 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem - Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 5) [TDS SD 2.2.2.10] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is not occupied by a Wheel. Interaction 2.2.2.10.A: 1 The Subsystem - Train Detection System detects that the hardware of | Electronic Interlocking | | Basic TC |
| DS.4169 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem - Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 5) [TDS SD 2.2.2.10] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is not occupied by a Wheel. Interaction 2.2.2.10.A: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. 2. The Subsystem - Train Detection System reports the current state of the | Clectronic Interlocking Subsystem - Train Detection System Msg_TVPS_Occupancy_Status(Vacant, Unable to be forced to clear, NOK) Image: Clear of the system of t | | Basi TC |
| DS.4169 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem - Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 5) [TDS SD 2.2.2.10] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is not occupied by a Wheel. Interaction 2.2.2.10.A: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. | | | Basic TC |
| DS.4169 | Info | TDS UC2.2.2: Handle Irregularities with track circuits Subsystem - Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 5) [TDS SD 2.2.2.10] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is not occupied by a Wheel. Interaction 2.2.10.A: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status depends on the power supply of the relevant TVPS. In this case the TVPS is not occupied by wheels and the power supply has not failed. The status includes the information that the TVPS is in the state "TVPS vacant, | | | Basic TC |
| DS.4169 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem - Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 5) [TDS SD 2.2.2.10] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. 1 The Subsystem - Train Detection System reports the current state of the TVPS is adjusted by Maintainer. 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status depends on the power supply of the relevant TVPS. In this case the TVPS is not occupied by wheels and the power supply has not failed. The status includes the information that the TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply NOK". | | | Basit TC |
| DS.4169 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem - Alternative Scenario: Revoking a critical failure of a TVPS with track circuit (case 5) [TDS SD 2.2.2.10] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". The relevant TVPS is not occupied by a Wheel. Interaction 2.2.2.10.A: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status depends on the power supply of the relevant TVPS. In this case the TVPS is not occupied by wheels and the power supply has not failed. The status includes the information that the TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply NOK". Postcondition: The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply NOK". | | | Basic TC |

| TDS.4236 I | Info | | | | Pkg |
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| | 1110 | TDS SD 2.2.2.11 | | | Basic T |
| | | TDS_UC2.2.2: Handle Irregularities with track circuits | 大 人 | | |
| | | Subsystem | - Electronic Interlocking | :Subsystem - Train Detection System | |
| | | Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 6) [TDS SD 2.2.2.11] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to a failure of the power supply of the TVPS or a failure of the POM. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply NOK". | | | |
| | | Interaction 2.2.2.11.A: | | | |
| | | 1. The POM reports "power supply OK", due to the restoration of the power supply or the restoration of the POM. | | | |
| | | 2. The Subsystem - Train Detection System recognizes a restoration of the power supply of a TVPS or a restoration of the POM due to the relevant POM reporting "power supply OK". | | | |
| | | 3. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state TVPS disturbed and unable to be forced to clear with a technical reason and power supply OK". | Msg_TVPS_Occupancy_Status(Disturbed, Unable to be forced | d to clear, Technical reason, OK) | |
| | | Postcondition: | | | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason and power supply OK". | | | |
| TDS.4246 I | Info | TDS SD 2.2.2.12 | | | Basic |
| | | TDS UC2.2.2: Handle Irregularities with track circuits | ₹. | | TC |
| | | | - Electronic Interlocking | :Subsystem - Train Detection System | |
| | | Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 7) [TDS SD 2.2.2.12] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply OK". The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply OK". | | | |
| | | Interaction 2.2.2.12.A: | | | |
| | | 1. The relevant POM reports "power supply NOK", due to the failure of the POM. | | | |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply NOK". | Msg_TVPS_Occupancy_Status(Vacant, Unable to be forced to c | clear, NOK) | |
| | | Postcondition: | | | |
| | | The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply NOK" due to the failure of the POM. | | | |

| ID | Туре | | Requirement Part 1 | Requirement Part 2 Fun Pkg |
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| u.TDS.4255 | Info | TDS SD 2.2.2.13 | | Basic |
| | | TDS_UC2.2.2: Handle Irregularities with track circuits | <u>关</u> | TC |
| | | Subsys | tem - Electronic Interlocking | on System |
| | | Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 8) [TDS SD 2.2.2.13] | | |
| | | Precondition: | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply OK". The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply OK". | | |
| | | Interaction 2.2.2.13.A: | | |
| | | 1. The relevant POM reports "power supply NOK", due to the failure of the power supply of the relevant TVPS. | | |
| | | 2. The Subsystem - Train Detection System recognizes a failure of the power supply of a TVPS due to the combination of the relevant POM reporting power supply NOK and the relevant TVPS reports occupied. | | |
| | | 3. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply NOK". | Msg_TVPS_Occupancy_Status(Occupied, Unable to be forced to clear, NOK) | |
| | | Postcondition: | | |
| | | The relevant TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply NOK". | | |
| | | | | |
| .TDS.4265 | Info | TDS SD 2.2.2.14 | | Basic |
| .TDS.4265 | Info | TDS SD 2.2.2.14 TDS LIC2 2 2: Handle Irregularities with track circuits | ۲ | Basic ⁻ TC |
| .TDS.4265 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits | stem - Electronic Interlocking | TC |
| .TDS.4265 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsys | tem - Electronic Interlocking | TC |
| TDS.4265 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsys Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case | stem - Electronic Interlocking | TC |
| .TDS.4265 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsys | stem - Electronic Interlocking | TC |
| .TDS.4265 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsys Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 9) [TDS SD 2.2.2.14] | stem - Electronic Interlocking | TC |
| TDS.4265 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsys Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 9) [TDS SD 2.2.2.14] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and | tem - Electronic Interlocking | TC |
| TDS.4265 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsys Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 9) [TDS SD 2.2.2.14] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply NOK". | stem - Electronic Interlocking | TC |
| TDS.4265 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsys Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 9) [TDS SD 2.2.2.14] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply NOK". Interaction 2.2.2.14.A: | | TC |
| TDS.4265 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsystem Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 9) [TDS SD 2.2.2.14] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply NOK". Interaction 2.2.2.14.A: 1. The relevant POM reports "power supply OK", due to a restoration of the POM. 2. The Subsystem - Train Detection System recognizes a restoration of the POM of a TVPS due to the relevant POM reporting power supply OK. 3. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply | •tem - Electronic Interlocking Kitem - Electronic Interlocking Msg_TVPS_Occupancy_Status(Vacant, Unable to be forced to clear, OK) | TC |
| TDS.4265 | Info | TDS_UC2.2.2: Handle Irregularities with track circuits Subsys Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 9) [TDS SD 2.2.2.14] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant TVPS works with track circuit. The relevant TVPS is in the state "power supply NOK" due to a failure of the POM. The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear and power supply NOK". Interaction 2.2.2.14.A: 1. The relevant POM reports "power supply OK", due to a restoration of the POM. 2. The Subsystem - Train Detection System recognizes a restoration of the POM of a TVPS due to the relevant POM reporting power supply OK. 3. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the | | TC |

| ID | Туре | | Requirement Part 1 | | Requirement Part 2 | Fund Pkg |
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| u.TDS.4178 | Info | TDS SD 2.2.2.15 | | | | Basic T |
| | | TDS_UC2.2.2: Handle Irregularities with track circuits | · 犬 | | | TC |
| | | Subsystem - | Electronic Interlocking | :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 10) [TDS SD 2.2.2.15] | | | | |
| | | Precondition: | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply OK". The relevant TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply OK". | | | | |
| | | Interaction 2.2.2.15.A: | | | | |
| | | 1. The POM reports "power supply NOK", due to the failure of the power supply of the relevant TVPS or a failure of the POM. | | | | |
| | | 2. The Subsystem - Train Detection System recognizes a failure of the power supply of a TVPS due to the or a failure of the POM due to the relevant POM reporting power supply NOK. | | | | |
| | | 3. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply NOK". | Msg_TVPS_Occupancy_Status(Occupied, unable to be forced to clear, NOK) | | | |
| | | Postcondition: | | | | |
| | | The relevant TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply NOK" due to the failure of the power supply of the relevant TVPS or a failure of the POM. | | | | |
| J.TDS.4188 | Info | TDS SD 2.2.2.16 | | | | Basic |
| | | TDS_UC2.2.2: Handle Irregularities with track circuits | گر | | | TC |
| | | Subsystem - | Electronic Interlocking | :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Handle and report of failure of a TVPS with track circuit (case 11) [TDS SD 2.2.2.16] | | | | |
| | | Precondition: | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to the failure of the power supply of the relevant TVPS or a failure of the POM. The relevant TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply NOK". The relevant TVPS is occupied by at least one Wheel. | | | | |
| | | Interaction 2.2.2.16.A: | | | | |
| | | 1. The POM reports "power supply OK", due to a restoration of the power supply or due to a restoration of the POM. | | | | |
| | | 2. The Subsystem - Train Detection System recognizes a restoration of the power supply of a TVPS due to the relevant POM reporting power supply OK. | | | | |
| | | 3. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS occupied, unable to be forced to clear and power supply OK". | Msg_TVPS_Occupancy_Status(Occupied, Unable to be forced to clear, OK) | | | |
| | | | | | | |
| | | Postcondition: | | | | |

| Eu.TDS.4198 | Info | TDS SD 2.2.2.17 | | | |
|-------------|------|---|------------------------|-------------------------|---|
| | | | | | |
| | | TDS_UC2.2.2: Handle Irregularities with track circuits | | Ĵ | |
| | | <u> </u> | Subsystem - Ele | ctronic Interlocking | |
| | | Alternative Scenario: Handle and report of failure of a TVPS with track circuit (c 12) [TDS SD 2.2.2.17] | case | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TVPS works with track circuit. The relevant POM is in the state "power supply NOK" due to the failure of the p | oower | | |
| | | supply of the relevant TVPS. The relevant TVPS is in the state "TVPS occupied, unable to be forced to clear power supply NOK". The relevant TVPS is not occupied by a Wheel. | r and | | |
| | | Interaction 2.2.2.17.A: | | | |
| | | 1. The POM reports "power supply OK", due to a restoration of the power supply | ly. | | |
| | | 2. The Subsystem - Train Detection System recognizes a restoration of the por supply of a TVPS due to the relevant POM reporting power supply OK. | - | | |
| | | 3. The Subsystem - Train Detection System reports the current state of the TV to Subsystem - Electronic Interlocking. The status includes the information tha TVPS is in the state "TVPS vacant, unable to be forced to clear and power sup OK". | it the | Msg_TVPS_Occupancy_S | Status(Vacant, Unable to be forced to clea |
| | | Postcondition: | | | |
| | | The relevant TVPS is in the state "TVPS vacant, unable to be forced to clear an power supply OK". | nd | | |
| Eu.TDS.6862 | Info | TDS_UC2.3:Train Detection Points | | | |
| Eu.TDS.6866 | Info | TDS SD 2.3.1 | | | |
| | | TDS_UC2.3:Train Detection Points | گ | | |
| | | Wheel | Subsystem - Electronic | c Interlocking | _ |
| | | Alternative Scenario: Detecting a Train running in reference direction [TDS SD 2.3.1] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state | | | |
| | | OPERATIONAL. The relevant TDP is in the state "TDP not passed" or "TDP disturbed", the Subsystem - Train Detection System knows via its engineering data that the reason for the disturbance of the relevant TDP is operational. | | | |
| | | The relevant TDP is configured to detect direction of passing. Interaction 2.3.1.A: | | | |
| | | 1 One Wheel is passing a TDP of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is in reference direction. | | • | Passing_Detected |
| | | The Subsystem - Train Detection System reports the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information that the TDP is in the state "TDP passed in reference direction". | | after {Con_t_TDP_Delay} | Msg_TDP_Status(Passed, Referer |
| | | Interaction 2.3.1.B: | | | |
| | | 3. - The Subsystem - Train Detection System reports, after expiration of the delay of the TDP, the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information that the TDP is in the state "TDP not passed without indicated direction". | | V | Msg_TDP_Status(Not passed, Withou |
| | | The is in the state The not passed without indicated direction . | | | |
| | | Postcondition: | | | |

| | Requirement Part 2 | Func. Pkg. |
|---|--|------------------|
| :Subsystem - Train Detection System | | Basic TDS TC |
| | | |
| ear, OK) | | |
| | The Subsystem-UseCase "TDS_UC2.3:Train Detection Points" defines the behaviour of the Subsystem - Train Detection System which includes TDP. | Basic TDS TDP |
| <u>Subsystem - Train Detection System</u> | | Basic TDS TDP |
| ence direction) | | |
| out indicated direction) | | |

| ID | Туре | | | Requirem | ent Part 1 |
|-------------|------|--|---------------------------|-------------------------|------------------------------------|
| Eu.TDS.6865 | Info | TDS SD 2.3.2 | | | |
| | | TDS_UC2.3:Train Detection Points | λ Å | | |
| | | | Wheel Subsystem - Electro | nic Interlocking | |
| | | Alternative Scenario: Detecting a Train running against reference direction [TDS SD 2.3.2] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TDP is in the state "TDP not passed" or "TDP disturbed", the Subsystem - Train Detection System knows via its engineering data that the reason for the disturbance of the relevant TDP is operational. The relevant TDP is configured to detect direction of passing. | | | |
| | | Interaction 2.3.2.A: | | | |
| | | 1. - One Wheel is passing a TDP of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is against the reference direction. | | | Passing_Detected |
| | | 2. The Subsystem - Train Detection System reports the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information that the TDP is in the state "TDP passed against the reference direction". Interaction 2.3.2.B: | | after {Con_t_TDP_Delay} | Msg_TDP_Status(Paased, Against re |
| | | 3 The Subsystem - Train Detection System reports, after expiration of the delay of the TDP, the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information that the TDP is in the state "TDP not passed without indicated direction". | | ▼ | Msg_TDP_Status(Not Passed, Withou |
| | | Postcondition: | | | |
| | | | | | |
| Eu.TDS.6867 | Info | TDS SD 2.3.3 | | | |
| Lu.105.0007 | 1110 | TDS_UC2.3:Train Detection Points | <u>♀</u> ♀ | | |
| | | | Wheel Subsystem - Electro | nic Interlocking | |
| | | | | | |
| | | Alternative Scenario: Detecting a Train running without indicated direction [TDS SD 2.3.3] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TDP is in the state "TDP not passed" or "TDP disturbed", the Subsystem - Train Detection System knows via its engineering data that the reason for the disturbance of the relevant | | | |
| | | TDP is operational. The relevant TDP is configured not to detect direction of passing. | | | |
| | | Interaction 2.3.3.A: | | | |
| | | 1. - One Wheel is passing a TDP of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises that the passing Wheel is without indicated direction. | | | Passing_Detected |
| | | 2. The Subsystem - Train Detection System reports the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information that the TDP is in the state "TDP passed | | | Msg_TDP_Status(Passed, Without in |
| | | without indicated direction". Interaction 2.3.3.B: | | after {Con_t_TDP_Delay} | |
| | | 3 The Subsystem - Train Detection System reports, after expiration of the delay of the TDP, the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information that the TDP is in the state "TDP not passed without indicated direction". | | ▼ | Msg_TDP_Status(Not Passed, Withou |
| | | Besteendition: | | | |

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Postcondition:

| | Requirement Part 2 | Func. Pkg. |
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| | | Basic TDS TDP |
| :Subsystem - Train Detection System | | |
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| eference direction) | | |
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| out indicated direction) | | |
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| | | D : TD0 |
| | | Basic TDS TDP |
| :Subsystem - Train Detection System | | |
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| ndicated direction) | | |
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| ut indicated direction) | | |
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| ID | Туре | | Require | nent Part 1 | Requirement Part 2 | Func. Pkg. |
|-------------|------|--|---|---|---|--------------------|
| Eu.TDS.6863 | Info | TDS SD 2.3.4 TDS_UC2.3:Train Detection Points | रे रे | | Note: The same behaviour is valid for a further passing agains | Basic TD st TDP |
| | | | Wheel Subsystem - Electronic Interlocking | :Subsystem - Train Detection System | reference direction. | |
| | | Alternative Scenario: Detecting a further passing in reference direction [TDS SD 2.3.4] | | | | |
| | | Precondition: | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TDP is in the state "TDP not passed" or "TDP disturbed", the Subsystem - Train Detection System knows via its engineering data that the reason for the disturbance of the relevant TDP is operational. The relevant TDP is configured to detect direction of passing. | | | | |
| | | Interaction 2.3.4.A: | | | | |
| | | 1. - One Wheel is passing a TDP of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is in reference direction. | n | Passing_Detected | | |
| | | The Subsystem - Train Detection System reports the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information, that the TDP is in the state "TDP passed in reference direction". | e {< Con_t_TDP_Delay} | Msg_TDP_Status(Passed, Referenced direction) | | |
| | | 3. - One Wheel is passing a TDP of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is also in reference direction or a sensor of a TDP received an uninterpretable or undefined pattern. | | Passing_Detected | | |
| | | 4. - The Subsystem - Train Detection System recognises, that the conditions for sending the current state of the TDP are not fulfilled. | after {Con_t_TDP_Delay} | | | |
| | | Interaction 2.3.4.B: | | | | |
| | | 5. The Subsystem - Train Detection System reports, after expiration of the delay of the TDP, the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information that the TDP is in the state "TDP not passed without indicated direction". | | Msg_TDP_Status(Not passed, Without indicated direction) | | |
| | | Postcondition: | | | | |
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| | | | | | | |
| | | | | | | |

| ID | Туре | | | | Requirement Par | t1 |
|-------------|------|---|-------------------|---------------------------|-----------------|---------------------------------|
| Eu.TDS.6872 | Info | TDS SD 2.3.5 | | | | |
| | | TDS_UC2.3:Train Detection Points | <u> </u> | <u> </u> | | |
| | | | Wheel Subsystem | - Electronic Interlocking | | |
| | | Alternative Scenario: Sudden detection of a passing Wheel against reference direction [TDS SD 2.3.5] | | | | |
| | | Precondition: | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TDP is in the state "TDP not passed" or "TDP disturbed", the Subsystem - Train Detection System knows via its engineering data that the reason for disturbance of the relevant TDP is operational. The relevant TDP is configured to detect direction of passing. | | | | |
| | | Interaction 2.3.5.A: | | | | |
| | | 1 One Wheel is passing a TDP of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is in reference direction. | | | Pass | sing_Detected |
| | | 2. The Subsystem - Train Detection System reports the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information, that the TDP is in the state "TDP passed in reference direction". | 5 | | Msg | g_TDP_Status(Passed, Referend |
| | | Interaction 2.3.5.B: | | {< Con_t_TE | DP_Delay} | |
| | | 3 One Wheel is passing the TDP of the Subsystem - Train Detection System before expiration of the delay of the TDP. The Subsystem - Train Detection System recognises, by means of the direction of passing, that the passing Wheel is against the reference direction. | 1 | | Pass | ing_Detected |
| | | 4. The Subsystem - Train Detection System reports the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information, that the TDP is in the state "TDP passed against the reference direction". | 5 | after {Con_t_ | TDP_Delay} | _TDP_Status(Passed, Against re |
| | | Interaction 2.3.5.C: | | V | | |
| | | 5 The Subsystem - Train Detection System reports, after expiration of the delay of the TDP, the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information that the TDP is in the state "TDP not passed without indicated direction". | | | Msg_ | _TDP_Status(Not passed, Witho |
| | | Postcondition: | | | | |
| Eu.TDS.6864 | Info | TDS SD 2.3.6 | | | | |
| | | TDS_UC2.3:Train Detection Points | £ | £ | | |
| | | | Wheel Subsystem - | Electronic Interlocking | _ | |
| | | Alternative Scenario: Detecting a further passing without indicated direction [TDS SD 2.3.6] | | | | |
| | | Precondition: | | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TDP is in the state "TDP not passed" or "TDP disturbed", the Subsystem - Train Detection System knows via its engineering data that the reason for the disturbance of the relevant | | | | |
| | | TDP is operational. | | | | |
| | | The relevant TDP is configured not to detect direction of passing. Interaction 2.3.6.A: | | | | |
| | | One Wheel is passing a TDP of the Subsystem - Train Detection System. The Subsystem - Train Detection System recognises that the passing Wheel is without indicated direction. | | • | Passi | ing_Detected |
| | | 2. The Subsystem - Train Detection System reports the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information, that the TDP is in the state "TDP passed without indicated direction". | | {< Con_t_TD | | TDP_Status(Passed, Without inc |
| | | 3 A Wheel is passing the TDP of the Subsystem - Train Detection System before expiration of the delay of the TDP. The Subsystem - Train Detection System recognises that the passing Wheel is also | | | Passi | ng_Detected |

after {Con_t_TDP_Delay}

Train Detection System recognises that the passing Wheel is also without indicated direction or a sensor of a TDP received an

4. - The Subsystem - Train Detection System recognises, that the conditions for sending the current state of the TDP are not fulfilled.

5. The Subsystem - Train Detection System reports, after expiration of the delay of the TDP, the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information that the TDP is in the state "TDP not passed without indicated direction".

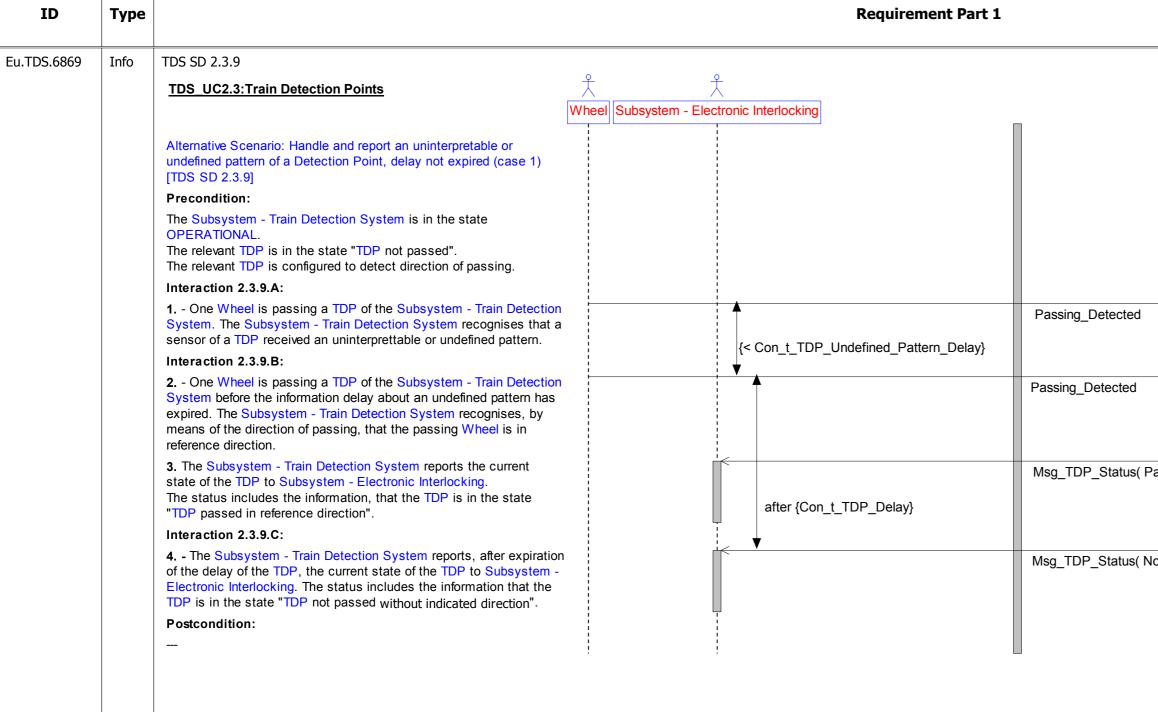
uninterpretable or undefined pattern.

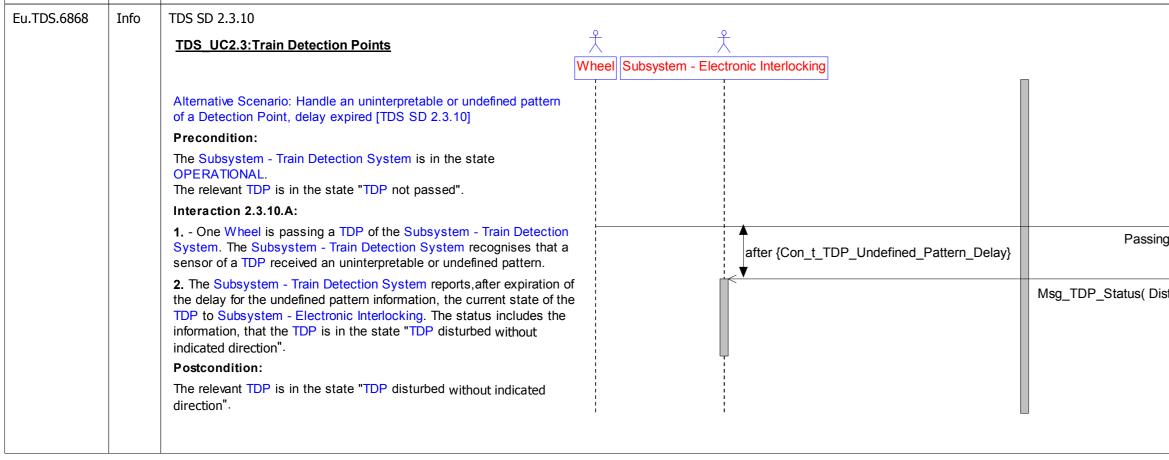
Interaction 2.3.6.B:

Postcondition:

| nt Part 1 | Requirement Part 2 | Func. Pkg. |
|---|---|------------------|
| :Subsystem - Train Detection System | Note: The same behaviour is valid for the sudden detection of a passing wheel in reference direction. | Basic TDS TDP |
| | | |
| | | |
| | | |
| Passing_Detected | | |
| Msg_TDP_Status(Passed, Reference direction) | | |
| Passing_Detected | | |
| Msg_TDP_Status(Passed, Against reference direction) | | |
| Msg_TDP_Status(Not passed, Without indicated direction) | | |
| | | |
| | | Basic TDS |
| :Subsystem - Train Detection System | | TDP |
| | | |
| | | |
| | | |
| Passing_Detected | | |
| Msg_TDP_Status(Passed, Without indicated direction) | | |
| Passing_Detected | | |
| Msg_TDP_Status(Not passed, Without indicated direction) | | |
| | | |
| | | |

| ID | Туре | | Requirement Part 1 | Requirement Part 2 | Func. Pkg. |
|-------------|------|---|---|--------------------|-----------------|
| Eu.TDS.6870 | Info | TDS SD 2.3.7 | | | Basic TD TDP |
| | | TDS_UC2.3:Train Detection Points | \check{X} | | TDP |
| | | St | bsystem - Electronic Interlocking | | |
| | | Alternative Scenario: Handle and report of critical failure of a TDP [TDS SD 2.3.7] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. | | | |
| | | Interaction 2.3.7.A: | | | |
| | | 1. The Subsystem - Train Detection System recognises a critical failure of a TDP, e.g. an interface disturbance between the components of the TDP or a hardware failure of the components of the Subsystem - Train Detection System. | | | |
| | | 2. The Subsystem - Train Detection System reports the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information, that the TDP is in the state "TDP disturbed without indicated direction". | Msg_TDP_Status(Disturbed, Without indicated direction) | | |
| | | Postcondition: | | | |
| | | The relevant TDP is in the state "TDP disturbed without indicated direction". | | | |
| Eu.TDS.6871 | Info | TDS SD 2.3.8 | | | Basic TI |
| | | TDS_UC2.3:Train Detection Points | \uparrow | | TDP |
| | | Subsystem - E | ectronic Interlocking :Subsystem - Train Detection System | | |
| | | Alternative Scenario: Revoking a critical failure of a TDP [TDS SD 2.3.8] | | | |
| | | Precondition: | | | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The relevant TDP is in the state "TDP disturbed without indicated direction". | | | |
| | | Interaction 2.3.8.A: | | | |
| | | 1. - The Subsystem - Train Detection System detects that the critical failure is revoked. | | | |
| | | 2. The Subsystem - Train Detection System reports the current state of the TDP to Subsystem - Electronic Interlocking. The status includes the information, that the TDP is in the state "TDP not passed without indicated direction". | Msg_TDP_Status(Not Passed, Without indicated direction) | | |
| | | Postcondition: | | | |
| | | The relevant TDP is in the state "TDP not passed without indicated direction". | | | |





| | Requirement Part 2 | Func. Pkg. |
|--|--|------------------|
| Subsystem - Train Detection System | Note: The same behaviour is valid for a passing against reference direction in step 2. | Basic TDS TDP |
| g_Detected sturbed, Without indicated direction) | | Basic TDS TDP |

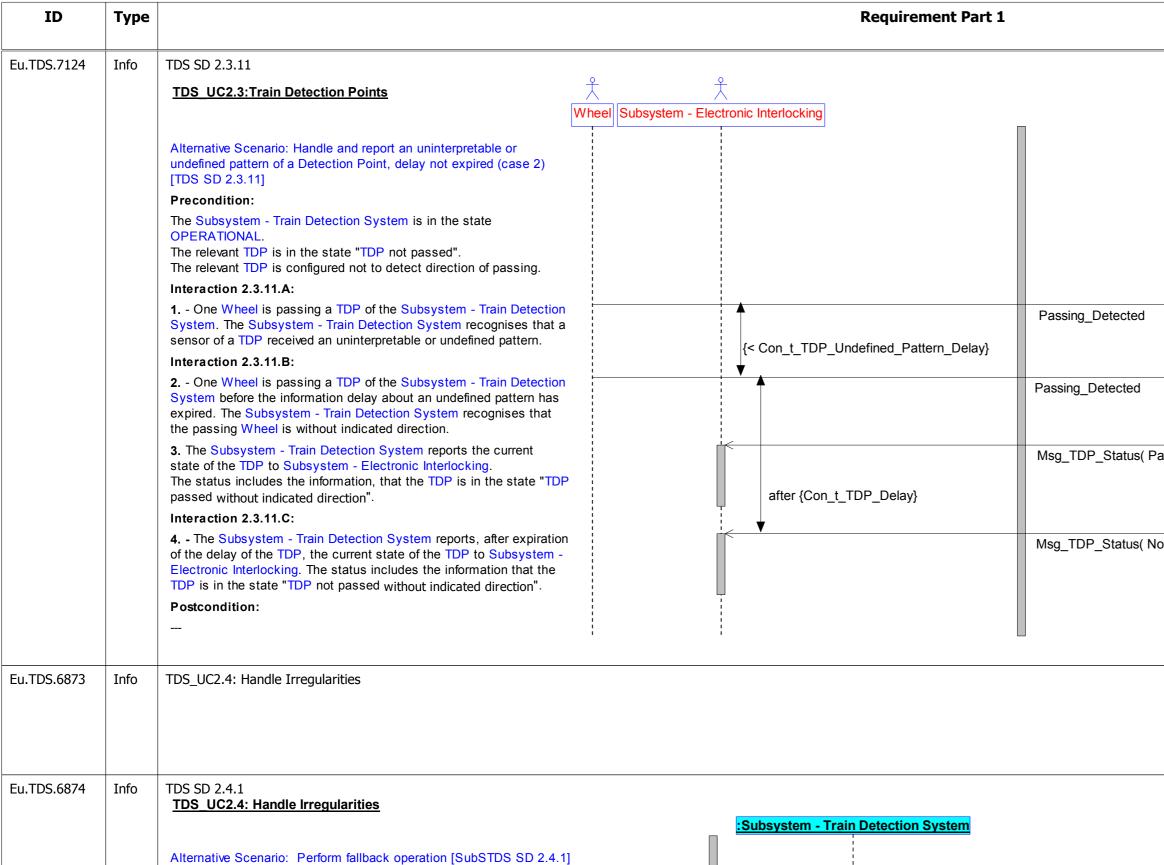
Precondition:

Postcondition:

Interaction 2.4.1.A:

1. - The Subsystem - Train Detection System enters the state FALLBACK_MODE.

The Subsystem - Train Detection System is in the state FALLBACK_MODE.

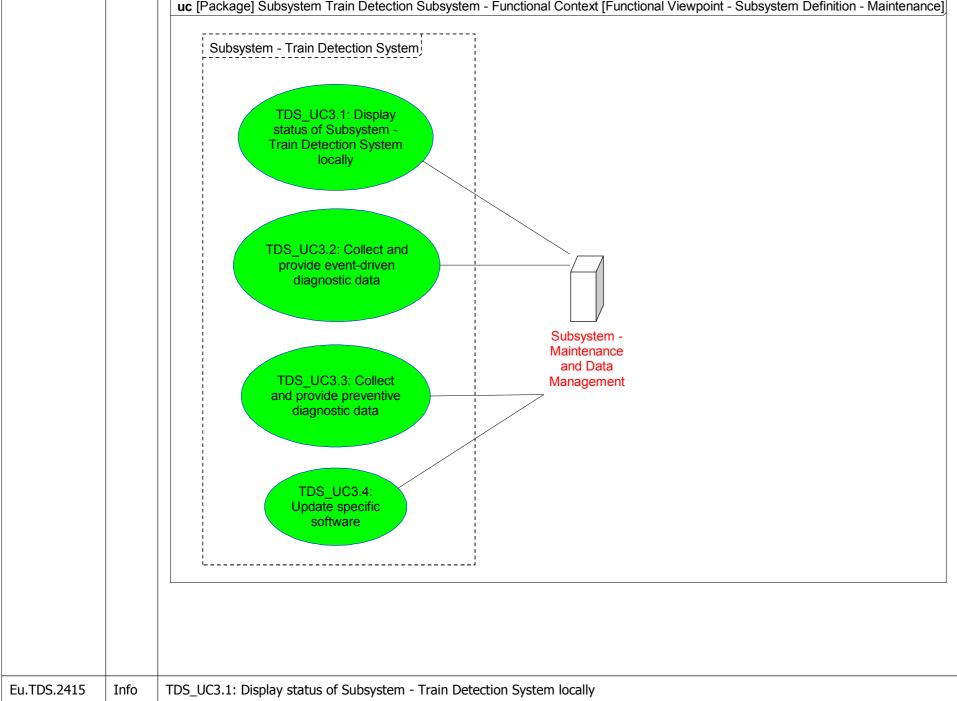


| | | Requirement Part 2 | Func. Pkg. |
|--|---------------------------|---|--|
| | | | Basic TDS TDP |
| :Subsystem - Trair | <u>I Detection System</u> | | |
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| assed, Without indicated direction) | | | |
| | | | |
| ot passed, without indicated direction) | | | |
| | | | |
| | | The Subaustern Line Case "TDS_LIC2 4, Liandle | Pagia TDC |
| | | The Subsystem-UseCase "TDS_UC2.4: Handle Irregularities" defines the behaviour of the Subsystem - Train Detection System when an irregularity occurs. | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | | | Basic TDS AC Basic TDS TDP Basic TDS TC |
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| Requirements spe | ecification f | or subsystem TDS | |
|------------------|---------------|--|--|
| ID | Туре | | Requirement Part 1 |
| Eu.TDS.6876 | Info | TDS SD 2.4.2 <u>TDS UC2.4: Handle Irregularities</u> Alternative Scenario: Handling of interrupted PDI connection [SubSTDS SD 2.4.2] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. Interaction 2.4.2.A: 1 The PDI connection has been terminated. 2. The Subsystem - Train Detection System changes from the state OPERATIONAL to the state INITIALISING. All functionalities of Subsystem - Train Detection System must still be executable (e.g. the determination of the occupancy status of the TVPS). Postcondition: The Subsystem - Train Detection System is in the state INITIALISING. The PDI connection is terminated. | ubsystem - Train Detection System |
| Eu.TDS.6877 | Info | TDS SD 2.4.3 <u>TDS_UC2.4: Handle Irregularities</u> Alternative Scenario: Reset occurs [SubSTDS SD 2.4.3] Precondition: The Subsystem - Train Detection System is in the state INITIALISING or OPERATIONAL or FALLBACK_MODE. Interaction 2.4.3.A: 1 A reset has occurred. Postcondition: The Subsystem - Train Detection System is in the state BOOTING. | ubsystem - Train Detection System |
| Eu.TDS.6875 | Info | TDS SD 2.4.4 TDS_UC2.4: Handle Irregularities Alternative Scenario: Revoking a critical failure of a TVPS for Variant A [SubSTDS SD 2.4.4] Precondition: The Subsystem - Train Detection System is in the state OPERATIONAL. The Subsystem - Train Detection System is configured as Variant A. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". Interaction 2.4.4.A: 1 The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and able to be forced to clear with an operational reason". | Subsystem - Electronic Interlocking Msg_TVPS_Occupancy_Status(Disturbed, Able to be forced to clear, Operational |

| ent Part 1 | Requirement Part 2 | Func. Pkg. |
|---|--------------------|--|
| | | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | | |
| | | |
| | | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | | |
| | | |
| :Subsystem - Train Detection System | | Basic TDS AC |
| cupancy_Status(Disturbed, Able to be forced to clear, Operational reason) | | |
| | | |

| ID | Туре | | Requirement Part 1 |
|-------------|------|---|--|
| Eu.TDS.7029 | Info | TDS SD 2.4.5 | |
| | | TDS UC2.4: Handle Irregularities | 犬 |
| | | | Subsystem - Electronic Interlocking |
| | | Alternative Scenario: Revoking a critical failure of a TVPS for Variant B [SubSTDS SD 2.4.5] Precondition: | |
| | | The Subsystem - Train Detection System is in the state OPERATIONAL. The Subsystem - Train Detection System is configured as Variant B. The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with a technical reason". | |
| | | Interaction 2.4.5.A: | |
| | | 1. - The Subsystem - Train Detection System detects that the hardware of the TVPS is adjusted by Maintainer. | |
| | | 2. The Subsystem - Train Detection System reports the current state of the TVPS to Subsystem - Electronic Interlocking. The status includes the information that the TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". | Msg_TVPS_Occupancy_Status(Disturbed, Unable to b |
| | | Postcondition: | |
| | | The relevant TVPS is in the state "TVPS disturbed and unable to be forced to clear with an operational reason". | |
| Eu.TDS.243 | Info | [Package] Subsystem Train Detection Subsystem - Functional Context [Functional Viewpoint | - Subsystem Definition - Maintenance] |
| | | uc [Package] Subsystem Train Detection Subsystem - Functional Context [Functional Viewpo | int - Subsystem Definition - Maintenance] |
| | | Subsystem - Train Detection System | |



| | Requirement Part 2 | Func. Pkg. |
|--|---|-------------------------------|
| | | Basic TDS AC |
| :Subsystem - Train Detection System | | |
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| | | |
| be forced to clear, Operational reason) | | |
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| | | D : TDC |
| | | Basic TDS AC Basic TDS |
| | | TDP Basic TDS TC |
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| | Information: The Subsystem-UseCase "TDS_UC3.1: Display status of Subsystem Train Detection System locally," defines the | Basic TDS AC Basis TDS |
| | Subsystem - Train Detection System locally" defines the local display of the Subsystem - Train Detection System. See ID Eu.TDS.205. | Basic TDS TDP Basic TDS |
| | Information: | TC Basic TDS |
| | The Subsystem-UseCase "TDS_UC3.2: Collect and provide event-driven diagnostic data" defines the event | AC Basic TDS |
| | driven collection and provision of diagnostic data in case of irregularities. See ID Eu.TDS.234. | TDP Basic TDS TC |

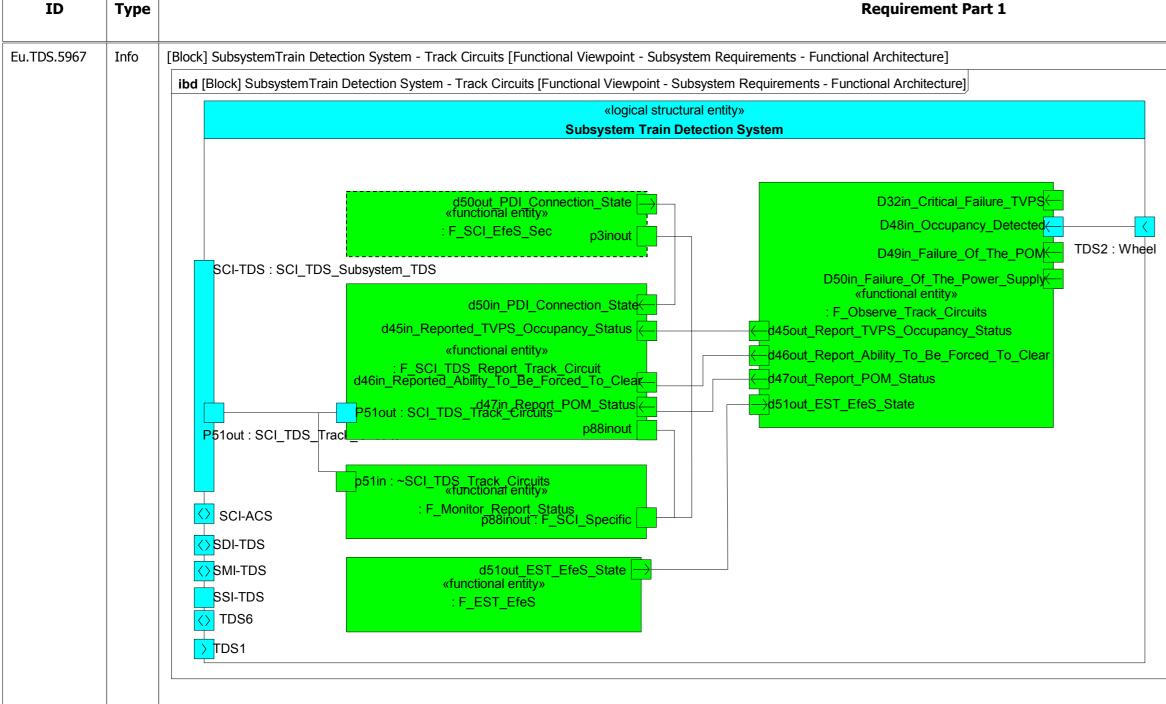
| ID | Туре | Requirement Part 1 | | Func. Pkg. |
|-------------|------|--|---|---|
| Eu.TDS.242 | Info | TDS_UC3.3: Collect and provide preventive diagnostic data | The Subsystem-UseCase "TDS_UC3.3: Collect and provide preventive diagnostic data" defines the continuous collection and provision of diagnostic data for preventive maintenance.Ad | Basic TD AC Basic TD TDP Basic TD TC |
| Eu.TDS.2416 | Info | TDS_UC3.4: Update specific software | The Subsystem-UseCase "TDS_UC3.4: Update specificACsoftware" defines the process of updating the specificBasoftware between Subsystem - Maintenance and DataTIManagement and the Subsystem.Ba | Basic TD AC Basic TD TDP Basic TD TC |
| Eu.TDS.6523 | Head | 3.3.3 Subsystem Train Detection System - Functional Partitioning | | |



| Requirement Part 2 | Func. Pkg. |
|--------------------|--|
| | Basic TDS AC Basic TDS TDP Basic TDS TC |
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| ID | Туре | Requirement Part 1 | Requirement Part 2 | Func. Pkg. |
|-------------|------|--|--------------------|--|
| Eu.TDS.2618 | Head | 3.3.4 Subsystem Train Detection System - Functional Architecture | | |
| Eu.TDS.2619 | Info | Subsystem Train Detection System | | Basic TDS AC Basic TDS TDP Basic TDS TC |





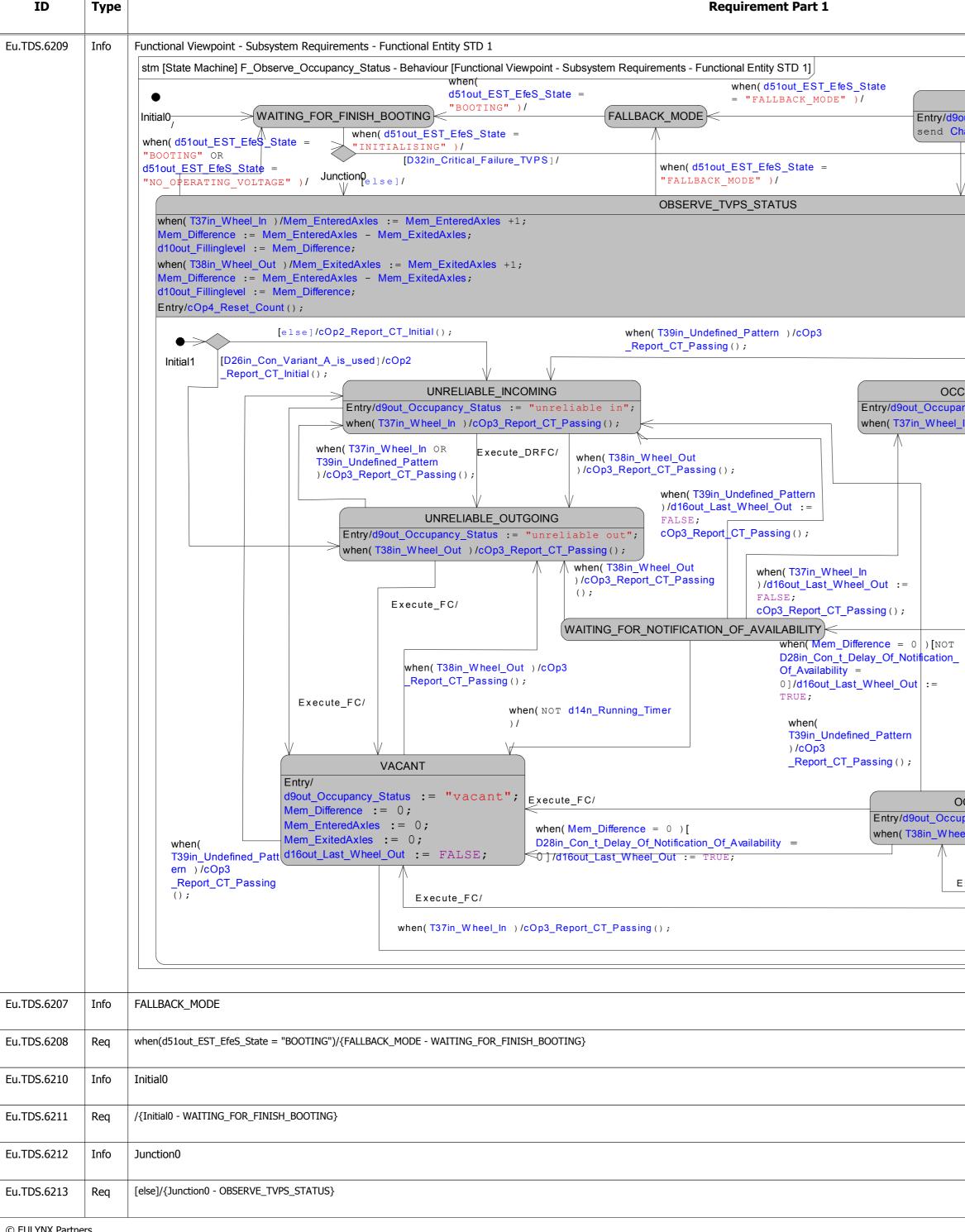
| Requirement Part 2 | Func. Pkg. |
|--------------------|-----------------|
| | Basic TDS TC |
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| Requirement Part 2 | Func. Pkg. |
|--|--|
| | Pkg. Basic TDS TDP |
| This interface may be defined in later deliveries. | Basic TDS AC Basic TDS TDP Basic TDS TC |
| The functional Process Data interface to the Subsystem - Electronic Interlocking (SCI: Standard Communication Interface). The InformationFlow through the interface is further defined in SCI-TDS (Subsystem - Electronic Interlocking). | Basic TDS AC Basic TDS TDP Basic TDS TC |
| The functional Diagnostic interface to the Subsystem - Maintenance and Data Management for the InformationFlow through the interface, which is defined by "Subsystem_MDM_D". | Basic TDS AC Basic TDS TDP Basic TDS TC |
| The functional Maintenance Interface to the Subsystem - Maintenance and Data Management for the InformationFlow through the interface, which is defined by "Subsystem_MDM_M". | Basic TDS AC Basic TDS TDP Basic TDS TC |
| The Security Service Interface to the Subsystem Security Services Platform. The InformationFlow through the interface is further defined in SSI-TDS (Subsystem - Security Services Platform). | Basic TDS AC Basic TDS TDP Basic TDS TC |

| ID | Туре | Requirement Part 1 Requirement Part 2 | Func. Pkg. |
|-------------|------|---|--|
| Eu.TDS.5972 | Info | TDS1 The functional System Data interface to the Basic Data identifier. The InformationFlow through the interface is defined by "Basic_Data_Identifier". | Basic TDS AC Basic TDS TDP Basic TDS TC |
| Eu.TDS.2628 | Info | TDS2 Flow through the interface is defined by "Wheel". | Basic TDS AC Basic TDS TDP Basic TDS TC |
| Eu.TDS.2629 | Info | TDS6 The functional Local Operate and Display interface to the Maintainer. The Information Flow through the interface is defined by "Maintainer". | Basic TDS AC Basic TDS TDP Basic TDS TC |
| Eu.TDS.2631 | Head | 3.3.5 Subsystem Train Detection System - Functional Entities | |
| Eu.TDS.5001 | Info | F_Observe_Occupancy_Status | Basic TDS AC |
| Eu.TDS.5312 | Info | [Biod JF _ Observe_ OccupancyStatus [Functional Wexpoint - Subsystem Requirements - Functional Ent/ty] [bid [Biod JF _ Observe_ OccupancyStatus [Functional Ent/ty] | Basic TDS AC |
| Eu.TDS.6255 | | p4in | Basic TDS AC |
| Eu.TDS.6256 | Info | p5in | Basic TDS AC |
| Eu.TDS.6257 | Info | p86out | Basic TDS AC |
| Eu.TDS.5038 | Info | D26in_Con_Variant_A_is_used The port D26in_Con_Variant_A_is_used provides the configuration of Variant A or Variant B. Permitted value: - True: Variant A - False: Variant B - True D22i. Origination of Variant B | Basic TDS AC |
| Eu.TDS.5031 | Info | D32in_Critical_Failure_TVPS The port D32in_Critical_Failure_TVPS represents a critical failure of a TVPS, e.g. an interface disturbance between the components of the TVPS or a hardware failure of the components of the Subsystem - Train Detection System. - True: critical failure of a TVPS - False: no critical failure of a TVPS | AC |
| Eu.TDS.5322 | Info | T37in_Wheel_In The port T37in_Wheel_In refines the FlowProperty Passing_Detected and represents an incoming Wheel at a Detection Point of the relevant TVPS. | Basic TDS AC |
| Eu.TDS.5323 | Info | T38in_Wheel_Out The port T38in_Wheel_Out refines the FlowProperty Passing_Detected and represents a outgoing Wheel at an Detection Point of the relevant TVPS. | Basic TDS AC |

| ID | Туре | Require | ement Part 1 Requirement Part 2 | Func. Pkg. |
|-------------|------|---|---|-----------------|
| Eu.TDS.5324 | Info | T39in_Undefined_Pattern | The port T39in_Undefined_Pattern refines the FlowProperty Passing_Detected and represents that a sensor of a detection point receives an uninterpretable or undefined pattern. | Basic TDS AC |
| Eu.TDS.5036 | Info | d51out_EST_EfeS_State | | Basic TDS AC |
| Eu.TDS.7051 | Info | D28in_Con_t_Delay_Of_Notification_Of_Availability | The port D28in_Con_t_Delay_Of_Notification_Of_Availability refines the time value for Con_t_Delay_Of_Notification_Of_Availability. This is is a delay of reporting vacant from the Subsystem - Train Detection System to the Subsystem - Electronic Interlocking. | Basic TDS AC |
| Eu.TDS.5049 | Info | d9out_Occupancy_Status | | Basic TDS AC |
| Eu.TDS.6203 | Info | d10out_Fillinglevel | | Basic TDS AC |
| Eu.TDS.6204 | Info | d14n_Running_Timer | | Basic TDS AC |
| Eu.TDS.6205 | Info | d16out_Last_Wheel_Out | | Basic TDS AC |
| Eu.TDS.6201 | Info | cOp2_Report_CT_Initial | send Change_Trigger(ChangeTrigger.InitialSectionState) to p86out; | Basic TDS AC |
| Eu.TDS.6202 | Info | cOp3_Report_CT_Passing | send Change_Trigger(ChangeTrigger.PassingDetected) to p86out; | Basic TDS AC |
| Eu.TDS.6206 | Info | F_Observe_Occupancy_Status - Behaviour | | Basic TDS AC |



| | Requirement Part 2 | Func. Pkg. |
|--|--------------------|-----------------|
| | | Basic TDS AC |
| | | AC |
| TECHNICAL_DISTURBANCE out_Occupancy_Status := "technical disturbed"; | | |
| hange_Trigger (TechnicalFailure) to p86out; | | |
| when(NOT D32in_Critical_Failure_TVPS)/ / when(D32in_Critical_Failure_TVPS)/ | | |
| | | |
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| | | |
| | | |
| | | |
| | | |
| CUPIED_INCOMING | | |
| _In)/cOp3_Report_CT_Passing(); | | |
| | | |
| when(T37in_Wheel_In)/cOp3 _Report_CT_Passing(); | | |
| | | |
| when(T38in_Wheel_Out)/cOp3 _Report_CT_Passing(); | | |
| | | |
| | | |
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| | | |
| | | |
| | | |
| | | |
| <pre>DCCUPIED_OUTGOING upancy_Status := "occupied out"; el_Out)/cOp3_Report_CT_Passing();</pre> | | |
| | | |
| Execute_DRFC/ | | |
| | | |
| | | |
| | | |
| | | Basic TDS AC |

| IDTypeRequirement Part 1Eu.TDS.6214Req[D32in_Critical_Failure_TVPS]/(Junction - TECHNICAL_DISTURBANCE)Eu.TDS.6215InfoOBSERVE_TVPS_STATUSEu.TDS.6216InfoInitial1Eu.TDS.6217Req/[Initial1 - Junction]Eu.TDS.6218InfoJunctionEu.TDS.6219Req[else]/cOp2_Report_CT_Initial();(Junction - UNRELIABLE_INCOMING)Eu.TDS.6219Req[lo26in_Con_Variant_A_is_used]/cOp2_Report_CT_Initial();(Junction - UNRELIABLE_OUTGOING)Eu.TDS.6221InfoOCCUPIED_INCOMINGEu.TDS.6222ReqExecute_FC/(OCCUPIED_INCOMING - OCCUPIED_OUTGOING)Eu.TDS.6223ReqExecute_FC/(OCCUPIED_INCOMING - VACANT)Eu.TDS.6225Reqwhen(T38in_Wheel_Out)/cOp3_Report_CT_Passing();(OCCUPIED_INCOMING - OCCUPIED_OUTGOING) | |
|---|--|
| LucidaInfoOBSERVE_TVPS_STATUSEu.TDS.6216InfoInitial1Eu.TDS.6217Req/(Initial1 - Junction)Eu.TDS.6218InfoJunctionEu.TDS.6219Req[else]/cOp2_Report_CT_Initial();(Junction - UNRELIABLE_INCOMING}Eu.TDS.6220Req[D26in_Con_Variant_A_is_used]/cOp2_Report_CT_Initial();(Junction - UNRELIABLE_OUTGOING)Eu.TDS.6221InfoOCCUPIED_INCOMINGEu.TDS.6222ReqExecute_DRFC/(OCCUPIED_INCOMING - OCCUPIED_OUTGOING}Eu.TDS.6223ReqExecute_CPRFC/(OCCUPIED_INCOMING - VACANT) | |
| LImage: Constraint of the secure_FC/{OCCUPIED_INCOMING - VACANT}Eu.TDS.6221ReqEu.TDS.6222ReqEu.TDS.6223ReqEu.TDS.6223ReqEu.TDS.6223ReqEu.TDS.6223ReqEu.TDS.6223ReqEu.TDS.6223ReqEu.TDS.6223ReqEu.TDS.6224ReqEu.TDS.6225ReqEu.TDS.6226ReqEu.TDS.6227ReqEu.TDS.6228ReqEu.TDS.6229ReqEu.TDS.6224ReqEu.TDS.6225ReqEu.TDS.6226ReqEu.TDS.6227ReqEu.TDS.6228ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.6224ReqEu.TDS.6225ReqEu.TDS.6226ReqEu.TDS.6227ReqEu.TDS.6228ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.6229ReqEu.TDS.629ReqEu.TDS.629ReqEu.TDS.629ReqEu.TDS.629ReqEu.TDS.629ReqEu.TDS.629ReqEu.TDS.629 <td< td=""><td></td></td<> | |
| Eu.TDS.6217Req/{Initial - Junction}Eu.TDS.6218InfoJunctionEu.TDS.6219Req[else]/cOp2_Report_CT_Initial();{Junction - UNRELIABLE_INCOMING}Eu.TDS.6220Req[D26in_Con_Variant_A_is_used]/cOp2_Report_CT_Initial();{Junction - UNRELIABLE_OUTGOING}Eu.TDS.6221InfoOCCUPIED_INCOMINGEu.TDS.6222ReqExecute_DRFC/{OCCUPIED_INCOMING - OCCUPIED_OUTGOING}Eu.TDS.6223ReqExecute_FC/{OCCUPIED_INCOMING - VACANT} | |
| Eu. TDS.6218 Info Junction Eu. TDS.6219 Req [else]/cOp2_Report_CT_Initial();{Junction - UNRELIABLE_INCOMING} Eu. TDS.6220 Req [D26in_Con_Variant_A_is_used]/cOp2_Report_CT_Initial();{Junction - UNRELIABLE_OUTGOING} Eu. TDS.6221 Info OCCUPIED_INCOMING Eu. TDS.6222 Req Execute_DRFC/{OCCUPIED_INCOMING - OCCUPIED_OUTGOING} Eu. TDS.6223 Req Execute_FC/{OCCUPIED_INCOMING - VACANT} | |
| Eu.TDS.6219Req[else]/cOp2_Report_CT_Initial();{Junction - UNRELIABLE_INCOMING}Eu.TDS.6220Req[D26in_Con_Variant_A_is_used]/cOp2_Report_CT_Initial();{Junction - UNRELIABLE_OUTGOING}Eu.TDS.6221InfoOCCUPIED_INCOMINGEu.TDS.6222ReqExecute_DRFC/{OCCUPIED_INCOMING - OCCUPIED_OUTGOING}Eu.TDS.6223ReqExecute_FC/{OCCUPIED_INCOMING - VACANT} | |
| Eu.TDS.6220 Req [D26in_Con_Variant_A_is_used]/cOp2_Report_CT_Initial();{Junction - UNRELIABLE_OUTGOING} Eu.TDS.6221 Info OCCUPIED_INCOMING Eu.TDS.6222 Req Execute_DRFC/{OCCUPIED_INCOMING - OCCUPIED_OUTGOING} Eu.TDS.6223 Req Execute_FC/{OCCUPIED_INCOMING - VACANT} | |
| Eu.TDS.6221 Info OCCUPIED_INCOMING Eu.TDS.6222 Req Execute_DRFC/{OCCUPIED_INCOMING - OCCUPIED_OUTGOING} Eu.TDS.6223 Req Execute_FC/{OCCUPIED_INCOMING - VACANT} | |
| Eu.TDS.6222 Req Execute_DRFC/{OCCUPIED_INCOMING - OCCUPIED_OUTGOING} Eu.TDS.6223 Req Execute_FC/{OCCUPIED_INCOMING - VACANT} | |
| Eu.TDS.6223 Req Execute_FC/{OCCUPIED_INCOMING - VACANT} | |
| | |
| Eu.TDS.6225 Req when(T38in_Wheel_Out)/cOp3_Report_CT_Passing();{OCCUPIED_INCOMING - OCCUPIED_OUTGOING} | |
| | |
| Eu.TDS.6226 Req when(T39in_Undefined_Pattern)/cOp3_Report_CT_Passing();{OCCUPIED_INCOMING - UNRELIABLE_INCOMING} | |
| Eu.TDS.6900 Req entry/d9out_Occupancy_Status := "occupied in";{State-internal in OCCUPIED_INCOMING} | |
| Eu.TDS.6901 Req when(T37in_Wheel_In)/cOp3_Report_CT_Passing();{State-internal in OCCUPIED_INCOMING} | |
| Eu.TDS.6227 Info OCCUPIED_OUTGOING | |
| Eu.TDS.6228 Req Execute_FC/{OCCUPIED_OUTGOING - VACANT} | |
| Eu.TDS.6229 Req when(Mem_Difference = 0)[NOT D28in_Con_t_Delay_Of_Notification_Of_Availability = 0]/d16out_Last_Wheel_Out := TRUE;{OCCUPIED_OUTGOING - WAITING_Fet_Delay_Of_Notification_Of_Availability = 0]/d16out_Last_Wheel_Out := TRUE;{OCCUPIED_OUTGOING - WAITING_Fet_Delay_Of_NOT_NOT_NOT_NOT_NOT_NOT_NOT_NOT_NOT_NOT | |
| Eu.TDS.6230 Req when(T37in_Wheel_In)/cOp3_Report_CT_Passing();{OCCUPIED_OUTGOING - OCCUPIED_INCOMING} | |
| Eu.TDS.6231 Req when(T39in_Undefined_Pattern)/cOp3_Report_CT_Passing();{OCCUPIED_OUTGOING - UNRELIABLE_INCOMING} | |
| Eu.TDS.6902 Req entry/d9out_Occupancy_Status := "occupied out";{State-internal in OCCUPIED_OUTGOING} | |
| Eu.TDS.7052 Req when(T38in_Wheel_Out)/cOp3_Report_CT_Passing();{State-internal in OCCUPIED_OUTGOING} | |
| Eu.TDS.7053 Req when(Mem_Difference = 0)[D28in_Con_t_Delay_Of_Notification_Of_Availability = 0]/d16out_Last_Wheel_Out := TRUE;{OCCUPIED_OUTGOING - VACANT} | |
| Eu.TDS.6232 Info UNRELIABLE_INCOMING | |
| Eu.TDS.6233 Req Execute_DRFC/{UNRELIABLE_INCOMING - UNRELIABLE_OUTGOING} | |
| Eu.TDS.6234 Req Execute_FC/{UNRELIABLE_INCOMING - VACANT} | |
| Eu.TDS.6235 Req when(T38in_Wheel_Out)/cOp3_Report_CT_Passing();{UNRELIABLE_INCOMING - UNRELIABLE_OUTGOING} | |
| Eu.TDS.6906 Req entry/d9out_Occupancy_Status := "unreliable in";{State-internal in UNRELIABLE_INCOMING} | |
| Eu.TDS.6907 Req when(T37in_Wheel_In)/cOp3_Report_CT_Passing();{State-internal in UNRELIABLE_INCOMING} | |
| Eu.TDS.6236 Info UNRELIABLE_OUTGOING | |
| Eu.TDS.6237 Req Execute_FC/{UNRELIABLE_OUTGOING - VACANT} | |
| Eu.TDS.6238 Req when(T37in_Wheel_In OR T39in_Undefined_Pattern)/cOp3_Report_CT_Passing();{UNRELIABLE_OUTGOING - UNRELIABLE_INCOMING} | |

| | Requirement Part 2 | Func. Pkg. |
|----------------|--------------------|-----------------|
| | | Basic TDS AC |
| _AVAILABILITY} | | Basic TDS AC |
| | | Basic TDS AC |

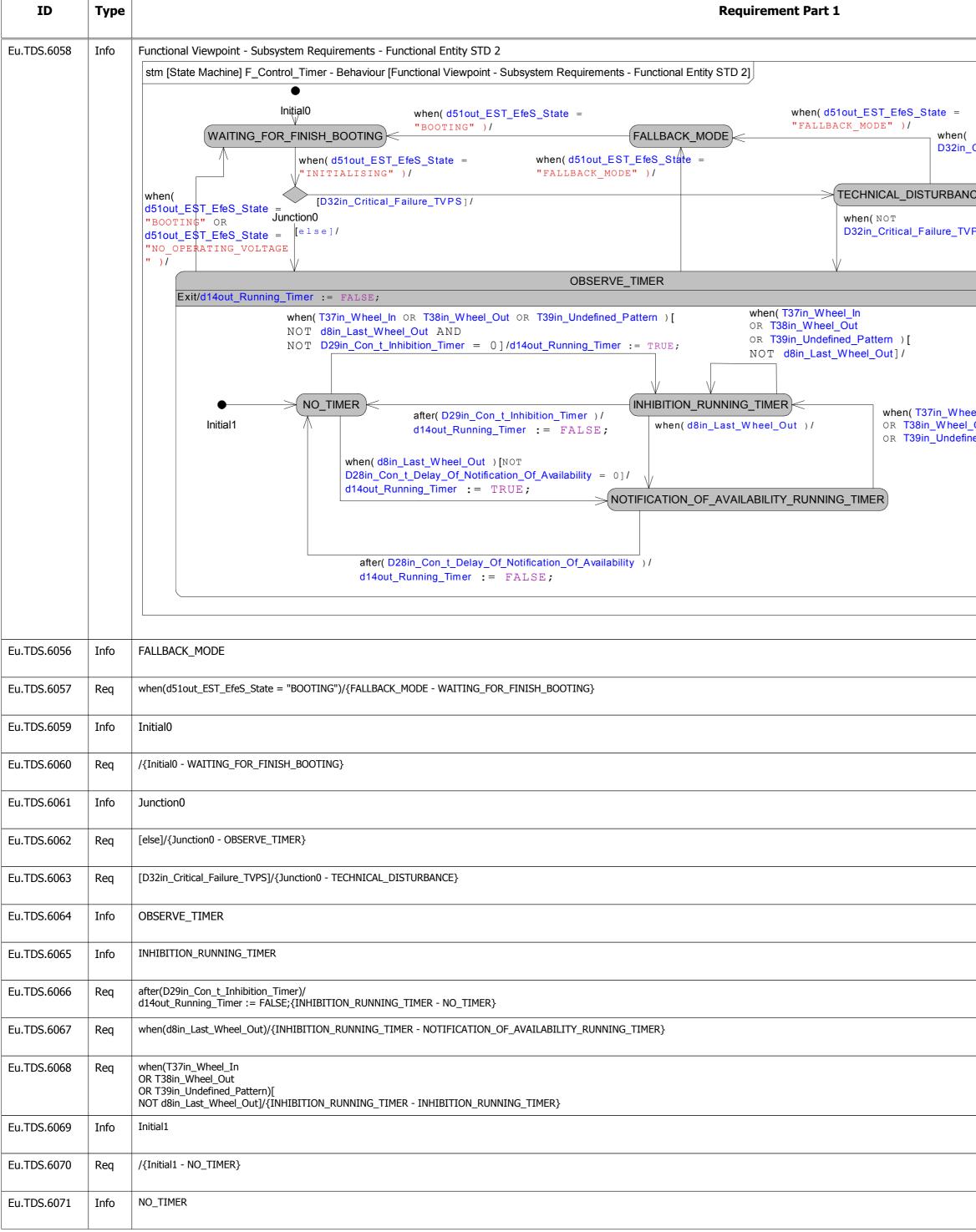
| ID | Туре | Requirement Part 1 |
|-------------|------|---|
| Eu.TDS.6908 | Req | entry/d9out_Occupancy_Status := "unreliable out";{State-internal in UNRELIABLE_OUTGOING} |
| Eu.TDS.6909 | Req | when(T38in_Wheel_Out)/cOp3_Report_CT_Passing();{State-internal in UNRELIABLE_OUTGOING} |
| Eu.TDS.6239 | Info | VACANT |
| Eu.TDS.6240 | Req | when(T37in_Wheel_In)/cOp3_Report_CT_Passing();{VACANT - OCCUPIED_INCOMING} |
| Eu.TDS.6241 | Req | when(T38in_Wheel_Out)/cOp3_Report_CT_Passing();{VACANT - UNRELIABLE_OUTGOING} |
| Eu.TDS.6242 | Req | when(T39in_Undefined_Pattern)/cOp3_Report_CT_Passing();{VACANT - UNRELIABLE_INCOMING} |
| Eu.TDS.6910 | Req | entry/ d9out_Occupancy_Status := "vacant"; Mem_Difference := 0; Mem_EnteredAxles := 0; Mem_ExitedAxles := 0; d16out_Last_Wheel_Out := FALSE;{State-internal in VACANT} |
| Eu.TDS.6243 | Info | WAITING_FOR_NOTIFICATION_OF_AVAILABILITY |
| Eu.TDS.6244 | Req | when(NOT d14n_Running_Timer)/{WAITING_FOR_NOTIFICATION_OF_AVAILABILITY - VACANT} |
| Eu.TDS.6245 | Req | when(T37in_Wheel_In)/d16out_Last_Wheel_Out := FALSE; cOp3_Report_CT_Passing();{WAITING_FOR_NOTIFICATION_OF_AVAILABILITY - OCCUPIED_INCOMING} |
| Eu.TDS.6246 | Req | when(T38in_Wheel_Out)/cOp3_Report_CT_Passing();{WAITING_FOR_NOTIFICATION_OF_AVAILABILITY - UNRELIABLE_OUTGOING} |
| Eu.TDS.6247 | Req | when(T39in_Undefined_Pattern)/d16out_Last_Wheel_Out := FALSE; cOp3_Report_CT_Passing();{WAITING_FOR_NOTIFICATION_OF_AVAILABILITY - UNRELIABLE_INCOMING} |
| Eu.TDS.6248 | Req | when(D32in_Critical_Failure_TVPS)/{OBSERVE_TVPS_STATUS - TECHNICAL_DISTURBANCE} |
| Eu.TDS.6249 | Req | when(d51out_EST_EfeS_State = "FALLBACK_MODE")/{OBSERVE_TVPS_STATUS - FALLBACK_MODE} |
| Eu.TDS.6904 | Req | when(T37in_Wheel_In)/Mem_EnteredAxles := Mem_EnteredAxles +1; Mem_Difference := Mem_EnteredAxles - Mem_ExitedAxles; d10out_Fillinglevel := Mem_Difference;{State-internal in OBSERVE_TVPS_STATUS} |
| Eu.TDS.6905 | Req | when(T38in_Wheel_Out)/Mem_ExitedAxles := Mem_ExitedAxles +1; Mem_Difference := Mem_EnteredAxles - Mem_ExitedAxles; d10out_Fillinglevel := Mem_Difference;{State-internal in OBSERVE_TVPS_STATUS} |
| Eu.TDS.7054 | Req | entry/cOp4_Reset_Count();{State-internal in OBSERVE_TVPS_STATUS} |
| Eu.TDS.7055 | Req | when(d51out_EST_EfeS_State = "BOOTING" OR d51out_EST_EfeS_State = "NO_OPERATING_VOLTAGE")/{OBSERVE_TVPS_STATUS - WAITING_FOR_FINISH_BOOTING} |
| Eu.TDS.6250 | Info | TECHNICAL_DISTURBANCE |
| Eu.TDS.6251 | Req | when(d51out_EST_EfeS_State = "FALLBACK_MODE")/{TECHNICAL_DISTURBANCE - FALLBACK_MODE} |
| Eu.TDS.6252 | Req | when(NOT D32in_Critical_Failure_TVPS)/{TECHNICAL_DISTURBANCE - OBSERVE_TVPS_STATUS} |
| Eu.TDS.6912 | Req | entry/d9out_Occupancy_Status := "technical disturbed"; send Change_Trigger(TechnicalFailure) to p86out;{State-internal in TECHNICAL_DISTURBANCE} |
| Eu.TDS.6253 | Info | WAITING_FOR_FINISH_BOOTING |
| Eu.TDS.6254 | Req | when(d51out_EST_EfeS_State = "INITIALISING")/{WAITING_FOR_FINISH_BOOTING - Junction0} |
| Eu.TDS.7050 | Info | cOp4_Reset_Count |
| Eu.TDS.6047 | Info | F_Control_Timer |

| Requirement Part 2 | Func. Pkg. |
|---|-----------------|
| | Basic TDS AC |
| Mem_EnteredAxles := 0; Mem_ExitedAxles := 0; Mem_Difference := 0; | Basic TDS AC |
| | Basic TDS AC |

Requirements specification for subsystem TDS

| ID | Туре | e Requir | ement Part 1 |
|-------------|-------|--|--------------|
| Eu.TDS.6048 | Info | [Block] F_Observe_Time [Functional Viewpoint - Subsystem Requirements - Functional Entity] | |
| | | ibd [Block] F_Observe_Time [Functional Viewpoint - Subsystem Requirements - Functional Entity] | |
| | | «functional entity» F_Control_Timer | |
| | | → d8in_Last_Wheel_Out : Boolean d14out_Running_Timer : Boolean → | |
| | | →D28in_Con_t_Delay_Of_Notification_Of_Availability : Integer | |
| | | D29in_Con_t_Inhibition_Timer : Integer | |
| | | →D32in_Critical_Failure_TVPS : Boolean | |
| | | T37in_Wheel_In : PulsedIn | |
| | | → T38in_Wheel_Out : PulsedIn | |
| | | → T39in_Undefined_Pattern : PulsedIn | |
| | | →d51out_EST_EfeS_State : String | |
| | | | |
| Eu.TDS.6083 | Info | T37in_Wheel_In | |
| Eu.TDS.6084 | Info | T38in_Wheel_Out | |
| Eu.TDS.6085 | Info | T39in_Undefined_Pattern | |
| Lu.125.0005 | 11110 | | |
| Eu.TDS.6049 | Info | d14out_Running_Timer | |
| Eu.TDS.6050 | Info | D28in_Con_t_Delay_Of_Notification_Of_Availability | |
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| Eu.TDS.6051 | Info | D29in_Con_t_Inhibition_Timer | |
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| Eu.TDS.6052 | Info | D32in_Critical_Failure_TVPS | |
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| Eu.TDS.6053 | Info | d51out_EST_EfeS_State | |
| Eu.TDS.6054 | Info | d8in_Last_Wheel_Out | |
| Eu.TDS.6055 | Info | F_Control_Timer - Behaviour | |

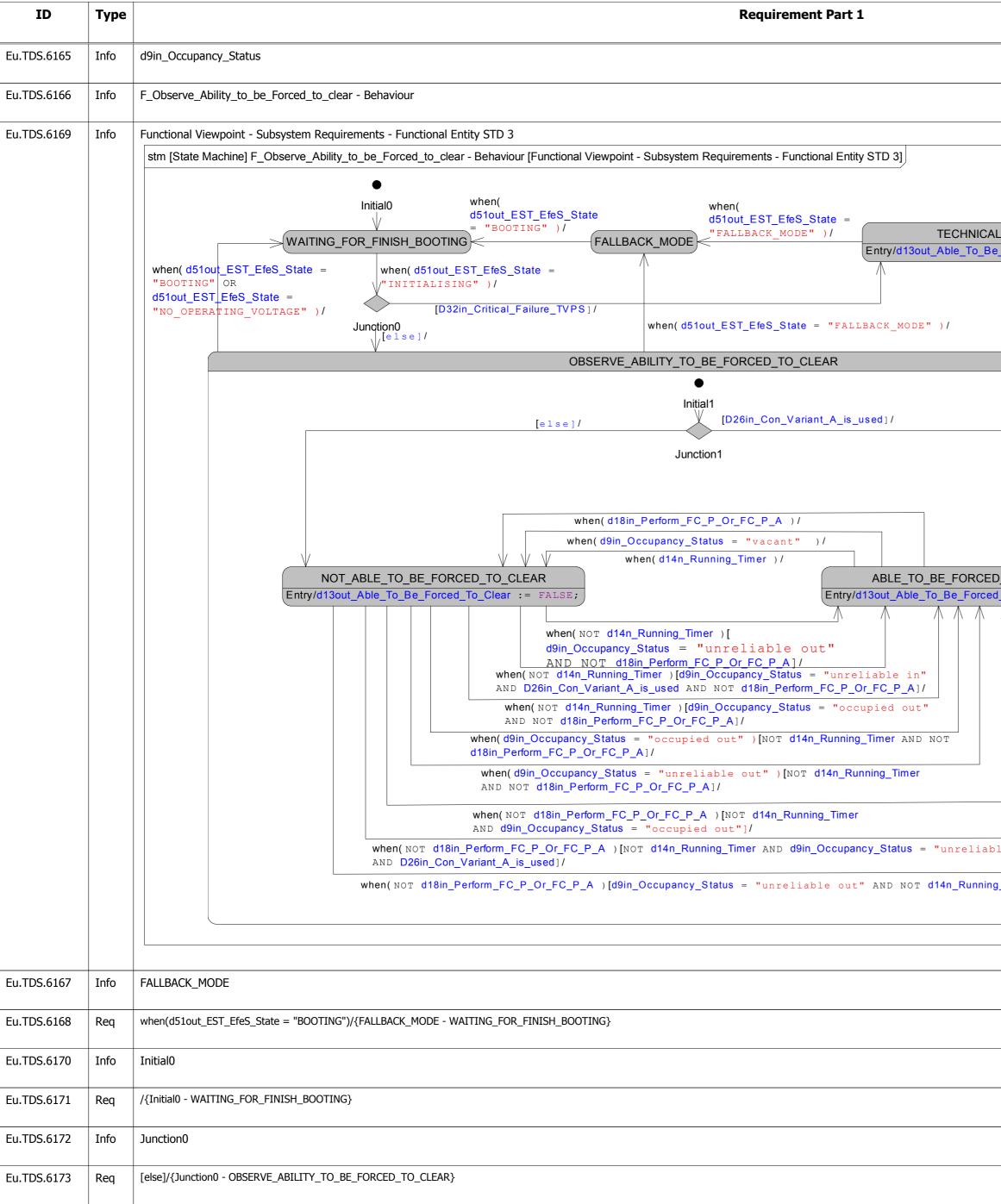
| Requirement Part 2 | Func. Pkg. |
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| | Basic TDS AC |
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| The port T37in_Wheel_In refines the FlowProperty Passing_Detected and represents an incoming Wheel at a Detection Point of the relevant TVPS. | Basic TDS AC |
| The port T38in_Wheel_Out refines the FlowProperty Passing_Detected and represents an outgoing Wheel at a Detection Point of the relevant TVPS. | Basic TDS AC |
| The port T39in_Undefined_Pattern refines the FlowProperty Passing_Detected and represents that a sensor of a detection point receives an uninterpretable or undefined pattern. | Basic TDS AC |
| | Basic TDS AC |
| The port D28in_Con_t_Delay_Of_Notification_Of_Availability refines the time value for Con_t_Delay_Of_Notification_Of_Availability. This is is a delay of reporting vacant from the Subsystem - Train Detection System to the Subsystem - Electronic Interlocking. | Basic TDS AC |
| The port D29in_Con_t_Inhibition_Timer refines the time value for Con_t_Inhibition_Timer. This is is a delay between the detection of a passing for a TVPS (incoming wheel, outgoing wheel or uninterpretable pattern) and the moment that the state of a TVPS is considered stable. | Basic TDS AC |
| The port D32in_Critical_Failure_TVPS represents a critical failure of a TVPS, e.g. an interface disturbance between the components of the TVPS or a hardware failure of the components of the Subsystem - Train Detection System True: critical failure of a TVPS - False: no critical failure of a TVPS | Basic TDS AC |
| | Basic TDS AC |
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| | Basic TDS AC |



| | Requirement Part 2 | Func. Pkg. |
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| | | Basic TDS AC |
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| | | Basic TDS AC |

| ID | Туре | Requirement Part 1 |
|-------------|------|---|
| Eu.TDS.6072 | Req | when(T37in_Wheel_In OR T38in_Wheel_Out OR T39in_Undefined_Pattern)[NOT d8in_Last_Wheel_Out AND NOT D29in_Con_t_Inhibition_Timer = 0]/d14out_Running_Timer := TRUE;{NO_TIMER - INHIBITION_RUNNING_TIMER} |
| Eu.TDS.7044 | Req | when(d8in_Last_Wheel_Out)[NOT D28in_Con_t_Delay_Of_Notification_Of_Availability = 0]/ d14out_Running_Timer := TRUE;{NO_TIMER - NOTIFICATION_OF_AVAILABILITY_RUNNING_TIMER} |
| Eu.TDS.6073 | Info | NOTIFICATION_OF_AVAILABILITY_RUNNING_TIMER |
| Eu.TDS.6074 | Req | after(D28in_Con_t_Delay_Of_Notification_Of_Availability)/ d14out_Running_Timer := FALSE;{NOTIFICATION_OF_AVAILABILITY_RUNNING_TIMER - NO_TIMER} |
| Eu.TDS.6075 | Req | when(T37in_Wheel_In OR T38in_Wheel_Out OR T39in_Undefined_Pattern)/{NOTIFICATION_OF_AVAILABILITY_RUNNING_TIMER - INHIBITION_RUNNING_TIMER} |
| Eu.TDS.6076 | Req | when(D32in_Critical_Failure_TVPS)/{OBSERVE_TIMER - TECHNICAL_DISTURBANCE} |
| Eu.TDS.6077 | Req | when(d51out_EST_EfeS_State = "FALLBACK_MODE")/{OBSERVE_TIMER - FALLBACK_MODE} |
| Eu.TDS.7045 | Req | exit/d14out_Running_Timer := FALSE;{State-internal in OBSERVE_TIMER} |
| Eu.TDS.7046 | Req | when(d51out_EST_EfeS_State = "BOOTING" OR d51out_EST_EfeS_State = "NO_OPERATING_VOLTAGE")/{OBSERVE_TIMER - WAITING_FOR_FINISH_BOOTING} |
| Eu.TDS.6078 | Info | TECHNICAL_DISTURBANCE |
| Eu.TDS.6079 | Req | when(d51out_EST_EfeS_State = "FALLBACK_MODE")/{TECHNICAL_DISTURBANCE - FALLBACK_MODE} |
| Eu.TDS.6080 | Req | when(NOT D32in_Critical_Failure_TVPS)/{TECHNICAL_DISTURBANCE - OBSERVE_TIMER} |
| Eu.TDS.6081 | Info | WAITING_FOR_FINISH_BOOTING |
| Eu.TDS.6082 | Req | when(d51out_EST_EfeS_State = "INITIALISING")/{WAITING_FOR_FINISH_BOOTING - Junction0} |
| Eu.TDS.6157 | Info | F_Observe_Ability_to_be_Forced_to_clear |
| Eu.TDS.6158 | Info | [Block] F_Observe_Ability_to_be_Forced_to_clear [Functional Viewpoint - Subsystem Requirements - Functional Entity] ibd [Block] F_Observe_Ability_to_be_Forced_to_clear [Functional Viewpoint - Subsystem Requirements - Functional Entity] |
| Eu.TDS.6159 | Info | d13out_Able_To_Be_Forced_To_Clear |
| Eu.TDS.6160 | Info | d14n_Running_Timer |
| Eu.TDS.6161 | Info | d18in_Perform_FC_P_Or_FC_P_A |
| Eu.TDS.6162 | Info | D26in_Con_Variant_A_is_used |
| Eu.TDS.6163 | Info | D32in_Critical_Failure_TVPS |
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| Requirement Part 2 | Func. Pkg. |
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| | Basic TDS AC |
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| | Basic TDS AC |
| | Basic TDS AC |
| | Basic TDS AC |
| The port D26in_Con_Variant_A_is_used provides the configuration of Variant A or Variant B. Permitted value: - True: Variant A - False: Variant B | Basic TDS AC |
| The port D32in_Critical_Failure_TVPS represents a critical failure of a TVPS, e.g. an interface disturbance between the components of the TVPS or a hardware failure of the components of the Subsystem - Train Detection System True: critical failure of a TVPS - False: no critical failure of a TVPS | Basic TDS AC |
| | Basic TDS AC |



Eu.TDS.6174

Req

[D32in_Critical_Failure_TVPS]/{Junction0 - TECHNICAL_DISTURBANCE}

| | Requirement Part 2 | Func. Pkg. |
|---|--------------------|-----------------|
| | | Basic TDS AC |
| | | Basic TDS AC |
| | | Basic TDS |
| when(NOT D32in_Critical_Failure_TVPS) / when(D32in_Critical_Failure_TVPS) D_TO_CLEAR d_To_CLEAR d_To_Clear := TRUE; ple in* | | AC |
| | | |
| | | Basic TDS |
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| | | AC |
| | | Basic TDS AC |

| Requirements spe | | of subsystem (DS |
|------------------|------|---|
| ID | Туре | Requirement Part 1 |
| Eu.TDS.6175 | Info | OBSERVE_ABILITY_TO_BE_FORCED_TO_CLEAR |
| Eu.TDS.6176 | Info | ABLE_TO_BE_FORCED_TO_CLEAR |
| Eu.TDS.6177 | Req | when(d14n_Running_Timer)/{ABLE_TO_BE_FORCED_TO_CLEAR - NOT_ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6178 | Req | when(d18in_Perform_FC_P_Or_FC_P_A)/{ABLE_TO_BE_FORCED_TO_CLEAR - NOT_ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6179 | Req | when(d9in_Occupancy_Status = "vacant")/{ABLE_TO_BE_FORCED_TO_CLEAR - NOT_ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6897 | Req | entry/d13out_Able_To_Be_Forced_To_Clear := TRUE;{State-internal in ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6180 | Info | Initial1 |
| Eu.TDS.6181 | Req | /{Initial1 - Junction1} |
| Eu.TDS.6182 | Info | Junction1 |
| Eu.TDS.6183 | Req | [D26in_Con_Variant_A_is_used]/{Junction1 - ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6184 | Req | [else]/{Junction1 - NOT_ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6185 | Info | NOT_ABLE_TO_BE_FORCED_TO_CLEAR |
| Eu.TDS.6186 | Req | when(d9in_Occupancy_Status = "occupied out")[NOT d14n_Running_Timer AND NOT d18in_Perform_FC_P_Or_FC_P_A]/{NOT_ABLE_TO_BE_FORCED_TO_CLEAR - ABLE_TO_BE_FORCED_TO_ |
| Eu.TDS.6187 | Req | when(d9in_Occupancy_Status = "unreliable out")[NOT d14n_Running_Timer AND NOT d18in_Perform_FC_P_Or_FC_P_A]/{NOT_ABLE_TO_BE_FORCED_TO_CLEAR - ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6188 | Req | when(NOT d14n_Running_Timer)[d9in_Occupancy_Status = "unreliable out" AND NOT d18in_Perform_FC_P_Or_FC_P_A]/{NOT_ABLE_TO_BE_FORCED_TO_CLEAR - ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6189 | Req | when(NOT d14n_Running_Timer)[d9in_Occupancy_Status = "occupied out" AND NOT d18in_Perform_FC_P_Or_FC_P_A]/{NOT_ABLE_TO_BE_FORCED_TO_CLEAR - ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6190 | Req | when(NOT d14n_Running_Timer)[d9in_Occupancy_Status = "unreliable in" AND D26in_Con_Variant_A_is_used AND NOT d18in_Perform_FC_P_Or_FC_P_A]/{NOT_ABLE_TO_BE_FORCED_TO_CLEAR - ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6191 | Req | when(NOT d18in_Perform_FC_P_Or_FC_P_A)[NOT d14n_Running_Timer AND d9in_Occupancy_Status = "unreliable in" AND D26in_Con_Variant_A_is_used]/{NOT_ABLE_TO_BE_FORCED_TO_CLEAR - ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6192 | Req | when(NOT d18in_Perform_FC_P_Or_FC_P_A)[d9in_Occupancy_Status = "unreliable out" AND NOT d14n_Running_Timer]/{NOT_ABLE_TO_BE_FORCED_TO_CLEAR - ABLE_TO_BE_FORCED_TO |
| Eu.TDS.6193 | Req | when(NOT d18in_Perform_FC_P_Or_FC_P_A)[NOT d14n_Running_Timer AND d9in_Occupancy_Status = "occupied out"]/{NOT_ABLE_TO_BE_FORCED_TO_CLEAR - ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6898 | Req | entry/d13out_Able_To_Be_Forced_To_Clear := FALSE;{State-internal in NOT_ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6194 | Req | when(D32in_Critical_Failure_TVPS)/{OBSERVE_ABILITY_TO_BE_FORCED_TO_CLEAR - TECHNICAL_DISTURBANCE} |
| Eu.TDS.6195 | Req | when(d51out_EST_EfeS_State = "FALLBACK_MODE")/{OBSERVE_ABILITY_TO_BE_FORCED_TO_CLEAR - FALLBACK_MODE} |
| Eu.TDS.7049 | Req | when(d51out_EST_EfeS_State = "BOOTING" OR d51out_EST_EfeS_State = "NO_OPERATING_VOLTAGE")/{OBSERVE_ABILITY_TO_BE_FORCED_TO_CLEAR - WAITING_FOR_FINISH_BOOTING |
| Eu.TDS.6196 | Info | TECHNICAL_DISTURBANCE |
| Eu.TDS.6197 | Req | when(d51out_EST_EfeS_State = "FALLBACK_MODE")/{TECHNICAL_DISTURBANCE - FALLBACK_MODE} |
| Eu.TDS.6198 | Req | when(NOT D32in_Critical_Failure_TVPS)/{TECHNICAL_DISTURBANCE - OBSERVE_ABILITY_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6899 | Req | entry/d13out_Able_To_Be_Forced_To_Clear := FALSE;{State-internal in TECHNICAL_DISTURBANCE} |
| Eu.TDS.6199 | Info | WAITING_FOR_FINISH_BOOTING |
| Eu.TDS.6200 | Req | when(d51out_EST_EfeS_State = "INITIALISING")/{WAITING_FOR_FINISH_BOOTING - Junction0} |
| Eu.TDS.6086 | Info | F_Handle_Commands |
| | 1 | |

| | Requirement Part 2 | Func. Pkg. |
|-----------------|--------------------|-----------------|
| | | Basic TDS AC |
| RCED_TO_CLEAR} | | Basic TDS AC |
| | | Basic TDS AC |
| DRCED_TO_CLEAR} | | Basic TDS AC |
| | | Basic TDS AC |
| BOOTING} | | Basic TDS AC |
| | | - |

| ID | Туре | Requireme | ent Part 1 Requirement Part 2 | Func. Pkg. |
|-------------|------|---|--|--------------------|
| .TDS.6087 | Info | [Block] F_Handle_Commands [Functional Viewpoint - Subsystem Requirements - Functional Entity] | | Basic TDS |
| | | ibd [Block] F_Handle_Commands [Functional Viewpoint - Subsystem Requirements - Functional Entity] | | AC |
| | | «functional entity» F_Handle_Commands | | |
| | | Operation | | |
| | | «Operation» cOp2_Reason_For_Rejection () : ReasonForRejection «Operation» cOp3_Report_Change_Trigger (in ParameterSource : SourceOfCommand) «Operation» cOp4_Report_Command_Rejected (in ParameterSource : SourceOfCommand) | | |
| | | | | |
| | | d9in_Occupancy_Status : String p4out : ~Perform_FC | | |
| | | →d13in_Able_To_Be_Forced_To_Clear : Boolean p5out : ~Perform_DRFC | | |
| | | →d14in_Running_Timer : Boolean p6out : ~Perform_UFL | | |
| | | d18in_Perform_FC_P_Or_FC_P_A : Boolean d19in_Process_State : String product : Request_Command_Rejected_ILS | | |
| | | → D20in_Con_Use_FC_C : Boolean p71out : Request_Command_Rejected_Maintainer | | |
| | | → D21in_Con_Use_FC_U : Boolean p8out : ~Perform_FC_P_Or_FC_P_A | | |
| | | → D22in_Con_Use_FC_P : Boolean p86out : Report_Change_Trigger | | |
| | | → D23in_Con_Use_FC_P_A : Boolean | | |
| | | D24in_Con_Use_DRFC : Boolean | | |
| | | → D25in_Con_Use_UFL : Boolean | | |
| | | p3in : Request_Commands | | |
| | | | | |
| Eu.TDS.6107 | Info | p3in | | Basic TDS AC |
| Eu.TDS.6108 | Info | p4out | | Basic TDS AC |
| Eu.TDS.6109 | Info | p5out | | Basic TDS AC |
| Eu.TDS.6110 | Info | p6out | | Basic TDS AC |
| Eu.TDS.6111 | Info | p71out | | Basic TDS AC |
| Eu.TDS.6112 | Info | p7out | | Basic TDS AC |
| Eu.TDS.6113 | Info | p86out | | Basic TDS AC |
| Eu.TDS.6114 | Info | p8out | | Basic TDS AC |
| Eu.TDS.6088 | Info | cOp2_Reason_For_Rejection | if (d9in_Occupancy_Status = "technical disturbed") th return ReasonForRejection.Technical; | en Basic TDS AC |
| | | | else return ReasonForRejection.Operational; end if | |
| Eu.TDS.6089 | Info | cOp3_Report_Change_Trigger | if (ParameterSource = SourceOfCommand.EIL) then | Basic TDS |
| | | | send Change_Trigger (ChangeTrigger.CommandFromEIL) to p86out; elseif (ParameterSource = SourceOfCommand.Maintainer) then send Change_Trigger (ChangeTrigger.CommandFromMaintainer) to p86out elseif (ParameterSource = SourceOfCommand.Intern then send Change_Trigger (ChangeTrigger.InternalTrigger) to p86out; end if | AC ; al) |
| Eu.TDS.6090 | Info | cOp4_Report_Command_Rejected | if (ParameterSource = SourceOfCommand.EIL) then send Report_Command_Rejected(cOp2 _Reason_For_Rejection()) to p7out; elseif (ParameterSource = SourceOfCommand.Maintainer) then send Report_Command_Rejected(cOp2 _Reason_For_Rejection()) to p71out; end if | Basic TDS AC |

| ID | Туре | | Requirement Part 1 Requirement Part 2 | Func. Pkg. |
|-------------|------|----------------------------------|---|--------------------------------------|
| Eu.TDS.6091 | Info | d13in_Able_To_Be_Forced_To_Clear | | Basic TDS AC |
| Eu.TDS.6092 | Info | d14in_Running_Timer | | Basic TDS AC |
| Eu.TDS.6093 | Info | d18in_Perform_FC_P_Or_FC_P_A | | Basic TDS AC Option FC-P/-A |
| Eu.TDS.6094 | Info | d19in_Process_State | | Basic TDS AC |
| Eu.TDS.6095 | Info | D20in_Con_Use_FC_C | The port D20in_Con_Use_FC_C provides the configuration value whether the TVPS is configured to use Force section status to clear, conditional. This is just a simplification, the configuration and engineering data for the Subsystem - Train Detection System will also include the opportunity to configure also the permitted source of the command. | Basic TDS AC |
| Eu.TDS.6096 | Info | D21in_Con_Use_FC_U | The port D21in_Con_Use_FC_U provides the configuration value whether the TVPS is configured to use Force section status to clear, unconditional. This is just a simplification, the configuration and engineering data for the Subsystem - Train Detection System will also include the opportunity to configure also the permitted source of the command. | Basic TDS AC |
| Eu.TDS.6097 | Info | D22in_Con_Use_FC_P | The port D22in_Con_Use_FC_P provides the configuration value whether the TVPS is configured to use Force section status to clear, preparatory. | Basic TDS AC Option FC-P/-A |
| Eu.TDS.6098 | Info | D23in_Con_Use_FC_P_A | The port D23in_Con_Use_FC_P_A provides the configuration value whether the TVPS is configured to use Force section status to clear, preparatory, with acknowledgement. | Basic TDS AC Option FC-P/-A |
| Eu.TDS.6099 | Info | D24in_Con_Use_DRFC | The port D24in_Con_Use_DRFC provides the configuration value whether the TVPS is configured to use Disable restriction to force section to clear. This is just a simplification, the configuration and engineering data for the Subsystem - Train Detection System will also include the opportunity to configure also the permitted source of the command. | Basic TDS AC |
| Eu.TDS.6100 | Info | D25in_Con_Use_UFL | The port D25in_Con_Use_UFL provides the configuration value whether the TVPS is configured to use Update Filling level. | Option Update FL |
| Eu.TDS.6101 | Info | d9in_Occupancy_Status | | Basic TDS AC |
| Eu.TDS.6102 | Info | F_Handle_Commands - Behaviour | | Basic TDS AC |

| | specification | n for subsystem TDS | | |
|-------------|---------------|---|--------------------|---------------------------|
| ID | Туре | Requirement Part 1 | Requirement Part 2 | Func. Pkg. |
| Eu.TDS.6103 | 3 Info | Functional Viewpoint - Subsystem Requirements - Functional Entity STD 4 | | Basic TDS |
| | | stm [State Machine] F_Handle_Commands - Behaviour [Functional Viewpoint - Subsystem Requirements - Functional Entity STD 4] | | AC Option |
| | | Initial0 ∀ | | FC-P/-A Option |
| | | RECEIVE_COMMANDS | | Update FL |
| | | Request_FC_C[D20in_Con_Use_FC_C AND d13in_Able_To_Be_Forced_To_Clear]/cOp3_Report_Change_Trigger (ReportedSource); send Execute_FC to p4out; | | |
| | | Request_FC_U[D21in_Con_Use_FC_U AND (NOT d9in_Occupancy_Status = "vacant" AND NOT d9in_Occupancy_Status = "technical disturbed" AND NOT d14in_Running_Timer)]/ cOp3_Report_Change_Trigger (ReportedSource); | | |
| | | if d18in_Perform_FC_P_Or_FC_P_A then | | |
| | | <pre>send Execute_Cancel to p8out; endif</pre> | | |
| | | <pre>send Execute_FC to p4out; Request_FC_C[D20in_Con_Use_FC_C AND NOT d13in_Able_To_Be_Forced_To_Clear]/</pre> | | |
| | | cOp4_Report_Command_Rejected (ReportedSource); Request_FC_U[D21in_Con_Use_FC_U AND (d9in_Occupancy_Status = "vacant" OR d9in_Occupancy_Status = "technical disturbed" OR d14in_Running_Timer)]/ | | |
| | | <pre>cOp4_Report_Command_Rejected (ReportedSource); Request_FC_P[D22in_Con_Use_FC_P AND (NOT d18in_Perform_FC_P_Or_FC_P_A AND NOT d9in_Occupancy_Status = "vacant" AND NOT d9in_Occupancy_Status = "technical disturbed" AND NOT d14in_Running_Timer)]/</pre> | | |
| | | send Change_Trigger (CommandFromEIL) to p86out; send Execute_FC_P to p8out; | | |
| | | Request_FC_P[D22in_Con_Use_FC_P AND (d18in_Perform_FC_P_Or_FC_P_A OR d9in_Occupancy_Status = "vacant" OR d9in_Occupancy_Status = "technical disturbed" OR d14in_Running_Timer)]/ send Report_Command_Rejected(cOp2_Reason_For_Rejection()) to p7out; | | |
| | | Request_FC_P_A[D23in_Con_Use_FC_P_A AND (NOT d18in_Perform_FC_P_Or_FC_P_A AND NOT d9in_Occupancy_Status = "vacant" AND NOT d9in_Occupancy_Status = "technical disturbed" AND NOT d14in_Running_Timer)]/ send Change_Trigger (CommandFromEIL) to p86out; | | |
| | | send Execute_FC_P_A to p8out; Request_FC_P_A[| | |
| | | D23in_Con_Use_FC_P_A AND | | |
| | | <pre>(d18in_Perform_FC_P_Or_FC_P_A OR d9in_Occupancy_Status = "vacant" OR d9in_Occupancy_Status = "technical disturbed" OR d14in_Running_Timer)]/ send Report_Command_Rejected(cOp2_Reason_For_Rejection()) to p7out;</pre> | | |
| | | Request_Acknowledgement[D23in_Con_Use_FC_P_A AND d19in_Process_State = "Waiting for an acknowledgment"]/send Change_Trigger (CommandFromEIL) to p86out; send Confirm_Acknowledgement to p8out; | | |
| | | Request_Acknowledgement[D23in_Con_Use_FC_P_A AND NOT d19in_Process_State = "Waiting for an acknowledgment"]/ send Report_Command_Rejected (cOp2_Reason_For_Rejection()) to p7out; | | |
| | | Request_Cancel[(D22in_Con_Use_FC_P OR D23in_Con_Use_FC_P_A) AND d18in_Perform_FC_P_Or_FC_P_A]/send Change_Trigger (CommandFromELL) to p86out; send Execute_Cancel to p8out; | | |
| | | Request_Cancel[(D22in_Con_Use_FC_P OR D23in_Con_Use_FC_P_A) AND NOT d18in_Perform_FC_P_Or_FC_P_A]/ send Report_Command_Rejected(cOp2_Reason_For_Rejection()) to p7out; | | |
| | | Request_DRFC[D24in_Con_Use_DRFC AND (NOT d13in_Able_To_Be_Forced_To_Clear AND NOT d14in_Running_Timer) AND | | |
| | | <pre>(d9in_Occupancy_Status = "occupied in" OR d9in_Occupancy_Status = "unreliable in")]/ cOp3_Report_Change_Trigger(ReportedSource);</pre> | | |
| | | <pre>send Execute_DRFC to p5out; Request_DRFC[</pre> | | |
| | | D24in_Con_Use_DRFC AND (d13in_Able_To_Be_Forced_To_Clear OR d14in_Running_Timer OR | | |
| | | <pre>d9in_Occupancy_Status = "vacant" OR d9in_Occupancy_Status = "technical disturbed" OR d18in_Perform_FC_P_Or_FC_P_A)]/ cOp4_Report_Command_Rejected (ReportedSource);</pre> | | |
| | | Request_UFL[D25in_Con_Use_UFL AND (NOT d9in_Occupancy_Status = "vacant" AND NOT d9in_Occupancy_Status = "technical disturbed" AND NOT d14in_Running_Timer)]/ send Change_Trigger (CommandFromELL) to p86out; | | |
| | | send Execute_UFL to p6out; | | |
| | | Request_UFL[D25in_Con_Use_UFL AND (d9in_Occupancy_Status = "vacant" OR d9in_Occupancy_Status = "technical disturbed" OR d14in_Running_Timer)]/ send Report_Command_Rejected(cOp2_Reason_For_Rejection()) to p7out; | | |
| | | Request_Visual_Sweeping_Confirmation[(D22in_Con_Use_FC_P OR D23in_Con_Use_FC_P_A) AND d19in_Process_State = "Waiting for sweeping train"]/ | | |
| | | <pre>send Execute_Visual_Sweeping_Confirmation to p8out; Request_Visual_Sweeping_Confirmation[(D22in_Con_Use_FC_P OR D23in_Con_Use_FC_P_A) AND NOT d19in_Process_State = "Waiting for sweeping train"]/</pre> | | |
| | | send Report_Command_Rejected (cOp2_Reason_For_Rejection()) to p71out; | | |
| | | | | |
| | | | | |
| Eu.TDS.6104 | 1 Info | InitialO | | Basic TDS |
| Eu.TDS.6105 | 5 Req | /{Initial0 - RECEIVE_COMMANDS} | | AC Basic TDS |
| Eu.TDS.6106 | 5 Info | RECEIVE_COMMANDS | | AC Basic TDS |
| | | Request_Acknowledgement[D23in_Con_Use_FC_P_A AND d19in_Process_State = "Waiting for an acknowledgment"]/send Change_Trigger (CommandFromEIL) to p86out; | | AC |
| Eu.TDS.6878 | 3 Req | send Confirm_Acknowledgement to p8out;{State-internal in RECEIVE_COMMANDS} | | Basic TDS AC Option |
| | | | | FC-P/-A |

| ID | Туре | Requirement Part 1 |
|-------------|------|--|
| Eu.TDS.6879 | Req | Request_FC_P[D22in_Con_Use_FC_P AND (NOT d18in_Perform_FC_P_Or_FC_P_A AND NOT d9in_Occupancy_Status = "vacant" AND NOT d9in_Occupancy_Status = "technical disturbed" AND NOT d14in_Running_Timer)]/ send Change_Trigger (CommandFromEIL) to p86out; send Execute_FC_P to p8out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6880 | Req | Request_FC_P_A[D23in_Con_Use_FC_P_A AND (NOT d18in_Perform_FC_P_Or_FC_P_A AND NOT d9in_Occupancy_Status = "vacant" AND NOT d9in_Occupancy_Status = "technical disturbed" AND NOT d14in_Running_Timer)]/ send Change_Trigger (CommandFromEIL) to p86out; send Execute_FC_P_A to p8out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6881 | Req | Request_FC_P_A[D23in_Con_Use_FC_P_A AND (d18in_Perform_FC_P_Or_FC_P_A OR d9in_Occupancy_Status = "vacant" OR d9in_Occupancy_Status = "technical disturbed" OR d14in_Running_Timer)]/ send Report_Command_Rejected(cOp2_Reason_For_Rejection()) to p7out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6882 | Req | Request_FC_U[D21in_Con_Use_FC_U AND (d9in_Occupancy_Status = "vacant" OR d9in_Occupancy_Status = "technical disturbed" OR d14in_Running_Timer)]/ cOp4_Report_Command_Rejected(ReportedSource);{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6883 | Req | Request_FC_U[D21in_Con_Use_FC_U AND (NOT d9in_Occupancy_Status = "vacant" AND NOT d9in_Occupancy_Status = "technical disturbed" AND NOT d14in_Running_Timer)]/ cOp3_Report_Change_Trigger(ReportedSource); if d18in_Perform_FC_P_Or_FC_P_A then send Execute_Cancel to p8out; endif send Execute_FC to p4out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6884 | Req | Request_UFL[D25in_Con_Use_UFL AND (d9in_Occupancy_Status = "vacant" OR d9in_Occupancy_Status = "technical disturbed" OR d14in_Running_Timer)]/ send Report_Command_Rejected(cOp2_Reason_For_Rejection()) to p7out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6885 | Req | Request_UFL[D25in_Con_Use_UFL AND (NOT d9in_Occupancy_Status = "vacant" AND NOT d9in_Occupancy_Status = "technical disturbed" AND NOT d14in_Running_Timer)]/ send Change_Trigger (CommandFromEIL) to p86out; send Execute_UFL to p6out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6886 | Req | Request_Visual_Sweeping_Confirmation[(D22in_Con_Use_FC_P OR D23in_Con_Use_FC_P_A) AND NOT d19in_Process_State = "Waiting for sweeping train"]/ send Report_Command_Rejected(cOp2_Reason_For_Rejection()) to p71out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6887 | Req | Request_Visual_Sweeping_Confirmation[(D22in_Con_Use_FC_P OR D23in_Con_Use_FC_P_A) AND d19in_Process_State = "Waiting for sweeping train"]/ send Execute_Visual_Sweeping_Confirmation to p8out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6888 | Req | Request_Acknowledgement[D23in_Con_Use_FC_P_A AND NOT d19in_Process_State = "Waiting for an acknowledgment"]/ send Report_Command_Rejected(cOp2_Reason_For_Rejection()) to p7out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6889 | Req | Request_Cancel[(D22in_Con_Use_FC_P OR D23in_Con_Use_FC_P_A) AND NOT d18in_Perform_FC_P_Or_FC_P_A]/ send Report_Command_Rejected(cOp2_Reason_For_Rejection()) to p7out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6890 | Req | Request_Cancel[(D22in_Con_Use_FC_P OR D23in_Con_Use_FC_P_A) AND d18in_Perform_FC_P_Or_FC_P_A]/send Change_Trigger (CommandFromEIL) to p86out; send Execute_Cancel to p8out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6891 | Req | Request_DRFC[D24in_Con_Use_DRFC AND (NOT d13in_Able_To_Be_Forced_To_Clear AND NOT d14in_Running_Timer) AND (d9in_Occupancy_Status = "occupied in" OR d9in_Occupancy_Status = "unreliable in")]/ cOp3_Report_Change_Trigger(ReportedSource); send Execute_DRFC to p5out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6892 | Req | Request_DRFC[D24in_Con_Use_DRFC AND (d13in_Able_To_Be_Forced_To_Clear OR d14in_Running_Timer OR d9in_Occupancy_Status = "vacant" OR d9in_Occupancy_Status = "technical disturbed" OR d18in_Perform_FC_P_Or_FC_P_A)]/ cOp4_Report_Command_Rejected(ReportedSource);{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6893 | Req | Request_FC_C[D20in_Con_Use_FC_C AND d13in_Able_To_Be_Forced_To_Clear]/cOp3_Report_Change_Trigger(ReportedSource); send Execute_FC to p4out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6894 | Req | Request_FC_C[D20in_Con_Use_FC_C AND NOT d13in_Able_To_Be_Forced_To_Clear]/ cOp4_Report_Command_Rejected(ReportedSource);{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6895 | Req | Request_FC_P[D22in_Con_Use_FC_P AND (d18in_Perform_FC_P_Or_FC_P_A OR d9in_Occupancy_Status = "vacant" OR d9in_Occupancy_Status = "technical disturbed" OR d14in_Running_ send Report_Command_Rejected(cOp2_Reason_For_Rejection()) to p7out;{State-internal in RECEIVE_COMMANDS} |
| Eu.TDS.6115 | Info | F Handle Internal FC U Command |

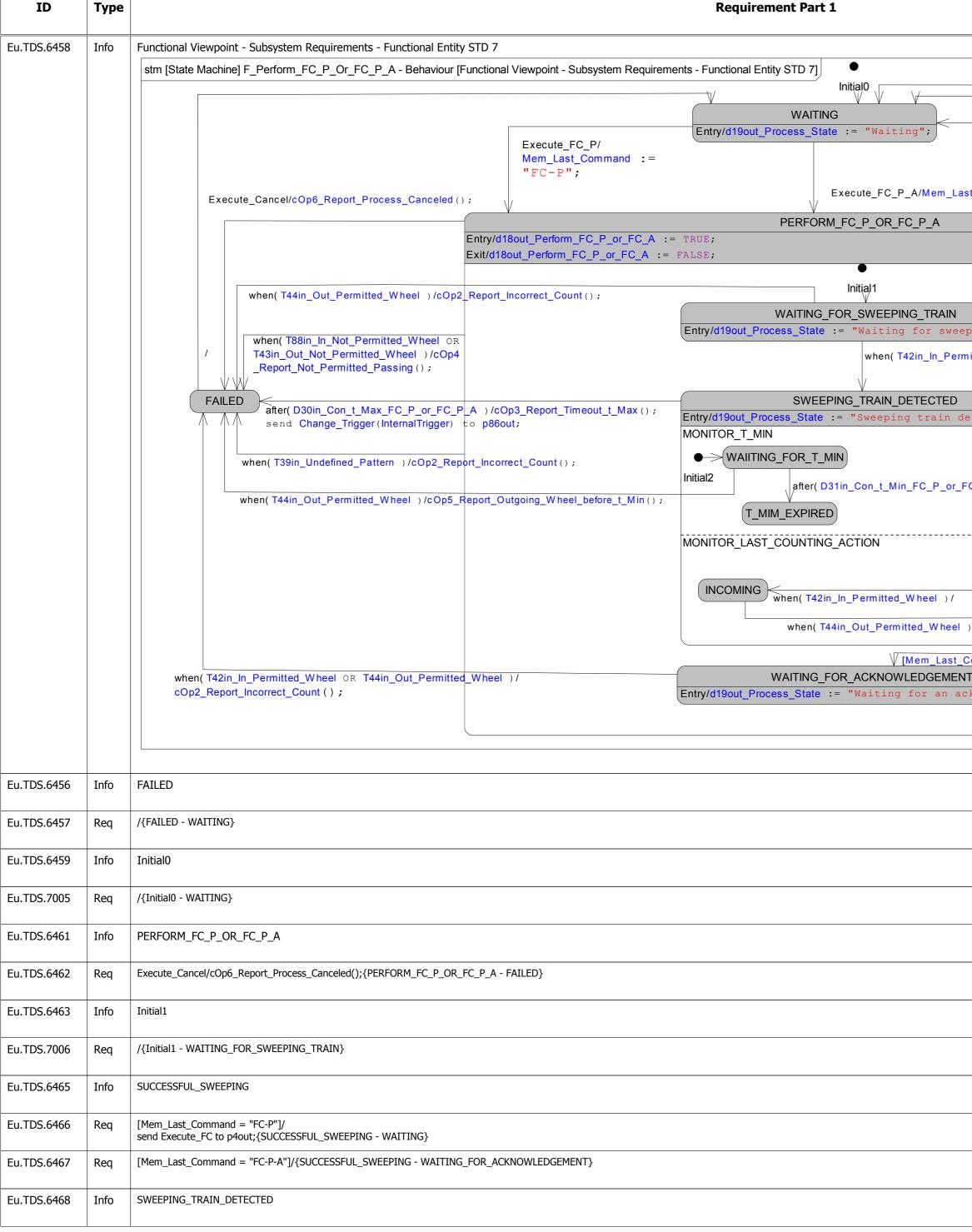
| | Requirement Part 2 | Func. Pkg. |
|------------|--------------------|--|
| | | Basic TDS AC Option FC-P/-A |
| | | Basic TDS AC Option FC-P/-A |
| | | Basic TDS AC Option FC-P/-A |
| | | Basic TDS AC |
| | | Basic TDS AC |
| | | |
| | | Basic TDS AC Option Update FL |
| | | Basic TDS AC Option Update FL |
| | | Basic TDS AC Option FC-P/-A |
| | | Basic TDS AC |
|]_Timer)]/ | | Basic TDS AC Option FC-P/-A |
| | | Basic TDS AC |

| ID | Туре | Requirement Part 1 Requirement Part 1 | Func. Pkg. |
|-------------|------|--|-----------------|
| Eu.TDS.6116 | Info | [Block] F_Handle_Internal_FC_U_Command [Functional Viewpoint - Subsystem Requirements - Functional Entity] | Basic TDS |
| | | ibd [Block] F_Handle_Internal_FC_U_Command [Functional Viewpoint - Subsystem Requirements - Functional Entity] | AC |
| | | <pre>«functional entity» F_Handle_Internal_FC_U_Command</pre> | |
| | | → T33in_FC_U : PulsedIn p3out : ~Request_Commands | |
| | | | |
| | | | |
| Eu.TDS.6122 | Info | p3out | Basic TDS AC |
| Eu.TDS.6123 | Info | T33in_FC_U The port T33in_FC_U represents the trigger to execute Force section status to clear, unconditional from internal. | Basic TDS |
| Eu.TDS.6117 | Info | F_Handle_Internal_FC_U_Command - Behaviour | Basic TDS |
| | | | AC |
| Eu.TDS.6118 | Info | Functional Viewpoint - Subsystem Requirements - Functional Entity STD 5 stm [State Machine] F_Handle_Internal_FC_U_Command - Behaviour [Functional Viewpoint - Subsystem Requirements - Functional Entity STD 5] | Basic TDS AC |
| | | | |
| | | RECEIVING_COMMANDS_FROM_INTERNAL | |
| | | InitialO | |
| | | | |
| Eu.TDS.6119 | Info | InitialO | Basic TDS AC |
| Eu.TDS.6120 | Req | /{Initial0 - RECEIVING_COMMANDS_FROM_INTERNAL} | Basic TDS AC |
| Eu.TDS.6121 | Info | RECEIVING_COMMANDS_FROM_INTERNAL | Basic TDS AC |
| Eu.TDS.6896 | Req | when(T33in_FC_U)/send Request_FC_U(Internal) to p3out;{State-internal in RECEIVING_COMMANDS_FROM_INTERNAL} | Basic TDS AC |
| Eu.TDS.6508 | Info | F_TDS6_Maintainer_Commands_And_Messages | Basic TDS AC |
| Eu.TDS.6509 | Info | [Block] F_TDS6_Maintainer_Commands_And_Messages [Functional Viewpoint - Subsystem Requirements - Functional Entity] | Basic TDS |
| | | ibd [Block] F_TDS6_Maintainer_Commands_And_Messages [Functional Viewpoint - Subsystem Requirements - Functional Entity] | AC |
| | | «functional entity» F_TDS6_Maintainer_Commands_And_Messages | |
| | | →T34in_DRFC : PulsedIn D36out_Command_Rejected : String → | |
| | | →T35in_FC : PulsedIn T36out_Command_Rejected : PulsedOut→ | |
| | | →D35in_Mode_Of_FC : String p3out : ~Request_Commands | |
| | | T41in_Visual_Sweeping_Confirmed : PulsedIn | |
| | | p71in : ~Request_Command_Rejected_Maintainer | |
| | | | |
| Eu.TDS.6517 | Info | p3out | Basic TDS AC |
| Eu.TDS.6518 | Info | p71in | Basic TDS AC |
| Eu.TDS.6519 | Info | T34in_DRFC T34in_DRFC represents the receiving of the command Cd_DRFC via TDS6 from Maintainer. | Basic TDS AC |
| Eu.TDS.6520 | Info | T35in_FC Table T35in_FC represents the receiving of the command Cd_FC via TDS6 from Maintainer. | Basic TDS AC |
| Eu.TDS.6521 | Info | T36out_Command_Rejected The port T36out_Command_Rejected represents the | Basic TDS AC |
| F. TRO (755 | | sending of the message Msg_TVPS_Occupancy_Status via TDS6 to the Maintainer. | |
| Eu.TDS.6522 | Info | T41in_Visual_Sweeping_Confirmed The port T41in_Visual_Sweeping_Confirmed represents the receiving of the command Cd_Visual_Sweeping_Confirmed via TDS6 from | Basic TDS AC |
| | | Maintainer. | |
| Eu.TDS.6510 | Info | D35in_Mode_Of_FC The port D35in_Mode_Of_FC defines the FC-Mode (FC-C or FC-U) to T35in_FC. | Basic TDS AC |

| Requirements sp | ecification | for subsystem TDS | |
|-----------------|-------------|---|-----------------------|
| ID | Туре | Requirement Part 1 Requirement Part 1 | Func. Pkg. |
| Eu.TDS.6511 | Info | D36out_Command_Rejected The port D36out_Command_Rejected defines the reas for rejection of the last received command (Operational or Technical) to T36out_Command_Rejected. | on Basic TDS al AC |
| u.TDS.6512 | Info | F_TDS6_Maintainer_Commands_And_Messages - Behaviour | Basic TDS AC |
| u.TDS.6513 | Info | Functional Viewpoint - Subsystem Requirements - Functional Entity STD 6 stm [State Machine] F_TDS6_Maintainer_Commands_And_Messages - Behaviour [Functional Viewpoint - Subsystem Requirements - Functional Entity STD 6] | Basic TDS AC |
| | | InițăiO RECEIVING_COMMANDS_AND_REPORT_MESSAGES when(T35in_FC)[D35in_Mode_Of_FC = "FC-C"]/send Request_FC_C(Maintainer) to p3out; when(T34in_DRFC)/send Request_DFC(Maintainer) to p3out; when(T34in_DRFC)/send Request_DFC(Maintainer) to p3out; Report_Command_Rejected[ReportedReasonForRejection = Operational]/D36out_Command_Rejected := "Operational"; T36out_Command_Rejected[ReportedReasonForRejection = Technical]/D36out_Command_Rejected := "Technical"; T36out_Command_Rejected := TRUE; when(T41in_Visual_Sweeping_Confirmed)/send Request_Visual_Sweeping_Confirmation to p3out; | |
| Eu.TDS.6514 | Info | InitialO | Basic TDS AC |
| Eu.TDS.6515 | Req | /{Initial0 - RECEIVING_COMMANDS_AND_REPORT_MESSAGES} | Basic TDS AC |
| Eu.TDS.6516 | Info | RECEIVING_COMMANDS_AND_REPORT_MESSAGES | Basic TDS AC |
| Eu.TDS.6932 | Req | Report_Command_Rejected[ReportedReasonForRejection = Operational]/D36out_Command_Rejected := "Operational"; T36out_Command_Rejected := TRUE;{State-internal in RECEIVING_COMMANDS_AND_REPORT_MESSAGES} | Basic TDS AC |
| Eu.TDS.6933 | Req | Report_Command_Rejected[ReportedReasonForRejection = Technical]/D36out_Command_Rejected := "Technical"; T36out_Command_Rejected := TRUE;{State-internal in RECEIVING_COMMANDS_AND_REPORT_MESSAGES} | Basic TDS AC |
| Eu.TDS.6934 | Req | when(T34in_DRFC)/send Request_DRFC(Maintainer) to p3out;{State-internal in RECEIVING_COMMANDS_AND_REPORT_MESSAGES} | Basic TDS AC |
| Eu.TDS.6935 | Req | when(T35in_FC)[D35in_Mode_Of_FC = "FC-U"]/send Request_FC_U(Maintainer) to p3out;{State-internal in RECEIVING_COMMANDS_AND_REPORT_MESSAGES} | Basic TDS AC |
| Eu.TDS.6936 | Req | when(T35in_FC)[D35in_Mode_Of_FC = "FC-C"]/send Request_FC_C(Maintainer) to p3out;{State-internal in RECEIVING_COMMANDS_AND_REPORT_MESSAGES} | Basic TDS AC |
| Eu.TDS.6937 | Req | when(T41in_Visual_Sweeping_Confirmed)/send Request_Visual_Sweeping_Confirmation to p3out;{State-internal in RECEIVING_COMMANDS_AND_REPORT_MESSAGES} | Basic TDS AC |
| Eu.TDS.6443 | Info | F_Perform_FC_P_Or_FC_P_A | Option FC-P/-A |
| Eu.TDS.6444 | Info | [Block] F_Perform_FC_P_Or_FC_P_A [Functional Viewpoint - Subsystem Requirements - Functional Entity] ibd [Block] F_Perform_FC_P_Or_FC_P_A [Functional Viewpoint - Subsystem Requirements - Functional Entity] generations cOp2_Report_Incorrect_Count [) goperations cOp2_Report_Incorrect_Count [) goperations cOp3_Report_Timeout_LMax () goperations cOp5_Report_Outgoing_Wheel_Defore_t_Min () goperations cOp6_Report_Process_Canceled () D300in_Con_t_Max_FC_P_or_FC_P_A : Integer d18out_Perform_FC_P_or_FC_A : Boolean D301in_Con_t_Min_FC_P_or_FC_P_A : Integer d19out_Process_State : String d19032in_ornitcal_Failure_TVPS : Boolean p4out : Perform_FC | Option FC-P/-A |
| | | → T39in_Undefined_Pattern : PulsedIn p86out : Report_Change_Trigger → T40in_Sweeping_Successful : PulsedIn p87out : ReportReasonForFailure → T42in_In_Permitted_Wheel : PulsedIn p87out : ReportReasonForFailure → T43in_Out_Not_Permitted_Wheel : PulsedIn → → T44in_Out_Permitted_Wheel : PulsedIn → → T48in_In_Not_Permitted_Wheel : PulsedIn → → P889 _ In_Not_Permitted_Wheel : PulsedIn → | |

| ID | Туре | Requirement Part 1 | Requirement Part 2 | Func. Pkg. |
|-------------|------|---|--|-------------------|
| Eu.TDS.6445 | Info | cOp2_Report_Incorrect_Count | <pre>if Mem_Last_Command = "FC-P" then</pre> | Option FC-P/-A |
| Eu.TDS.6446 | Info | cOp3_Report_Timeout_t_Max | if Mem_Last_Command = "FC-P" then send Reason_FC_P_failed(ReasonForFailure.Timeout_t_Max) to p87out; elseif Mem_Last_Command = "FC-P-A" then send Reason_FC_P_A_failed(ReasonForFailure.Timeout_t_Max) to p87out; end if | Option FC-P/-A |
| Eu.TDS.6447 | Info | cOp4_Report_Not_Permitted_Passing | if Mem_Last_Command = "FC-P" then send Reason_FC_P_failed(ReasonForFailure.NotPermittedPassi ng) to p87out; elseif Mem_Last_Command = "FC-P-A" then send Reason_FC_P_A_failed(ReasonForFailure.NotPermittedPa ssing) to p87out; end if | |
| Eu.TDS.6448 | Info | cOp5_Report_Outgoing_Wheel_before_t_Min | if Mem_Last_Command = "FC-P" then send Reason_FC_P_failed(ReasonForFailure.OutgoingWheelBef ore_t_Min) to p87out; elseif Mem_Last_Command = "FC-P-A" then send Reason_FC_P_A_failed(ReasonForFailure.OutgoingWheel Before_t_Min) to p87out; end if | |
| Eu.TDS.6449 | Info | cOp6_Report_Process_Canceled | <pre>if Mem_Last_Command = "FC-P" then</pre> | Option FC-P/-A |
| Eu.TDS.6498 | Info | p4out | | Option FC-P/-A |
| Eu.TDS.6499 | Info | p86out | | Option FC-P/-A |
| Eu.TDS.6500 | Info | p87out | | Option FC-P/-A |
| Eu.TDS.6501 | Info | p8in | | Option FC-P/-A |
| Eu.TDS.6502 | Info | T39in_Undefined_Pattern | The port T39in_Undefined_Pattern refines the FlowProperty Passing_Detected and represents that a sensor of a detection point receives an uninterpretable or undefined pattern. | Option FC-P/-A |
| Eu.TDS.6503 | Info | T40in_Sweeping_Successful | The port T40in_Sweeping_Successful represents the trigger to confirm that a Sweeping Train was successful. Note: The conditions for a successful sweeping are defined by national specifications. In future phases of the System Pillar, national specifications will be replaced by harmonised specifications. | Option FC-P/-A |
| Eu.TDS.6504 | Info | T42in_In_Permitted_Wheel | The port T42in_In_Permitted_Wheel refines the FlowProperty Passing_Detected and represents an incomming Wheel at a Detection Point of the relevant TVPS which is permitted by configuration, during execution of a FC-P or FC-P-A command. | Option FC-P/-A |
| Eu.TDS.6505 | Info | T43in_Out_Not_Permitted_Wheel | The port T43in_Out_Not_Permitted_Wheel refines the FlowProperty Not_Permitted_Passing_Detected and represents a passing (outgoing) of a Detection Point, which is not permitted by configuration, during execution of a FC-P or FC-P-A command. | Option FC-P/-A |

| ID | Туре | Requirement Part 1 | Requirement Part 2 | Func Pkg. |
|-------------|------|--------------------------------------|--------------------|-------------------|
| Eu.TDS.6506 | Info | T44in_Out_Permitted_Wheel | | Option FC-P/-A |
| Eu.TDS.6507 | Info | T88in_In_Not_Permitted_Wheel | | Option FC-P/-A |
| Eu.TDS.6450 | Info | d18out_Perform_FC_P_or_FC_A | | Option FC-P/-A |
| Eu.TDS.6451 | Info | d19out_Process_State | | Option FC-P/-A |
| Eu.TDS.6452 | Info | D30in_Con_t_Max_FC_P_or_FC_P_A | | Option FC-P/-A |
| Eu.TDS.6453 | Info | D31in_Con_t_Min_FC_P_or_FC_P_A | | Option FC-P/-A |
| Eu.TDS.6454 | Info | D32in_Critical_Failure_TVPS | | Option FC-P/-A |
| Eu.TDS.6455 | Info | F_Perform_FC_P_Or_FC_P_A - Behaviour | | Option FC-P/-A |



| Requirement Part 2Func.Pkg. | |
|------------------------------|---|
| Option FC-P/-A | |
| | when(D32in_Critical_Failure_TVPS)/ |
| | <pre>[Mem_Last_Command = "FC-P"]/ send Execute_FC to p4out;</pre> |
| | _Command := "FC-P-A"; |
| | |
| | |
| | ng train"; Execute_Visual_Sweeping_Confirmation/ send Change_Trigger ed_Wheel)/ (CommandFromMaintainer) to |
| | p86out; |
| | P_A)/ |
| | Initial3 |
| | OUTGOING when(T40in_Sweeping_Successful)/send Change_Trigger (InternalTrigger) to p86out; |
| | <pre>owledgment"; Confirm_Acknowledgement/ send Execute_FC to p4out;</pre> |
| | |
| Option FC-P/-A | |
| Option FC-P/-A | |
| Option FC-P/-/ | |
| Option FC-P/-A | |
| Option FC-P/-A | |
| Option | |
| FC-P/-A Option | |
| FC-P/-A Option FC-P/-A | |
| | |

Туре

ID

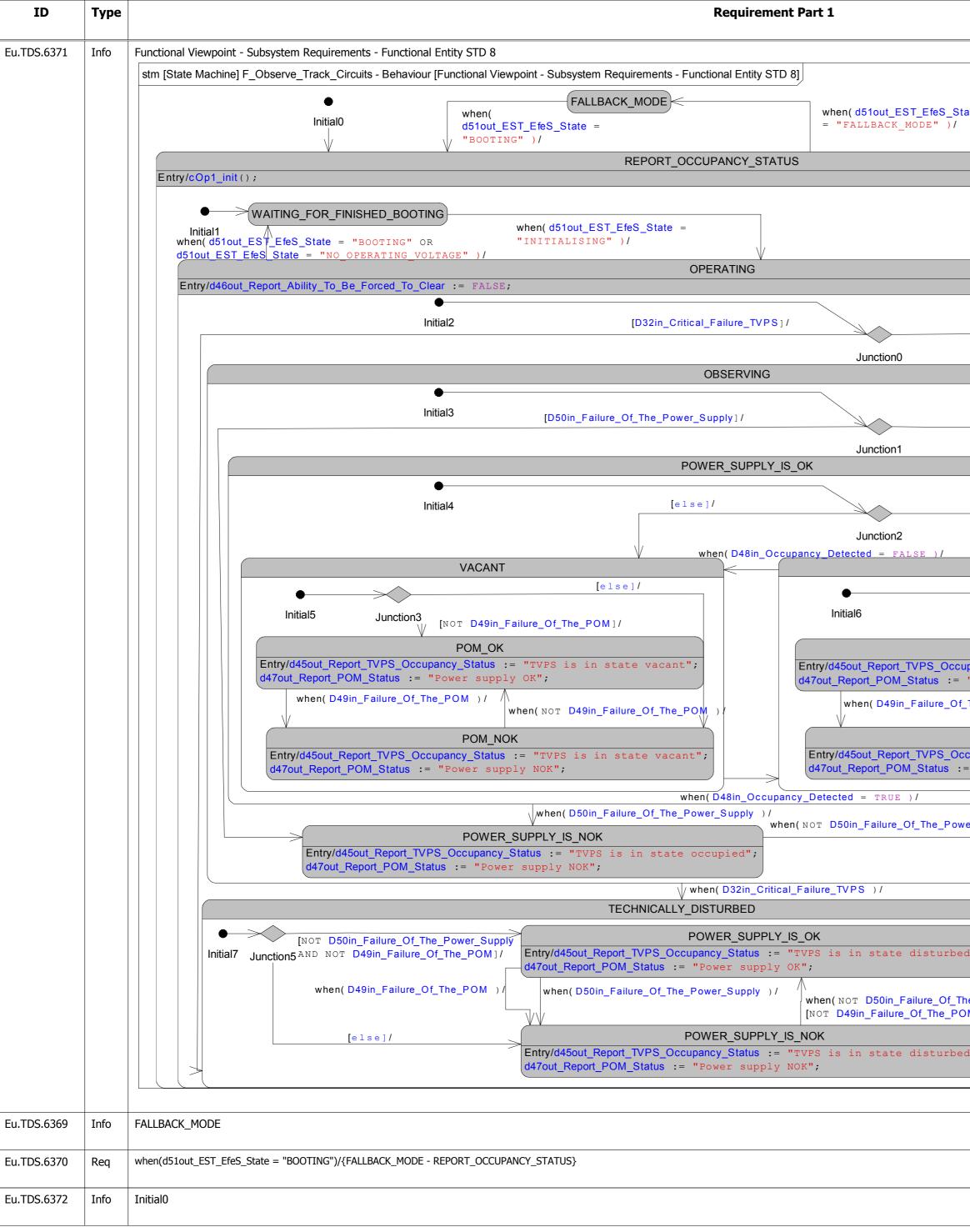
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|-------------|---|---|
| Eu.TDS.6469 | Req | after(D30in_Con_t_Max_FC_P_or_FC_P_A)/cOp3_Report_Timeout_t_Max(); send Change_Trigger(InternalTrigger) to p86out;{SWEEPING_TRAIN_DETECTED - FAILED} |
| Eu.TDS.6470 | Info | MONITOR_LAST_COUNTING_ACTION |
| Eu.TDS.6471 | Info | INCOMING |
| Eu.TDS.6472 | Req | when(T44in_Out_Permitted_Wheel)/{INCOMING - OUTGOING} |
| Eu.TDS.6473 | Info | Initial3 |
| Eu.TDS.7007 | Req | /{Initial3 - OUTGOING} |
| Eu.TDS.6475 | Info | OUTGOING |
| Eu.TDS.6476 | Req | when(T40in_Sweeping_Successful)/send Change_Trigger(InternalTrigger) to p86out;{OUTGOING - SUCCESSFUL_SWEEPING} |
| Eu.TDS.6477 | Req | when(T42in_In_Permitted_Wheel)/{OUTGOING - INCOMING} |
| Eu.TDS.6478 | Info | MONITOR_T_MIN |
| Eu.TDS.6479 | Info | Initial2 |
| Eu.TDS.7008 | Req | /{Initial2 - WAIITING_FOR_T_MIN} |
| Eu.TDS.6481 | Info | T_MIM_EXPIRED |
| Eu.TDS.6482 | Info | WAIITING_FOR_T_MIN |
| Eu.TDS.6483 | Req | after(D31in_Con_t_Min_FC_P_or_FC_P_A)/{WAIITING_FOR_T_MIN - T_MIM_EXPIRED} |
| Eu.TDS.6484 | Req | when(T44in_Out_Permitted_Wheel)/cOp5_Report_Outgoing_Wheel_before_t_Min();{WAIITING_FOR_T_MIN - FAILED} |
| Eu.TDS.6926 | Req | entry/d19out_Process_State := "Sweeping train detected";{State-internal in SWEEPING_TRAIN_DETECTED} |
| Eu.TDS.6485 | Info | WAITING_FOR_ACKNOWLEDGEMENT |
| Eu.TDS.6486 | Req | Confirm_Acknowledgement/ send Execute_FC to p4out;{WAITING_FOR_ACKNOWLEDGEMENT - WAITING} |
| Eu.TDS.6487 | Req | when(T42in_In_Permitted_Wheel OR T44in_Out_Permitted_Wheel)/ cOp2_Report_Incorrect_Count();{WAITING_FOR_ACKNOWLEDGEMENT - FAILED} |
| Eu.TDS.6929 | Req | entry/d19out_Process_State := "Waiting for an acknowledgment";{State-internal in WAITING_FOR_ACKNOWLEDGEMENT} |
| Eu.TDS.6488 | Info | WAITING_FOR_SWEEPING_TRAIN |
| Eu.TDS.6489 | Req | Execute_Visual_Sweeping_Confirmation/send Change_Trigger(CommandFromMaintainer) to p86out;{WAITING_FOR_SWEEPING_TRAIN - SUCCESSFUL_SWEEPING} |
| Eu.TDS.6490 | Req | when(T42in_In_Permitted_Wheel)/{WAITING_FOR_SWEEPING_TRAIN - SWEEPING_TRAIN_DETECTED} |
| Eu.TDS.6491 | Req | when(T44in_Out_Permitted_Wheel)/cOp2_Report_Incorrect_Count();{WAITING_FOR_SWEEPING_TRAIN - FAILED} |
| Eu.TDS.6930 | Req | entry/d19out_Process_State := "Waiting for sweeping train";{State-internal in WAITING_FOR_SWEEPING_TRAIN} |
| Eu.TDS.6492 | Req | when(D32in_Critical_Failure_TVPS)/{PERFORM_FC_P_OR_FC_P_A - WAITING} |
| Eu.TDS.6493 | Req | when(T39in_Undefined_Pattern)/cOp2_Report_Incorrect_Count();{PERFORM_FC_P_OR_FC_P_A - FAILED} |
| Eu.TDS.6494 | Req | when(T88in_In_Not_Permitted_Wheel OR T43in_Out_Not_Permitted_Wheel)/cOp4_Report_Not_Permitted_Passing();{PERFORM_FC_P_OR_FC_P_A - FAILED} |
| Eu.TDS.6927 | Req | entry/d18out_Perform_FC_P_or_FC_A := TRUE;{State-internal in PERFORM_FC_P_OR_FC_P_A} |
| Eu.TDS.6928 | Req | exit/d18out_Perform_FC_P_or_FC_A := FALSE;{State-internal in PERFORM_FC_P_OR_FC_P_A} |
| _ | | |

Requirement Part 1

| Requirement Part 2 | Func. Pkg. |
|--------------------|-------------------|
| | Option FC-P/-A |

| ID | Туре | Requirement Part 1 |
|-------------|------|---|
| Eu.TDS.6495 | Info | WAITING |
| Eu.TDS.6496 | Req | Execute_FC_P/ Mem_Last_Command := "FC-P";{WAITING - PERFORM_FC_P_OR_FC_P_A} |
| Eu.TDS.6497 | Req | Execute_FC_P_A/Mem_Last_Command := "FC-P-A";{WAITING - PERFORM_FC_P_OR_FC_P_A} |
| Eu.TDS.6931 | Req | entry/d19out_Process_State := "Waiting";{State-internal in WAITING} |
| Eu.TDS.6357 | Info | F_Observe_Track_Circuits |
| Eu.TDS.6358 | Info | [Block] F_Observe_Track_Circuits [Functional Viewpoint - Subsystem Requirements - Functional Entity] ibd [Block] F_Observe_Track_Circuits [Functional Viewpoint - Subsystem Requirements - Functional Entity] «functional entity» F_Observe_Track_Circuits Operation Operation» cOp1_init () D32in_Critical_Failure_TVPS : Boolean |
| | | → D32in_Critical_Failure_TVPS : Boolean d46out_Report_Ability_To_Be_Forced_To_Clear : Boolean → → D48in_Occupancy_Detected d45out_Report_TVPS_Occupancy_Status : String → → D49in_Failure_Of_The_POM : Boolean d47out_Report_POM_Status : String → → D50in_Failure_Of_The_Power_Supply : Boolean → → d51out_EST_EfeS_State : String → |
| Eu.TDS.6359 | Info | cOp1_init |
| Eu.TDS.6360 | Info | D32in_Critical_Failure_TVPS |
| Eu.TDS.6361 | Info | d45out_Report_TVPS_Occupancy_Status |
| Eu.TDS.6362 | Info | d46out_Report_Ability_To_Be_Forced_To_Clear |
| Eu.TDS.6363 | Info | d47out_Report_POM_Status |
| Eu.TDS.6364 | Info | D48in_Occupancy_Detected |
| Eu.TDS.6365 | Info | D49in_Failure_Of_The_POM |
| Eu.TDS.6366 | Info | D50in_Failure_Of_The_Power_Supply |
| Eu.TDS.6367 | Info | d51out_EST_EfeS_State |
| Eu.TDS.6368 | Info | F_Observe_Track_Circuits - Behaviour |
| | | |

| Requirement Part 2 | Func. Pkg. |
|--|-------------------|
| | Option FC-P/-A |
| | Option FC-P/-A |
| | Option FC-P/-A |
| | Option FC-P/-A |
| | Basic TDS TC |
| | Basic TDS TC |
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| d46out_Report_Ability_To_Be_Forced_To_Clear := | Basic TDS |
| FALSE; d45out_Report_TVPS_Occupancy_Status := "undefined"; d47out_Report_POM_Status := "undefined"; | TC |
| The port D32in_Critical_Failure_TVPS represents a critical failure of a TVPS, e.g. an interface disturbance between the components of the TVPS or a hardware failure of the components of the Subsystem - Train Detection System True: critical failure of a TVPS - False: no critical failure of a TVPS | Basic TDS TC |
| | Basic TDS TC |
| | Basic TDS TC |
| | Basic TDS TC |
| The port D48in_Occupancy_Detected refines the FlowProperty Occupancy_Detected and represents a changing occupancy of a track circuit by a Wheel. This FlowPort will be used in later deliveries. | Basic TDS TC |
| The port D49in_Failure_Of_The_POM represents a failure | Basic TDS |
| of the POM. - True: failure of the POM - False: no failure of the POM | TC |
| The port D50in_Failure_Of_The_Power_Supply represents a failure of the Power Supply of the track circuit. - True: failure of the Power Supply - False: no failure of the Power Supply | Basic TDS TC |
| | Basic TDS TC |
| | Basic TDS TC |
| | |



| | Requirement Part 2 | Func. Pkg. |
|--|--------------------|-----------------|
| | | Basic TDS TC |
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| tate | | |
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| | | |
| | | |
| [else]/ | | |
| | | |
| | | |
| [else]/ | | |
| | | |
| | | |
| [D48in_Occupancy_Detected]/ | | |
| | | |
| OCCUPIED [else]/ | | |
| Junction4 | | |
| V [NOT D49in_Failure_Of_The_POM]/ POM_OK | | |
| <pre>upancy_Status := "TVPS is in state occupied"; "Power supply OK";</pre> | | |
| f_The_POM / when(NOT D49in_Failure_Of_The_POM)/ | | |
| <pre>POM_NOK ccupancy_Status := "TVPS is in state occupied";</pre> | | |
| = "Power supply NOK"; | | |
| ver_Supply)/ | | |
| ver_Suppry // | | |
| | | |
| | | |
| when(NOT D49in_Failure_Of_The_POM) when(D32in_Critical_Fail | | |
| <pre>ed"; [NOT D50in_Failure_Of_The_Power_Supe_TVPS = ply]/</pre> D32in_Critical_Fail Supe_TVPS = FALSE)/ | | |
| The_Power_Supply) OM]/ | | |
| | | |
| ed"; | | |
| | | |
| | | Basic TDS TC |
| | | Basic TDS TC |
| | | Basic TDS TC |
| | | |

| ID | Туре | Requirement Part 1 |
|-------------|------|---|
| | | |
| Eu.TDS.6373 | Req | /{Initial0 - REPORT_OCCUPANCY_STATUS} |
| Eu.TDS.6374 | Info | REPORT_OCCUPANCY_STATUS |
| Eu.TDS.6375 | Info | Initial1 |
| Eu.TDS.6376 | Req | /{Initial1 - WAITING_FOR_FINISHED_BOOTING} |
| Eu.TDS.6377 | Info | OPERATING |
| Eu.TDS.6380 | Info | Initial2 |
| Eu.TDS.6381 | Req | /{Initial2 - Junction0} |
| Eu.TDS.6382 | Info | Junction0 |
| Eu.TDS.6383 | Req | [else]/{Junction0 - OBSERVING} |
| Eu.TDS.6384 | Req | [D32in_Critical_Failure_TVPS]/{Junction0 - TECHNICALLY_DISTURBED} |
| Eu.TDS.6385 | Info | OBSERVING |
| Eu.TDS.6386 | Info | Initial3 |
| Eu.TDS.6387 | Req | /{Initial3 - Junction1} |
| Eu.TDS.6388 | Info | Junction1 |
| Eu.TDS.6389 | Req | [D50in_Failure_Of_The_Power_Supply]/{Junction1 - POWER_SUPPLY_IS_NOK} |
| Eu.TDS.6390 | Req | [else]/{Junction1 - POWER_SUPPLY_IS_OK} |
| Eu.TDS.6391 | Info | POWER_SUPPLY_IS_NOK |
| Eu.TDS.6392 | Req | when(NOT D50in_Failure_Of_The_Power_Supply)/{POWER_SUPPLY_IS_NOK - POWER_SUPPLY_IS_OK} |
| Eu.TDS.6918 | Req | entry/d45out_Report_TVPS_Occupancy_Status := "TVPS is in state occupied"; d47out_Report_POM_Status := "Power supply NOK";{State-internal in POWER_SUPPLY_IS_NOK} |
| Eu.TDS.6393 | Info | POWER_SUPPLY_IS_OK |
| Eu.TDS.6394 | Info | Initial4 |
| Eu.TDS.6395 | Req | /{Initial4 - Junction2} |
| Eu.TDS.6396 | Info | Junction2 |
| Eu.TDS.6397 | Req | [D48in_Occupancy_Detected]/{Junction2 - OCCUPIED} |
| Eu.TDS.6398 | Req | [else]/{Junction2 - VACANT} |
| Eu.TDS.6399 | Info | OCCUPIED |
| Eu.TDS.6400 | Info | Initial6 |
| Eu.TDS.6401 | Req | /{Initial6 - Junction4} |
| Eu.TDS.6402 | Info | Junction4 |
| Eu.TDS.6403 | Req | [else]/{Junction4 - POM_NOK} |
| Eu.TDS.6404 | Req | [NOT D49in_Failure_Of_The_POM]/{Junction4 - POM_OK} |
| | | |

| Requirement Part 2 | Func. Pkg. |
|--------------------|-----------------|
| | Basic TDS TC |

Туре

ID

| | ., | |
|-------------|------|--|
| Eu.TDS.6405 | Info | POM_NOK |
| Eu.TDS.6406 | Req | when(NOT D49in_Failure_Of_The_POM)/{POM_NOK - POM_OK} |
| Eu.TDS.6919 | Req | entry/d45out_Report_TVPS_Occupancy_Status := "TVPS is in state occupied"; d47out_Report_POM_Status := "Power supply NOK";{State-internal in POM_NOK} |
| Eu.TDS.6407 | Info | POM_OK |
| Eu.TDS.6408 | Req | when(D49in_Failure_Of_The_POM)/{POM_OK - POM_NOK} |
| Eu.TDS.6920 | Req | entry/d45out_Report_TVPS_Occupancy_Status := "TVPS is in state occupied"; d47out_Report_POM_Status := "Power supply OK";{State-internal in POM_OK} |
| Eu.TDS.6411 | Req | when(D48in_Occupancy_Detected = FALSE)/{OCCUPIED - VACANT} |
| Eu.TDS.6412 | Info | VACANT |
| Eu.TDS.6413 | Info | Initial5 |
| Eu.TDS.6414 | Req | /{Initial5 - Junction3} |
| Eu.TDS.6415 | Info | Junction3 |
| Eu.TDS.6416 | Req | [else]/{Junction3 - POM_NOK} |
| Eu.TDS.6417 | Req | [NOT D49in_Failure_Of_The_POM]/{Junction3 - POM_OK} |
| Eu.TDS.6418 | Info | POM_NOK |
| Eu.TDS.6419 | Req | when(NOT D49in_Failure_Of_The_POM)/{POM_NOK - POM_OK} |
| Eu.TDS.6921 | Req | entry/d45out_Report_TVPS_Occupancy_Status := "TVPS is in state vacant"; d47out_Report_POM_Status := "Power supply NOK";{State-internal in POM_NOK} |
| Eu.TDS.6420 | Info | POM_OK |
| Eu.TDS.6421 | Req | when(D49in_Failure_Of_The_POM)/{POM_OK - POM_NOK} |
| Eu.TDS.6922 | Req | entry/d45out_Report_TVPS_Occupancy_Status := "TVPS is in state vacant"; d47out_Report_POM_Status := "Power supply OK";{State-internal in POM_OK} |
| Eu.TDS.6424 | Req | when(D48in_Occupancy_Detected = TRUE)/{VACANT - OCCUPIED} |
| Eu.TDS.6425 | Req | when(D50in_Failure_Of_The_Power_Supply)/{POWER_SUPPLY_IS_OK - POWER_SUPPLY_IS_NOK} |
| Eu.TDS.6426 | Req | when(D32in_Critical_Failure_TVPS)/{OBSERVING - TECHNICALLY_DISTURBED} |
| Eu.TDS.6427 | Info | TECHNICALLY_DISTURBED |
| Eu.TDS.6428 | Info | Initial7 |
| Eu.TDS.6429 | Req | /{Initial7 - Junction5} |
| Eu.TDS.6430 | Info | Junction5 |
| Eu.TDS.6431 | Req | [else]/{Junction5 - POWER_SUPPLY_IS_NOK} |
| Eu.TDS.6432 | Req | [NOT D50in_Failure_Of_The_Power_Supply AND NOT D49in_Failure_Of_The_POM]/{Junction5 - POWER_SUPPLY_IS_OK} |
| Eu.TDS.6433 | Info | POWER_SUPPLY_IS_NOK |
| Eu.TDS.6434 | Req | when(NOT D50in_Failure_Of_The_Power_Supply)[NOT D49in_Failure_Of_The_POM]/{POWER_SUPPLY_IS_NOK - POWER_SUPPLY_IS_OK} |
| Eu.TDS.6923 | Req | entry/d45out_Report_TVPS_Occupancy_Status := "TVPS is in state disturbed"; d47out_Report_POM_Status := "Power supply NOK";{State-internal in POWER_SUPPLY_IS_NOK} |
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Requirement Part 1

| Requirement Part 2 | Func. Pkg. |
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| Eu.TDS.7056 | Req | when(NOT D49in_Failure_Of_The_POM)[NOT D50in_Failure_Of_The_Power_Supply]/{POWER_SUPPLY_IS_NOK - POWER_SUPPLY_IS_OK} |
| Eu.TDS.6435 | Info | POWER_SUPPLY_IS_OK |
| Eu.TDS.6436 | Req | when(D50in_Failure_Of_The_Power_Supply)/{POWER_SUPPLY_IS_OK - POWER_SUPPLY_IS_NOK} |
| Eu.TDS.6924 | Req | entry/d45out_Report_TVPS_Occupancy_Status := "TVPS is in state disturbed"; d47out_Report_POM_Status := "Power supply OK";{State-internal in POWER_SUPPLY_IS_OK} |
| Eu.TDS.7057 | Req | when(D49in_Failure_Of_The_POM)/{POWER_SUPPLY_IS_OK - POWER_SUPPLY_IS_NOK} |
| Eu.TDS.6437 | Req | when(D32in_Critical_Failure_TVPS = FALSE)/{TECHNICALLY_DISTURBED - OBSERVING} |
| Eu.TDS.6925 | Req | entry/d46out_Report_Ability_To_Be_Forced_To_Clear := FALSE;{State-internal in OPERATING} |
| Eu.TDS.7058 | Req | when(d51out_EST_EfeS_State = "BOOTING" OR d51out_EST_EfeS_State = "NO_OPERATING_VOLTAGE")/{OPERATING - WAITING_FOR_FINISHED_BOOTING} |
| Eu.TDS.6439 | Req | entry/cOp1_init();{State-internal in REPORT_OCCUPANCY_STATUS} |
| Eu.TDS.6440 | Info | WAITING_FOR_FINISHED_BOOTING |
| Eu.TDS.6441 | Req | when(d51out_EST_EfeS_State = "INITIALISING")/{WAITING_FOR_FINISHED_BOOTING - OPERATING} |
| Eu.TDS.6442 | Req | when(d51out_EST_EfeS_State = "FALLBACK_MODE")/{REPORT_OCCUPANCY_STATUS - FALLBACK_MODE} |
| Eu.TDS.6258 | Info | F_Observe_TDP |
| Eu.TDS.6259 | Info | [Block] F_Observe_TDP [Functional Viewpoint - Subsystem Requirements - Functional Entity] ibd [Block] F_Observe_TDP [Functional Viewpoint - Subsystem Requirements - Functional Entity] |
| Eu.TDS.6353 | Info | T59in_Passing_In_Reference_Direction |
| Eu.TDS.6354 | Info | T60in_Passing_Against_Reference_Direction |
| Eu.TDS.6355 | Info | T61in_Passing_Without_Direction |
| Eu.TDS.6356 | Info | T62in_Receiving_An_Undefined_Pattern |
| Eu.TDS.6260 | Info | cOp1_init |

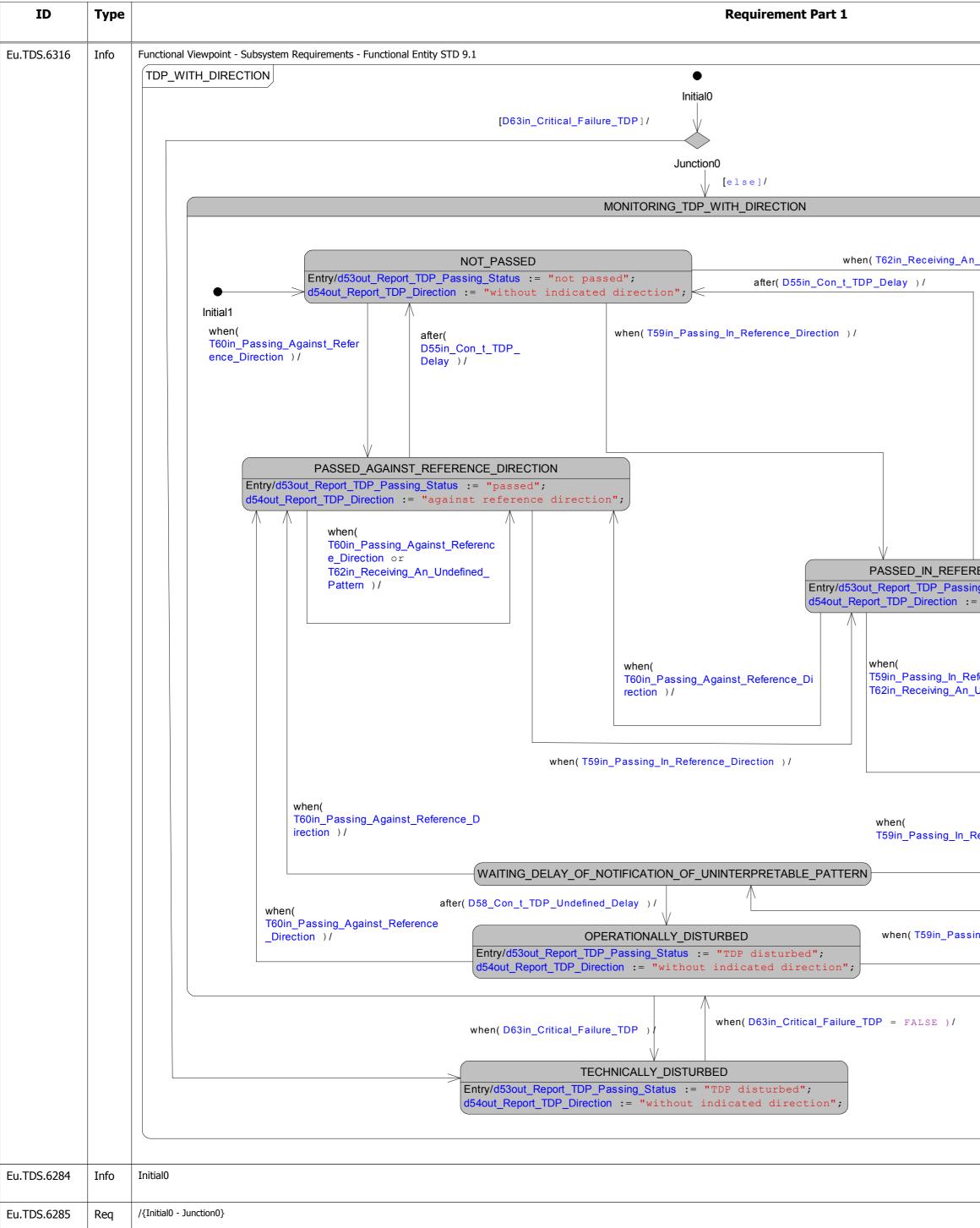
Requirement Part 1

| Requirement Part 2 | Func. Pkg. |
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| The port T59in_Passing_In_Reference_Direction refines the FlowProperty Passing_Detected and represents a Wheel in reference direction at a TDP. | Basic TDS TDP |
| The port T60in_Passing_Against_Reference_Direction refines the FlowProperty Passing_Detected and represents a Wheel in against reference direction at a TDP. | Basic TDS TDP |
| The port T59in_Passing_In_Reference_Direction refines the FlowProperty Passing_Detected and represents a Wheel in reference direction at a TDP. | Basic TDS TDP |
| The port T62in_Receiving_An_Undefined_Pattern refines the FlowProperty Passing_Detected and represents that a sensor of a TDP receives an uninterpretable or undefined pattern. | Basic TDS TDP |
| d53out_Report_TDP_Passing_Status := "undefined"; d54out_Report_TDP_Direction := "undefined"; | Basic TDS TDP |

| | | or subsystem TDS | |
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| ID | Туре | Requirem | ent Part 1 |
| Eu.TDS.6261 | Info | d51out_EST_EfeS_State | |
| Eu.TDS.6262 | Info | d53out_Report_TDP_Passing_Status | |
| Eu.TDS.6263 | Info | d54out_Report_TDP_Direction | |
| Eu.TDS.6264 | Info | D55in_Con_t_TDP_Delay | |
| Eu.TDS.6265 | Info | D56in_Con_TDP_Without_Direction | |
| Eu.TDS.6266 | Info | D58_Con_t_TDP_Undefined_Delay | |
| Eu.TDS.6267 | Info | D63in_Critical_Failure_TDP | |
| | | | |
| Eu.TDS.6268 | Info | F_Observe_TDP - Behaviour | |
| Eu.TDS.6271 | Info | Functional Viewpoint - Subsystem Requirements - Functional Entity STD 9 stm [State Machine] F_Observe_TDP - Behaviour [Functional Viewpoint - Subsystem Requirements - Functional Entity STD 9] NOT_FAILED Entry/cOp1_init() : WAITING_FOR_FINISHED_BOOTING Initial1 when(d51out_EST_EteS_State - "TNTTTALTSING")/ OPERATIONAL [elsel/ Junction0 [D56in_Con_TDP_Without_Direct] Junction0 on - TRUE]/ TDP_WITH_DIRECTION | <pre>when(d51out_EST_EfeS_State = "BOOTING")/ FALLBACK_MC when(d51out_EST_EfeS_State "FALLBACK_MODE")/ when(d51out_EST_Efe "BOOTING" OR d51out_EST_Efe "NO_OPERATING E")/</pre> |
| Eu.TDS.6269 | Info | FALLBACK_MODE | |
| Eu.TDS.6270 | Req | when(d51out_EST_EfeS_State = "BOOTING")/{FALLBACK_MODE - NOT_FAILED} | |
| Eu.TDS.6272 | Info | InitialO | |
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| | Requirement Part 2 | Func. Pkg. |
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| | | Basic TDS TDP |
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| | The port D55in_Con_t_TDP_Delay refines the time value for Con_t_TDP_Delay. This timer defines the duration of a passed TDP and the message, that the TDP is in state "TDP not passed". | Basic TDS TDP |
| | The port D56in_Con_TDP_Without_Direction provides the configuration whether the TDP reports the direction of the passing. The following values are permitted: - True: TDP is commanded - False: TDP is not commanded | Basic TDS TDP |
| | The port D58_Con_t_TDP_Undefined_Delay refines the time value for Con_t_TDP_Undefinded_Pattern_Delay. This timer defines the duration after an undefined pattern was detected till the TDP is reported as Disturbed. When a passing is detected during the duration of Con_t_TDP_Undefinded_Pattern_Delay the TDP will report this passing and no disturbace. | Basic TDS TDP |
| | The port D63in_Critical_Failure_TDP represents a critical failure of a TDP, e.g. an interface disturbance between the components of the TDP or a hardware failure of the components of the Subsystem - Train Detection System. - True: critical failure of a TDP - False: no critical failure of a TDP | Basic TDS TDP |
| | | Basic TDS TDP |
| itate = LBACK_MODE feS_State =)/ t_EST_EfeS_State = TING" OR t_EST_EfeS_State = OPERATING_VOLTAG | | Basic TDS TDP |
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| ID | Туре | Requirement Part 1 | Requirement Part 2 | Func. Pkg. |
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| Eu.TDS.6273 | Req | /{Initial0 - NOT_FAILED} | | Basic TDS TDP |
| Eu.TDS.6274 | Info | NOT_FAILED | | Basic TDS TDP |
| Eu.TDS.6275 | Info | Initial1 | | Basic TDS TDP |
| Eu.TDS.6276 | Req | /{Initial1 - WAITING_FOR_FINISHED_BOOTING} | | Basic TDS TDP |
| Eu.TDS.6277 | Info | OPERATIONAL | | Basic TDS TDP |
| Eu.TDS.6278 | Info | Initial2 | | Basic TDS TDP |
| Eu.TDS.6279 | Req | /{Initial2 - Junction0} | | Basic TDS TDP |
| Eu.TDS.6280 | Info | Junction0 | | Basic TDS TDP |
| Eu.TDS.6281 | Req | [else]/{Junction0 - TDP_WITH_DIRECTION} | | Basic TDS TDP |
| Eu.TDS.6282 | Req | [D56in_Con_TDP_Without_Direction = TRUE]/{Junction0 - TDP_WITHOUT_DIRECTION} | | Basic TDS TDP |
| Eu.TDS.6283 | Info | TDP_WITH_DIRECTION | | Basic TDS TDP |



| | Requirement Part 2 | Func. Pkg. |
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| | | Basic TDS TDP |
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| Requirement Part 1 | |
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| ID | Туре | Requirement Part 1 |
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| Eu.TDS.6286 | Info | Junction0 |
| Eu.TDS.6287 | Req | [else]/{Junction0 - MONITORING_TDP_WITH_DIRECTION} |
| Eu.TDS.6288 | Req | [D63in_Critical_Failure_TDP]/{Junction0 - TECHNICALLY_DISTURBED} |
| Eu.TDS.6289 | Info | MONITORING_TDP_WITH_DIRECTION |
| Eu.TDS.6290 | Info | Initial1 |
| Eu.TDS.6291 | Req | /{Initial1 - NOT_PASSED} |
| Eu.TDS.6292 | Info | NOT_PASSED |
| Eu.TDS.6294 | Req | entry/d53out_Report_TDP_Passing_Status := "not passed"; d54out_Report_TDP_Direction := "without indicated direction";{State-internal in NOT_PASSED} |
| Eu.TDS.6295 | Req | when(T59in_Passing_In_Reference_Direction)/{NOT_PASSED - PASSED_IN_REFERENCE_DIRECTION} |
| Eu.TDS.6296 | Req | when(T60in_Passing_Against_Reference_Direction)/{NOT_PASSED - PASSED_AGAINST_REFERENCE_DIRECTION} |
| Eu.TDS.6297 | Req | when(T62in_Receiving_An_Undefined_Pattern)/{NOT_PASSED - WAITING_DELAY_OF_NOTIFICATION_OF_UNINTERPRETABLE_PATTERN} |
| Eu.TDS.6298 | Info | OPERATIONALLY_DISTURBED |
| Eu.TDS.6299 | Req | when(T59in_Passing_In_Reference_Direction)/{OPERATIONALLY_DISTURBED - PASSED_IN_REFERENCE_DIRECTION} |
| Eu.TDS.6300 | Req | when(T60in_Passing_Against_Reference_Direction)/{OPERATIONALLY_DISTURBED - PASSED_AGAINST_REFERENCE_DIRECTION} |
| Eu.TDS.6913 | Req | entry/d53out_Report_TDP_Passing_Status := "TDP disturbed"; d54out_Report_TDP_Direction := "without indicated direction";{State-internal in OPERATIONALLY_DISTURBED} |
| Eu.TDS.6301 | Info | PASSED_AGAINST_REFERENCE_DIRECTION |
| Eu.TDS.6302 | Req | after(D55in_Con_t_TDP_Delay)/{PASSED_AGAINST_REFERENCE_DIRECTION - NOT_PASSED} |
| Eu.TDS.6304 | Req | when(T59in_Passing_In_Reference_Direction)/{PASSED_AGAINST_REFERENCE_DIRECTION - PASSED_IN_REFERENCE_DIRECTION} |
| Eu.TDS.6305 | Req | when(T60in_Passing_Against_Reference_Direction or T62in_Receiving_An_Undefined_Pattern)/{PASSED_AGAINST_REFERENCE_DIRECTION - PASSED_AGAINST_REFERENCE_DIRECTION} |
| Eu.TDS.6914 | Req | entry/d53out_Report_TDP_Passing_Status := "passed"; d54out_Report_TDP_Direction := "against reference direction";{State-internal in PASSED_AGAINST_REFERENCE_DIRECTION} |
| Eu.TDS.6306 | Info | PASSED_IN_REFERENCE_DIRECTION |
| Eu.TDS.6307 | Req | after(D55in_Con_t_TDP_Delay)/{PASSED_IN_REFERENCE_DIRECTION - NOT_PASSED} |
| Eu.TDS.6309 | Req | when(T59in_Passing_In_Reference_Direction or T62in_Receiving_An_Undefined_Pattern)/{PASSED_IN_REFERENCE_DIRECTION - PASSED_IN_REFERENCE_DIRECTION} |
| Eu.TDS.6310 | Req | when(T60in_Passing_Against_Reference_Direction)/{PASSED_IN_REFERENCE_DIRECTION - PASSED_AGAINST_REFERENCE_DIRECTION} |
| Eu.TDS.6915 | Req | entry/d53out_Report_TDP_Passing_Status := "passed"; d54out_Report_TDP_Direction := "reference direction";{State-internal in PASSED_IN_REFERENCE_DIRECTION} |
| Eu.TDS.6311 | Info | WAITING_DELAY_OF_NOTIFICATION_OF_UNINTERPRETABLE_PATTERN |
| Eu.TDS.6312 | Req | after(D58_Con_t_TDP_Undefined_Delay)/{WAITING_DELAY_OF_NOTIFICATION_OF_UNINTERPRETABLE_PATTERN - OPERATIONALLY_DISTURBED} |
| Eu.TDS.6313 | Req | when(T59in_Passing_In_Reference_Direction)/{WAITING_DELAY_OF_NOTIFICATION_OF_UNINTERPRETABLE_PATTERN - PASSED_IN_REFERENCE_DIRECTION} |
| Eu.TDS.6314 | Req | when(T60in_Passing_Against_Reference_Direction)/{WAITING_DELAY_OF_NOTIFICATION_OF_UNINTERPRETABLE_PATTERN - PASSED_AGAINST_REFERENCE_DIRECTION} |
| Eu.TDS.6315 | Req | when(D63in_Critical_Failure_TDP)/{MONITORING_TDP_WITH_DIRECTION - TECHNICALLY_DISTURBED} |
| | Info | TECHNICALLY_DISTURBED |

| Requirement Part 2 | Func. Pkg. |
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| | Basic TDS TDP |

| ID | Туре | Requirement Part 1 |
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| Eu.TDS.6318 | Req | entry/d53out_Report_TDP_Passing_Status := "TDP disturbed"; d54out_Report_TDP_Direction := "without indicated direction";{State-internal in TECHNICALLY_DISTURBED} |
| Eu.TDS.6320 | Req | when(D63in_Critical_Failure_TDP = FALSE)/{TECHNICALLY_DISTURBED - MONITORING_TDP_WITH_DIRECTION} |
| Eu.TDS.6321 | Info | TDP_WITHOUT_DIRECTION |
| Eu.TDS.6343 | Info | Functional Viewpoint - Subsystem Requirements - Functional Entity STD 9.2 |
| | | TDP_WITHOUT_DIRECTION Initial0 [D63in_Critical_Failure_TDP] Junction0 |
| | | <pre> W[else]/ MONITORING_TDP_WITHOUT_DIRECTION </pre> |
| | | |
| | | Initial1 NOT_PASSED Entry/d53out_Report_TDP_Passing_Status := "not passed"; when(T62in_Receiving_An_Undefined_Pattern)/ d54out_Report_TDP_Direction := "without indicated direction"; when(T62in_Receiving_An_Undefined_Pattern)/ |
| | | when(T61in_Passing_Without_Direction)/ |
| | | WAITING_DELAY_OF_NOTIFICATION_OF_UNI |
| | | when(T61in_Passing_Without_Direction)/ after(D58_ |
| | | |
| | | PASSED OPERATIONALLY_DISTUF Entry/d53out_Report_TDP_Passing_Status := "passed"; Entry/d53out_Report_TDP_Passing_Status := " |
| | | d54out_Report_TDP_Direction := "without indicated direction"; when(T61in_Passing_Without_Direction)/ |
| | | when(T61in_Passing_Without_Direction or T62in_Receiving_An_Undefined_Pattern)/ |
| | | when(D63in_Critical_Failure_TDP)/ when(D63in_Critical_Failure_TDP = FALSE)/ TECHNICALLY_DISTURBED |
| | | <pre>Entry/d53out_Report_TDP_Passing_Status := "TDP disturbed"; d54out_Report_TDP_Direction := "without indicated direction";</pre> |
| Eu.TDS.6322 | Info | InitialO |
| Eu.TDS.6323 | Req | /{Initial0 - Junction0} |
| Eu.TDS.6324 | Info | Junction0 |
| Eu.TDS.6325 | Req | [else]/{Junction0 - MONITORING_TDP_WITHOUT_DIRECTION} |
| Eu.TDS.6326 | Req | [D63in_Critical_Failure_TDP]/{Junction0 - TECHNICALLY_DISTURBED} |
| Eu.TDS.6327 | Info | MONITORING_TDP_WITHOUT_DIRECTION |
| Eu.TDS.6328 | Info | Initial1 |
| Eu.TDS.6329 | Req | /{Initial1 - NOT_PASSED} |
| | + | |
| Eu.TDS.6330 | Info | NOT_PASSED |

| INTERPRETABLE PATTERN B. Goo, I, 104/ Undersey Usby 11 B. Goo, I, 104/ Undersey Usby 11 B. Goo, I, 104/ Undersey Usby 11 E. Goo, I, 104/ Undersey II E. Goo, I, 104/ II E. Goo, I, 104/ II E. Goo, I, 104/ II E. Goo, I, 104/ II E. Goo, I, | | Requirement Part 2 | Func. Pkg. |
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| ""TDF if is rection"; indicated direction"; indicated direction"; <td< td=""><td></td><td></td><td></td></td<> | | | |
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| ID | Туре | Requirement Part 1 |
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| Eu.TDS.6332 | Req | when(T61in_Passing_Without_Direction)/{NOT_PASSED - PASSED} |
| Eu.TDS.6333 | Req | when(T62in_Receiving_An_Undefined_Pattern)/{NOT_PASSED - WAITING_DELAY_OF_NOTIFICATION_OF_UNINTERPRETABLE_PATTERN} |
| Eu.TDS.6334 | Info | OPERATIONALLY_DISTURBED |
| Eu.TDS.6335 | Req | when(T61in_Passing_Without_Direction)/{OPERATIONALLY_DISTURBED - PASSED} |
| Eu.TDS.6916 | Req | entry/d53out_Report_TDP_Passing_Status := "TDP disturbed"; d54out_Report_TDP_Direction := "without indicated direction";{State-internal in OPERATIONALLY_DISTURBED} |
| Eu.TDS.6336 | Info | PASSED |
| Eu.TDS.6337 | Req | after(D55in_Con_t_TDP_Delay)/{PASSED - NOT_PASSED} |
| Eu.TDS.6338 | Req | when(T61in_Passing_Without_Direction or T62in_Receiving_An_Undefined_Pattern)/{PASSED - PASSED} |
| Eu.TDS.6917 | Req | entry/d53out_Report_TDP_Passing_Status := "passed"; d54out_Report_TDP_Direction := "without indicated direction";{State-internal in PASSED} |
| Eu.TDS.6339 | Info | WAITING_DELAY_OF_NOTIFICATION_OF_UNINTERPRETABLE_PATTERN |
| Eu.TDS.6340 | Req | after(D58_Con_t_TDP_Undefined_Delay)/{WAITING_DELAY_OF_NOTIFICATION_OF_UNINTERPRETABLE_PATTERN - OPERATIONALLY_DISTURBED} |
| Eu.TDS.6341 | Req | when(T61in_Passing_Without_Direction)/{WAITING_DELAY_OF_NOTIFICATION_OF_UNINTERPRETABLE_PATTERN - PASSED} |
| Eu.TDS.6342 | Req | when(D63in_Critical_Failure_TDP)/{MONITORING_TDP_WITHOUT_DIRECTION - TECHNICALLY_DISTURBED} |
| Eu.TDS.6344 | Info | TECHNICALLY_DISTURBED |
| Eu.TDS.6345 | Req | entry/d53out_Report_TDP_Passing_Status := "TDP disturbed"; d54out_Report_TDP_Direction := "without indicated direction";{State-internal in TECHNICALLY_DISTURBED} |
| Eu.TDS.6347 | Req | when(D63in_Critical_Failure_TDP = FALSE)/{TECHNICALLY_DISTURBED - MONITORING_TDP_WITHOUT_DIRECTION} |
| Eu.TDS.6348 | Req | when(d51out_EST_EfeS_State = "BOOTING" OR d51out_EST_EfeS_State = "NO_OPERATING_VOLTAGE")/{OPERATIONAL - NOT_FAILED} |
| Eu.TDS.6349 | Req | entry/cOp1_init();{State-internal in NOT_FAILED} |
| Eu.TDS.6350 | Info | WAITING_FOR_FINISHED_BOOTING |
| Eu.TDS.6351 | Req | when(d51out_EST_EfeS_State = "INITIALISING")/{WAITING_FOR_FINISHED_BOOTING - OPERATIONAL} |
| Eu.TDS.6352 | Req | when(d51out_EST_EfeS_State = "FALLBACK_MODE")/{NOT_FAILED - FALLBACK_MODE} |
| Eu.TDS.6124 | Info | F_Monitor_Report_Status |
| | | |
| Eu.TDS.6125 | Info | [Block] F_Monitor_Report_Status [Functional Viewpoint - Subsystem Requirements - Functional Entity] |
| | | ibd [Block] F_Monitor_Report_Status [Functional Viewpoint - Subsystem Requirements - Functional Entity] |
| | | «functional entity» F_Monitor_Report_Status |
| | | p2in : ~SCI_TDS_Report_TVPS |
| | | p51in : ~SCI_TDS_Track_Circuits |
| | | p52in : ~SCI_TDS_TDP |
| | | p88inout : F_SCI_Specific |
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| Requirement Part 2 | Func. Pkg. |
|--------------------|--|
| | Basic TDS TDP |
| | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | Basic TDS AC Basic TDS TDP Basic TDS TC |
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| | Туре | Requirement Part 1 |
|-------------|------|--|
| Eu.TDS.6153 | Info | p2in |
| Eu.TDS.6154 | Info | p51in |
| Eu.TDS.6155 | Info | p52in |
| Eu.TDS.6156 | Info | p88inout |
| Eu.TDS.6126 | Info | F_Monitor_Report_Status - Behaviour |
| Eu.TDS.6127 | Info | Functional Viewpoint - Subsystem Requirements - Functional Entity STD 10 |
| Eu.TDS.6128 | Info | InitialO |
| Eu.TDS.6129 | Req | /{Initial0 - MONITORING_REPORT_STATUS} |
| Eu.TDS.6130 | Info | MONITORING_REPORT_STATUS |

| Requirement Part 2 | Func. Pkg. |
|--------------------|--|
| | Basic TDS AC Basic TDS TDP |
| | Basic TDS TC Basic TDS |
| | TC Basic TDS |
| | TDP Basic TDS |
| | AC Basic TDS TDP Basic TDS TC |
| | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | Basic TDS AC Basic TDS TDP Basic TDS |
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| | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | Basic TDS AC Basic TDS TDP Basic TDS TC |

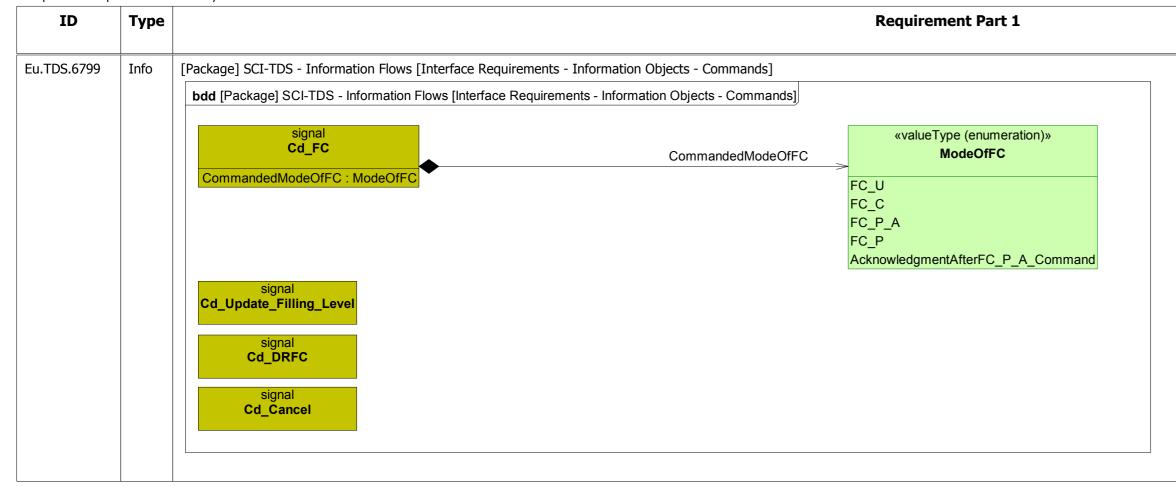
| Requirements spe | | or subsystem TDS |
|------------------|------|---|
| ID | Туре | Requirement Part 1 |
| Eu.TDS.6131 | Info | Initial1 |
| | | |
| Eu.TDS.6132 | Req | /{Initial1 - WAITING_FOR_REPORT_STATUS} |
| | q | |
| | | |
| Eu.TDS.6133 | Info | Join0 |
| | | |
| Eu.TDS.6134 | Req | /send Status_Report_Completed to p88inout;{Join0 - WAITING_FOR_REPORT_STATUS} |
| | | |
| | | |
| Eu.TDS.6135 | Info | WAITING_FOR_REPORT_STATUS |
| | | |
| Eu.TDS.6136 | Req | Start_Status_Report/{WAITING_FOR_REPORT_STATUS - WAITING_FOR_STATUS_REPORTS} |
| | | |
| | | |
| Eu.TDS.6137 | Info | WAITING_FOR_STATUS_REPORTS |
| | | |
| Eu.TDS.6143 | Info | TVPS_STATUS_AXLE_COUNTER |
| Eu.TDS.6144 | Info | Initial2 |
| Eu.TDS.6145 | Req | /{Initial2 - WAITING} |
| Eu.TDS.6146 | Info | WAITING |
| Eu.TDS.6147 | Req | Msg_TVPS_Occupancy_Status/{WAITING - Join0} |
| Eu.TDS.6148 | Info | TVPS_STATUS_TRACK_CIRCUITS |
| Eu.TDS.6149 | Info | Initial3 |
| Eu.TDS.6150 | Req | /{Initial3 - WAITING} |
| Eu.TDS.6151 | Info | WAITING |
| Eu.TDS.6152 | Req | Msg_TVPS_Occupancy_Status/{WAITING - Join0} |
| Eu.TDS.6138 | Info | TDP |
| Eu.TDS.6139 | Info | Initial4 |
| Eu.TDS.6140 | Req | /{Initial4 - WAITING} |
| Eu.TDS.6141 | Info | WAITING |
| [| | |

| Requirement Part 2 | Func. Pkg. |
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| | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | Basic TDS AC Basic TDS AC |
| | Basic TDS AC Basic TDS AC |
| | Basic TDS AC Basic TDS |
| | TC Basic TDS |
| | TC Basic TDS TC |
| | Basic TDS TC |
| | Basic TDS TC |
| | Basic TDS TDP |

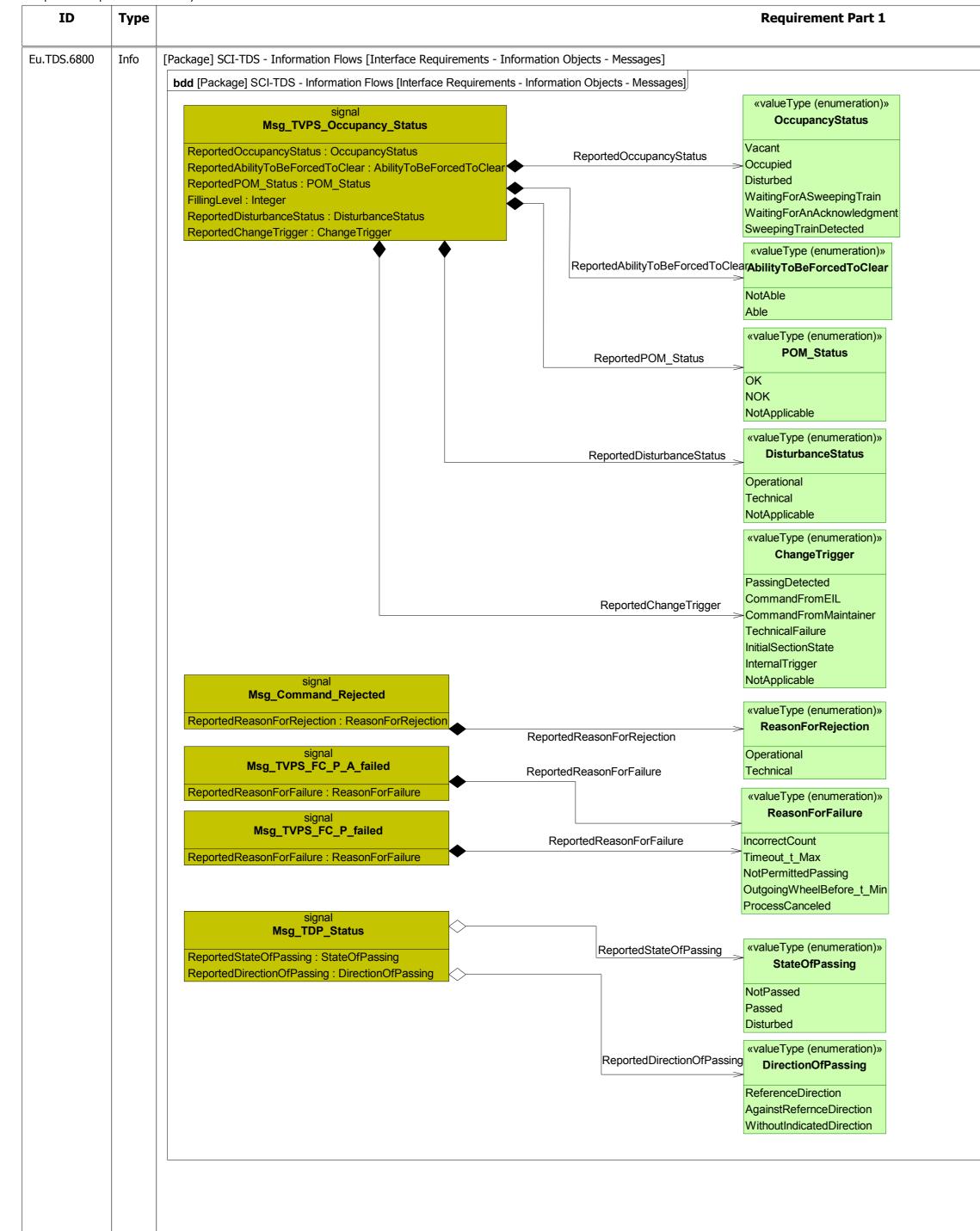
| Requirements spe | ecification | for subsystem TDS | | |
|--|-------------|---|--|--|
| ID | Туре | | Requirement Part 1 | |
| Eu.TDS.6142 | Req | Msg_TDP_Status/{WAITING - Join0} | | |
| Eu.TDS.202 | Head | 3.4 Subsystem Train Detection System - In | terfaces | |
| Eu.TDS.217 | Head | 3.4.1 SCI-TDS (Subsystem – Electronic Interlocking) | | |
| Eu.TDS.6852 | Head | 3.4.1.1 SCI-TDS - Logical Viewpoint | | |
| Eu.TDS.6853 | Head | 3.4.1.1.1 SCI-TDS - Logical Context | | |
| Eu.TDS.6854 | Info | [Package] SCI-TDS - Logical Context [Logical Viewpoint -] | Interface Definition] | |
| | | bdd [Package] SCI-TDS - Logical Context [Logical Viewpo | oint - Interface Definition] | |
| | | «logical struct SCI-T | | |
| | | Subsystem Electronic Interlocking | Subsystem Train Detection System - Functional Architecture | |
| | | «logical structural entity» 1 Subsystem Electronic Interlocking SCI-TDS | 1 «logical structural entity» TDS► SCI-TDS Subsystem Train Detection System | |
| | | | | |
| Eu.TDS.6797 | Head | 3.4.1.2 SCI-TDS - Information Flows | | |
| Eu.TDS.2543 | Info | The generic commands and messages through the SCI-TD | S are specified in Eu.Doc.119. | |
| | | | | |
| Eu.TDS.6798 Info [Package] SCI-TDS - Information Flows [Interface Requirements - Direction of Information Objects] | | | ements - Direction of Information Objects] | |
| | | bdd [Package] SCI-TDS - Information Flows [Interface Re | equirements - Direction of Information Objects] | |
| | | «interfaceBlock» | «interfaceBlock» | |
| | | «information flow» SCI_TDS_Subsystem_EIL | «information flow» SCI_TDS_Subsystem_TDS | |
| | | proxyPorts «ProxyPort» P1inout : SCI_GEN | proxyPorts «ProxyPort» P1in : SCI_TDS_Command_TVPS | |
| | | «ProxyPort» P1out : SCI_TDS_Command_TVPS «ProxyPort» P2in : SCI_TDS_Report_TVPS | «ProxyPort» p1inout : SCI_GEN «ProxyPort» P2out : SCI_TDS_Report_TVPS | |
| | | «ProxyPort» P51in : SCI_TDS_Track_Circuits «ProxyPort» P52in : SCI_TDS_TDP | «ProxyPort» P51out : SCI_TDS_Track_Circuits «ProxyPort» P52out : SCI_TDS_TDP | |
| | | «interfaceBlock» | «interfaceBlock» | |
| | | «information flow» SCI_TDS_Report_TVPS | <pre>«information flow» SCI_TDS_Track_Circuits</pre> | |
| | | reqd «signal» Msg_TVPS_Occupancy_Status | reqd «signal» Msg_TVPS_Occupancy_Status | |
| | | reqd «signal» Msg_TVPS_FC_P_failed reqd «signal» Msg_TVPS_FC_P_A_failed | «interfaceBlock» «information flow» | |
| | | reqd «signal» Msg_Command_Rejected | SCI_GEN | |
| | | «interfaceBlock» «information flow» | prov «signal» Cd_PDI_Version_Check reqd «signal» Msg_PDI_Version_Check | |
| | | SCI_TDS_Command_TVPS | prov «signal» Cd_Close_PDI prov «signal» Cd_Initialisation_Request | |
| | | prov «signal» Cd_FC | reqd «signal» Msg_Start_Initialisation | |
| | | prov «signal» Cd_DRFC prov «signal» Cd_Update_Filling_Level | reqd «signal» Msg_Initialisation_Completed prov «signal» Cd_Release_PDI_for_Maintenance | |
| | | prov «signal» Cd_Cancel | reqd «signal» Msg_PDI_Available reqd «signal» Msg_PDI_Not_Available | |
| | | «interfaceBlock» «information flow» SCI_TDS_TDP | reqd «signal» Msg_Reset_PDI | |
| | | reqd «signal» Msg_TDP_Status | | |
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| Requirement Part 2 | Func. Pkg. |
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| | Basic TDS TDP |
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| | Basic TDS |
| | AC Basic TDS TDP Basic TDS |
| | Basic TDS TC |
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| | Basic TDS AC |
| | AC Basic TDS TDP Basic TDS TC |
| | Basic TDS AC Basic TDS |
| | TDP Basic TDS TC |
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Requirements specification for subsystem TDS



| Requirement Part 2 | Func. Pkg. |
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| | Basic TDS AC |
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| Requirement Part 2 | Func. Pkg. |
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| | Basic TDS AC Basic TDS TDP Basic TDS TC |
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| ID | Туре | Requirement Part 1 |
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| Eu.TDS.6803 | Info | Cd_FC |
| Eu.TDS.6806 | Info | Cd_Update_Filling_Level |
| Eu.TDS.6802 | Info | Cd_DRFC |
| Eu.TDS.6801 | Info | Cd_Cancel |
| Eu.TDS.6824 | Info | Msg_TVPS_Occupancy_Status |
| Eu.TDS.6817 | Info | Msg_Command_Rejected |
| Eu.TDS.6822 | Info | Msg_TVPS_FC_P_A_failed |
| Eu.TDS.6823 | Info | Msg_TVPS_FC_P_failed |
| Eu.TDS.6832 | Info | Msg_TDP_Status |
| Eu.TDS.6528 | Head | 3.4.1.3 SCI-TDS - Functional Viewpoint |
| Eu.TDS.6795 | Head | 3.4.1.3.1 SCI-TDS - Functional Partitioning |
| Eu.TDS.6796 | Info | [Package] SCI-TDS - Functional Partitioning [Functional Viewpoint - Interface Requirements] |
| | | bdd [Package] SCI-TDS - Functional Partitioning [Functional Viewpoint - Interface Requirements] |
| | | «logical structural entity» SCI-TDS |
| | | |
| | | Subsystem Electronic Interlocking Subsystem Train Detection System - Functional Architecture |
| | | «logical structural entity» 1 |
| | | Subsystem Electronic Interlocking 1 1 SCI-TDS SCI-TDS SCI-TDS |
| | | |
| | | SCI-XX EfeS - Functional Entities |
| | | 1 «functional entity» |
| | | S_SCI_EfeS_Prim |
| | | |
| | | SCI-TDS - Functional Entities |
| | | image: state of the state o |
| | | |
| | | <pre></pre> |
| | | 1 S_SCI_TDS_Receive_TVPS F_SCI_TDS_Report |
| | | 1 S_SCI_TDS_Receive_Track_Circuit * F_SCI_TDS_Report_Track_Circuit |
| | | |
| | | 1 second entity» second entity» 1 S_SCI_TDS_Receive_TDP F_SCI_TDS_Report |
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| Eu.TDS.6529 | Head | 3.4.1.3.2 SCI-TDS - Functional Architecture |

| | Requirement Part 2 | Func. Pkg. |
|--|--------------------|--|
| | | Basic TDS AC |
| | | Option Update FL |
| | | Basic TDS AC |
| | | Option FC-P/-A |
| | | Basic TDS AC |
| | | Basic TDS AC |
| | | Option FC-P/-A |
| | | Option FC-P/-A |
| | | Basic TDS TDP |
| | | |
| | | Basic TDS AC Basic TDS TDP Basic TDS TC |
| <pre>/> eive //> TVPS // // // // // // // // // // // // //</pre> | | |
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| Requirements spe | | | |
|----------------------------|------|--|---|
| ID | Туре | Requirement Part 1 Requirement Part 2 | Func. Pkg. |
| Eu.TDS.6530 Eu.TDS.6531 | Info | SCI-TDS [Package] SCI-TDS - [Functional Viewpoint - Interface Requirements - Functional Architecture] ibd [Package] SCI-TDS - [Functional Viewpoint - Interface Requirements - Functional Architecture] | Basic TDS AC Basic TDS TDP Basic TDS TC Basic TDS AC |
| | | «logical structural entity» | Basic TDS TDP |
| | | SCI-TDS | Basic TDS TC |
| | | «participant» {end = SCI-TDS} InLink : Subsystem Electronic Interlocking | |
| | | SOLTIDS: SoLTIDS: requals requals Pinot::SCI_ENS_pinot::SCI_ENS_instruction: Pinot::SCI_ENS_instruction: requals Pinot::SCI_IDS::Command_IVPS: requals requals Pinot::SCI_IDS::Command_IVPS: requals requals Pinot::SCI_IDS::Command_IVPS: requals Pinot::SCI_IDS::Command_IVPS: requals Pinot::SCI_IDS::Science: | |
| Eu.TDS.6532 | Head | 3.4.1.3.3 SCI-TDS - Functional Entities | |
| Eu.TDS.6733 | Info | S_SCI_TDS_Command | Basic TDS AC |
| Eu.TDS.6734 | Info | [Block] S_SCI_TDS_Command [Functional Viewpoint - Interface Requirements - Functional Entity] ibd [Block] S_SCI_TDS_Command [Functional entity] ibd [Block] S_SCI_TDS_Command [Functional entity] stunctional entity s_SCI_TDS_Command [Functional entity] s_SCI_TDS_Command idd0_PDI_Connection_State : String P1out : ~SCI_TDS_Command_TVP\$ idf0_PDI_Connection_State : String P1out : ~SCI_TDS_Command_TVP\$ if 70in_Mode_Of_FC : String if 70in_FC : PulsedIn if 72in_Update_Filling_Level : PulsedIn if 73in_Cancel : PulsedIn if 74in_DRFC : PulsedIn if 74in_DRFC : PulsedIn | Basic TDS AC |
| Eu.TDS.6743 | Info | t70in_FC | Basic TDS AC Option FC-P/-A |

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| ID | Туре | Requirement Part 1 |
| Eu.TDS.6744 | Info | t72in_Update_Filling_Level |
| Eu.TDS.6745 | Info | t73in_Cancel |
| Eu.TDS.6746 | Info | t74in_DRFC |
| Eu.TDS.6735 | Info | d50_PDI_Connection_State |
| Eu.TDS.6736 | Info | d70in_Mode_Of_FC |
| Eu.TDS.6737 | Info | Plout |
| Eu.TDS.6738 | Info | S_SCI_TDS_Command - Behaviour |
| Eu.TDS.6739 | Info | Functional Viewpoint - Interface Requirements - Functional Entity STD 1 |
| | | stm [State Machine] S_SCI_TDS_Command - Behaviour [Functional Viewpoint - Interface Requirements - Functional Entity STD 1] |
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| | | InitialO |
| | | V |
| | | SENDING_COMMANDS |
| | | <pre>when(t70in_FC)[d70in_Mode_Of_FC = "FC-C" AND d50_PDI_Connection_State = "ESTABLISHED"]/send Cd_FC(FC_C) to P1out; when(t70in_FC)[d70in_Mode_Of_FC = "FC-U" AND d50_PDI_Connection_State = "ESTABLISHED"]/send Cd_FC(FC_U) to P1out;</pre> |
| | | when(t70in_FC)[d70in_Mode_Of_FC = "FC-P" AND d50_PDI_Connection_State = "ESTABLISHED"]/send Cd_FC(FC_P) to P1out; |
| | | when(t70in_FC)[d70in_Mode_Of_FC = "FC-P-A" AND d50_PDI_Connection_State = "ESTABLISHED"]/send Cd_FC(FC_P_A) to P1out; |
| | | <pre>when(t70in_FC)[d70in_Mode_Of_FC = "Acknowledgement after FC-P-A command" AND d50_PDI_Connection_State = "ESTABLISHED"]/</pre> |
| | | <pre>send Cd_FC(AcknowledgmentAfterFC_P_A_Command) to P1out;</pre> |
| | | when(t72in_Update_Filling_Level)[d50_PDI_Connection_State = "ESTABLISHED"]/send Cd_Update_Filling_Level to P1out; |
| | | <pre>when(t73in_Cancel)[d50_PDI_Connection_State = "ESTABLISHED"]/send Cd_Cancel to P1out; when(t74in DRFC)[d50 PDI Connection State = "ESTABLISHED"]/send Cd DRFC to P1out;</pre> |
| | | |
| | | |
| Eu.TDS.6740 | Info | InitialO |
| | | |
| Eu.TDS.6741 | Req | /{Initial0 - SENDING_COMMANDS} |
| Eu.TDS.6742 | Info | SENDING_COMMANDS |
| Eu.TDS.6973 | Req | when(t70in_FC)[d70in_Mode_Of_FC = "FC-U" AND d50_PDI_Connection_State = "ESTABLISHED"]/send Cd_FC(FC_U) to P1out;{State-internal in SENDING_COMMANDS} |
| Eu.TDS.6974 | Req | when(t70in_FC)[d70in_Mode_Of_FC = "FC-P" AND d50_PDI_Connection_State = "ESTABLISHED"]/send Cd_FC(FC_P) to P1out;{State-internal in SENDING_COMMANDS} |
| Eu.TDS.6975 | Req | when(t70in_FC)[d70in_Mode_Of_FC = "FC-P-A" AND d50_PDI_Connection_State = "ESTABLISHED"]/send Cd_FC(FC_P_A) to P1out;{State-internal in SENDING_COMMANDS} |
| Eu.TDS.6976 | Req | when(t70in_FC)[d70in_Mode_Of_FC = "Acknowledgement after FC-P-A command" AND d50_PDI_Connection_State = "ESTABLISHED"]/ send Cd_FC(AcknowledgmentAfterFC_P_A_Command) to P1out;{State-internal in SENDING_COMMANDS} |
| Eu.TDS.6977 | Req | when(t70in_FC)[d70in_Mode_Of_FC = "FC-C" AND d50_PDI_Connection_State = "ESTABLISHED"]/send Cd_FC(FC_C) to P1out;{State-internal in SENDING_COMMANDS} |
| Eu.TDS.6978 | Req | when(t72in_Update_Filling_Level)[d50_PDI_Connection_State = "ESTABLISHED"]/send Cd_Update_Filling_Level to P1out;{State-internal in SENDING_COMMANDS} |
| Eu.TDS.6979 | Req | when(t73in_Cancel)[d50_PDI_Connection_State = "ESTABLISHED"]/send Cd_Cancel to P1out;{State-internal in SENDING_COMMANDS} |
| Eu.TDS.6980 | Req | when(t74in_DRFC)[d50_PDI_Connection_State = "ESTABLISHED"]/send Cd_DRFC to P1out;{State-internal in SENDING_COMMANDS} |
| Eu.TDS.6771 | Info | S_SCI_TDS_Receive_TVPS |

| | Requirement Part 2 | Func. Pkg. |
|--|---|---------------------|
| | | Option Update FL |
| | | Option FC-P/-A |
| | | Basic TDS AC |
| | | Basic TDS AC |
| | | Basic TDS AC |
| | The port P1out exchanges information objects according to SCI_TDS_Command_TVPS. | Basic TDS AC |
| | | Basic TDS AC |
| lout; lout; lout; lout; .o P1out; ABLISHED"]/ | | Basic TDS AC |
| | | Basic TDS AC |
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| | | Basic TDS AC |
| OMMANDS} | | Basic TDS AC |
| OMMANDS} | | Option FC-P/-A |
| IG_COMMANDS} | | Option FC-P/-A |
| | | Option FC-P/-A |
| OMMANDS} | | Basic TDS AC |
| NDS} | | Option Update FL |
| | | Option FC-P/-A |
| | | Basic TDS AC |
| | | Basic TDS AC |

| Eu.TDS.6772 | Info | [Block] S_SCI_TDS_Receive_TVPS [Functional Viewpoint - Interface Requirements - Functional Entity] | |
|---|--|--|--|
| | | ibd [Block] S_SCI_TDS_Receive_TVPS [Functional Viewpoint - Interface Requirements - Functional Entity] | |
| | | «functional entity» | |
| | | S_SCI_TDS_Receive_TVPS Operation | |
| | | «Operation» cOp2_Get_Occupancy_Status_Information (in ParameterOccupancyStatus : OccupancyStatus, in ParameterAbilityToBeForcedToClear : AbilityToBeForcedToClear, in | |
| | | ParameterDisturbanceStatus : DisturbanceStatus, in ParameterChangeTrigger : ChangeTrigger) | |
| | | «Operation» cOp3_Get_Reason_For_Failure_FC_P (in ParameterReasonForFailure : ReasonForFailure) | |
| | | «Operation» cOp4_Get_Reason_For_Failure_FC_P_A (in ParameterReasonForFailure : ReasonForFailure) | |
| | | | |
| | | P2in : ~SCI_TDS_Report_TVPS d75out_Occupancy_Status : String → | |
| | | d75out_Ability_To_Be_Forced_To_Clear : Boolean → d75out_Fillinglevel : Integer → | |
| | | d75out_Reason_For_Failure : String | |
| | | d75out_Change_Trigger : String → | |
| | | t75out_TVPS_Occupancy_Status : PulsedOut 🔶 | |
| | | | |
| | | d82out_FC_P_failed : String \rightarrow | |
| | | t82out_FC_P_failed : PulsedOut → d83out_FC_P_A_failed : String → | |
| | | t83out_FC_P_A_failed : PulsedOut \rightarrow | |
| | | d84out_Command_Rejected : String | |
| | | t84out_Command_Rejected : PulsedOut 🛶 | |
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| Eu.TDS.6790 | Info | t75out_TVPS_Occupancy_Status | |
| | Info | t82out_FC_P_failed | |
| Eu.TDS.6792 | Info | | |
| Eu.TDS.6793 | Info | t83out_FC_P_A_failed | |
| Eu.TDS.6794 | Info | t84out_Command_Rejected | |
| | | | |
| Eu.TDS.6776 | Info | d75out_Ability_To_Be_Forced_To_Clear | |
| | | | |
| Eu.TDS.6777 | Info | d75out_Change_Trigger | |
| | | | |
| Eu.TDS.6777 Eu.TDS.6778 | Info Info | d75out_Change_Trigger d75out_Fillinglevel | |
| | | | |
| Eu.TDS.6778 | Info | d75out_Fillinglevel | |
| Eu.TDS.6778 Eu.TDS.6779 Eu.TDS.6780 | Info Info Info | d75out_Fillinglevel d75out_Occupancy_Status d75out_Reason_For_Failure | |
| Eu.TDS.6778 Eu.TDS.6779 | Info Info | d75out_Fillinglevel d75out_Occupancy_Status | |
| Eu.TDS.6778 Eu.TDS.6779 Eu.TDS.6780 | Info Info Info | d75out_Fillinglevel d75out_Occupancy_Status d75out_Reason_For_Failure | |
| Eu.TDS.6778 Eu.TDS.6779 Eu.TDS.6780 Eu.TDS.6781 | Info Info Info Info | d75out_Fillinglevel d75out_Occupancy_Status d75out_Reason_For_Failure d82out_FC_P_failed | |
| Eu.TDS.6778 Eu.TDS.6779 Eu.TDS.6780 Eu.TDS.6781 Eu.TDS.6782 Eu.TDS.6783 | Info Info Info Info Info | d75out_Fillinglevel d75out_Occupancy_Status d75out_Reason_For_Failure d82out_FC_P_failed d83out_FC_P_A_failed d84out_Command_Rejected | |
| Eu.TDS.6778 Eu.TDS.6779 Eu.TDS.6780 Eu.TDS.6781 Eu.TDS.6782 | Info Info Info Info Info | d75out_Fillinglevel d75out_Occupancy_Status d75out_Reason_For_Failure d82out_FC_P_failed d83out_FC_P_A_failed | |
| Eu.TDS.6778 Eu.TDS.6779 Eu.TDS.6780 Eu.TDS.6781 Eu.TDS.6782 Eu.TDS.6783 | Info Info Info Info Info Info | d75out_Fillinglevel d75out_Occupancy_Status d75out_Reason_For_Failure d82out_FC_P_failed d83out_FC_P_A_failed d84out_Command_Rejected | |
| Eu.TDS.6778 Eu.TDS.6779 Eu.TDS.6780 Eu.TDS.6781 Eu.TDS.6782 Eu.TDS.6783 Eu.TDS.6783 | Info Info Info Info Info Info Info | d75out_Fillinglevel d75out_Occupancy_Status d75out_Reason_For_Failure d82out_FC_P_failed d83out_FC_P_A_failed d84out_Command_Rejected P2in | |
| Eu.TDS.6778 Eu.TDS.6779 Eu.TDS.6780 Eu.TDS.6781 Eu.TDS.6782 Eu.TDS.6783 Eu.TDS.6783 | Info Info Info Info Info Info Info | d75out_Fillinglevel d75out_Occupancy_Status d75out_Reason_For_Failure d82out_FC_P_failed d83out_FC_P_A_failed d84out_Command_Rejected P2in | |
| Eu.TDS.6778 Eu.TDS.6779 Eu.TDS.6780 Eu.TDS.6781 Eu.TDS.6782 Eu.TDS.6783 Eu.TDS.6783 | Info Info Info Info Info Info Info | d75out_Fillinglevel d75out_Occupancy_Status d75out_Reason_For_Failure d82out_FC_P_failed d83out_FC_P_A_failed d84out_Command_Rejected P2in | |

| Requirement Part 2 | Func. Pkg. |
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| | Basic TDS AC |
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| | Basic TDS |
| | AC Option |
| | FC-P/-A |
| | Option FC-P/-A Basic TDS |
| | AC Basic TDS |
| | AC Basic TDS |
| | AC Option |
| | Update FL Basic TDS |
| | AC Basic TDS |
| | AC |
| | Option FC-P/-A |
| | Option FC-P/-A |
| | Basic TDS AC |
| The port P2in exchanges information objects according to SCI_TDS_Report_TVPS. | Basic TDS AC |
| <pre>if ParameterOccupancyStatus = OccupancyStatus.Vacant then</pre> | Basic TDS AC |

| Requirements sp | ecification f | or subsystem TDS |
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| ID | Туре | Requirement Part 1 |
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| Eu.TDS.6774 | Info | cOp3_Get_Reason_For_Failure_FC_P |
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| Requirements spe | cincation | In subsystem TDS |
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| ID | Туре | Requirement Part 1 |
| Eu.TDS.6775 | Info | cOp4_Get_Reason_For_Failure_FC_P_A |
| Eu.TDS.6785 | Info | S_SCI_TDS_Receive_TVPS - Behaviour |
| Eu.TDS.6786 | Info | Functional Viewpoint - Interface Requirements - Functional Entity STD 2 |
| Landonovoo | 11110 | stm [State Machine] S_SCI_TDS_Receive_TVPS - Behaviour [Functional Viewpoint - Interface Requirements - Functional Entity STD 2] |
| | | ● Initial0 ↓ RECEIVING_TVPS_REPORTS |
| | | <pre>Msg_TVPS_Occupancy_Status/cOp2_Get_Occupancy_Status_Information (ReportedOccupancyStatus, ReportedAbilityToBeForcedToClear, ReportedDisturbance d75out_Fillinglevel := FillingLevel; t75out_TVPS_Occupancy_Status := TRUE; Msg_Command_Rejected[ReportedReasonForRejection = Operational]/d84out_Command_Rejected := "Operational"; t84out_Command_Rejected[ReportedReasonForRejection = Technical]/d84out_Command_Rejected := "Technical"; t84out_Command_Rejected := TRUE; Msg_Command_Rejected := TRUE; Msg_TVPS_FC_P_failed/cOp3_Get_Reason_For_Failure_FC_P (ReportedReasonForFailure); t82out_FC_P_failed := TRUE; Msg_TVPS_FC_P_failed := TRUE; Msg_TVPS_FC_P_failed := TRUE; Msg_TVPS_FC_P_A_failed/cOp4_Get_Reason_For_Failure_FC_P_A (ReportedReasonForFailure); t83out_FC_P_A_failed := TRUE;</pre> |
| Eu.TDS.6787 | Info | InitialO |
| | | |
| Eu.TDS.6788 | Req | /{Initial0 - RECEIVING_TVPS_REPORTS} |
| Eu.TDS.6789 | Info | RECEIVING_TVPS_REPORTS |
| Eu.TDS.6993 | Req | Msg_Command_Rejected[ReportedReasonForRejection = Operational]/d84out_Command_Rejected := "Operational"; t84out_Command_Rejected := TRUE;{State-internal in RECEIVING_TVPS_REPORTS} |
| Eu.TDS.6994 | Req | Msg_Command_Rejected[ReportedReasonForRejection = Technical]/d84out_Command_Rejected := "Technical"; t84out_Command_Rejected := TRUE;{State-internal in RECEIVING_TVPS_REPORTS} |
| Eu.TDS.6995 | Req | Msg_TVPS_FC_P_A_failed/cOp4_Get_Reason_For_Failure_FC_P_A(ReportedReasonForFailure); t83out_FC_P_A_failed := TRUE;{State-internal in RECEIVING_TVPS_REPORTS} |
| Eu.TDS.6996 | Req | Msg_TVPS_FC_P_failed/cOp3_Get_Reason_For_Failure_FC_P (ReportedReasonForFailure); t82out_FC_P_failed := TRUE;{State-internal in RECEIVING_TVPS_REPORTS} |

Eu.TDS.6996ReqMsg_TVPS_FC_P_failed/cOp3_Get_Reason_For_Failure_FC_P (ReportedReasonForFailure);
t82out_FC_P_failed := TRUE;{State-internal in RECEIVING_TVPS_REPORTS}Eu.TDS.6997ReqMsg_TVPS_Occupancy_Status/cOp2_Get_Occupancy_Status_Information(ReportedOccupancyStatus, ReportedAbilityToBeForcedToClear, ReportedDisturbanceStatus, ReportedChangeTrigger
d75out_Fillinglevel := FillingLevel;
t75out_TVPS_Occupancy_Status := TRUE;{State-internal in RECEIVING_TVPS_REPORTS}Eu.TDS.6747InfoS_SCI_TDS_Receive_TDP

| | Requirement Part 2 | Func. Pkg. |
|---------------------------------|--|-------------------|
| | <pre>if ParameterReasonForFailure = ReasonForFailure.IncorrectCount then</pre> | Option FC-P/-A |
| | | Basic TDS AC |
| Status, ReportedChangeTrigger); | | Basic TDS AC |
| | | Option FC-P/-A |
| | | Option FC-P/-A |
| er); | | Basic TDS AC |
| | | Basic TDS TDP |

| ID | Туре | Requirement Part 1 | Requirement Part 2 | Func. Pkg. |
|--------------|------|--|--|------------------|
| Eu.TDS.6748 | Info | [Block] S_SCI_TDS_Receive_TDP [Functional Viewpoint - Interface Requirements - Functional Entity] ibd [Block] S_SCI_TDS_Receive_TDP [Functional Viewpoint - Interface Requirements - Functional Entity] «functional entity» S_SCI_TDS_Receive_TDP P52in : ~SCI_TDS_TDP d64out_TDP_Status : String t64out_TDP_Direction : String t64out_TDP_Status : PulsedOut | | Basic TDS TDP |
| Eu.TDS.6757 | Info | t64out_TDP_Status | | Basic TDS TDP |
| Eu.TDS.6749 | Info | d64out_TDP_Direction | | Basic TDS TDP |
| Eu.TDS.6750 | Info | d64out_TDP_Status | | Basic TDS TDP |
| Eu.TDS.6751 | Info | P52in | The port P52in exchanges information objects according to SCI_TDS_TDP. | Basic TDS TDP |
| Eu.TDS.6752 | Info | S_SCI_TDS_Receive_TDP - Behaviour | | Basic TDS TDP |
| Eu.TDS.6753 | Info | Functional Viewpoint - Interface Requirements - Functional Entity STD 4 stm [State Machine] S_SCI_TDS_Receive_TDP - Behaviour [Functional Viewpoint - Interface Requirements - Functional Entity STD 4] | | Basic TDS TDP |
| E:: TDC 6754 | Info | Initial RECEIVING_TDP_REPORTS Msg_TDP_Status[ReportedStateOPassing = NotPassed]/d64out_TDP_Status := "not passed"; d64out_TDP_Direction := "writerate indexted direction"; t64out_TDP_Distus: = TAUE; Msg_TDP_Status[ReportedStateOPassing = Passed AND ReportedDirectionOPassing = ReferenceDirection]/d64out_TDP_Status := "passed"; d64out_TDP_Direction := "arginist reference direction"; t64out_TDP_Status := TAUE; Msg_TDP_Status := TAUE; Msg | | Paris TDC |
| Eu.TDS.6754 | Info | InitialO | | Basic TDS TDP |
| Eu.TDS.6755 | Req | /{Initial0 - RECEIVING_TDP_REPORTS} | | Basic TDS TDP |
| Eu.TDS.6756 | Info | RECEIVING_TDP_REPORTS | | Basic TDS TDP |
| Eu.TDS.6981 | Req | Msg_TDP_Status[ReportedStateOfPassing = Passed AND ReportedDirectionOfPassing = ReferenceDirection]/d64out_TDP_Status := "passed"; d64out_TDP_Direction := "reference direction"; t64out_TDP_Status := TRUE;{State-internal in RECEIVING_TDP_REPORTS} | | Basic TDS TDP |
| Eu.TDS.6982 | Req | Msg_TDP_Status[ReportedStateOfPassing = Passed AND ReportedDirectionOfPassing = AgainstRefernceDirection]/d64out_TDP_Status := "passed"; d64out_TDP_Direction := "against reference direction"; t64out_TDP_Status := TRUE;{State-internal in RECEIVING_TDP_REPORTS} | | Basic TDS TDP |
| Eu.TDS.6983 | Req | Msg_TDP_Status[ReportedStateOfPassing = Passed AND ReportedDirectionOfPassing = WithoutIndicatedDirection]/d64out_TDP_Status := "passed"; d64out_TDP_Direction := "without indicated direction"; t64out_TDP_Status := TRUE;{State-internal in RECEIVING_TDP_REPORTS} | | Basic TDS TDP |
| Eu.TDS.6984 | Req | Msg_TDP_Status[ReportedStateOfPassing = Disturbed]/d64out_TDP_Status := "disturbed"; d64out_TDP_Direction := "without indicated direction"; t64out_TDP_Status := TRUE;{State-internal in RECEIVING_TDP_REPORTS} | | Basic TDS TDP |
| Eu.TDS.6985 | Req | Msg_TDP_Status[ReportedStateOfPassing = NotPassed]/d64out_TDP_Status := "not passed"; d64out_TDP_Direction := "without indicated direction"; t64out_TDP_Status := TRUE;{State-internal in RECEIVING_TDP_REPORTS} | | Basic TDS TDP |
| Eu.TDS.6758 | Info | S_SCI_TDS_Receive_Track_Circuit | | Basic TDS TC |

| ID | Туре | Requirement Part 1 |
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| Eu.TDS.6759 | Info | [Block] S_SCI_TDS_Receive_Track_Circuit [Functional Viewpoint - Interface Requirements - Functional Entity] |
| | | ibd [Block] S_SCI_TDS_Receive_Track_Circuit [Functional Viewpoint - Interface Requirements - Functional Entity] |
| | | «functional entity» S_SCI_TDS_Receive_Track_Circuit |
| | | P51in : ~SCI_TDS_Track_Circuits d66out_Ability_To_Be_Forced_To_Clear : Boolean 🔿 |
| | | d66out_TVPS_Occupancy_Status : String |
| | | d66out_POM_Status : String 🚽 |
| | | d66out_Disturbance_Status : String |
| | | t66out_TVPS_Occupancy_Status : PulsedOut -> |
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| Eu.TDS.6770 | Info | t66out_TVPS_Occupancy_Status |
| Eu.TDS.6760 | Info | d66out_Ability_To_Be_Forced_To_Clear |
| Eu.TDS.6761 | Info | d66out_Disturbance_Status |
| Eu.TDS.6762 | Info | d66out_POM_Status |
| | | |
| Eu.TDS.6763 | Info | d66out_TVPS_Occupancy_Status |
| Eu.TDS.6764 | Info | P51in |
| Eu.TDS.6765 | Info | S_SCI_TDS_Receive_Track_Circuit - Behaviour |
| Eu.TDS.6766 | Info | Functional Viewpoint - Interface Requirements - Functional Entity STD 3 |
| | | stm [State Machine] S_SCI_TDS_Receive_Track_Circuit - Behaviour [Functional Viewpoint - Interface Requirements - Functional Entity STD 3] |
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| | | Initial0 |
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| | | REPOPRTING_OCCUPANCY_STATUS Msg_TVPS_Occupancy_Status[ReportedOccupancyStatus = Vacant AND ReportedPOM_Status = OK]/d66out_Ability_To_Be_Forced_To_Clear := FALSE; |
| | | <pre>d66out_TVPS_Occupancy_Status := "TVPS is in state vacant"; d66out_POM_Status := "OK";</pre> |
| | | <pre>d66out_Disturbance_Status := "Not Applicable";</pre> |
| | | t66out_TVPS_Occupancy_Status := TRUE; Msg_TVPS_Occupancy_Status[ReportedOccupancyStatus = Vacant AND ReportedPOM_Status = NOK]/d66out_Ability_To_Be_Forced_To_Clear := FALSE; |
| | | <pre>d66out_TVPS_Occupancy_Status := "TVPS is in state vacant"; d66out_POM_Status := "NOK";</pre> |
| | | <pre>d66out_Disturbance_Status := "Not Applicable"; t66out_TVPS_Occupancy_Status := TRUE;</pre> |
| | | Msg_TVPS_Occupancy_Status[ReportedOccupancyStatus = Occupied AND ReportedPOM_Status = OK]/d66out_Ability_To_Be_Forced_To_Clear := FALSE; |
| | | <pre>d66out_TVPS_Occupancy_Status := "TVPS is in state occupied"; d66out_POM_Status := "OK";</pre> |
| | | <pre>d66out_Disturbance_Status := "Not Applicable"; t66out_TVPS_Occupancy_Status := TRUE;</pre> |
| | | Msg_TVPS_Occupancy_Status[ReportedOccupancyStatus = Occupied AND ReportedPOM_Status = NOK]/d66out_Ability_To_Be_Forced_To_Clear := FALSE; |
| | | <pre>d66out_TVPS_Occupancy_Status := "TVPS is in state occupied"; d66out_POM_Status := "NOK";</pre> |
| | | <pre>d66out_Disturbance_Status := "Not Applicable"; t66out TVPS Occupancy Status := TRUE;</pre> |
| | | Msg_TVPS_Occupancy_Status[ReportedOccupancyStatus = Disturbed AND ReportedPOM_Status = OK]/d66out_Ability_To_Be_Forced_To_Clear := FALSE; |
| | | <pre>d66out_TVPS_Occupancy_Status := "TVPS is in state disturbed"; d66out_POM_Status := "OK";</pre> |
| | | <pre>d66out_Disturbance_Status := "Technical"; t66out_TVPS_Occupancy_Status := TRUE;</pre> |
| | | Msg_TVPS_Occupancy_Status[ReportedOccupancyStatus = Disturbed AND ReportedPOM_Status = NOK]/d66out_Ability_To_Be_Forced_To_Clear := FALSE; |
| | | <pre>d66out_TVPS_Occupancy_Status := "TVPS is in state disturbed"; d66out_POM_Status := "NOK";</pre> |
| | | <pre>d66out_Disturbance_Status := "Technical"; t66out_TVPS_Occupancy_Status := TRUE;</pre> |
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| Eu.TDS.6767 | Info | InitialO |

| Requirement Part 2 | Func. Pkg. |
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| | Basic TDS TC |
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| | Basic TDS |
| | ТС |
| | Basic TDS TC |
| The port P51in exchanges information objects according to SCI_TDS_Track_Circuits. | Basic TDS TC |
| to SCI_TDS_Track_Circuits. | |
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| | Basic TDS TC |
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| | Basic TDS TC |
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| ID | Туре | Requirement Part 1 |
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| Eu.TDS.6768 | Req | /{Initial0 - REPOPRTING_OCCUPANCY_STATUS} |
| Eu.TDS.6769 | Info | REPOPRTING_OCCUPANCY_STATUS |
| Eu.TDS.6986 | Req | Msg_TVPS_Occupancy_Status[ReportedOccupancyStatus = Vacant AND ReportedPOM_Status = NOK]/d66out_Ability_To_Be_Forced_To_Clear := FALSE; d66out_TVPS_Occupancy_Status := "TVPS is in state vacant"; d66out_POM_Status := "NOK"; d66out_Disturbance_Status := "Not Applicable"; t66out_TVPS_Occupancy_Status := TRUE;{State-internal in REPOPRTING_OCCUPANCY_STATUS} |
| Eu.TDS.6987 | Req | Msg_TVPS_Occupancy_Status[ReportedOccupancyStatus = Occupied AND ReportedPOM_Status = OK]/d66out_Ability_To_Be_Forced_To_Clear := FALSE; d66out_TVPS_Occupancy_Status := "TVPS is in state occupied"; d66out_POM_Status := "OK"; d66out_Disturbance_Status := "Not Applicable"; t66out_TVPS_Occupancy_Status := TRUE;{State-internal in REPOPRTING_OCCUPANCY_STATUS} |
| Eu.TDS.6988 | Req | Msg_TVPS_Occupancy_Status[ReportedOccupancyStatus = Occupied AND ReportedPOM_Status = NOK]/d66out_Ability_To_Be_Forced_To_Clear := FALSE; d66out_TVPS_Occupancy_Status := "TVPS is in state occupied"; d66out_POM_Status := "NOK"; d66out_Disturbance_Status := "Not Applicable"; t66out_TVPS_Occupancy_Status := TRUE;{State-internal in REPOPRTING_OCCUPANCY_STATUS} |
| Eu.TDS.6989 | Req | Msg_TVPS_Occupancy_Status[ReportedOccupancyStatus = Disturbed AND ReportedPOM_Status = OK]/d66out_Ability_To_Be_Forced_To_Clear := FALSE; d66out_TVPS_Occupancy_Status := "TVPS is in state disturbed"; d66out_POM_Status := "OK"; d66out_Disturbance_Status := "Technical"; t66out_TVPS_Occupancy_Status := TRUE;{State-internal in REPOPRTING_OCCUPANCY_STATUS} |
| Eu.TDS.6990 | Req | Msg_TVPS_Occupancy_Status[ReportedOccupancyStatus = Disturbed AND ReportedPOM_Status = NOK]/d66out_Ability_To_Be_Forced_To_Clear := FALSE; d66out_TVPS_Occupancy_Status := "TVPS is in state disturbed"; d66out_POM_Status := "NOK"; d66out_Disturbance_Status := "Technical"; t66out_TVPS_Occupancy_Status := TRUE;{State-internal in REPOPRTING_OCCUPANCY_STATUS} |
| Eu.TDS.6991 | Req | Msg_TVPS_Occupancy_Status[ReportedOccupancyStatus = Vacant AND ReportedPOM_Status = OK]/d66out_Ability_To_Be_Forced_To_Clear := FALSE; d66out_TVPS_Occupancy_Status := "TVPS is in state vacant"; d66out_POM_Status := "OK"; d66out_Disturbance_Status := "Not Applicable"; t66out_TVPS_Occupancy_Status := TRUE;{State-internal in REPOPRTING_OCCUPANCY_STATUS} |
| Eu.TDS.6533 | Info | F_SCI_TDS_Receive |
| Eu.TDS.6534 | Info | [Block] F_SCI_TDS_Receive [Functional Viewpoint - Interface Requirements - Functional Entity] ibd [Block] F_SCI_TDS_Receive [Functional Viewpoint - Interface Requirements - Functional Entity] «functional entity» F_SCI_TDS_Receive P1in : SCI_TDS_Command_TVPS p3out : ~Request_Commands |
| Eu.TDS.6540 | Info | P1in |
| Eu.TDS.6541 | Info | p3out |
| Eu.TDS.6535 | Info | F_SCI_TDS_Receive - Behaviour |
| Eu.TDS.6536 | Info | Functional Viewpoint - Interface Requirements - Functional Entity STD 5 stm [State Machine] F_SCI_TDS_Receive - Behaviour [Functional Viewpoint - Interface Requirements - Functional Entity STD 5] |
| Eu.TDS.6537 | Info | InitialO |
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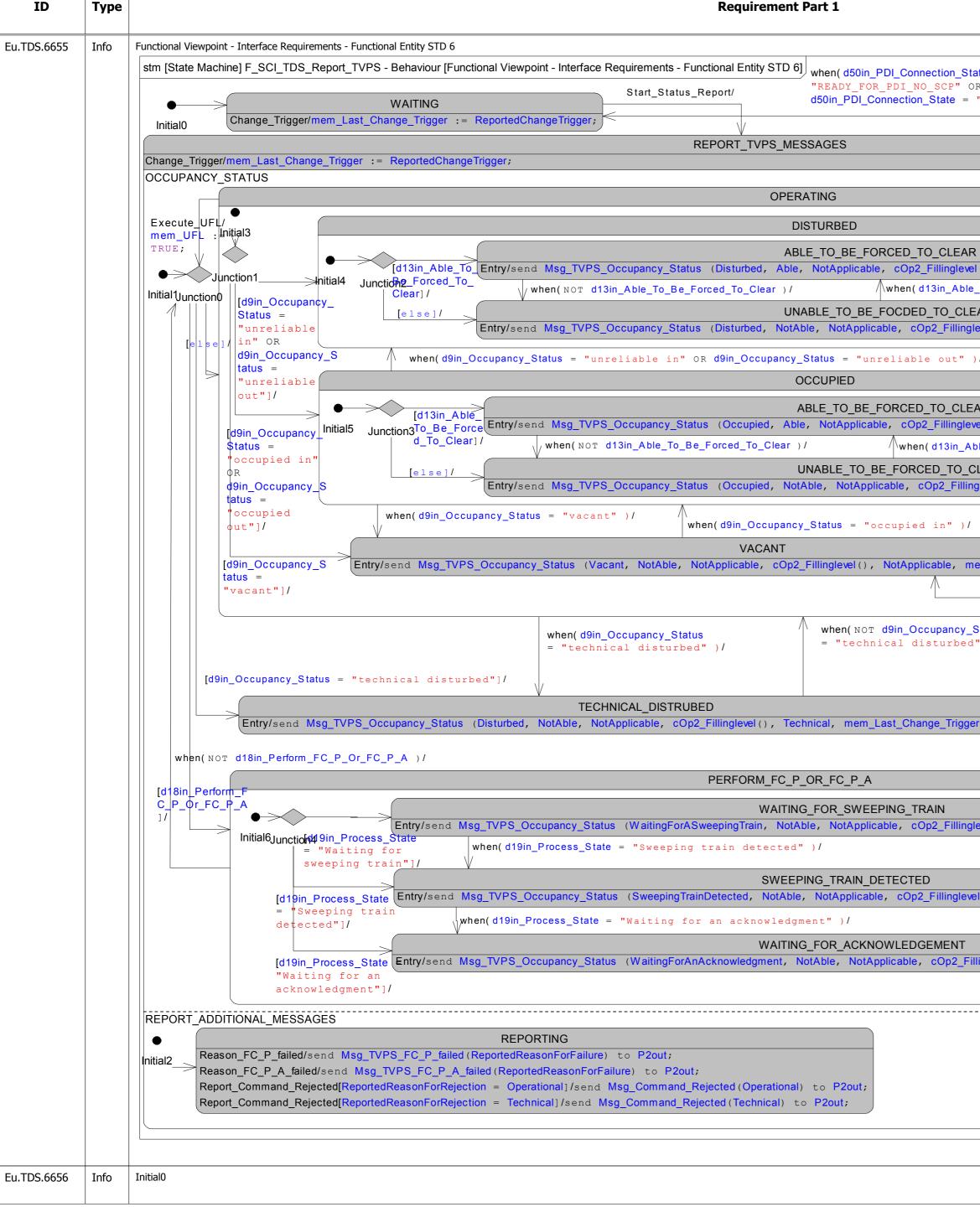
| Requirement Part 2 | Func. Pkg. |
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| | Basic TDS TC |
| | Basic TDS TC |
| | Basic TDS TC |
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| | Basic TDS TC |
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| | Basic TDS TC |
| | Basic TDS |
| | TC |
| | Basic TDS |
| | TC |
| | Basic TDS |
| | AC Basic TDS |
| | AC |
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| The port P1in exchanges information objects according to SCI_TDS_Command_TVPS. | Basic TDS |
| to SCI_TDS_Command_TVPS. | AC Basic TDS |
| | AC Basic TDS |
| | AC Basic TDS |
| | AC Option FC-P/-A |
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| | Basic TDS AC |
| | Basic TDS AC |

| ID | Туре | Requirement Part 1 |
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| Eu.TDS.6539 | Info | RECEIVING_COMMANDS |
| Eu.TDS.6938 | Req | Cd_Cancel/send Request_Cancel to p3out;{State-internal in RECEIVING_COMMANDS} |
| Eu.TDS.6939 | Req | Cd_DRFC/send Request_DRFC(EIL) to p3out;{State-internal in RECEIVING_COMMANDS} |
| Eu.TDS.6940 | Req | Cd_FC[CommandedModeOfFC = FC_P_A]/send Request_FC_P_A to p3out;{State-internal in RECEIVING_COMMANDS} |
| Eu.TDS.6941 | Req | Cd_FC[CommandedModeOfFC = AcknowledgmentAfterFC_P_A_Command]/send Request_Acknowledgement to p3out;{State-internal in RECEIVING_COMMANDS} |
| Eu.TDS.6942 | Req | Cd_FC[CommandedModeOfFC = FC_P]/send Request_FC_P to p3out;{State-internal in RECEIVING_COMMANDS} |
| Eu.TDS.6943 | Req | Cd_FC[CommandedModeOfFC = FC_U]/send Request_FC_U(EIL) to p3out;{State-internal in RECEIVING_COMMANDS} |
| Eu.TDS.6944 | Req | Cd_FC[CommandedModeOfFC = FC_C]/send Request_FC_C(EIL) to p3out;{State-internal in RECEIVING_COMMANDS} |
| Eu.TDS.6945 | Req | Cd_Update_Filling_Level/send Request_UFL to p3out;{State-internal in RECEIVING_COMMANDS} |
| Eu.TDS.6644 | Info | F_SCI_TDS_Report_TVPS |
| Eu.TDS.6645 | Info | [Block] F_SCI_TDS_Report_TVPS [Functional Viewpoint - Interface Requirements - Functional Entity] |
| Eu.TDS.6726 | Info | *dunctional entity:* F_SCI_TDS_Report_TVPS d9in_Occupancy_Status: String P2out: SCI_TDS_Report_TVPS d10in_Fillinglevel: Integer d13in_Able_To_Be_Forced_To_Clear: Boolean d18in_Perform_FC_P_Or_FC_P_A: Boolean d19in_Process_State: String d50in_PDI_Connection_State: String p6in: Perform_UFL p7in: ~Request_Command_Rejected_ILS p86in: -Report_Change_Trigger p87in: -ReportReasonForFailure p88inout: F_SCI_Specific |
| Eu.TDS.6727 | Info | рбіп |
| Eu.TDS.6728 | Info | p7in |
| Eu.TDS.6729 | Info | p86in |
| Eu.TDS.6730 | Info | p87in |
| Eu.TDS.6731 | Info | p88inout |
| Eu.TDS.6647 | Info | d10in_Fillinglevel |
| Eu.TDS.6648 | Info | d13in_Able_To_Be_Forced_To_Clear |
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| Eu.TDS.6649 | Info | d18in_Perform_FC_P_Or_FC_P_A |

| Requirement Part 2 | Func. Pkg. |
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| | Basic TDS AC |
| | Option FC-P/-A |
| | Basic TDS AC |
| | Option FC-P/-A |
| | Option FC-P/-A |
| | Option FC-P/-A |
| | Basic TDS AC |
| | Basic TDS AC |
| | Option Update FL |
| | Basic TDS AC |
| | Basic TDS AC |
| | AC |
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| The port P2out exchanges information objects according to SCI_TDS_Report_TVPS. | Basic TDS AC |
| | Basic TDS |
| | AC |
| | AC Option Update FL |
| | Option Update FL Basic TDS |
| | Option Update FL |

Requirements specification for subsystem TDS

| ID | Туре | Requirement Part 1 | Requirement Part 2 | Func. Pkg. |
|-------------|--|--------------------|--|---------------------|
| Eu.TDS.6651 | Info d50in_PDI_Connection_State | | | Basic TDS AC |
| Eu.TDS.6646 | Info cOp2_Fillinglevel | | if mem_UFL then mem_UFL := FALSE; return d10in_Fillinglevel; elseif mem_UFL = FALSE then return 65535; end if | Option Update FL |
| Eu.TDS.6653 | Info d9in_Occupancy_Status | | | Basic TDS AC |
| Eu.TDS.6654 | Info F_SCI_TDS_Report_TVPS - Behaviour | | | Basic TDS AC |



| The telegram Msg_TVP5_Occupancy_Status will also be send in parallel to the Maintainer via TD56 (Maintainer). Basic TD5 AC State = "NOT_READY_FOR_PDI_Connection_State = "READY_FOR_FDI_OR d50in_PDI_Connection_State = "SUBFENDED")// MR Wei(), Operational, mem_Last_Change_Trigger) to P2out; ''vacant")/ te_To_Be_Forced_To_Clear)/ LEAR Iggevel(), NotApplicable, mem_Last_Change_Trigger) to P2out; // LEAR Newel(), NotApplicable, mem_Last_Change_Trigger) to P2out; // LEAR | The telegram Msg_TVPS_Occupancy_Status will also be send in parallel to the Maintainer via TDS6 (Maintainer). R R Memory ToS_PDT* 08: dS0m_PDI_Connection_State = "SUGPENDER")/ Interfectional, mem_Last_Change_Trigger) to P2out; // EAR gleve(1), Operational, mem_Last_Change_Trigger) to P2out; // EAR gleve(1), NotApplicable, mem_Last_Change_Trigger) to P2out; // EAR gleve(1), NotApplicable, mem_Last_Change_Trigger) to P2out; // EAR gleve(1), NotApplicable, mem_Last_Change_Trigger) to P2out; // CLEAR migleve(1), NotApplicable, mem_Last_Change_Trigger) to P2out; // Status | The telegram Msg_TVPS_Occupancy_Status will also be send in parallel to the Maintaner via TDS6 (Maintaner). Recassing row_year, way way way on the recent of the maintaner via TDS6 (Maintaner). Recassing row way way way way way way way way way wa | Stee - "Wor exact provide work of an down PDI Connection Stee - section parallel b the Martaner via TDSS (Number). Red: TDS section parallel b the Martaner via TDSS (Number). Red: TD | The telegram Msg_TVPS_Ocopency_Status will also be and Sd0_FDU_Connection_State - ""STOR TRACKY TOPS DET" OK - "RESON_TOPT" ON dSD0_FDU_Connection_State - " ""Telestor_TopTopT" ON dSD0_FDU_Connection_State - " "Telestor_TopTopT" ON dSD0_FDU_Connection_State - " "Telestor_UPICTION" dState - " "Telestor_UPICTION" dState - " "Telestor_UPICTION" dState - " "Telestor_UPICTION" dSD0_FDU_CONNECTION DE TELEstor " "Telestor_UPICTION" dState - " " "Telestor_UPICTION" dState - " " " " " " " " " " " " " " | | Requirement Part 2 | Func. |
|---|--|---|--|--|--|---|----------------|
| | <pre>when(d9in_Occupancy_Status = "unreliable in" OR d9in_Occupancy_Status = "unreliable out")/ mem_Last_Change_Trigger) to P2out; </pre> | <pre>when(d9in_Occupancy_Status = "unreliable</pre> | <pre>when(d9in_Occupancy_Status = "unreliable in" 0x.d9in_Occupancy_Status = "unreliable out")/ mem_Last_Change_Trigger) to P2out; </pre> | <pre>when(d9in_Occupancy_Status = "unreliable in" ox.d9in_Occupancy_Status = "unreliable out")/ mem_Last_Change_Trigger) to P2out; </pre> | <pre>OR d50in_PDI_Connection_State = "NOT_READY_FOR_PDI" OR * "READY_FOR_PDI" OR d50in_PDI_Connection_State = "SUSPENDED")/ * "READY_FOR_PDI" OR d50in_PDI_Connection_State = "SUSPENDED")/ R el(), Operational, mem_Last_Change_Trigger) to P2out; e_To_Be_Forced_To_Clear)/ EAR glevel(), Operational, mem_Last_Change_Trigger) to P2out;)/ EAR evel(), NotApplicable, mem_Last_Change_Trigger) to P2out; Able_To_Be_Forced_To_Clear)/ CLEAR</pre> | The telegram Msg_TVPS_Occupancy_Status will also be | Pkg. Basic TDS |

| ID | Туре | Requirement Part 1 |
|-------------|------|---|
| Eu.TDS.6657 | Req | /{Initial0 - WAITING} |
| Eu.TDS.6658 | Info | REPORT_TVPS_MESSAGES |
| Eu.TDS.6659 | Info | OCCUPANCY_STATUS |
| Eu.TDS.6660 | Info | Initial1 |
| Eu.TDS.6661 | Req | /{Initial1 - Junction0} |
| Eu.TDS.6662 | Info | Junction0 |
| Eu.TDS.6663 | Req | [else]/{Junction0 - OPERATING} |
| Eu.TDS.6664 | Req | [d18in_Perform_FC_P_Or_FC_P_A]/{Junction0 - PERFORM_FC_P_OR_FC_P_A} |
| Eu.TDS.6665 | Req | [d9in_Occupancy_Status = "technical disturbed"]/{Junction0 - TECHNICAL_DISTRUBED} |
| Eu.TDS.6666 | Info | OPERATING |
| Eu.TDS.6667 | Info | DISTURBED |
| Eu.TDS.6668 | Info | ABLE_TO_BE_FORCED_TO_CLEAR |
| Eu.TDS.6669 | Req | when(NOT d13in_Able_To_Be_Forced_To_Clear)/{ABLE_TO_BE_FORCED_TO_CLEAR - UNABLE_TO_BE_FOCDED_TO_CLEAR} |
| Eu.TDS.6957 | Req | entry/send Msg_TVPS_Occupancy_Status (Disturbed, Able, NotApplicable, cOp2_Fillinglevel(), Operational, mem_Last_Change_Trigger) to P2out;{State-internal in ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6670 | Info | Initial4 |
| Eu.TDS.6671 | Req | /{Initial4 - Junction2} |
| Eu.TDS.6672 | Info | Junction2 |
| Eu.TDS.6673 | Req | [d13in_Able_To_Be_Forced_To_Clear]/{Junction2 - ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6674 | Req | [else]/{Junction2 - UNABLE_TO_BE_FOCDED_TO_CLEAR} |
| Eu.TDS.6675 | Info | UNABLE_TO_BE_FOCDED_TO_CLEAR |
| Eu.TDS.6676 | Req | when(d13in_Able_To_Be_Forced_To_Clear)/{UNABLE_TO_BE_FOCDED_TO_CLEAR - ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6958 | Req | entry/send Msg_TVPS_Occupancy_Status (Disturbed, NotAble, NotApplicable, cOp2_Fillinglevel(), Operational, mem_Last_Change_Trigger) to P2out;{State-internal in UNABLE_TO_BE_FOCDED_TO_CLEAR} |
| Eu.TDS.6677 | Req | when(d9in_Occupancy_Status = "vacant")/{DISTURBED - VACANT} |
| Eu.TDS.6678 | Req | Execute_UFL/mem_UFL := TRUE;{OPERATING - Junction0} |
| Eu.TDS.6679 | Info | Initial3 |
| Eu.TDS.6680 | Req | /{Initial3 - Junction1} |
| Eu.TDS.6681 | Info | Junction1 |
| Eu.TDS.6682 | Req | [d9in_Occupancy_Status = "unreliable in" OR d9in_Occupancy_Status = "unreliable out"]/{Junction1 - DISTURBED} |
| Eu.TDS.6683 | Req | [d9in_Occupancy_Status = "occupied in" OR d9in_Occupancy_Status = "occupied out"]/{Junction1 - OCCUPIED} |
| Eu.TDS.6684 | Req | [d9in_Occupancy_Status = "vacant"]/{Junction1 - VACANT} |
| Eu.TDS.6685 | Info | OCCUPIED |

| Requirement Part 2 | Func. Pkg. |
|--------------------|---------------------|
| | Basic TDS AC |
| | Option FC-P/-A |
| | Basic TDS AC |
| | Option Update FL |
| | Basic TDS AC |

Eu.TDS.6704

Eu.TDS.6705

Info

Req

Initial6

/{Initial6 - Junction4}

| ID | Туре | Requirement Part 1 |
|-------------|------|--|
| Eu.TDS.6686 | Info | ABLE_TO_BE_FORCED_TO_CLEAR |
| Eu.TDS.6687 | Req | when(NOT d13in_Able_To_Be_Forced_To_Clear)/{ABLE_TO_BE_FORCED_TO_CLEAR - UNABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6959 | Req | entry/send Msg_TVPS_Occupancy_Status (Occupied, Able, NotApplicable, cOp2_Fillinglevel(), NotApplicable, mem_Last_Change_Trigger) to P2out;{State-internal in ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6688 | Info | Initial5 |
| Eu.TDS.6689 | Req | /{Initial5 - Junction3} |
| Eu.TDS.6690 | Info | Junction3 |
| Eu.TDS.6691 | Req | [d13in_Able_To_Be_Forced_To_Clear]/{Junction3 - ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6692 | Req | [else]/{Junction3 - UNABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6693 | Info | UNABLE_TO_BE_FORCED_TO_CLEAR |
| Eu.TDS.6694 | Req | when(d13in_Able_To_Be_Forced_To_Clear)/{UNABLE_TO_BE_FORCED_TO_CLEAR - ABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6960 | Req | entry/send Msg_TVPS_Occupancy_Status (Occupied, NotAble, NotApplicable, cOp2_Fillinglevel(), NotApplicable, mem_Last_Change_Trigger) to P2out;{State-internal in UNABLE_TO_BE_FORCED_TO_CLEAR} |
| Eu.TDS.6695 | Req | when(d9in_Occupancy_Status = "unreliable in" OR d9in_Occupancy_Status = "unreliable out")/{OCCUPIED - DISTURBED} |
| Eu.TDS.6696 | Req | when(d9in_Occupancy_Status = "vacant")/{OCCUPIED - VACANT} |
| Eu.TDS.6697 | Info | VACANT |
| Eu.TDS.6698 | Req | when(d9in_Occupancy_Status = "occupied in")/{VACANT - OCCUPIED} |
| Eu.TDS.6699 | Req | when(d9in_Occupancy_Status = "unreliable in" OR d9in_Occupancy_Status = "unreliable out")/{VACANT - DISTURBED} |
| Eu.TDS.6961 | Req | entry/send Msg_TVPS_Occupancy_Status (Vacant, NotAble, NotApplicable, cOp2_Fillinglevel(), NotApplicable, mem_Last_Change_Trigger) to P2out;{State-internal in VACANT} |
| Eu.TDS.6700 | Req | when(d18in_Perform_FC_P_Or_FC_P_A)/{OPERATING - PERFORM_FC_P_OR_FC_P_A} |
| Eu.TDS.6701 | Req | when(d9in_Occupancy_Status = "technical disturbed")/{OPERATING - TECHNICAL_DISTRUBED} |
| Eu.TDS.6702 | Info | PERFORM_FC_P_OR_FC_P_A |
| Eu.TDS.6703 | Req | Execute_UFL/mem_UFL := TRUE;{PERFORM_FC_P_OR_FC_P_A - PERFORM_FC_P_OR_FC_P_A} |

| Info | Junction4 |
|------|---|
| Req | [d19in_Process_State = "Sweeping train detected"]/{Junction4 - SWEEPING_TRAIN_DETECTED} |
| Req | [d19in_Process_State = "Waiting for an acknowledgment"]/{Junction4 - WAITING_FOR_ACKNOWLEDGEMENT} |
| Req | [d19in_Process_State = "Waiting for sweeping train"]/{Junction4 - WAITING_FOR_SWEEPING_TRAIN} |
| Info | SWEEPING_TRAIN_DETECTED |
| Req | when(d19in_Process_State = "Waiting for an acknowledgment")/{SWEEPING_TRAIN_DETECTED - WAITING_FOR_ACKNOWLEDGEMENT} |
| Req | entry/send Msg_TVPS_Occupancy_Status (SweepingTrainDetected, NotAble, NotApplicable, cOp2_Fillinglevel(), NotApplicable, mem_Last_Change_Trigger) to P2out;{State-internal in SWEEPING_TRAIN_DETECTED |
| Info | WAITING_FOR_ACKNOWLEDGEMENT |
| | Req Req Req Info Req Req |

| | Requirement Part 2 | Func. Pkg. |
|-----|--------------------|-------------------|
| | | Basic TDS AC |
| | | Option FC-P/-A |
| | | Basic TDS AC |
| | | Option FC-P/-A |
| ED} | | Option FC-P/-A |
| | | Option FC-P/-A |

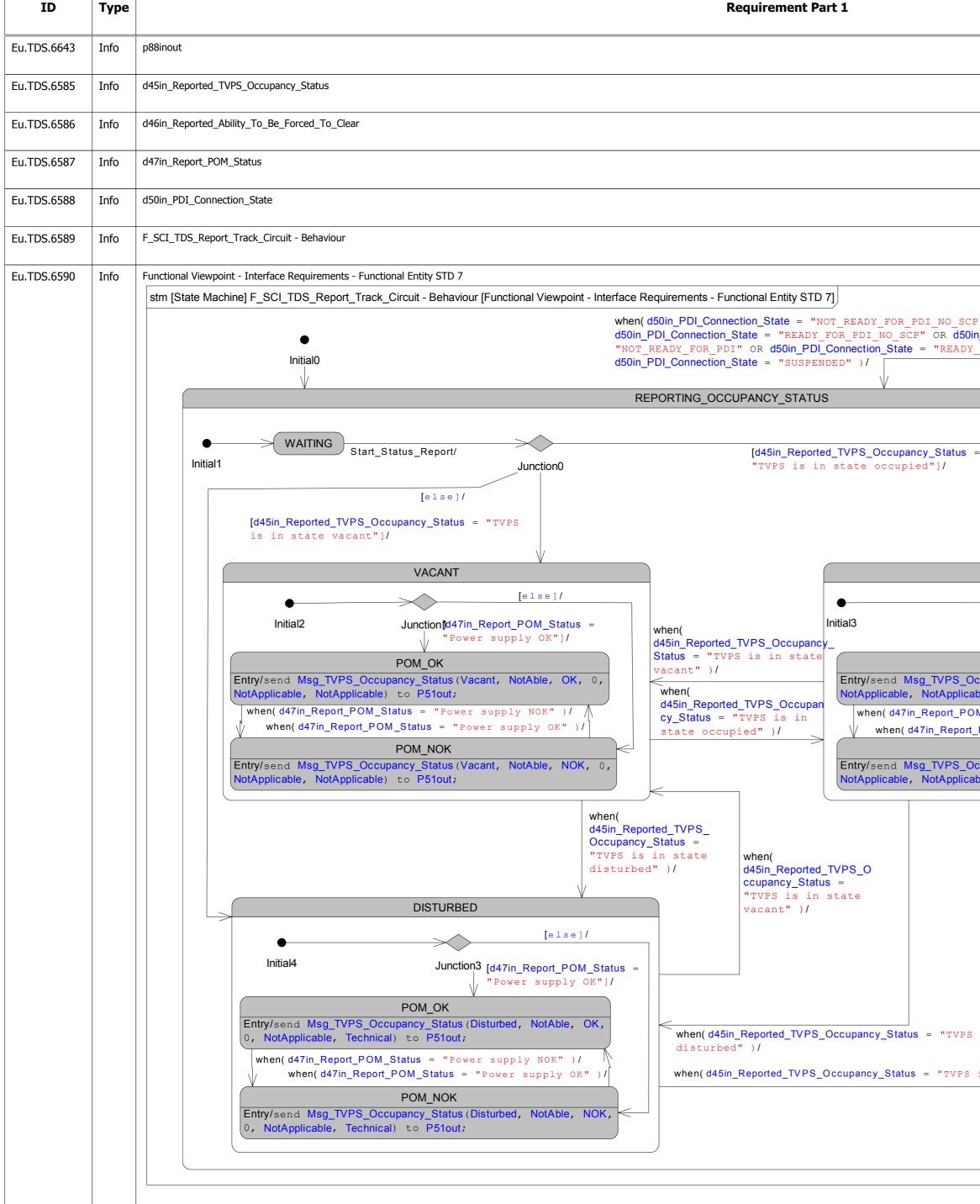
Туре

ID

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|---------------|---|---|
| Eu.TDS.6963 | Req | entry/send Msg_TVPS_Occupancy_Status (WaitingForAnAcknowledgment, NotAble, NotApplicable, cOp2_Fillinglevel(), NotApplicable, mem_Last_Change_Trigger) to P2out;{State-internal in WAITING_FOR_ACKNOWLI |
| Eu.TDS.6713 | Info | WAITING_FOR_SWEEPING_TRAIN |
| Eu.TDS.6714 | Req | when(d19in_Process_State = "Sweeping train detected")/{WAITING_FOR_SWEEPING_TRAIN - SWEEPING_TRAIN_DETECTED} |
| Eu.TDS.6715 | Req | when(d19in_Process_State = "Waiting for an acknowledgment")/{WAITING_FOR_SWEEPING_TRAIN - WAITING_FOR_ACKNOWLEDGEMENT} |
| Eu.TDS.6964 | Req | entry/send Msg_TVPS_Occupancy_Status (WaitingForASweepingTrain, NotAble, NotApplicable, cOp2_Fillinglevel(), NotApplicable, mem_Last_Change_Trigger) to P2out;{State-internal in WAITING_FOR_SWEEPING_TI |
| Eu.TDS.6716 | Req | when(NOT d18in_Perform_FC_P_Or_FC_P_A)/{PERFORM_FC_P_OR_FC_P_A - Junction0} |
| Eu.TDS.6717 | Info | TECHNICAL_DISTRUBED |
| Eu.TDS.6718 | Req | when(NOT d9in_Occupancy_Status = "technical disturbed")/{TECHNICAL_DISTRUBED - OPERATING} |
| Eu.TDS.6965 | Req | entry/send Msg_TVPS_Occupancy_Status (Disturbed, NotAble, NotApplicable, cOp2_Fillinglevel(), Technical, mem_Last_Change_Trigger) to P2out;{State-internal in TECHNICAL_DISTRUBED} |
| Eu.TDS.6719 | Info | REPORT_ADDITIONAL_MESSAGES |
| Eu.TDS.6720 | Info | Initial2 |
| Eu.TDS.6721 | Req | /{Initial2 - REPORTING} |
| Eu.TDS.6722 | Info | REPORTING |
| Eu.TDS.6966 | Req | Reason_FC_P_A_failed/send Msg_TVPS_FC_P_A_failed(ReportedReasonForFailure) to P2out;{State-internal in REPORTING} |
| Eu.TDS.6967 | Req | Reason_FC_P_failed/send Msg_TVPS_FC_P_failed(ReportedReasonForFailure) to P2out;{State-internal in REPORTING} |
| Eu.TDS.6968 | Req | Report_Command_Rejected[ReportedReasonForRejection = Operational]/send Msg_Command_Rejected(Operational) to P2out;{State-internal in REPORTING} |
| Eu.TDS.6969 | Req | Report_Command_Rejected[ReportedReasonForRejection = Technical]/send Msg_Command_Rejected(Technical) to P2out;{State-internal in REPORTING} |
| Eu.TDS.6723 | Req | when(d50in_PDI_Connection_State = "NOT_READY_FOR_PDI_NO_SCP" OR d50in_PDI_Connection_State = "READY_FOR_PDI_NO_SCP" OR d50in_PDI_Connection_State = "NOT_READY_FOR = "SUSPENDED")/{REPORT_TVPS_MESSAGES - WAITING} |
| Eu.TDS.6971 | Req | Change_Trigger/mem_Last_Change_Trigger := ReportedChangeTrigger;{State-internal in REPORT_TVPS_MESSAGES} |
| Eu.TDS.6724 | Info | WAITING |
| Eu.TDS.6725 | Req | Start_Status_Report/{WAITING - REPORT_TVPS_MESSAGES} |
| Eu.TDS.6972 | Req | Change_Trigger/mem_Last_Change_Trigger := ReportedChangeTrigger;{State-internal in WAITING} |
| Eu.TDS.6583 | Info | F_SCI_TDS_Report_Track_Circuit |
| Eu.TDS.6584 | Info | [Block] F_SCI_TDS_Report_Track_Circuit [Functional Viewpoint - Interface Requirements - Functional Entity] |
| | | ibd [Block] F_SCI_TDS_Report_Track_Circuit [Functional Viewpoint - Interface Requirements - Functional Entity] |
| | | «functional entity» |
| | | F_SCI_TDS_Report_Track_Circuit |
| | | → d46in_Reported_Ability_To_Be_Forced_To_Clear : Boolean |
| | | → d45in_Reported_TVPS_Occupancy_Status : String |
| | | → d47in_Report_POM_Status : String |
| | | P51out : SCI_TDS_Track_Circuits |
| | | p88inout : F_SCI_Specific |
| | | |
| Eu.TDS.6642 | Info | P51out |
| Eu. 1 D3.0042 | 1110 | |

Requirement Part 1

| | Requirement Part 2 | Func. Pkg. |
|---|--|-------------------|
| CKNOWLEDGEMENT} | | Option FC-P/-A |
| | | Option FC-P/-A |
| | | Option FC-P/-A |
| | | Option FC-P/-A |
| PING_TRAIN} | | Option FC-P/-A |
| | | Option FC-P/-A |
| | | Basic TDS AC |
| | | Option FC-P/-A |
| | | Option FC-P/-A |
| | | Basic TDS AC |
| | | Basic TDS AC |
| DY_FOR_PDI" OR d50in_PDI_Connection_State = "READY_FOR_PDI" OR d50in_PDI_Connection_State | | Basic TDS AC |
| | | Basic TDS TC |
| | | Basic TDS TC |
| | | |
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| | | |
| | The port P51out exchanges information objects according to SCI_TDS_Track_Circuits. | Basic TDS TC |



| Image: Control of the second | | Requirement Part 2 | Func. Pkg. |
|--|--|--------------------|-----------------|
| Bis 10 SECCI | | | Basic TDS TC |
| Basis TDS CCUPIED ImpOD_Connection_State = v V_FOR_PDI**08 | | | Basic TDS TC |
| Basic TDS Brown DS In POD Connection State - Y 10% POD Connection State - POM CON Connection State - POM CON POM CON POM CON POM CON Connection State - POM CON POM CON POM CON Constant Constant, Name Constant, Const, Constant, Constant | | | Basic TDS |
| Pack TDS 2** OK In: PDI Connection, State = 2 + OK = Ext** OK In: PDI Connection, State = 2 + OK = Ext** OK In: PDI Connection, State = 2 + OK = Ext** OK In: PDI Connection, State = 2 + OK = Ext** OK In: PDI Connection, State = 2 + OK = Ext** OK In: PDI Connection, State = 2 + OK = Ext** OK In: PDI Connection, State = 2 + OK = Ext*** OK In: PDI Connection, State = 2 + OK = Ext**** OK In: PDI Connection, State = 2 + OK = Ext************************************ | | | Basic TDS |
| Production State - | | | Basic TDS |
| <pre>Basic TDS TC TC Basic TDS TC TC Basic TDS TC CCCUPIED CCCUPIED CCCUPIED CCCUPIED CCCUPIED CCCUPIED CCCUPIED CCCUPIED CCCUPIED CCCUPIES CCCUPIE</pre> | | | Basic TDS |
| TC TC TC TC TC TC TC CCCUPIED CCCUPIED CCCUPIED CITE[/ Junctor2[st/m, Papert, POM, Status CCCUPIED CTTANASE TANA | | | |
| | <pre>bin_PDI_Connection_State = Y_FOR_PDI" OR OCCUPIED Isise]/ Junction2[dd7in_Report_POM_Status</pre> | | Basic TDS TC |
| | | | |
| | | | |

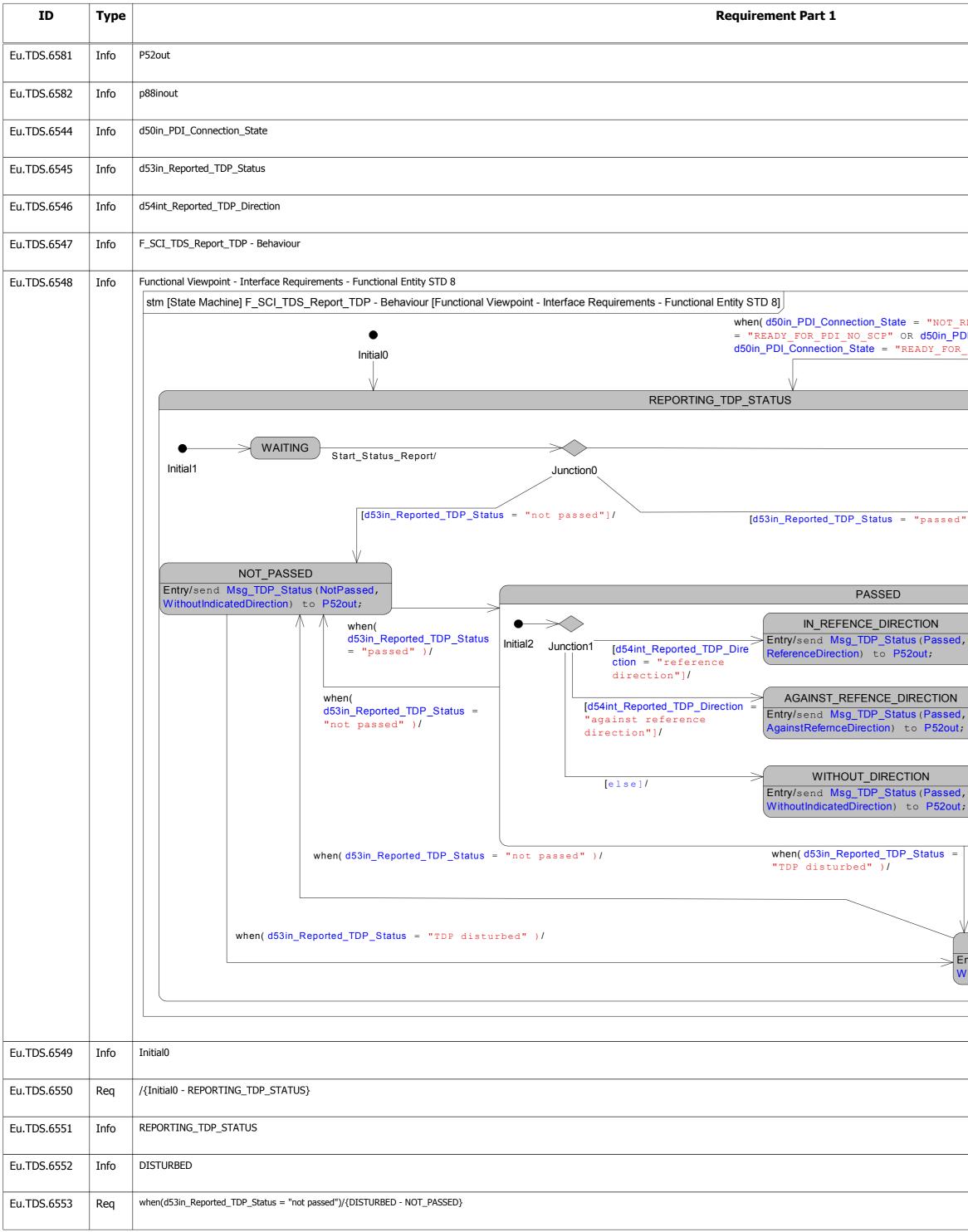
| Requirements spe | cincation | or subsystem TDS |
|------------------|-----------|---|
| ID | Туре | Requirement Part 1 |
| Eu.TDS.6591 | Info | InitialO |
| Eu.TDS.6592 | Req | /{Initial0 - REPORTING_OCCUPANCY_STATUS} |
| Eu.TDS.6593 | Info | REPORTING_OCCUPANCY_STATUS |
| Eu.TDS.6594 | Info | DISTURBED |
| Eu.TDS.6595 | Info | Initial4 |
| Eu.TDS.6596 | Req | /{Initial4 - Junction3} |
| Eu.TDS.6597 | Info | Junction3 |
| Eu.TDS.6598 | Req | [else]/{Junction3 - POM_NOK} |
| Eu.TDS.6599 | Req | [d47in_Report_POM_Status = "Power supply OK"]/{Junction3 - POM_OK} |
| Eu.TDS.6600 | Info | POM_NOK |
| Eu.TDS.6601 | Req | when(d47in_Report_POM_Status = "Power supply OK")/{POM_NOK - POM_OK} |
| Eu.TDS.6951 | Req | entry/send Msg_TVPS_Occupancy_Status(Disturbed, NotAble, NOK, 0, NotApplicable, Technical) to P51out;{State-internal in POM_NOK} |
| Eu.TDS.6602 | Info | POM_OK |
| Eu.TDS.6603 | Req | when(d47in_Report_POM_Status = "Power supply NOK")/{POM_OK - POM_NOK} |
| Eu.TDS.6952 | Req | entry/send Msg_TVPS_Occupancy_Status(Disturbed, NotAble, OK, 0, NotApplicable, Technical) to P51out;{State-internal in POM_OK} |
| Eu.TDS.6604 | Req | when(d45in_Reported_TVPS_Occupancy_Status = "TVPS is in state occupied")/{DISTURBED - OCCUPIED} |
| Eu.TDS.6605 | Req | when(d45in_Reported_TVPS_Occupancy_Status = "TVPS is in state vacant")/{DISTURBED - VACANT} |
| Eu.TDS.6607 | Info | Initial1 |
| Eu.TDS.6608 | Req | /{Initial1 - WAITING} |
| Eu.TDS.6609 | Info | Junction0 |
| Eu.TDS.6610 | Req | [else]/{Junction0 - DISTURBED} |
| Eu.TDS.6611 | Req | [d45in_Reported_TVPS_Occupancy_Status = "TVPS is in state occupied"]/{Junction0 - OCCUPIED} |
| Eu.TDS.6612 | Req | [d45in_Reported_TVPS_Occupancy_Status = "TVPS is in state vacant"]/{Junction0 - VACANT} |
| Eu.TDS.6613 | Info | OCCUPIED |
| Eu.TDS.6614 | Info | Initial3 |
| Eu.TDS.6615 | Req | /{Initial3 - Junction2} |
| Eu.TDS.6616 | Info | Junction2 |
| Eu.TDS.6617 | Req | [else]/{Junction2 - POM_NOK} |
| Eu TDS 6618 | Peq | [d47in Report POM Status = "Power supply OK"]/{]unction2 - POM OK} |

| Requirement Part 2 | Func. Pkg. |
|--------------------|-----------------|
| | Basic TDS TC |

| requirements 50 | concation | |
|-----------------|-----------|--|
| ID | Туре | Requirement Part 1 |
| Eu.TDS.6953 | Req | entry/send Msg_TVPS_Occupancy_Status(Occupied, NotAble, NOK, 0, NotApplicable, NotApplicable) to P51out;{State-internal in POM_NOK} |
| Eu.TDS.6621 | Info | POM_OK |
| Eu.TDS.6622 | Req | when(d47in_Report_POM_Status = "Power supply NOK")/{POM_OK - POM_NOK} |
| Eu.TDS.6954 | Req | entry/send Msg_TVPS_Occupancy_Status(Occupied, NotAble, OK, 0, NotApplicable, NotApplicable) to P51out;{State-internal in POM_OK} |
| Eu.TDS.6623 | Req | when(d45in_Reported_TVPS_Occupancy_Status = "TVPS is in state disturbed")/{OCCUPIED - DISTURBED} |
| Eu.TDS.6624 | Req | when(d45in_Reported_TVPS_Occupancy_Status = "TVPS is in state vacant")/{OCCUPIED - VACANT} |
| Eu.TDS.6626 | Info | VACANT |
| Eu.TDS.6627 | Info | Initial2 |
| Eu.TDS.6628 | Req | /{Initial2 - Junction1} |
| Eu.TDS.6629 | Info | Junction1 |
| Eu.TDS.6630 | Req | [else]/{Junction1 - POM_NOK} |
| Eu.TDS.6631 | Req | [d47in_Report_POM_Status = "Power supply OK"]/{Junction1 - POM_OK} |
| Eu.TDS.6632 | Info | POM_NOK |
| Eu.TDS.6633 | Req | when(d47in_Report_POM_Status = "Power supply OK")/{POM_NOK - POM_OK} |
| Eu.TDS.6955 | Req | entry/send Msg_TVPS_Occupancy_Status(Vacant, NotAble, NOK, 0, NotApplicable, NotApplicable) to P51out;{State-internal in POM_NOK} |
| Eu.TDS.6634 | Info | POM_OK |
| Eu.TDS.6635 | Req | when(d47in_Report_POM_Status = "Power supply NOK")/{POM_OK - POM_NOK} |
| Eu.TDS.6956 | Req | entry/send Msg_TVPS_Occupancy_Status(Vacant, NotAble, OK, 0, NotApplicable, NotApplicable) to P51out;{State-internal in POM_OK} |
| Eu.TDS.6636 | Req | when(d45in_Reported_TVPS_Occupancy_Status = "TVPS is in state occupied")/{VACANT - OCCUPIED} |
| Eu.TDS.6637 | Req | when(d45in_Reported_TVPS_Occupancy_Status = "TVPS is in state disturbed")/{VACANT - DISTURBED} |
| Eu.TDS.6639 | Info | WAITING |
| Eu.TDS.6640 | Req | Start_Status_Report/{WAITING - Junction0} |
| Eu.TDS.6641 | Req | when(d50in_PDI_Connection_State = "NOT_READY_FOR_PDI_NO_SCP" OR d50in_PDI_Connection_State = "READY_FOR_PDI_NO_SCP" OR d50in_PDI_Connection_State = "NOT_READY_F = "SUSPENDED")/{REPORTING_OCCUPANCY_STATUS - REPORTING_OCCUPANCY_STATUS} |
| Eu.TDS.6542 | Info | F_SCI_TDS_Report_TDP |
| Eu.TDS.6543 | Info | [Block] F_SCI_TDS_Report_TDP [Functional Viewpoint - Interface Requirements - Functional Entity] |
| | | ibd [Block] F_SCI_TDS_Report_TDP [Functional Viewpoint - Interface Requirements - Functional Entity] <pre> «functional entity» </pre> |
| | | F_SCI_TDS_Report_TDP |
| | | → d50in_PDI_Connection_State : String |
| | | → d53in_Reported_TDP_Status : String |
| | | d54int_Reported_TDP_Direction : String |
| | | P52out : SCI_TDS_TDP |
| | | p88inout : F_SCI_Specific |
| | | |

| | Requirement Part 2 | Func. Pkg. |
|---|--------------------|------------------|
| | | Basic TDS TC |
| _FOR_PDI" OR d50in_PDI_Connection_State = "READY_FOR_PDI" OR d50in_PDI_Connection_State | | Basic TDS TC |
| | | Basic TDS TDP |
| | | Basic TDS TDP |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |





| | Requirement Part 2 | Func. Pkg. |
|--|--|------------------|
| | The port P52out exchanges information objects according to SCI_TDS_TDP. | Basic TDS TDP |
| | | Basic TDS TDP |
| | The telegram Msg_TDP_Status will also be send in parallel to the Maintainer via TDS6 (Maintainer). | Basic TDS TDP |
| EADY FOR PDI NO_SCP" OR d50in_PDI_Connection_State | | Basic TDS TDP |
| | | Basic TDS TDP |

| Requirements spe | ecification | for subsystem TDS |
|------------------|-------------|--|
| ID | Туре | Requirement Part 1 |
| Eu.TDS.6554 | Req | when(d53in_Reported_TDP_Status = "passed")/{DISTURBED - PASSED} |
| Eu.TDS.6946 | Req | entry/send Msg_TDP_Status(Disturbed, WithoutIndicatedDirection) to P52out;{State-internal in DISTURBED} |
| Eu.TDS.6555 | Info | Initial1 |
| Eu.TDS.6556 | Req | /{Initial1 - WAITING} |
| Eu.TDS.6557 | Info | Junction0 |
| Eu.TDS.6558 | Req | [else]/{Junction0 - DISTURBED} |
| Eu.TDS.6559 | Req | [d53in_Reported_TDP_Status = "not passed"]/{Junction0 - NOT_PASSED} |
| Eu.TDS.6560 | Req | [d53in_Reported_TDP_Status = "passed"]/{Junction0 - PASSED} |
| Eu.TDS.6561 | Info | NOT_PASSED |
| Eu.TDS.6562 | Req | when(d53in_Reported_TDP_Status = "passed")/{NOT_PASSED - PASSED} |
| Eu.TDS.6563 | Req | when(d53in_Reported_TDP_Status = "TDP disturbed")/{NOT_PASSED - DISTURBED} |
| Eu.TDS.6947 | Req | entry/send Msg_TDP_Status(NotPassed, WithoutIndicatedDirection) to P52out;{State-internal in NOT_PASSED} |
| Eu.TDS.6564 | Info | PASSED |
| Eu.TDS.6565 | Info | AGAINST_REFENCE_DIRECTION |
| Eu.TDS.6566 | Req | when(d54int_Reported_TDP_Direction = "reference direction")/{AGAINST_REFENCE_DIRECTION - IN_REFENCE_DIRECTION} |
| Eu.TDS.6948 | Req | entry/send Msg_TDP_Status(Passed, AgainstRefernceDirection) to P52out;{State-internal in AGAINST_REFENCE_DIRECTION} |
| Eu.TDS.6567 | Info | IN_REFENCE_DIRECTION |
| Eu.TDS.6568 | Req | when(d54int_Reported_TDP_Direction = "against reference direction")/{IN_REFENCE_DIRECTION - AGAINST_REFENCE_DIRECTION} |
| Eu.TDS.6949 | Req | entry/send Msg_TDP_Status(Passed, ReferenceDirection) to P52out;{State-internal in IN_REFENCE_DIRECTION} |
| Eu.TDS.6569 | Info | Initial2 |
| Eu.TDS.6570 | Req | /{Initial2 - Junction1} |
| Eu.TDS.6571 | Info | Junction1 |
| Eu.TDS.6572 | Req | [d54int_Reported_TDP_Direction = "against reference direction"]/{Junction1 - AGAINST_REFENCE_DIRECTION} |
| Eu.TDS.6573 | Req | [d54int_Reported_TDP_Direction = "reference direction"]/{Junction1 - IN_REFENCE_DIRECTION} |
| Eu.TDS.6574 | Req | [else]/{Junction1 - WITHOUT_DIRECTION} |
| Eu.TDS.6575 | Req | when(d53in_Reported_TDP_Status = "not passed")/{PASSED - NOT_PASSED} |
| | 1 | |

Eu.TDS.6576

Eu.TDS.6577

Eu.TDS.6950

Eu.TDS.6578

Eu.TDS.6579

Req

Info

Req

Info

Req

WITHOUT_DIRECTION

Start_Status_Report/{WAITING - Junction0}

WAITING

when(d53in_Reported_TDP_Status = "TDP disturbed")/{PASSED - DISTURBED}

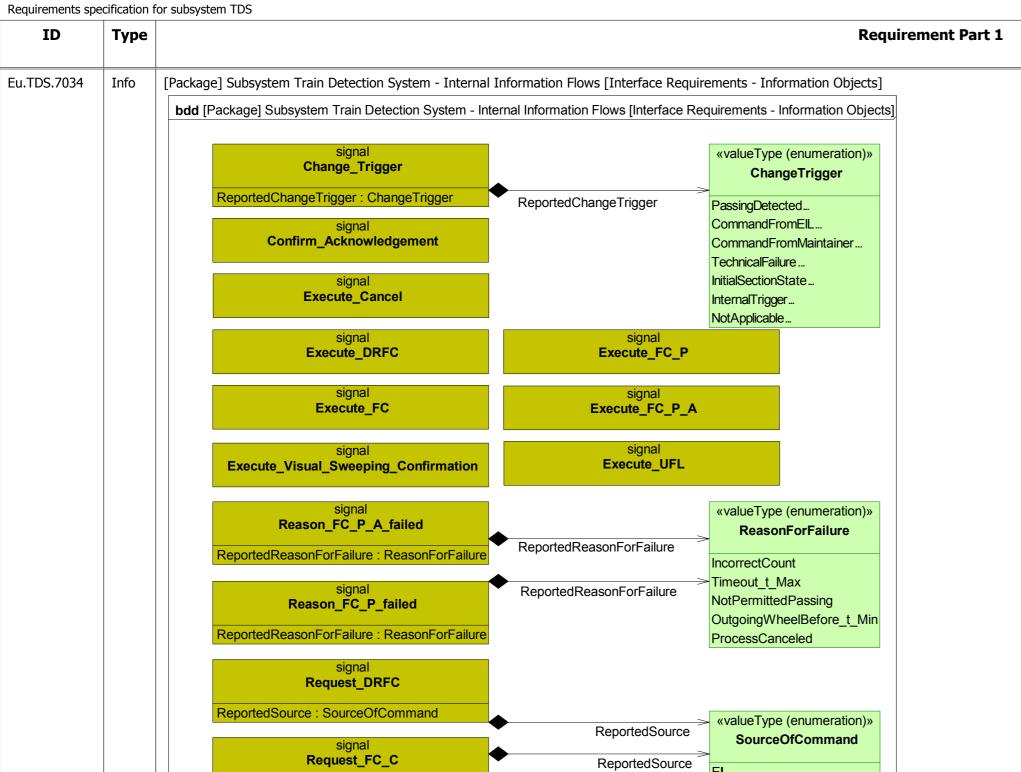
entry/send Msg_TDP_Status(Passed, WithoutIndicatedDirection) to P52out;{State-internal in WITHOUT_DIRECTION}

| Requirement Part 2 | Func. Pkg. |
|--------------------|------------------|
| | Basic TDS TDP |

| ID | Туре | Requirement Part 1 |
|-------------|------|--|
| Eu.TDS.6580 | Req | when(d50in_PDI_Connection_State = "NOT_READY_FOR_PDI_NO_SCP" OR d50in_PDI_Connection_State = "READY_FOR_PDI_NO_SCP" OR d50in_PDI_Connection_State = "NOT_READY_FOR_PDI = "SUSPENDED")/{REPORTING_TDP_STATUS - REPORTING_TDP_STATUS} |
| Eu.TDS.1193 | Head | 3.4.2 SMI-TDS (Subsystem - Maintenance and Data Management) |
| Eu.TDS.2545 | Info | The generic InformationFlows and the related FlowProperties through the SMI-TDS are specified in Eu.Doc.120. |
| Eu.TDS.234 | Head | 3.4.3 SDI-TDS (Subsystem - Maintenance and Data Management) |
| Eu.TDS.2544 | Info | The generic data points through the SDI-TDS are specified in Eu.Doc.94. |
| | | The specific data points through the SDI-TDS are specified in Eu.Doc.81. |
| Eu.TDS.7030 | Head | 3.4.4 SSI-TDS (Subsystem - Security Services Platform) |
| Eu.TDS.7031 | Info | The generic content through SSI-TDS is specified in Eu.Doc.117. |
| Eu.TDS.3589 | Head | 3.4.5 TDS1 (Basic Data identifier) |
| Eu.TDS.3590 | Info | The generic FlowSpecification and the related FlowProperties through TDS1 are specified in Eu.Doc.20. |
| Eu.TDS.205 | Head | 3.4.6 TDS6 (Maintainer) |
| Eu.TDS.4305 | Info | The generic FlowProperties through TDS6 are specified in Eu.Doc.20. |
| Eu.TDS.206 | Info | Maintainer |
| Eu.TDS.1962 | Req | Cd_DRFC |
| Eu.TDS.6855 | Req | Cd_FC |
| Eu.TDS.7059 | Req | Cd_Visual_Sweeping_Confirmed |
| Eu.TDS.6856 | Req | Msg_Command_Rejected |
| Eu.TDS.6858 | Req | Msg_TVPS_Occupancy_Status |
| Eu.TDS.7125 | Req | Msg_TDP_Status |
| Eu.TDS.1177 | Head | 3.4.7 SCI-ACS (Subsystem - Train Detection System) |
| Eu.TDS.1178 | Info | Subsystem_Train_Detection_System |
| 1 | 1 | |

| | Requirement Part 2 | Func. Pkg. |
|---|---|--|
| _READY_FOR_PDI" OR d50in_PDI_Connection_State = "READY_FOR_PDI" OR d50in_PDI_Connection_State | | Basic TDS TDP |
| | | |
| | | Basic TDS AC Basic TDS |
| | | TDP Basic TDS |
| | | ТС |
| | | Basic TDS AC |
| | | Basic TDS TDP Basic TDS TC |
| | | Basic TDS |
| | | AC Basic TDS TDP |
| | | Basic TDS TC |
| | | Basic TDS |
| | | AC Basic TDS TDP Basic TDS TC |
| | | |
| | | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | The functional Local Control and Display Interface to the Maintainer. The InformationFlow through the Interface is defined by the FlowSpecification "Maintainer". | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | Command (Cd) to execute the "Disable the restriction to force section status to clear" (DRFC) operation to the Subsystem - Train Detection System. | Basic TDS AC |
| | Command (Cd) to the Subsystem - Train Detection System to force section status to clear. The following FC-Modes are permitted via TDS6 (Maintainer): FC-C FC-U | Basic TDS AC |
| | Command (Cd) to the Subsystem - Train Detection System to confirm a successful sweeping while FC-P or FC-P-A. | Option FC-P/-A |
| | Message (Msg) from Subsystem - Train Detection System, that the previously sent command was rejected. | Basic TDS AC |
| | Message (Msg) from Subsystem - Train Detection System with the current status of the TVPS. | Basic TDS AC Basic TDS TC |
| | Message (Msg) from Subsystem - Train Detection System with the current status of the TDP. | Basic TDS TDP |
| | The Interface SCI-ACS may be defined in later deliveries. | Basic TDS |
| | | AC Basic TDS TDP Basic TDS TC |

| ID | Туре | Requirement Part | 1 Requirement Part 2 Func. Pkg. |
|-------------|------|---|--|
| Eu.TDS.210 | Head | 3.4.8 TDS2 (Wheel) | |
| Eu.TDS.211 | Info | Wheel | Definition of the InformationFlow (FlowSpecification) for the TDS2 (Wheel). Basic TD TDP Basic TD TC |
| Eu.TDS.213 | Req | Passing_Detected | Recognising of a passing of a Detection Point by a Wheel. Basic TD TDP |
| Eu.TDS.1202 | Req | Occupancy_Detected | Recognising a changing occupancy of a track circuit by a Basic TD Wheel. |
| Eu.TDS.2486 | Req | Not_Permitted_Passing_Detected | Recognising the passing of a Detection Point, which is not permitted by configuration, during execution of an FC-P or FC-P-A command.Option FC-P/-ANote: The distinction whether a passing point is permitted or not permitted, during execution of an FC-P or FC-P-A command, may also dynamically depend on other detected passing axles of a sweeping train. The applicable conditions to distinguish between a successful and an unsuccessful sweeping train can be provided asOption FC-P/-A |
| Eu.TDS.7032 | Head | 3.5 Subsystem Train Detection System - Internal Information Flows | part of configuration data. |



ReportedSource : SourceOfCommand

ReportedSource : SourceOfCommand

signal Request_FC_U

signal Request_FC_P

signal Request_FC_P_A

signal Request_UFL

EL.

ReportedSource

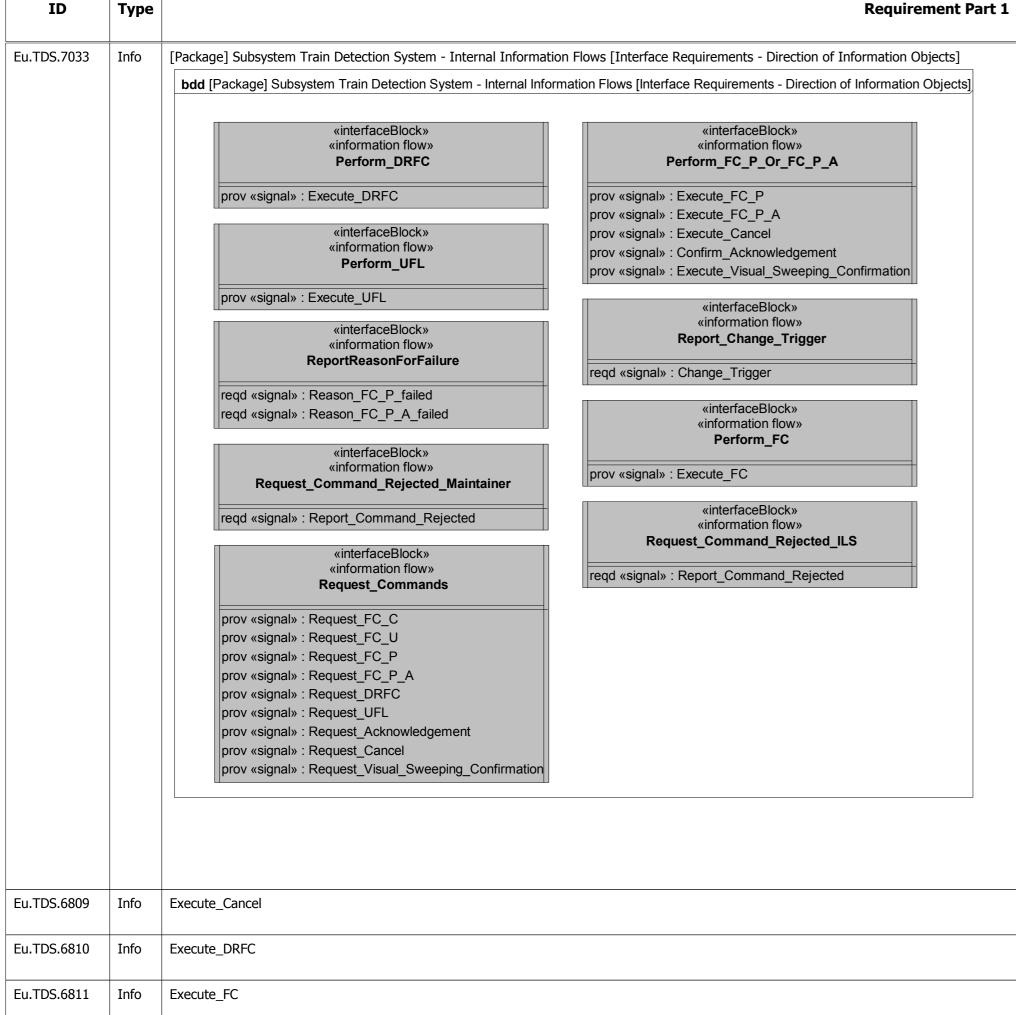
signal
Request_Acknowledgement

signal Request_Cancel

signal
Request_Visual_Sweeping_Confirmation

Maintainer... Internal...

| Requirement Part 2 | Func. Pkg. |
|--------------------|---|
| | Basic TDS AC Option FC-P/-A Option Update FL |
| | |
| | |
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| Eu.TDS.6810 | Info | Execute_DRFC |
|-------------|------|--------------------------------------|
| Eu.TDS.6811 | Info | Execute_FC |
| Eu.TDS.6812 | Info | Execute_FC_P |
| Eu.TDS.6813 | Info | Execute_FC_P_A |
| Eu.TDS.6814 | Info | Execute_UFL |
| Eu.TDS.6815 | Info | Execute_Visual_Sweeping_Confirmation |
| Eu.TDS.6827 | Info | Reason_FC_P_A_failed |
| Eu.TDS.6826 | Info | Report_Command_Rejected |
| Eu.TDS.6828 | Info | Reason_FC_P_failed |
| Eu.TDS.6829 | Info | Request_Acknowledgement |
| Eu.TDS.6833 | Info | Request_DRFC |

| Requirement Part 2 | Func. Pkg. |
|--------------------|---|
| | Basic TDS AC Option FC-P/-A Option Update FL |
| | |
| | |
| | |
| | |
| | |
| | Option FC-P/-A Basic TDS AC Basic TDS AC |
| | Option FC-P/-A |
| | Option FC-P/-A |
| | Option Update FL |
| | Option FC-P/-A |
| | Option FC-P/-A |
| | Basic TDS AC |
| | Option FC-P/-A |
| | Option FC-P/-A |
| | Basic TDS AC |

| ID | Туре | Requirement Part 1 |
|--------------|------|--|
| Eu.TDS.6834 | Info | Request_FC_C |
| Eu.TDS.6835 | Info | Request_FC_P |
| Eu.TDS.6836 | Info | Request_FC_P_A |
| Eu.TDS.6837 | Info | Request_FC_U |
| Eu.TDS.6838 | Info | Request_UFL |
| Eu.TDS.6839 | Info | Request_Visual_Sweeping_Confirmation |
| Eu.TDS.6807 | Info | Change_Trigger |
| Eu.TDS.6808 | Info | Confirm_Acknowledgement |
| Eu.TDS.6830 | Info | Request_Cancel |
| Eu.TDS.1937 | Head | 4 RAMSS requirements |
| Eu.TDS.1938 | Info | The requirements for reliability, availability, maintainability, safety and security are specified in [Eu.Doc.20]. |
| | | |
| Eu.TDS.1947 | Head | 5 Technical requirements |
| Eu.TDS.2056 | Info | The generic technical requirements are specified in [Eu.Doc.20]. |
| | | |
| | | |
| Eu.TDS.1948 | Head | 5.1 Specific technical interface requirements |
| Eu.TDS.1949 | Head | 5.1.1 Interface to the Point of Service Signalling (PoS-Signalling) |
| Eu.TDS.1950 | Req | Via the technical interface PoS-Signalling the data of the functional interface "SCI-TDS" shall be exchanged with the Subsystem - Electronic Interlocking as specified in [E |
| | | |
| Eu.TDS.1951 | Req | Via the technical interface PoS-Signalling the data of the functional interface "SMI-TDS" shall be exchanged with the Subsystem - Maintenance and Data Management as |
| | | |
| F., TDC 1052 | Des | |
| Eu.TDS.1952 | Req | Via the technical interface PoS-Signalling the data of the functional interface "SDI-TDS" shall be exchanged with the Subsystem - Maintenance and Data Management as |
| | | |
| Eu.TDS.7012 | Req | Via the technical interface PoS-Signalling the data of the functional interface "SSI-TDS" shall be exchanged with the Subsystem - Maintenance and Data Management as |
| | | |
| Eu.TDS.2026 | Head | E 1 2 Interfaces to additional navinheral evolutions of the Subaveters - Train Detection Sustains |
| | | 5.1.2 Interfaces to additional peripheral systems of the Subsystem – Train Detection System |
| Eu.TDS.2027 | Info | These requirements shall be defined by national specifications. Note: In future phases of the System Pillar, national specifications will be replaced by harmonised specifications. |
| | | |
| Eu.TDS.1983 | Head | 5.2 Time behaviour |
| | | |

| | Requirement Part 2 | Func. Pkg. |
|------------------------------|--------------------|-------------------------------------|
| | | Basic TDS AC |
| | | Option FC-P/-A |
| | | Option FC-P/-A |
| | | Basic TDS AC |
| | | Option Update FL |
| | | Option FC-P/-A |
| | | Basic TDS AC |
| | | Option FC-P/-A |
| | | Option FC-P/-A |
| | | |
| | | Basic TDS AC Basic TDS |
| | | TDP Basic TDS TC |
| | | |
| | | Basic TDS AC |
| | | Basic TDS TDP Basic TDS TC |
| | | |
| [Eu.Doc.92]. | | Basic TDS AC |
| | | Basic TDS TDP Basic TDS |
| | | ТС |
| as specified in [Eu.Doc.76]. | | Basic TDS AC Basic TDS |
| | | TDP Basic TDS TC |
| as specified in [Eu.Doc.77]. | | Basic TDS AC |
| | | Basic TDS TDP Basic TDS TC |
| s specified in [Eu.Doc.117]. | | Basic TDS AC |
| | | Basic TDS TDP Basic TDS TC |
| | | |
| | | Basic TDS AC Basic TDS |
| | | Basic TDS TDP Basic TDS TC |
| | | |

| ID | Туре | Requirement Part 1 | | | |
|-------------|------|---|--|--|--|
| Eu.TDS.2097 | Info | These requirements shall be defined by national specifications. Note: In future phases of the System Pillar, national specifications will be replaced by harmonised specifications. | | | |
| Eu.TDS.7129 | Info | 5.2.1 Response times | | | |
| Eu.TDS.7130 | Req | The Subsystem Train Detection System shall send the corresponding message telegram to the Subsystem - Electronic Interlocking within 500 ms after the detection of a disturbed. | | | |
| Eu.TDS.7131 | Req | The Subsystem Train Detection System shall send the corresponding message telegram to the Subsystem - Electronic Interlocking within 500 ms after the detection of Note: If there is a delay of notification of availability defined in the relevant UseCase the required response time starts after the expiration of the delay. | | | |
| Eu.TDS.7132 | Req | The Subsystem Train Detection System shall send the corresponding message telegram (new TVPS status or rejection of the command) to the Subsystem - Electronic | | | |
| Eu.TDS.7133 | Req | The Subsystem Train Detection System shall send the corresponding message telegram to the Subsystem - Electronic Interlocking within 500 ms after the detection of a | | | |
| Eu.TDS.7134 | Req | The Subsystem Train Detection System shall send the corresponding message telegram to the Subsystem - Electronic Interlocking within 700 ms after the detection of a | | | |
| Eu.TDS.7135 | Req | The Subsystem Train Detection System shall send the corresponding message telegram to the Subsystem - Electronic Interlocking within 500 ms after the detection of a Note: If there is a TDP delay defined in the relevant UseCase the required response time starts after the expiration of the delay. | | | |
| Eu.TDS.1988 | Head | 5.3 Configuration and engineering data | | | |
| Eu.TDS.1989 | Head | 5.3.1 Specific data | | | |
| Eu.TDS.1990 | Req | The specific configuration and engineering data for the Subsystem – Train Detection System shall include as a minimum the following information: | | | |
| Eu.TDS.4857 | Req | • Composition of TVPS by the mapping of detection point per each TDS. | | | |
| Eu.TDS.7167 | Req | • Composition of TDP by the mapping of detection point per each TDS. | | | |
| Eu.TDS.4881 | Req | The handling of the ability to force a TVPS to clear in the state disturbed, reason operational according to Variant A and B. Note: The functional differences between these variants is explained in section Eu.TDS.6525 | | | |
| Eu.TDS.4880 | Req | • The permissible FC-modes per each TVPS and per source of the command (Electronic Interlocking, Maintainer or from internal). | | | |
| Eu.TDS.7037 | Req | • The usage of the DRFC-command per each TVPS and per source of the command (Electronic Interlocking or Maintainer). | | | |
| Eu.TDS.7039 | Req | • The usage of the UFL-command per each TVPS. | | | |
| Eu.TDS.4858 | Req | • The applicable timers defined in chapter Definition of time values (Eu.TDS.1211) per each TVPS. | | | |
| Eu.TDS.5417 | Req | • The usage of axle counter or track circuits to determine the occupancy of the TVPS per each TVPS. | | | |
| Eu.TDS.7038 | Req | • The detection of the direction of a passing per each TDP. | | | |
| Eu.TDS.5732 | Req | • Possibility to configure the detection point as not permitted for FC-P or FC-P-A. | | | |
| Eu.TDS.1997 | Info | Two different data sections can be loaded which are the safety-relevant data and the non safety-relevant data. The following definitions apply to the assignment of the s | | | |
| Eu.TDS.1999 | Req | • configuration data, such as the IP addresses of the Subsystem - Electronic Interlocking, the value of the diagnostic data points with attribute type 'configuration', is | | | |

| | Requirement Part 2 | Func. Pkg. |
|---|--------------------|---|
| | | Basic TDS AC Basic TDS TDP Basic TDS TC |
| wheel that changes the status of the TVPS, which works with axle counters, to occupied or | | Basic TDS AC |
| wheel that changes the status of the TVPS, which works with axle counters, to vacant. | | Basic TDS AC |
| erlocking within 500 ms after receiving an FC-command. | | Basic TDS AC |
| wheel that changes the status of the TVPS, which works with track circuits, to occupied. | | Basic TDS TC |
| wheel that changes the status of the TVPS, which works with track circuits, to vacant. | | Basic TDS TC |
| wheel that changes the status of the TDP. | | Basic TDS TDP |
| | | |
| | | Basic TDS AC Basic TDS TDP Basic TDS TC |
| | | Basic TDS AC |
| | | Basic TDS TDP |
| | | Basic TDS AC |
| | | Basic TDS AC Option FC-P/-A |
| | | Basic TDS AC |
| | | Option Update FL |
| | | Basic TDS AC Basic TDS TDP Basic TDS TC Option FC-P/-A |
| | | Basic TDS AC Basic TDS TC |
| | | Basic TDS TDP |
| ections: | | Option FC-P/-A Basic TDS AC Basic TDS TDP Basic TDS TC |
| not safety-relevant. This data shall be used to calculate the CSNS. | | Basic TDS AC Basic TDS TDP Basic TDS TC |

| ID | Туре | Requirement Part 1 | Requirement Part 2 | Func. Pkg. |
|-------------|------|---|--------------------|--|
| Eu.TDS.2005 | Req | • The remaining configuration data is currently categorised as safety-relevant. This data shall be used to calculate the CSS. | | Basic TDS AC Basic TDS TDP Basic TDS TC |
| Eu.TDS.2006 | Req | • The engineering data is safety-relevant. This data shall be used to calculate the CSS. | | Basic TDS AC Basic TDS TDP Basic TDS TC |