EULYNX Initiative

Europe's Rail Joint Undertaking

Requirements specification for subsystem Light Signal

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Contents

1 Introduction 1
1.1 Release information 1
1.2 Impressum 1
1.3 Purpose 1
1.4 Applicable standards and regulations 1
1.5 Applicable documents 1
1.6 Terms and abbreviations 2
1.7 Variability management 2
1.8 Definition of object types 2
1.9 Modelling 2

2 Conditions of use 2
2.1 Functional packages 2

3 Functional requirements specification 2
3.1 Subsystem Light Signal - General Infos and Assumptions 2
3.2 Subsystem Light Signal - Logical Viewpoint 2
3.2.1 Subsystem Light Signal - Logical Context 2
3.3 Subsystem Light Signal - Functional Viewpoint 3
3.3.1 Definition of time values 3
3.3.2 Subsystem Light Signal - Functional Context 3
3.3.3 Subsystem Light Signal - Functional Partitioning 18
3.3.4 Subsystem Light Signal - Functional Architecture 19
3.3.5 Subsystem Light Signal - Functional Entities 21
3.4 Subsystem Light Signal - Interfaces 29
3.4.1 SCI-LS (Subsystem - Electronic Interlocking) 29
3.4.1.1 SCI-LS - Logical Viewpoint 29
3.4.1.1.1 SCI-LS - Logical Context 29
3.4.1.2 SCI-LS - Information Flows 29
3.4.1.3 SCI-LS - Functional Viewpoint 31
3.4.1.3.1 SCI-LS - Functional Partitioning 31
3.4.1.3.2 SCI-LS - Functional Architecture 31
3.4.1.3.3 SCI-LS - Functional Entities 31
3.4.2 SMI-LS (Subsystem - Maintenance and Data Management) 38
3.4.3 SDI-LS (Subsystem - Maintenance and Data Management) 38
3.4.4 SSI-LS (Subsystem - Security Services Platform) 38
3.4.5 LS2 (Train driver) 38
3.4.6 LS3 (Indicator) 39
3.4.7 LS4 (Eurobalise) 39
3.4.8 LS5 (Legacy train protection system) 39
3.4.9 LS6 (Basic Data Identifier) 39
3.4.10 LS7 (Maintainer) 39

4 RAMSS requirements 39

5 Technical requirements 39
5.1 Specific technical interface requirements 39
5.1.1 Interface to the Point of Service Signalling (PoS-Signalling) 39
5.1.2 Interface to the Legacy train protection system 40
5.1.3 Interface to the Eurobalise 40
5.1.4 Interface to the Indicator 40
5.2 Time behaviour 40
5.2.1 Response times 40
5.2.2 Flashing cycle 40
5.3 Configuration and engineering data 40
5.3.1 Specific data 40

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ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.12	Head	**1 Introduction**		
Eu.LS.13	Head	**1.1 Release information**		
Eu.LS.14	Info	[Eu.Doc.32] Requirements specification for subsystem Light Signal CENELEC Phase: 4 Version: 4.2 (0.A) Approval date: 15.06.2023		
Eu.LS.5725	Info	**Version history**		
Eu.LS.7627	Info	version number: 4.0 (0.A) date: 16.05.2022 author: Filip Giering model version: 18 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: EULS-384, EULS-388, EULS-389, EULS-391		
Eu.LS.7628	Info	version number: 4.1 (0.A) date: 24.03.2023 author: Filip Giering 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: changes: EULS-396, EULS-405		
Eu.LS.7749	Info	version number: 4.1 (1.A) date: 11.05.2023 author: Filip Giering, Dominik Smajgl model version: 22 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: EULS-406, EULS-408, EULS-410, EULS-412, EULS-413, EULS-414, EULS-418		
Eu.LS.7791	Info	version number: 4.2 (0.A) date: 27.06.2023 author: Filip Giering 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: EULS-409, EULS-419, EULS-421, EULS-422, EULS-423, EULS-424		
Eu.LS.15	Head	**1.2 Impressum**		
Eu.LS.16	Info	Publishers: **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.LS.5683	Info	Responsible for this document: EU-Rail System Pillar Trackside Assets Control and Supervision domain		
Eu.LS.5719	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.LS.18	Head	**1.3 Purpose**		
Eu.LS.19	Info	The purpose of the document is the specification of requirements for the Subsystem - Light Signal.		
Eu.LS.20	Info	This document describes functional, non-functional and technical requirements for the Subsystem - Light Signal and functional requirements for interface SCI-LS.		
Eu.LS.21	Info	This document is intended for the following users: • safety authorities • infrastructure managers • safety assessors • signalling system suppliers • validators		
Eu.LS.22	Info	This document is the basis for the implementation by the supplier and for approval by the infrastructure manager.		
Eu.LS.7790	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.LS.23	Head	**1.4 Applicable standards and regulations**		
Eu.LS.24	Info	A list of applicable standards and regulations used in EULYNX is listed in the EULYNX Reference Document List [Eu.Doc.12].		
Eu.LS.36	Head	**1.5 Applicable documents**		

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ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.37	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 documents are displayed in the Appendix A1 Documentation plan and structure [Eu.Doc.11_A1].		
Eu.LS.67	Head	**1.6 Terms and abbreviations**		
Eu.LS.68	Info	The terms and abbreviations are listed in the EULYNX Glossary [Eu.Doc.9].		
Eu.LS.103	Head	**1.7 Variability management**		
Eu.LS.104	Info	This document describes harmonised requirements. Variability management is not applicable.		
Eu.LS.105	Head	**1.8 Definition of object types**		
Eu.LS.106	Info	The following definition for object types is applied in this document:		
Eu.LS.107	Info	• "Req" - This denotes a mandatory requirement.		
Eu.LS.108	Info	• "Info" - This denotes additional information to help understand the specification. These objects do not specify any additional requirements.		
Eu.LS.109	Info	• "Head" - This denotes chapter headings.		
Eu.LS.70	Head	**1.9 Modelling**		
Eu.LS.71	Info	The section "Functional requirements specification" follows a model based systems engineering process using Systems Modelling Language (SysML) and defines the functional system requirements for the Subsystem - Light Signal operational in stimulus-response form. Furthermore the information objects (stimuli and responses) exchanged over the interfaces of the Subsystem - Light Signal are defined.		
Eu.LS.73	Info	The diagrams presented in this document are modelled in SysML [SysML].		
Eu.LS.6034	Info	The rules for the interpretation of the model based parts of specification are defined in [Eu.Doc.29].		
Eu.LS.5733	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 as a surrogate of this model in the form of DOORS-objects.		
Eu.LS.5732	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.LS.5731	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 is given. The stated object type normally applies both to “Requirement Part 1” and to “Requirement Part 2”.		
Eu.LS.6035	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 type only applies to the column "Requirement Part 1" and the part of "Requirement Part 2", which is not labelled as "Information".		
Eu.LS.120	Head	**2 Conditions of use**		
Eu.LS.6839	Req	All references to Eu.Doc.20 refer to version 4.0 (3.A) of that document.		
Eu.LS.7622	Req	All references to Eu.Doc.119 refer to version 1.0 (3.A) of that document.		
Eu.LS.7623	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.LS.121	Info	The specifications defined in this document shall follow the requirements of the EULYNX System Architecture Specification [Eu.Doc.16].		
Eu.LS.7504	Head	**2.1 Functional packages**		
Eu.LS.7505	Info	The specifications in this document are divided into functional packages. There are two types of packages related to the product capabilities.		
Eu.LS.7506	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.LS.7507	Info	‘Optional package’: One or more packages that can be optionally implemented in addition to one or more basic packages.		
Eu.LS.7508	Info	The specifications of the Subsystem – Light Signal are divided into the following functional packages:		
Eu.LS.7509	Info	Basic Light Signal functionality (basic package) [Basic LS]		
Eu.LS.7510	Info	Interface to Eurobalise (optional package) [Option LS4]		
Eu.LS.7511	Info	Interface to Legacy train protection system (optional package) [Option LS5]		
Eu.LS.4629	Head	**3 Functional requirements specification**		
Eu.LS.7484	Head	**3.1 Subsystem Light Signal - General Infos and Assumptions**		
Eu.LS.6818	Info	The defined model elements represent the Subsystem - Light Signal in a general way. This refers to: -The defined number of Signal Aspects in the state diagrams and IBDs is limited to Signal Aspect 1, Signal Aspect 2 and most restrictive Signal Aspect. For complete implementation the Signal Aspect table [Eu.Doc.37] shall be taken into account. -The downgrading of the Signal Aspect modelled in sequence from Signal Aspect 1 down to Signal Aspect 2 down to most restrictive Signal Aspect.		Basic LS
Eu.LS.7493	Head	**3.2 Subsystem Light Signal - Logical Viewpoint**		
Eu.LS.7598	Head	**3.2.1 Subsystem Light Signal - Logical Context**		

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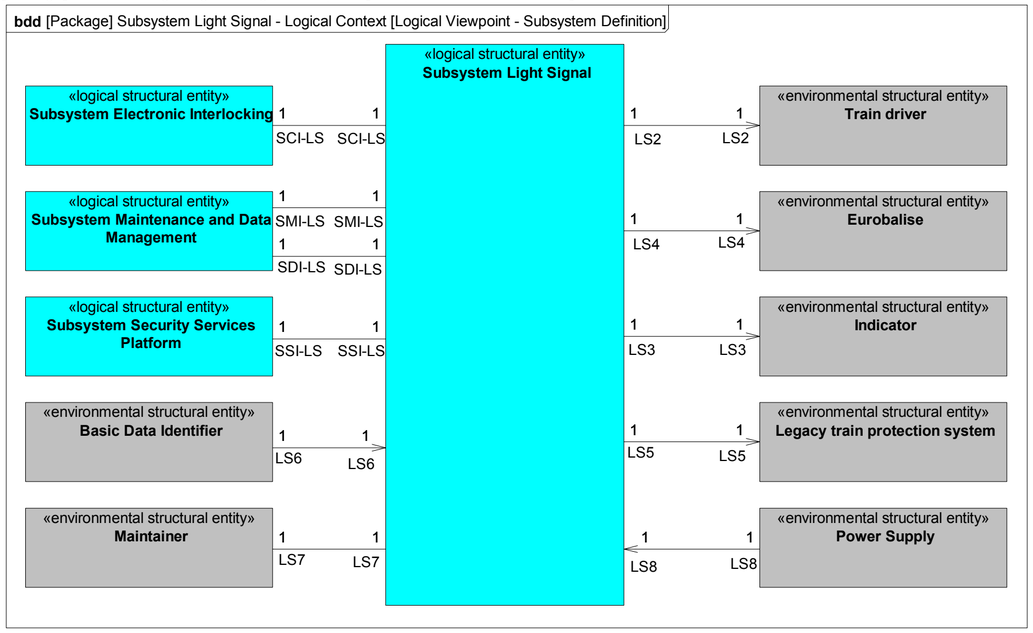
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.4772	Info	[Package] Subsystem Light Signal - Logical Viewpoint [Subsystem Definition Context] 	The Subsystem Light Signal shall provide the technical interfaces shown in the "[Package] Subsystem Light Signal - Logical Context [Logical Viewpoint - Subsystem Definition]". Each interface shall allow the connection to the corresponding actors shown in the quantities defined in the multiplicities.	Basic LS
Eu.LS.4784	Head	**3.3 Subsystem Light Signal - Functional Viewpoint**		
Eu.LS.5674	Head	**3.3.1 Definition of time values**		
Eu.LS.6106	Info	The generic time values for SCI are specified in Eu.Doc.119.		Basic LS
Eu.LS.7625	Info	The generic time values for SMI are specified in Eu.Doc.120.		Basic LS
Eu.LS.4843	Head	**3.3.2 Subsystem Light Signal - Functional Context**		

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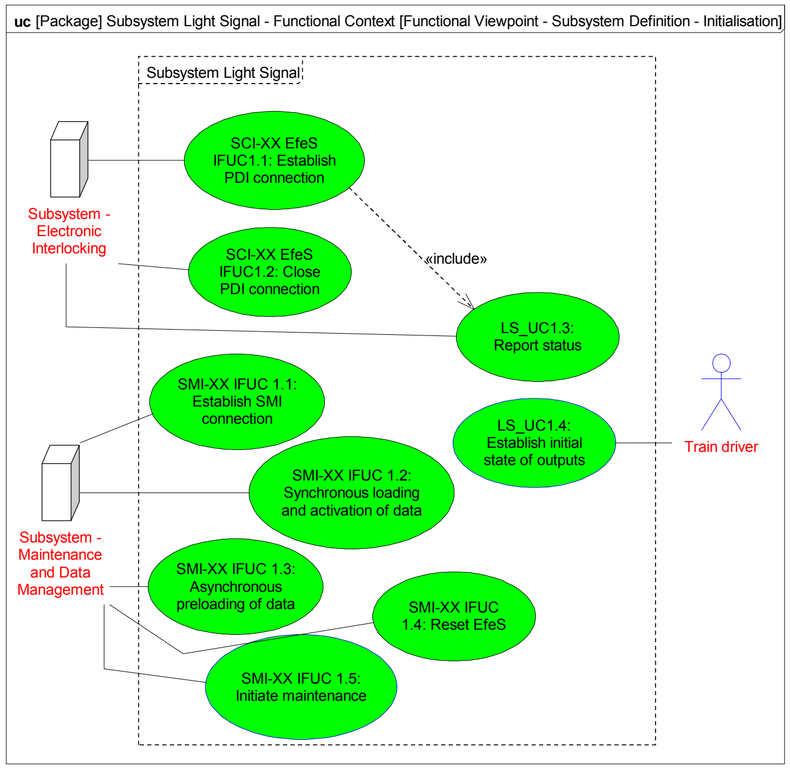
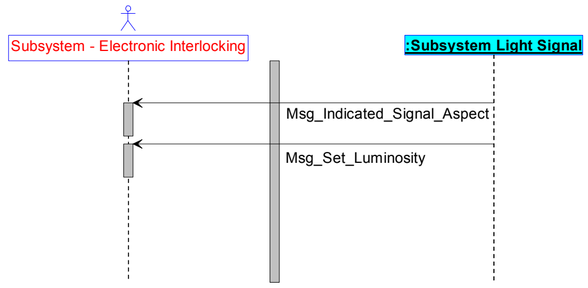
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5088	Info	[Package] Subsystem Light Signal - Functional Context [UseCase Definition Initialisation] 		Basic LS
Eu.LS.6108	Info	The generic UseCases SCI-XX EfeS IFUC1.1: Establish PDI connection and SCI-XX EfeS IFUC1.2: Close PDI connection are specified in Eu.Doc.119. The generic UseCases SMI-XX IFUC 1.1: Establish SMI connection, SMI-XX IFUC 1.2: Synchronous loading and activation of data, SMI-XX IFUC 1.3: Asynchronous preloading of data, SMI-XX IFUC 1.4: Reset EfeS and SMI-XX IFUC 1.5: Initiate maintenance are specified in Eu.Doc.120.		Basic LS
Eu.LS.4974	Info	LS_UC1.3: Report status	The Subsystem-UseCase LS_UC1.3: Report status defines a scenario about the transmission of status data of the Subsystem Light Signal to the Subsystem - Electronic Interlocking, while Process Data Interface protocol connection is establishing.	Basic LS
Eu.LS.4975	Info	LS SD 1.3.1 **LS_UC1.3: Report status** Main Success Scenario: Report status [LS SD 1.3.1] **1.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking of the indicated Signal Aspect. **2.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking of the set Luminosity. 	If a change of state occurs whilst establishing the PDI connection and the corresponding status message for the previous state has already been sent, a new status message shall be sent to the Subsystem - Electronic Interlocking as soon as the connection has been fully established.	Basic LS
Eu.LS.4979	Info	LS_UC1.4: Establish initial state of outputs	The Subsystem-UseCase LS_UC1.4: Establish initial state of outputs state defines the main success scenario and the alternative scenario for establishing the initial state of outputs of the Subsystem Light Signal.	Basic LS

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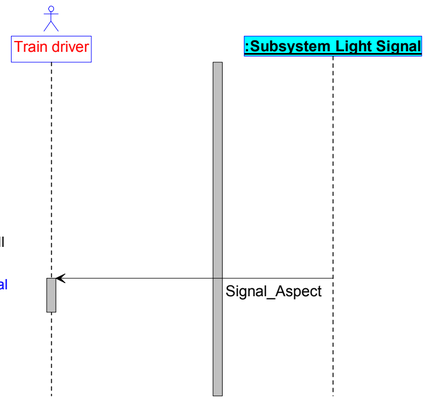
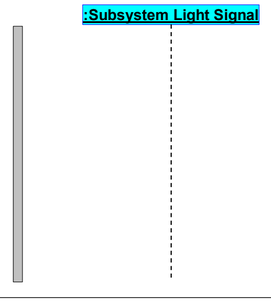
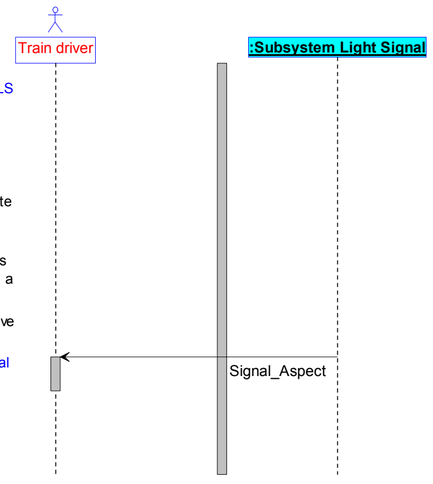
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5079	Info	LS SD 1.4.1 **LS_UC1.4: Establish initial state of outputs** Main Success Scenario: Establish initial state of outputs [LS SD 1.4.1] **Precondition:** The Subsystem Light Signal is in the state BOOTING or INITIALISING. **Interaction 1.4.1.A:** **1.** - The Subsystem Light Signal detects the readiness to establish the initial state of outputs. **2.** The Signal Aspect most restrictive Signal Aspect is not yet indicated in conformity with the current configuration and can be indicated uniformly across all Lamps in the configured default Luminosity for the entire Signal Aspect. **3.** The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the configured default Luminosity. **Postcondition:** The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the configured default Luminosity. Initial state of outputs established. 		Basic LS
Eu.LS.4980	Info	LS SD 1.4.2 **LS_UC1.4: Establish initial state of outputs** Alternative Scenario: Initial state of outputs already established [LS SD 1.4.2] **Precondition:** The Subsystem Light Signal is in the state BOOTING or INITIALISING. Initial state of outputs established. **Interaction 1.4.2.A:** **1.** - The Subsystem Light Signal detects the readiness to establish the initial state of outputs. **2.** The Signal Aspect most restrictive Signal Aspect is already indicated in conformity with the current configuration. **Postcondition:** --- 		Basic LS
Eu.LS.4996	Info	LS SD 1.4.3 **LS_UC1.4: Establish initial state of outputs** Alternative Scenario: Luminosity failure during signal aspect activation - case 1 [LS SD 1.4.3] **Precondition:** The Subsystem Light Signal is in the state BOOTING or INITIALISING. **Interaction 1.4.3.A:** **1.** - The Subsystem Light Signal detects the readiness to establish the initial state of outputs. **2.** The Signal Aspect most restrictive Signal Aspect is not yet indicated in conformity with the current configuration and cannot be indicated uniformly across all Lamps in the configured default Luminosity for the entire Signal Aspect due to a fault of the Luminosity. **3.** The Signal Aspect can be indicated uniformly across all Lamps in the alternative Luminosity for the entire Signal Aspect. **4.** The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the alternative Luminosity. **Postcondition:** The Subsystem Light Signal indicates the signal aspect most restrictive Signal Aspect in the alternative Luminosity. Initial state of outputs established. 		Basic LS

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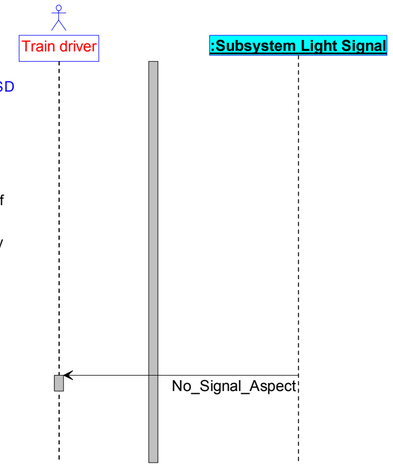
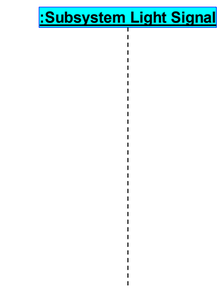
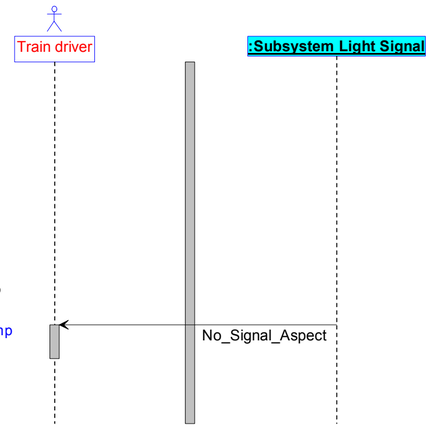
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5006	Info	LS SD 1.4.4 **LS_UC1.4: Establish initial state of outputs** Alternative Scenario: Luminosity failure during signal aspect activation - case 2 [LS SD 1.4.4] **Precondition:** The Subsystem Light Signal is in the state BOOTING or INITIALISING. **Interaction 1.4.4.A:** **1.** - The Subsystem Light Signal detects the readiness to establish the initial state of outputs. **2.** The Signal Aspect most restrictive Signal Aspect is not yet indicated in conformity with the current configuration and cannot be indicated uniformly across all Lamps in the configured default Luminosity for the entire Signal Aspect due to a fault of the Luminosity. **3.** The Signal Aspect most restrictive Signal Aspect cannot be indicated uniformly across all Lamps in the alternative Luminosity for the entire Signal Aspect due to a fault of the Luminosity or an unchangeable set Luminosity. **4.** - The Subsystem Light Signal indicates No Signal Aspect. **5.** The Subsystem Light Signal generates the event T5_SIL_Not_Fulfilled. **Postcondition:** ---		Basic LS
Eu.LS.4988	Info	LS SD 1.4.5 **LS_UC1.4: Establish initial state of outputs** Alternative Scenario: Lamp failure during signal aspect activation [LS SD 1.4.5] **Precondition:** The Subsystem Light Signal is in the state BOOTING or INITIALISING. **Interaction 1.4.5.A:** **1.** - The Subsystem Light Signal detects the readiness to establish the initial state of outputs. **2.** The Signal Aspect most restrictive Signal Aspect is not yet indicated in conformity with the current configuration and cannot be indicated due to the failure of required lamps (No Signal Aspect - lamp failure). **Postcondition:** Initial state of outputs established.		Basic LS
Eu.LS.5044	Info	LS SD 1.4.6 **LS_UC1.4: Establish initial state of outputs** Alternative Scenario: Spontaneous lamp failure during the indication of a signal aspect [LS SD 1.4.6] **Precondition:** The Subsystem Light Signal is in the state BOOTING or INITIALISING. The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect. Initial state of outputs established. **Interaction 1.4.6A:** **1.** - The Subsystem Light Signal detects that the Signal Aspect most restrictive Signal Aspect can no longer be indicated due to the failure of the required lamps. **2.** The Subsystem Light Signal indicates No Signal Aspect - lamp failure. **Postcondition:** The Subsystem Light Signal indicates No Signal Aspect - lamp failure.		Basic LS







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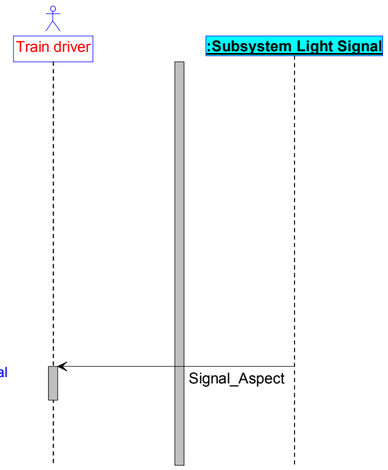
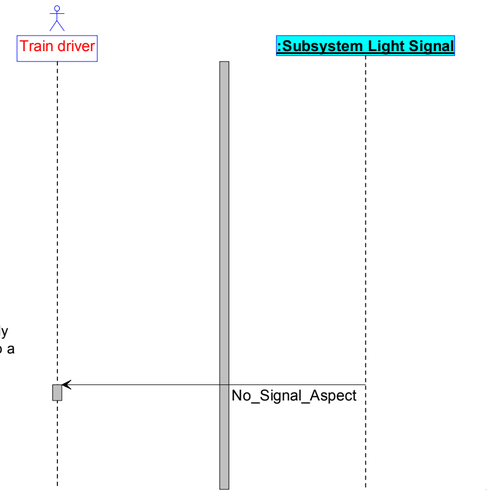
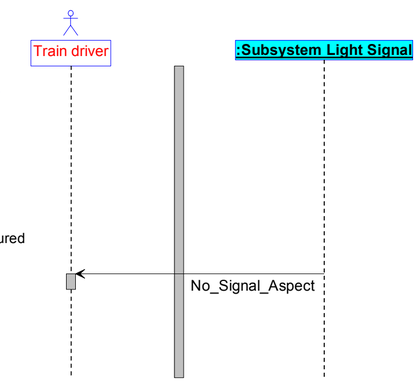
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5060	Info	LS SD 1.4.7 **LS_UC1.4: Establish initial state of outputs** Alternative Scenario: Spontaneous Luminosity failure during the indication of a signal aspect - case 1 [LS SD 1.4.7] **Precondition:** The Subsystem Light Signal is in the state BOOTING or INITIALISING. The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect. Initial state of outputs established. **Interaction 1.4.7.A:** **1.** - The Subsystem Light Signal detects that the Signal Aspect most restrictive Signal Aspect can no longer be indicated for the entire Signal Aspect uniformly across all Lamps in the configured default Luminosity due to a fault of the Luminosity. **2.** The Signal Aspect can be indicated uniformly across all Lamps in the alternative Luminosity for the entire Signal Aspect. **3.** The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the alternative Luminosity. **Postcondition:** The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the alternative Luminosity. 		Basic LS
Eu.LS.5069	Info	LS SD 1.4.8 **LS_UC1.4: Establish initial state of outputs** Alternative Scenario: Spontaneous Luminosity failure during the indication of a signal aspect - case 2 [LS SD 1.4.8] **Precondition:** The Subsystem Light Signal is in the state BOOTING or INITIALISING. The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect. Initial state of outputs established. **Interaction 1.4.8.A:** **1.** - The Subsystem Light Signal detects that the Signal Aspect most restrictive Signal Aspect can no longer be indicated for the entire Signal Aspect uniformly across all Lamps in the configured default Luminosity due to a fault of the Luminosity. **2.** The Signal Aspect most restrictive Signal Aspect cannot be indicated uniformly across all Lamps in the alternative Luminosity for the entire Signal Aspect due to a fault of the Luminosity or due to an unchangeable set Luminosity. **3.** - The Subsystem Light Signal indicates No Signal Aspect. **4.** The Subsystem Light Signal generates the event T5_SIL_Not_Fulfilled. **Postcondition:** The Subsystem Light Signal is in the state FALLBACK_MODE. The Subsystem Light Signal indicates No Signal Aspect. 		Basic LS
Eu.LS.5052	Info	LS SD 1.4.9 **LS_UC1.4: Establish initial state of outputs** Alternative Scenario: Spontaneous Luminosity failure during an existing lamp failure [LS SD 1.4.9] **Precondition:** The Subsystem Light Signal is in the state BOOTING or INITIALISING. The Subsystem Light Signal indicates No Signal Aspect - lamp failure. Initial state of outputs established. **Interaction 1.4.9.A:** **1.** - The Subsystem Light Signal detects a fault in the activation of the configured default Luminosity and the alternative Luminosity. **2.** The Subsystem Light Signal indicates No Signal Aspect. **3.** - The Subsystem Light Signal generates the event T5_SIL_Not_Fulfilled. **Postcondition:** The Subsystem Light Signal is in the state FALLBACK_MODE. The Subsystem Light Signal indicates No Signal Aspect. 		Basic LS

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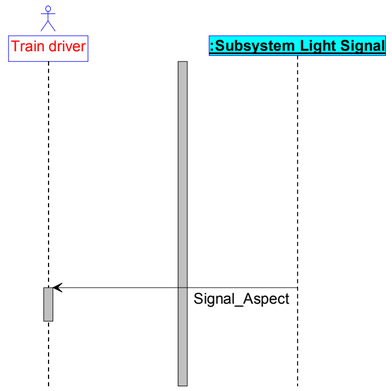
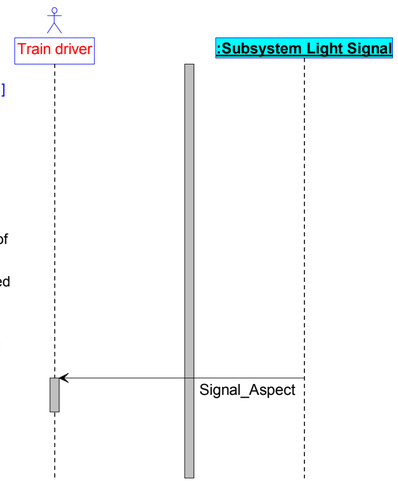
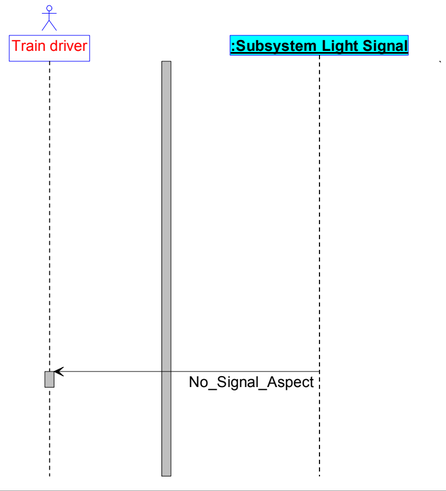
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5016	Info	LS SD 1.4.10 **LS_UC1.4: Establish initial state of outputs** Alternative Scenario: Revocation of lamp failure - case 1 [LS SD 1.4.10] **Precondition:** The Subsystem Light Signal is in the state BOOTING or INITIALISING. The Subsystem Light Signal indicates No Signal Aspect - lamp failure. Initial state of outputs established. **Interaction 1.4.10.A:** **1.** - The Subsystem Light Signal detects that the Signal Aspect most restrictive Signal Aspect can be indicated for the entire Signal Aspect uniformly across all Lamps in the set Luminosity due to the revocation of the lamp failure. **2.** The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the set Luminosity. **Postcondition:** The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the set Luminosity. 		Basic LS
Eu.LS.5024	Info	LS SD 1.4.11 **LS_UC1.4: Establish initial state of outputs** Alternative Scenario: Revocation of lamp failure - case 2 [LS SD 1.4.11] **Precondition:** The Subsystem Light Signal is in the state BOOTING or INITIALISING. The Subsystem Light Signal indicates No Signal Aspect - lamp failure. Initial state of outputs established. **Interaction 1.4.11.A:** **1.** - The Subsystem Light Signal detects that the Signal Aspect most restrictive Signal Aspect can be indicated again due to the revocation of the lamp failure. **2.** The Signal Aspect most restrictive Signal Aspect cannot be indicated uniformly across all Lamps in the set Luminosity for the entire Signal Aspect due to a fault of the Luminosity. **3.** The Signal Aspect can be indicated uniformly across all Lamps with the alternative Luminosity for the entire Signal Aspect. **4.** The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the alternative Luminosity. **Postcondition:** The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the alternative Luminosity. 		Basic LS
Eu.LS.5034	Info	LS SD 1.4.12 **LS_UC1.4: Establish initial state of outputs** Alternative Scenario: Revocation of lamp failure - case 3 [LS SD 1.4.12] **Precondition:** The Subsystem Light Signal is in the state BOOTING or INITIALISING. The Subsystem Light Signal indicates No Signal Aspect - lamp failure. Initial state of outputs established. **Interaction 1.4.12.A:** **1.** - The Subsystem Light Signal detects that the Signal Aspect most restrictive Signal Aspect can be indicated again due to the revocation of the lamp failure. **2.** The Signal Aspect most restrictive Signal Aspect cannot be indicated uniformly across all Lamps in the set Luminosity for the entire Signal Aspect due to a fault of the Luminosity. **3.** The Signal Aspect most restrictive Signal Aspect cannot be indicated uniformly across all Lamps in the alternative Luminosity for the entire Signal Aspect due to a fault of the Luminosity or due to an unchangeable set Luminosity. **4.** - The Subsystem Light Signal indicates No Signal Aspect. **5.** The Subsystem Light Signal generates the event T5_SIL_Not_Fulfilled. **Postcondition:** The Subsystem Light Signal is in the state FALLBACK_MODE. The Subsystem Light Signal indicates No Signal Aspect. 		Basic LS

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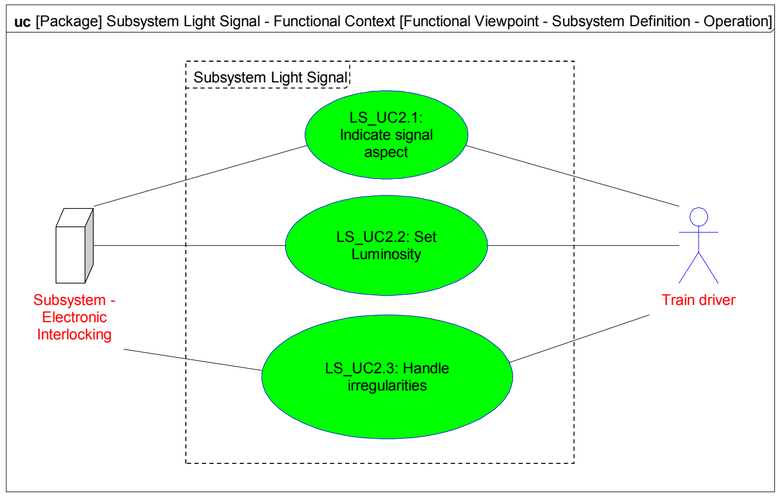
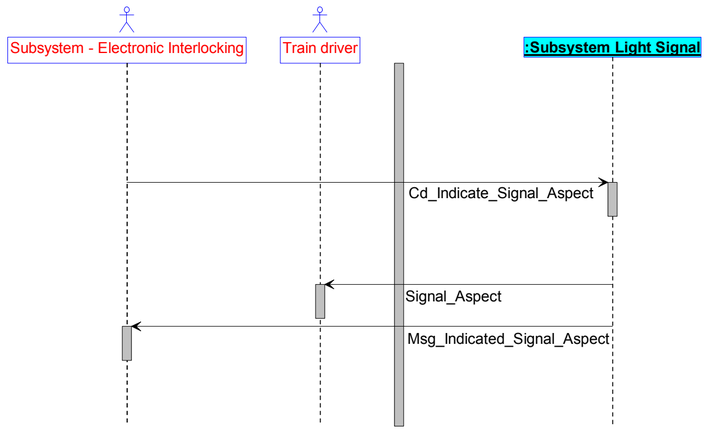
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5582	Info	[Package] Subsystem Light Signal - Functional Context [UseCase Definition Operation] 		Basic LS
Eu.LS.5096	Info	LS_UC2.1: Indicate signal aspect	The Subsystem-UseCase "LS_UC2.1: Indicate signal aspect" defines the Main Success Scenario and the Alternative Scenarios for indicating a Signal Aspect commanded by the Subsystem - Electronic Interlocking to the Subsystem Light Signal. Degradation rules are subject to national specification. Note: In future phases of the System Pillar, national specifications will be replaced by harmonised specifications.	Basic LS
Eu.LS.5272	Info	LS SD 2.1.1 **LS_UC2.1: Indicate signal aspect** Main Success Scenario: Indicate signal aspect [LS SD 2.1.1] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.1.1.A:** **1. -** The Subsystem Light Signal receives from the Subsystem - Electronic Interlocking the Signal Aspect to be indicated. **2.** The commanded Signal Aspect can be indicated uniformly across all Lamps in the currently set luminosity for the entire Signal Aspect. **3.** The Subsystem Light Signal indicates the commanded Signal Aspect in the currently set Luminosity. **4.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking of the indicated Signal Aspect. **Postcondition:** The Subsystem Light Signal indicates the commanded Signal Aspect in the currently set Luminosity. 	Degradation rules are subject to national specification. Note: In future phases of the System Pillar, national specifications will be replaced by harmonised specifications.	Basic LS

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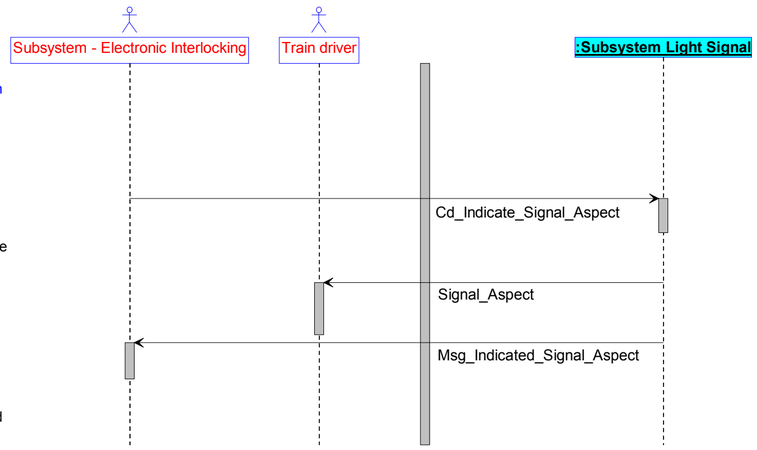
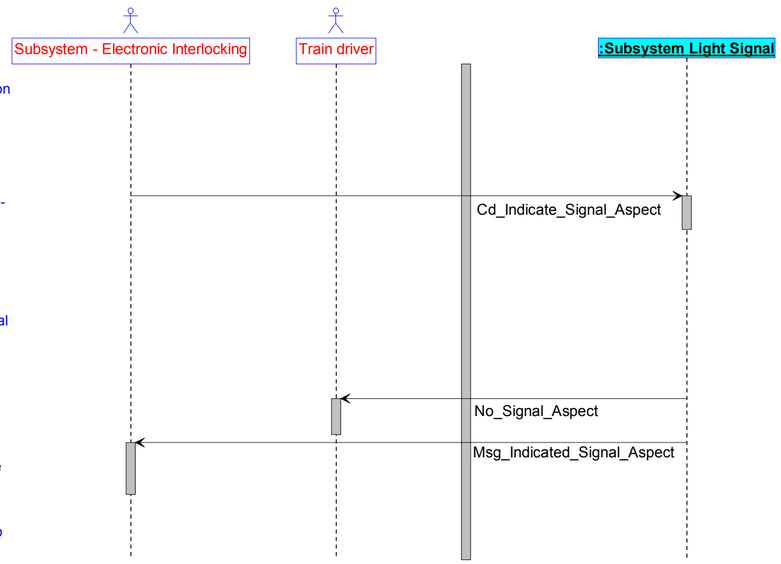
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5147	Info	LS SD 2.1.2 **LS_UC2.1: Indicate signal aspect** Alternative Scenario: Lamp failure during signal aspect activation - case 1 [LS SD 2.1.2] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.1.2.A:** **1. -** The Subsystem Light Signal receives from the Subsystem - Electronic Interlocking the Signal Aspect to be indicated. **2.** The commanded Signal Aspect cannot be indicated due to the failure of the required Lamp. **3.** The Subsystem Light Signal indicates the Signal Aspect to be determined for the respective case according to national requirements specification (configured as per degradation table). **4.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking of the indicated Signal Aspect. **Postcondition:** The Subsystem Light Signal indicates the Signal Aspect defined for the respective case in the set Luminosity. 	Degradation rules are subject to national specification. Note: In future phases of the System Pillar, national specifications will be replaced by harmonised specifications.	Basic LS
Eu.LS.5157	Info	LS SD 2.1.3 **LS_UC2.1: Indicate signal aspect** Alternative Scenario: Lamp failure during signal aspect activation - case 2 [LS SD 2.1.3] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.1.3.A:** **1. -** The Subsystem Light Signal receives from the Subsystem - Electronic Interlocking the Signal Aspect to be indicated. **2.** The commanded Signal Aspect cannot be indicated due to the failure of the required lamps. **3.** The Subsystem Light Signal determines in accordance with national requirements specification that the Signal Aspect defined for this case is the Signal Aspect most restrictive Signal Aspect. **4.** The Signal Aspect most restrictive Signal Aspect cannot be indicated due to the failure of the required lamps. **5.** The Subsystem Light Signal indicates No Signal Aspect - lamp failure. **6.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking, that all required lamps for indication are dark. **Postcondition:** The Subsystem Light Signal indicates No Signal Aspect - lamp failure. 	Degradation rules are subject to national specification. Note: In future phases of the System Pillar, national specifications will be replaced by harmonised specifications.	Basic LS

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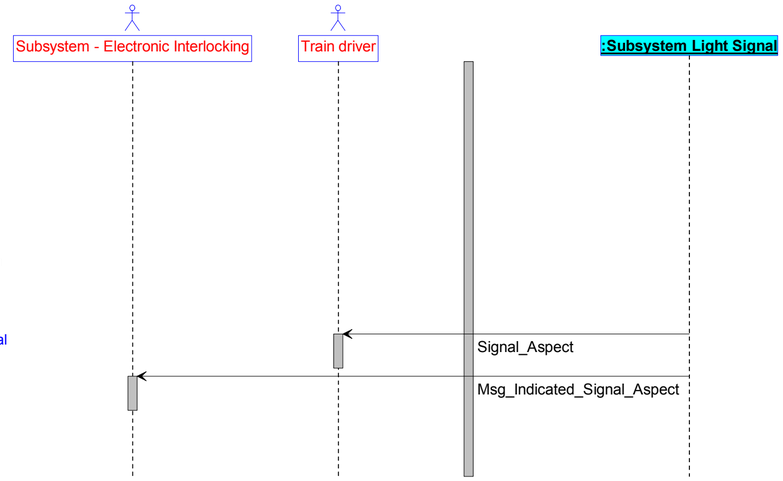
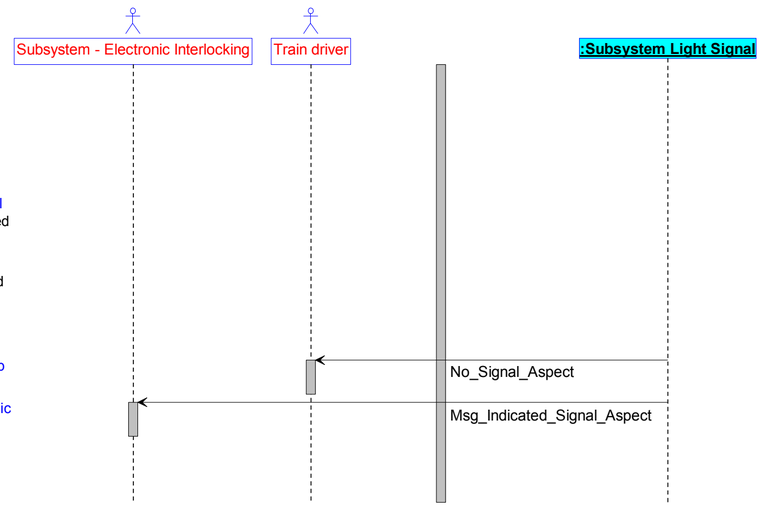
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5251	Info	LS SD 2.1.4 **LS_UC2.1: Indicate signal aspect** Alternative Scenario: Spontaneous lamp failure during the indication of a signal aspect - case 1 [LS SD 2.1.4] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.1.4.A:** **1. -** The Subsystem Light Signal detects that the indicated Signal Aspect can no longer be indicated due to the failure of the required lamps. **2.** The Subsystem Light Signal determines in accordance with national requirements specification the Signal Aspect defined for the respective case (e.g. configured as most restrictive Signal Aspect). **3.** The Subsystem Light Signal indicates the determined Signal Aspect in the set Luminosity. **4.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking of the indicated Signal Aspect. **Postcondition:** The Subsystem Light Signal indicates the Signal Aspect defined for the respective case in the set Luminosity.  	Degradation rules are subject to national specification. Note: In future phases of the System Pillar, national specifications will be replaced by harmonised specifications.	Basic LS
Eu.LS.5261	Info	LS SD 2.1.5 **LS_UC2.1: Indicate signal aspect** Alternative Scenario: Spontaneous lamp failure during the indication of a signal aspect - case 2 [LS SD 2.1.5] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.1.5.A:** **1. -** The Subsystem Light Signal detects that the indicated Signal Aspect can no longer be indicated due to the failure of the required lamps. **2.** The Subsystem Light Signal determines in accordance with national requirements specification that the Signal Aspect defined for this case is the Signal Aspect most restrictive Signal Aspect. **3.** The Signal Aspect most restrictive Signal Aspect cannot be indicated due to the failure of the required lamps. **4.** The Subsystem Light Signal indicates No Signal Aspect - lamp failure. **5.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking, that all required lamps for indication are dark. **Postcondition:** The Subsystem Light Signal indicates No Signal Aspect - lamp failure.  	Degradation rules are subject to national specification. Note: In future phases of the System Pillar, national specifications will be replaced by harmonised specifications.	Basic LS

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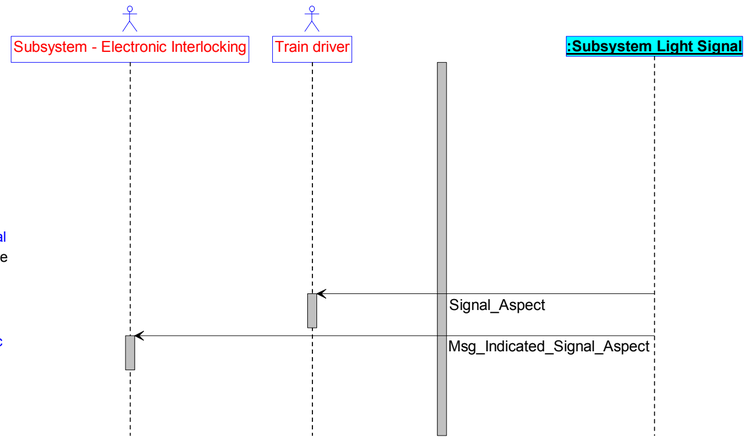
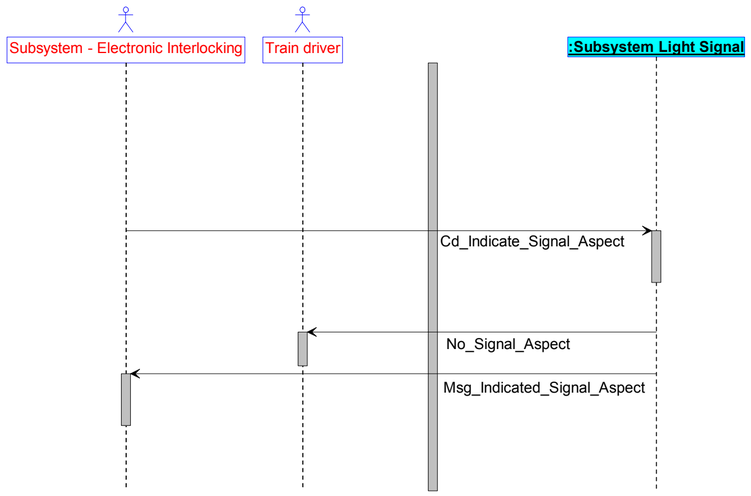
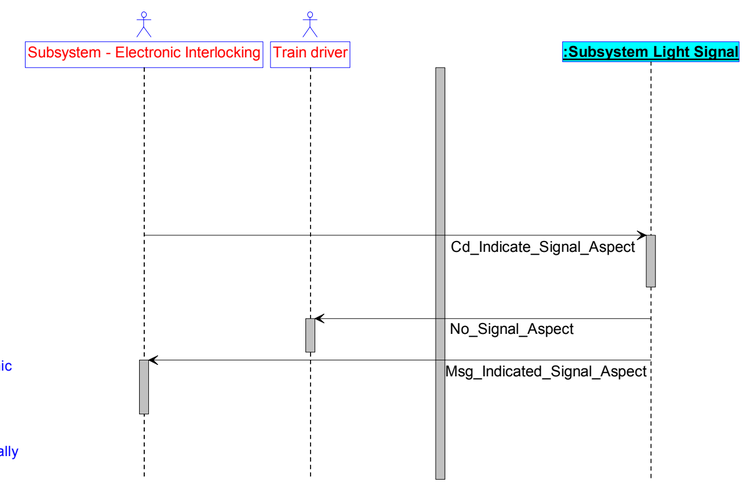
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5207	Info	LS SD 2.1.6 **LS_UC2.1: Indicate signal aspect** Alternative Scenario: Revocation of lamp failure [LS SD 2.1.6] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. The Subsystem Light Signal indicates No Signal Aspect - lamp failure. **Interaction 2.1.6.A:** **1.** - The Subsystem Light Signal detects that the Signal Aspect most restrictive Signal Aspect can be indicated for the entire Signal Aspect uniformly across all Lamps in the set Luminosity due to the revocation of a lamp failure. **2.** The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the set Luminosity. **3.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking of the indicated Signal Aspect. **Postcondition:** The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the set Luminosity. 		Basic LS
Eu.LS.5241	Info	LS SD 2.1.7 **LS_UC2.1: Indicate signal aspect** Alternative Scenario: Signal aspect is commanded intentionally dark [LS SD 2.1.7] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. The Subsystem Light Signal is configured as switchable to intentionally dark. **Interaction 2.1.7.A:** **1.** - The Subsystem Light Signal receives from the Subsystem - Electronic Interlocking the Signal Aspect to be indicated and the command to turn it intentionally dark. **2.** The commanded Signal Aspect can be indicated and intentionally dark. **3.** The Subsystem Light Signal indicates No Signal Aspect - intentionally dark. **4.** The Subsystem Light Signal reports to the Subsystem - Electronic Interlocking the commanded Signal Aspect and that it is intentionally dark. **Postcondition:** The Subsystem Light Signal indicates No Signal Aspect - intentionally dark. 		Basic LS
Eu.LS.5128	Info	LS SD 2.1.8 **LS_UC2.1: Indicate signal aspect** Alternative Scenario: Indicated signal aspect is subsequently intentionally dark [LS SD 2.1.8] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. The Subsystem Light Signal is configured as switchable to intentionally dark. **Interaction 2.1.8.A:** **1.** - The Subsystem Light Signal receives from the Subsystem - Electronic Interlocking the already indicated Signal Aspect and the command to turn it intentionally dark. **2.** The already indicated Signal Aspect can be intentionally dark. **3.** The Subsystem Light Signal indicates No Signal Aspect - intentionally dark. **4.** The Subsystem Light Signal reports to the Subsystem - Electronic Interlocking the already indicated Signal Aspect and that it is intentionally dark. **Postcondition:** The Subsystem Light Signal indicates No Signal Aspect - intentionally dark. 		Basic LS

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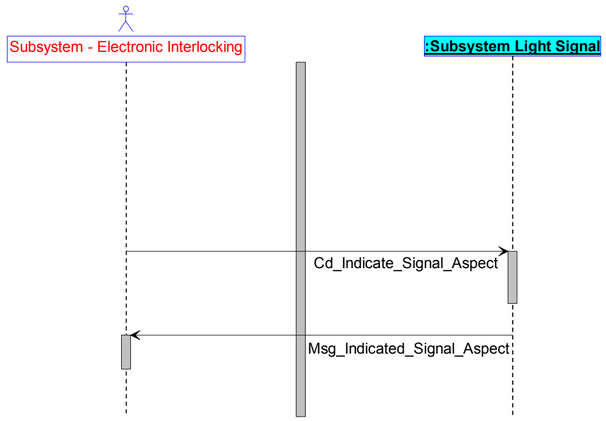
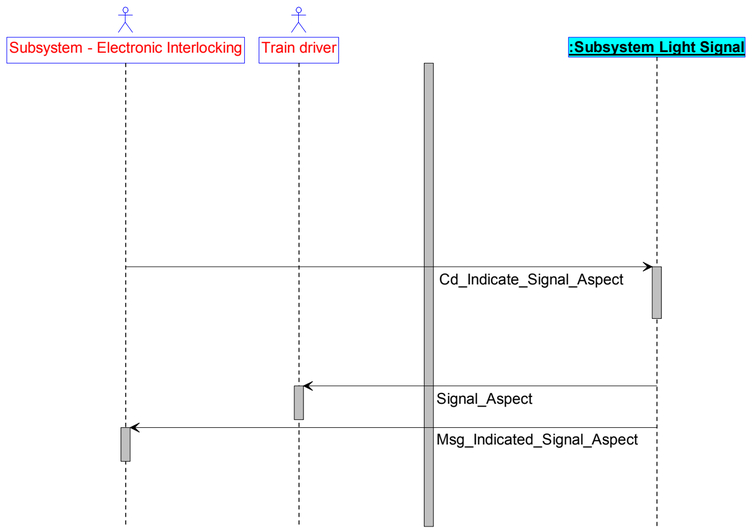
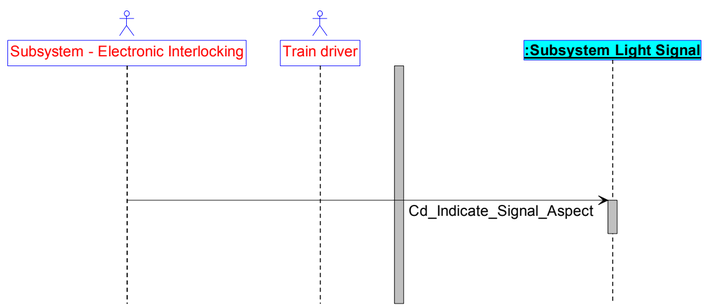
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5138	Info	LS SD 2.1.9 **LS_UC2.1: Indicate signal aspect** Alternative Scenario: Intentionally turned dark signal aspect is modified [LS SD 2.1.9] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. The Subsystem Light Signal indicates a Signal Aspect, that is intentionally dark. The Subsystem Light Signal is configured as switchable to intentionally dark. **Interaction 2.1.9.A:** **1. -** The Subsystem Light Signal receives from the Subsystem - Electronic Interlocking the Signal Aspect to be indicated and the command to turn it intentionally dark. **2.** The commanded Signal Aspect can be indicated and intentionally dark. **3.** The Subsystem Light Signal reports to the Subsystem - Electronic Interlocking the indicated Signal Aspect and that it is intentionally dark. **Postcondition:** The Subsystem Light Signal indicates No Signal Aspect - intentionally dark.		Basic LS
Eu.LS.5097	Info	LS SD 2.1.10 **LS_UC2.1: Indicate signal aspect** Alternative Scenario: Cancellation of the intentionally turning dark of a signal aspect [LS SD 2.1.10] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. The Subsystem Light Signal indicates a Signal Aspect, that is intentionally dark. The Subsystem Light Signal is configured as switchable to intentionally dark. **Interaction 2.1.10.A:** **1. -** The Subsystem Light Signal receives from the Subsystem - Electronic Interlocking the Signal Aspect to be indicated and the command to indicate it not intentionally dark. **2.** The commanded Signal Aspect can be indicated uniformly across all Lamps in the currently set Luminosity for the entire Signal Aspect. **3.** The Subsystem Light Signal indicates the commanded Signal Aspect in the currently set Luminosity. **4.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking of the indicated Signal Aspect. **Postcondition:** The Subsystem Light Signal indicates the commanded Signal Aspect in the currently set Luminosity.		Basic LS
Eu.LS.7776	Info	LS SD 2.1.11 **LS_UC2.1: Indicate signal aspect** Alternative Scenario: Receive already indicated signal aspect [LS SD 2.1.11] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.1.11.A:** **1. -** The Subsystem Light Signal receives from the Subsystem - Electronic Interlocking the Signal Aspect to be indicated. **2.** The commanded Signal Aspect is already indicated. **Postcondition:** ---	Degradation rules are subject to national specification. Note: In future phases of the System Pillar, national specifications will be replaced by harmonised specifications.	Basic LS







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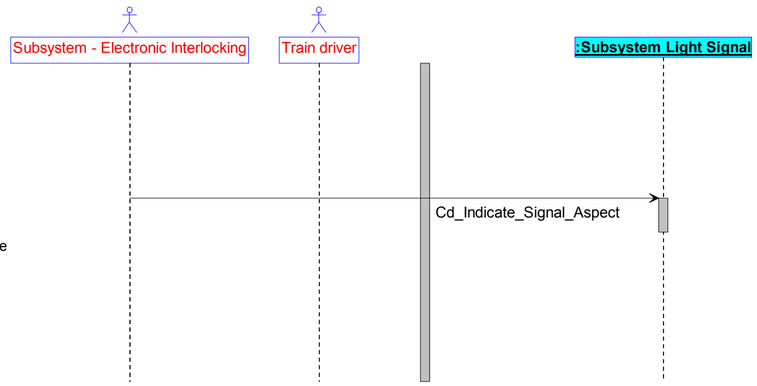
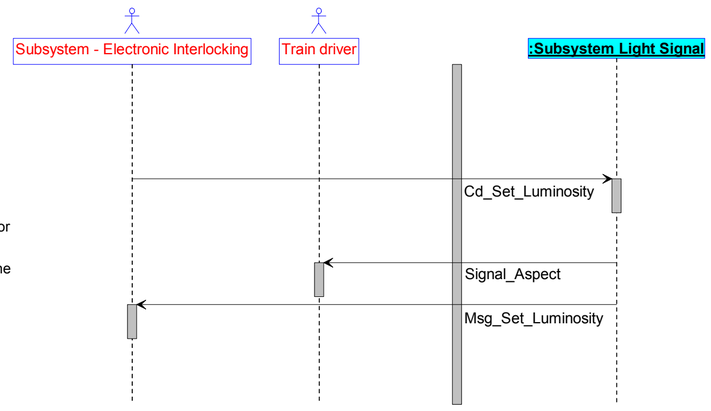
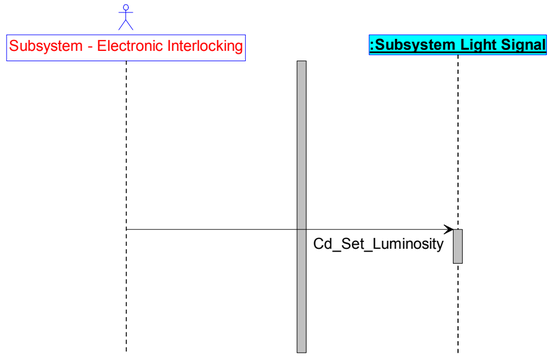
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.7775	Info	LS SD 2.1.12 **LS_UC2.1: Indicate signal aspect** Alternative Scenario: Degrade to already indicated signal aspect [LS SD 2.1.12] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.1.12.A:** **1. -** The Subsystem Light Signal receives from the Subsystem - Electronic Interlocking the Signal Aspect to be indicated. **2.** The commanded Signal Aspect cannot be indicated due to the failure of the required Lamp. **3.** The Subsystem Light Signal determines in accordance with national requirements specification that the Signal Aspect defined for this case is the currently indicated Signal Aspect. **Postcondition:** --- 	Degradation rules are subject to national specification. Note: In future phases of the System Pillar, national specifications will be replaced by harmonised specifications.	Basic LS
Eu.LS.5282	Info	LS_UC2.2: Set Luminosity	The Subsystem-UseCase "LS_UC2.2: Set Luminosity" defines the Main Success Scenario and the Alternative Scenarios for configuring a Luminosity commanded by the Subsystem - Electronic Interlocking to the Subsystem Light Signal.	Basic LS
Eu.LS.5351	Info	LS SD 2.2.1 **LS_UC2.2: Set Luminosity** Main Success Scenario: Set Luminosity [LS SD 2.2.1] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.2.1.A:** **1. -** The Subsystem Light Signal receives the Luminosity to be set from the Subsystem - Electronic Interlocking. **2.** The commanded Luminosity can be set uniformly across all Lamps for the entire Signal Aspect. **3.** The Subsystem Light Signal indicates the current Signal Aspect in the commanded Luminosity. **4.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking of the set Luminosity. **Postcondition:** The Subsystem Light Signal indicates the current Signal Aspect in the commanded Luminosity. 		Basic LS
Eu.LS.5304	Info	LS SD 2.2.2 **LS_UC2.2: Set Luminosity** Alternative Scenario: Set Luminosity with unchangeable set Luminosity [LS SD 2.2.2] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. The Subsystem Light Signal indicates a Signal Aspect in the currently unchangeable set Luminosity. **Interaction 2.2.2.A:** **1. -** The Subsystem Light Signal receives the Luminosity to be set from the Subsystem - Electronic Interlocking. **2.** The commanded Luminosity cannot be set, because the Luminosity is set unchangeable. **Postcondition:** --- 		Basic LS

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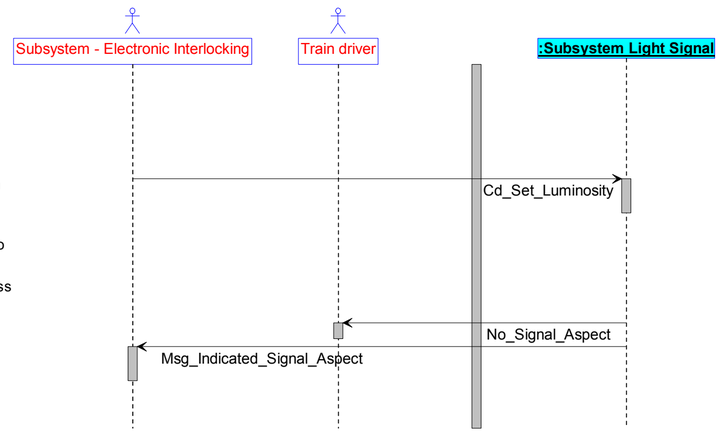
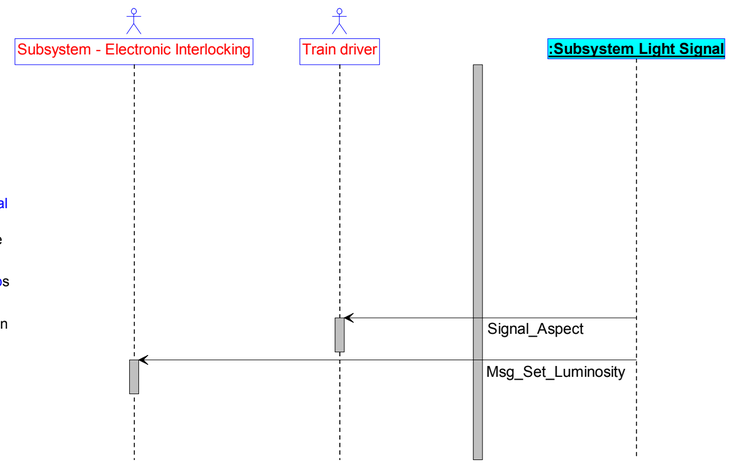
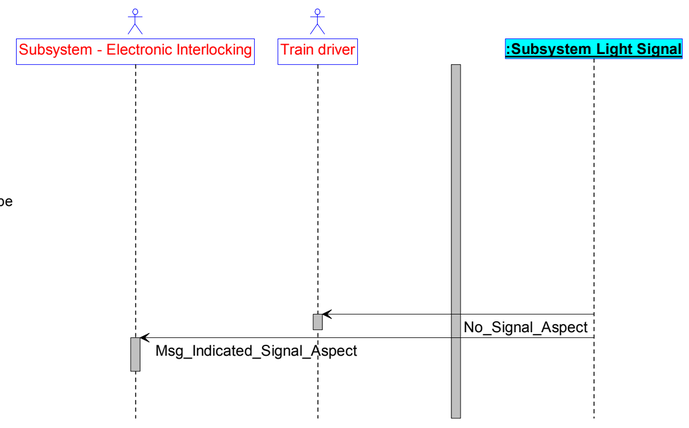
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5293	Info	LS SD 2.2.3 **LS_UC2.2: Set Luminosity** Alternative Scenario: Luminosity failure during activation [LS SD 2.2.3] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.2.3.A:** **1. -** The Subsystem Light Signal receives the Luminosity to be set from the Subsystem - Electronic Interlocking. **2.** The indicated Signal Aspect cannot be indicated uniformly across all Lamps in the commanded Luminosity for the entire Signal Aspect due to a fault of the Luminosity. **3.** The indicated Signal Aspect can also not be indicated uniformly across all Lamps for the entire Signal Aspect in the set Luminosity. **4.** - The Subsystem Light Signal indicates No Signal Aspect. **5.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking, that all required lamps for indication are dark. **Postcondition:** The Subsystem Light Signal indicates No Signal Aspect. 		Basic LS
Eu.LS.5331	Info	LS SD 2.2.4 **LS_UC2.2: Set Luminosity** Alternative Scenario: Spontaneous Luminosity failure during indication - case 1 [LS SD 2.2.4] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.2.4.A:** **1. -** The Subsystem Light Signal detects that the indicated Signal Aspect can no longer be indicated for the entire Signal Aspect with the currently set Luminosity uniformly across all Lamps due to a fault of the Luminosity. **2.** The Signal Aspect can be indicated uniformly across all Lamps with the alternative Luminosity for the entire Signal Aspect. **3.** The Subsystem Light Signal indicates the set Signal Aspect in the alternative Luminosity. **4.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking of the set Luminosity. **Postcondition:** The Subsystem Light Signal indicates the set Signal Aspect in the alternative Luminosity. 		Basic LS
Eu.LS.5341	Info	LS SD 2.2.5 **LS_UC2.2: Set Luminosity** Alternative Scenario: Spontaneous Luminosity failure during indication - case 2 [LS SD 2.2.5] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.2.5.A:** **1. -** The Subsystem Light Signal detects that the indicated Signal Aspect can no longer be indicated for the entire Signal Aspect uniformly across all Lamps in the currently set Luminosity due to a fault of the Luminosity. **2.** The Subsystem Light Signal detects that the indicated Signal Aspect cannot be indicated for the entire Signal Aspect uniformly across all Lamps in the alternative Luminosity due to a fault of the Luminosity. **3.** - The Subsystem Light Signal indicates No Signal Aspect. **4.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking, that all required lamps for indication are dark. **Postcondition:** The Subsystem Light Signal indicates No Signal Aspect. 		Basic LS

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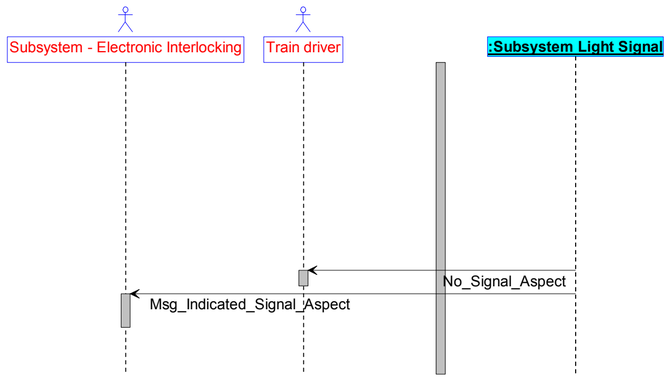
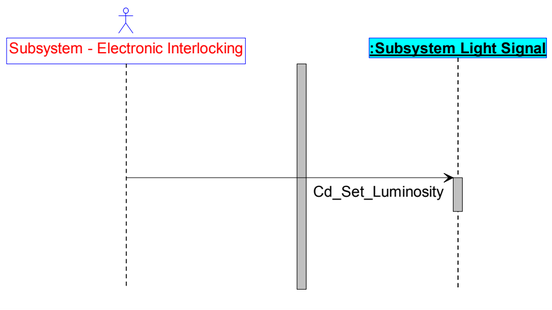
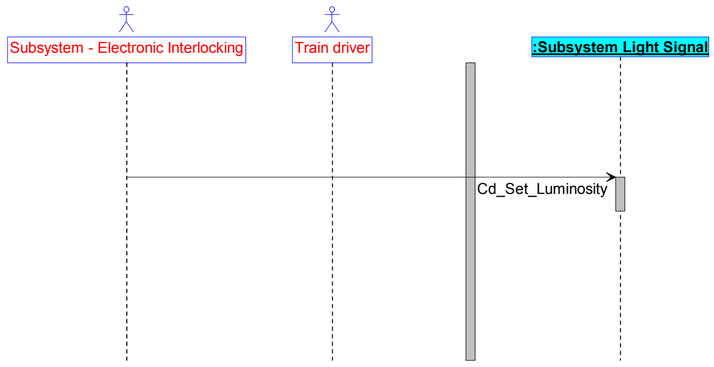
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5322	Info	LS SD 2.2.6 **LS_UC2.2: Set Luminosity** Alternative Scenario: Spontaneous failure of the unchangeable set Luminosity [LS SD 2.2.6] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.2.6.A:** **1. -** The Subsystem Light Signal detects that the indicated Signal Aspect can no longer be indicated uniformly across all Lamps for the entire Signal Aspect in the unchangeable set Luminosity (e.g. tunnel signal) due to a fault of the Luminosity. **2.** The Subsystem Light Signal indicates No Signal Aspect. **3.** The Subsystem Light Signal notifies the Subsystem - Electronic Interlocking, that all required lamps for indication are dark. **Postcondition:** The Subsystem Light Signal indicates No Signal Aspect. 		Basic LS
Eu.LS.7778	Info	LS SD 2.2.7 **LS_UC2.2: Set Luminosity** Alternative Scenario: Receive already set Luminosity [LS SD 2.2.7] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.2.7.A:** **1. -** The Subsystem Light Signal receives the Luminosity to be set from the Subsystem - Electronic Interlocking. **2.** The commanded Luminosity is already set. **Postcondition:** --- 		Basic LS
Eu.LS.7777	Info	LS SD 2.2.8 **LS_UC2.2: Set Luminosity** Alternative Scenario: Degrade to already set Luminosity [LS SD 2.2.8] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.2.8.A:** **1. -** The Subsystem Light Signal receives the Luminosity to be set from the Subsystem - Electronic Interlocking. **2.** The indicated Signal Aspect cannot be indicated uniformly across all Lamps in the commanded Luminosity for the entire Signal Aspect due to a fault of the Luminosity. **3.** The Signal Aspect can be indicated uniformly across all Lamps in the currently set Luminosity for the entire Signal Aspect. **Postcondition:** --- 		Basic LS
Eu.LS.5477	Info	LS_UC2.3: Handle irregularities	The Subsystem-UseCase "LS_UC2.3: Handle irregularities" defines the behaviour of the Subsystem Light Signal when an irregularity occurs.	Basic LS

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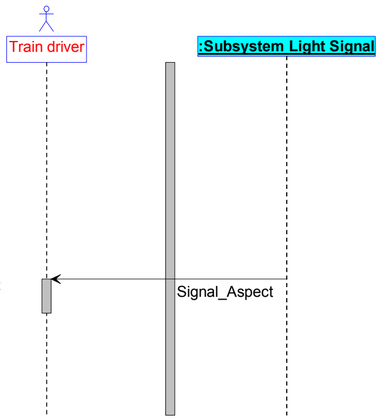
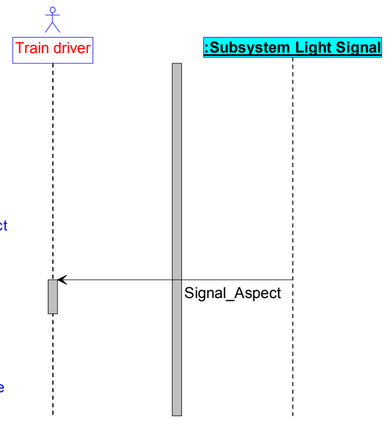
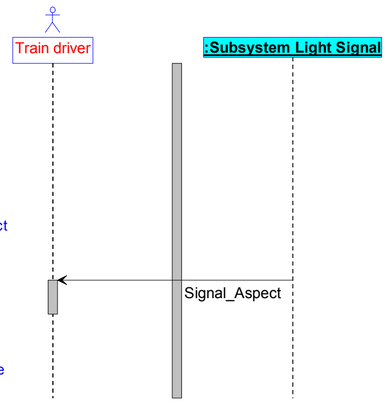
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5573	Info	LS SD 2.3.1 **LS_UC2.3: Handle irregularities** Alternative Scenario: Perform fallback operation [LS SD 2.3.1] **Precondition:** --- **Interaction 2.3.1.A:** **1.** - The Subsystem Light Signal enters the state FALLBACK_MODE. **2.** The Subsystem Light Signal is capable of indicating the Signal Aspect according to the national requirements. **3.** The Subsystem Light Signal indicates the Signal Aspect according to the national requirements. **Postcondition:** The Subsystem Light Signal is in the state FALLBACK_MODE. The Subsystem Light Signal indicates the Signal Aspect according to the national requirements. 		Basic LS
Eu.LS.5508	Info	LS SD 2.3.2 **LS_UC2.3: Handle irregularities** Alternative Scenario: Handling of interrupted PDI connection [LS SD 2.3.2] **Precondition:** The Subsystem Light Signal is in the state OPERATIONAL. **Interaction 2.3.2.A:** **1.** - The PDI connection has been terminated. **2.** The Subsystem Light Signal is capable of indicating the Signal Aspect most restrictive Signal Aspect in the set Luminosity uniformly across all Lamps for the entire Signal Aspect. **3.** The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the set Luminosity. **Postcondition:** The Subsystem Light Signal is in the state INITIALISING. The Process Data Interface protocol connection is terminated. The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the set Luminosity. 		Basic LS
Eu.LS.6128	Info	LS SD 2.3.3 **LS_UC2.3: Handle irregularities** Alternative Scenario: Reset occurs [LS SD 2.3.3] **Precondition:** The Subsystem Light Signal is in the state INITIALISING or OPERATIONAL. **Interaction 2.3.3.A:** **1.** - A reset has occurred. **2.** The Subsystem Light Signal is capable of indicating the Signal Aspect most restrictive Signal Aspect in the set Luminosity uniformly across all Lamps for the entire Signal Aspect. **3.** The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the set Luminosity. **Postcondition:** The Subsystem Light Signal is in the state BOOTING. The Subsystem Light Signal indicates the Signal Aspect most restrictive Signal Aspect in the set Luminosity. 		Basic LS

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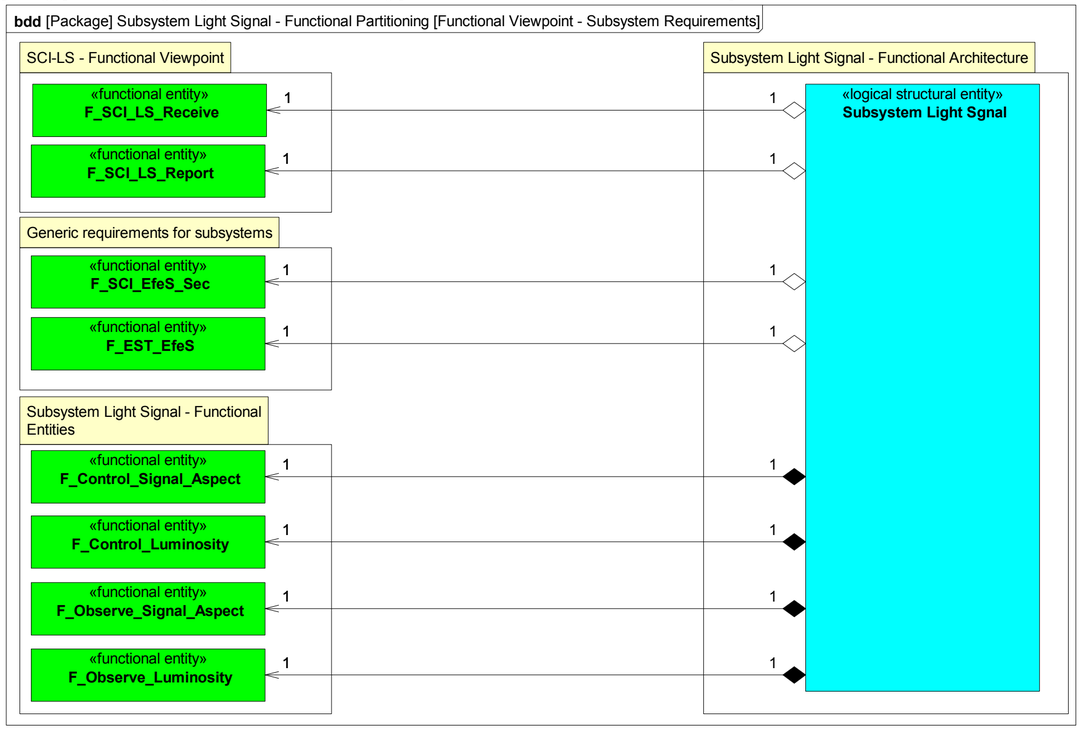
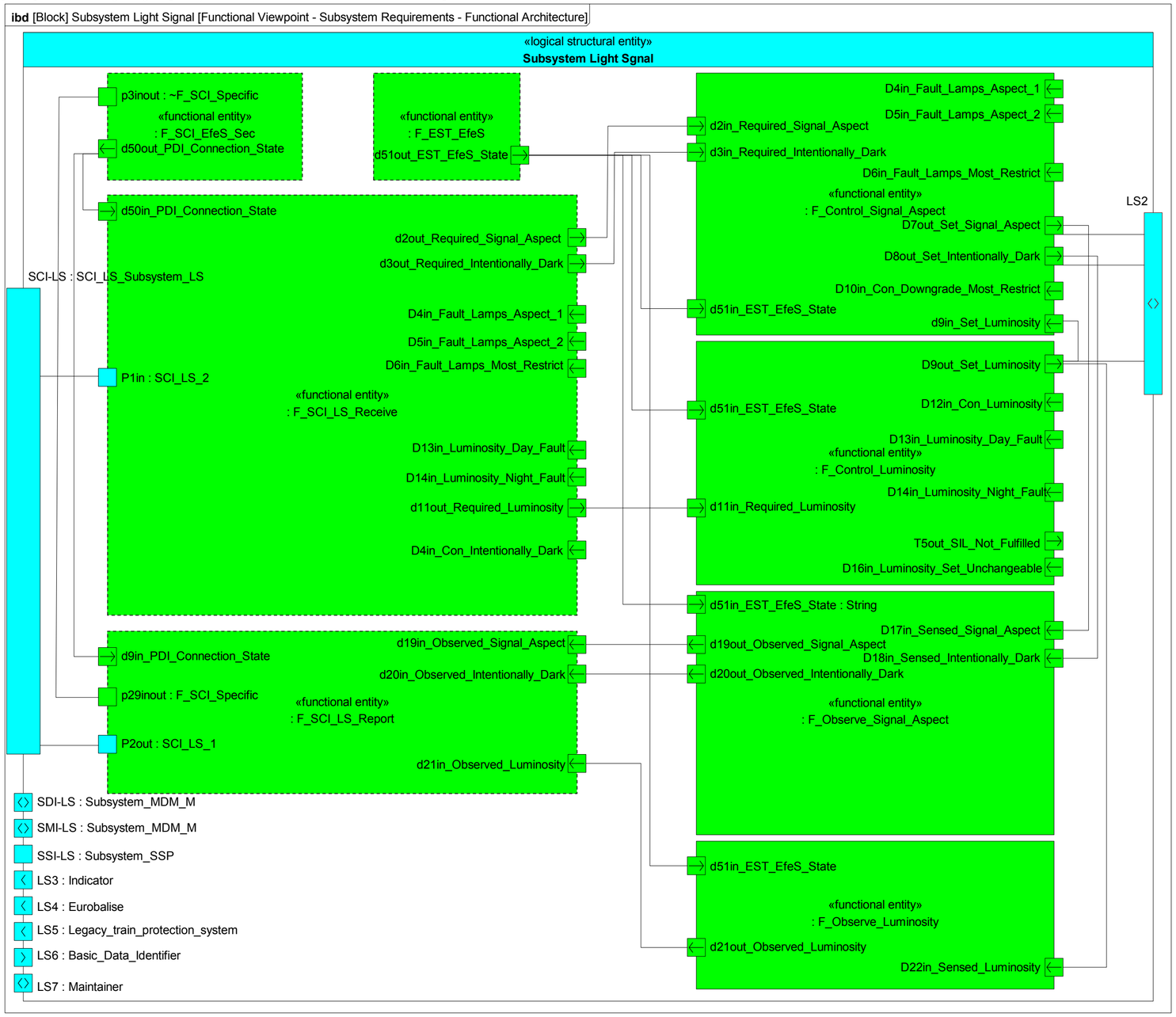
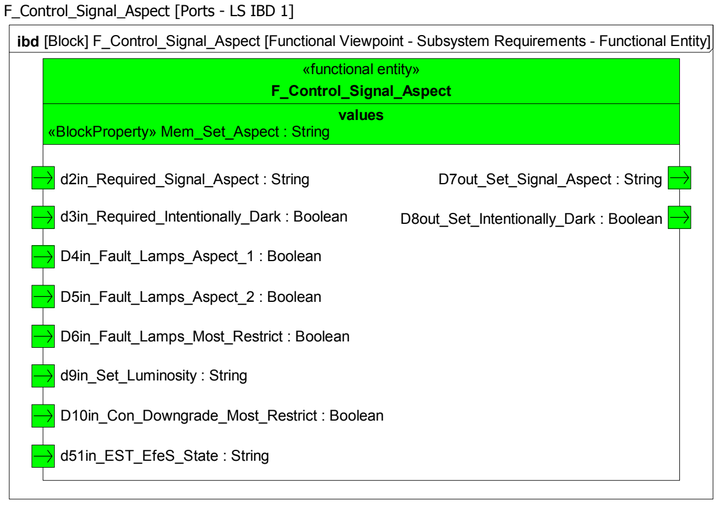
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.5994	Info	LS SD 2.3.4 **LS_UC2.3: Handle irregularities** :Subsystem Light Signal Alternative Scenario: Supply voltage of the Subsystem has gone outside the required range for operation [LS SD 2.3.4] **Precondition:** --- **Interaction 2.3.4.A**: **1.** - The Subsystem Light Signal enters the state NO_OPERATING_VOLTAGE. **2.** The Subsystem Light Signal indicates the Signal Aspect according to the national requirements. **Postcondition:** The Subsystem Light Signal indicates the Signal Aspect according to the national requirements.		Basic LS
Eu.LS.5094	Info	[Package] Subsystem Light Signal - Functional Context [UseCase Definition Maintenance] **uc** [Package] Subsystem Light Signal - Functional Context [Functional Viewpoint - Subsystem Definition - Maintenance] Subsystem Light Signal LS_UC3.1: Display status of Subsystem - Light Signal LS_UC3.2: Collect and provide event driven diagnostic data LS_UC3.3: Collect and provide preventive diagnostic data LS_UC3.4: Update specific software Maintainer Subsystem - Maintenance and Data Management		Basic LS
Eu.LS.5090	Info	LS_UC3.1: Display status of Subsystem - Light Signal	Information: The Subsystem-UseCase "LS_UC3.1: Display status of Subsystem - Light Signal" defines the local display of the EULYNX field element Subsystem. See ID EU.LS.4678	Basic LS
Eu.LS.5091	Info	LS_UC3.2: Collect and provide event driven diagnostic data	Information: The Subsystem-UseCase "LS_UC3.2: Collect and provide event driven diagnostic data" defines the event driven collection and provision of diagnostic data in case of irregularities. See ID EU.LS.4696	Basic LS
Eu.LS.5092	Info	LS_UC3.3: Collect and provide preventive diagnostic data	Information: The Subsystem-UseCase "LS_UC3.3: Collect and provide preventive diagnostic data" defines the continuous collection and provision of diagnostic data for preventive maintenance. See ID EU.LS.4696	Basic LS
Eu.LS.5093	Info	LS_UC3.4: Update specific software	Information: The Subsystem-UseCase "LS_UC3.4: Update specific software" defines the process of updating the specific software between Subsystem - Maintenance and Data Management and the Subsystem.	Basic LS
Eu.LS.7568	Head	**3.3.3 Subsystem Light Signal - Functional Partitioning**		

ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.6486	Info	[Package] Subsystem Light Signal - Functional Partitioning [Functional Viewpoint - Subsystem Requirements]		Basic LS
Eu.LS.4757	Head	**3.3.4 Subsystem Light Signal - Functional Architecture**		
Eu.LS.6476	Info	Subsystem Light Sgnal		Basic LS



ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.6485	Info	[Block] Subsystem Light Signal [Subsystem Requirements - Functional Architecture]		Basic LS
Eu.LS.6483	Info	LS2	The functional visual interface to the Train driver. The InformationFlow through the interface is defined by "Train_driver".	Basic LS
Eu.LS.7465	Info	SCI-LS	The functional Process Data interface to the Subsystem - Electronic Interlocking (SCI: Standard Communication Interface). The InformationFlow through the interface is further defined in SCI-LS (Subsystem - Electronic Interlocking).	Basic LS
Eu.LS.7599	Info	LS3	The functional Control interface to the Indicator. The InformationFlow through the interface is defined by "Indicator".	Basic LS
Eu.LS.7600	Info	LS4	The functional Control interface to the Eurobalise. The InformationFlow through the interface is defined by "Eurobalise".	Option LS4



ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.7601	Info	LS5	The functional Control interface to the Legacy train protection system. The InformationFlow through the interface is defined by "Legacy_train_protection_system".	Option LS5
Eu.LS.7602	Info	LS6	The functional System Data interface to the Basic Data identifier. The InformationFlow through the interface is defined by "Basic_Data_Identifier".	Basic LS
Eu.LS.7603	Info	LS7	The functional Maintenance/Operation/Display interface to the Maintainer. The InformationFlow through the interface is defined by "Maintainer".	Basic LS
Eu.LS.7604	Info	SDI-LS	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 LS
Eu.LS.7605	Info	SMI-LS	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 LS
Eu.LS.7626	Info	SSI-LS	The Security Service Interface to the Subsystem Security Services Platform. The InformationFlow through the interface is further defined in SSI-LS (Subsystem - Security Services Platform).	Basic LS
Eu.LS.6487	Head	**3.3.5 Subsystem Light Signal - Functional Entities**		
Eu.LS.6488	Info	F_Control_Signal_Aspect		Basic LS
Eu.LS.6583	Info	F_Control_Signal_Aspect [Ports - LS IBD 1] 		Basic LS
Eu.LS.6504	Info	d2in_Required_Signal_Aspect		Basic LS
Eu.LS.6503	Info	d3in_Required_Intentionally_Dark		Basic LS
Eu.LS.6498	Info	D4in_Fault_Lamps_Aspect_1	The port D4in_Fault_Lamps_Aspect_1 represents a Fault of the Lamps for Signal Aspect 1.	Basic LS
Eu.LS.6499	Info	D5in_Fault_Lamps_Aspect_2	The port D5in_Fault_Lamps_Aspect_2 represents a Fault of the Lamps for Signal Aspect 2.	Basic LS
Eu.LS.6500	Info	D6in_Fault_Lamps_Most_Restrict	The port D6in_Fault_Lamps_Most_Restrict represents a Fault of the Lamps for most restrictive Signal Aspect.	Basic LS
Eu.LS.6502	Info	D7out_Set_Signal_Aspect	The port D7out_Set_Signal_Aspect refines the FlowProperty Signal_Aspect at the interface LS2.	Basic LS
Eu.LS.6590	Info	D8out_Set_Intentionally_Dark	The port D8out_Set_Intentionally_Dark refines the FlowProperty Signal_Aspect at the interface LS2.	Basic LS
Eu.LS.6588	Info	d9in_Set_Luminosity		Basic LS

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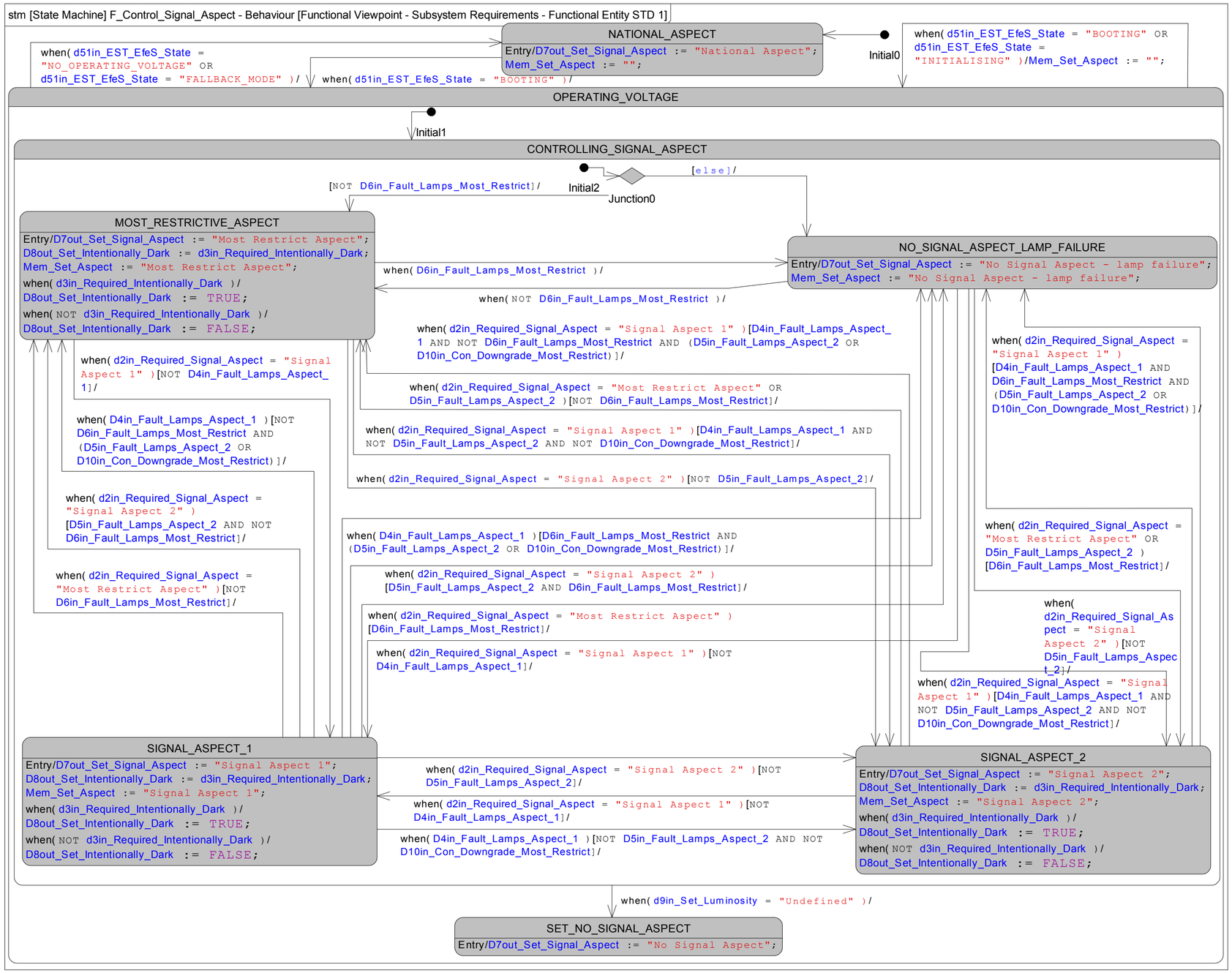
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.6496	Info	D10in_Con_Downgrade_Most_Restrict	The port D10in_Con_Downgrade_Most_Restrict provides a configuration value to the Subsystem Light Signal for Downgrading functionality. true: Subsystem Light Signal will downgrade in any case of a lamp failure down to most restrictive Signal Aspect false: Subsystem Light Signal determines in accordance with national requirements specification the Signal Aspect defined for the respective case	Basic LS
Eu.LS.6497	Info	d51in_EST_EfeS_State		Basic LS
Eu.LS.6507	Info	F_Control_Signal_Aspect - Behaviour		Basic LS
Eu.LS.6510	Info	Functional Viewpoint - Subsystem Requirements - Functional Entity STD 1		Basic LS



ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.6508	Info	Initial0		Basic LS
Eu.LS.6509	Req	/{Initial0 - NATIONAL_ASPECT}		Basic LS
Eu.LS.6511	Info	NATIONAL_ASPECT		Basic LS
Eu.LS.6786	Req	entry/D7out_Set_Signal_Aspect := "National Aspect"; Mem_Set_Aspect := "";{State-internal in NATIONAL_ASPECT}		Basic LS
Eu.LS.6512	Req	when(d51in_EST_EfeS_State = "BOOTING")/{NATIONAL_ASPECT - OPERATING_VOLTAGE}		Basic LS
Eu.LS.6853	Info	OPERATING_VOLTAGE		Basic LS
Eu.LS.6855	Info	Initial1		Basic LS
Eu.LS.6856	Req	/{Initial1 - CONTROLLING_SIGNAL_ASPECT}		Basic LS
Eu.LS.6518	Info	CONTROLLING_SIGNAL_ASPECT		Basic LS
Eu.LS.6563	Info	Initial2		Basic LS
Eu.LS.6564	Req	/{Initial2 - Junction0}		Basic LS
Eu.LS.6857	Info	Junction0		Basic LS
Eu.LS.6858	Req	[NOT D6in_Fault_Lamps_Most_Restrict]/{Junction0 - MOST_RESTRICTIVE_ASPECT}		Basic LS
Eu.LS.6859	Req	[else]/{Junction0 - NO_SIGNAL_ASPECT_LAMP_FAILURE}		Basic LS
Eu.LS.6554	Info	MOST_RESTRICTIVE_ASPECT		Basic LS
Eu.LS.6788	Req	entry/D7out_Set_Signal_Aspect := "Most Restrict Aspect"; D8out_Set_Intentionally_Dark := d3in_Required_Intentionally_Dark; Mem_Set_Aspect := "Most Restrict Aspect";{State-internal in MOST_RESTRICTIVE_ASPECT}		Basic LS
Eu.LS.6556	Req	when(D6in_Fault_Lamps_Most_Restrict)/{MOST_RESTRICTIVE_ASPECT - NO_SIGNAL_ASPECT_LAMP_FAILURE}		Basic LS
Eu.LS.6578	Req	when(d2in_Required_Signal_Aspect = "Signal Aspect 1")[NOT D4in_Fault_Lamps_Aspect_1]/{MOST_RESTRICTIVE_ASPECT - SIGNAL_ASPECT_1}		Basic LS
Eu.LS.6860	Req	when(d2in_Required_Signal_Aspect = "Signal Aspect 2")[NOT D5in_Fault_Lamps_Aspect_2]/{MOST_RESTRICTIVE_ASPECT - SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7181	Req	when(d3in_Required_Intentionally_Dark)/ D8out_Set_Intentionally_Dark := TRUE;{State-internal in MOST_RESTRICTIVE_ASPECT}		Basic LS
Eu.LS.7480	Req	when(d2in_Required_Signal_Aspect = "Signal Aspect 1")[D4in_Fault_Lamps_Aspect_1 AND NOT D5in_Fault_Lamps_Aspect_2 AND NOT D10in_Con_Downgrade_Most_Restrict]/{MOST_RESTRICTIVE_ASPECT - SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7554	Req	when(NOT d3in_Required_Intentionally_Dark)/ D8out_Set_Intentionally_Dark := FALSE;{State-internal in MOST_RESTRICTIVE_ASPECT}		Basic LS
Eu.LS.6557	Info	NO_SIGNAL_ASPECT_LAMP_FAILURE		Basic LS
Eu.LS.6789	Req	entry/D7out_Set_Signal_Aspect := "No Signal Aspect - lamp failure"; Mem_Set_Aspect := "No Signal Aspect - lamp failure";{State-internal in NO_SIGNAL_ASPECT_LAMP_FAILURE}		Basic LS
Eu.LS.6558	Req	when(NOT D6in_Fault_Lamps_Most_Restrict)/{NO_SIGNAL_ASPECT_LAMP_FAILURE - MOST_RESTRICTIVE_ASPECT}		Basic LS
Eu.LS.7615	Req	when(d2in_Required_Signal_Aspect = "Signal Aspect 1")[NOT D4in_Fault_Lamps_Aspect_1]/{NO_SIGNAL_ASPECT_LAMP_FAILURE - SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7616	Req	when(d2in_Required_Signal_Aspect = "Signal Aspect 2")[NOT D5in_Fault_Lamps_Aspect_2]/{NO_SIGNAL_ASPECT_LAMP_FAILURE - SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7617	Req	when(d2in_Required_Signal_Aspect = "Signal Aspect 1")[D4in_Fault_Lamps_Aspect_1 AND NOT D5in_Fault_Lamps_Aspect_2 AND NOT D10in_Con_Downgrade_Most_Restrict]/{NO_SIGNAL_ASPECT_LAMP_FAILURE - SIGNAL_ASPECT_2}		Basic LS
Eu.LS.6551	Info	SIGNAL_ASPECT_1		Basic LS
Eu.LS.6892	Req	entry/D7out_Set_Signal_Aspect := "Signal Aspect 1"; D8out_Set_Intentionally_Dark := d3in_Required_Intentionally_Dark; Mem_Set_Aspect := "Signal Aspect 1";{State-internal in SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7182	Req	when(d3in_Required_Intentionally_Dark)/ D8out_Set_Intentionally_Dark := TRUE;{State-internal in SIGNAL_ASPECT_1}		Basic LS
Eu.LS.6861	Req	when(d2in_Required_Signal_Aspect = "Signal Aspect 2")[NOT D5in_Fault_Lamps_Aspect_2]/{SIGNAL_ASPECT_1 - SIGNAL_ASPECT_2}		Basic LS
Eu.LS.6862	Req	when(d2in_Required_Signal_Aspect = "Signal Aspect 2")[D5in_Fault_Lamps_Aspect_2 AND D6in_Fault_Lamps_Most_Restrict]/{SIGNAL_ASPECT_1 - NO_SIGNAL_ASPECT_LAMP_FAILURE}		Basic LS
Eu.LS.6863	Req	when(D4in_Fault_Lamps_Aspect_1)[NOT D5in_Fault_Lamps_Aspect_2 AND NOT D10in_Con_Downgrade_Most_Restrict]/{SIGNAL_ASPECT_1 - SIGNAL_ASPECT_2}		Basic LS
Eu.LS.6864	Req	when(D4in_Fault_Lamps_Aspect_1)[D6in_Fault_Lamps_Most_Restrict AND (D5in_Fault_Lamps_Aspect_2 OR D10in_Con_Downgrade_Most_Restrict)]/{SIGNAL_ASPECT_1 - NO_SIGNAL_ASPECT_LAMP_FAILURE}		Basic LS
Eu.LS.7183	Req	when(d2in_Required_Signal_Aspect = "Most Restrict Aspect")[NOT D6in_Fault_Lamps_Most_Restrict]/{SIGNAL_ASPECT_1 - MOST_RESTRICTIVE_ASPECT}		Basic LS
Eu.LS.7184	Req	when(d2in_Required_Signal_Aspect = "Signal Aspect 2")[D5in_Fault_Lamps_Aspect_2 AND NOT D6in_Fault_Lamps_Most_Restrict]/{SIGNAL_ASPECT_1 - MOST_RESTRICTIVE_ASPECT}		Basic LS
Eu.LS.7482	Req	when(D4in_Fault_Lamps_Aspect_1)[NOT D6in_Fault_Lamps_Most_Restrict AND (D5in_Fault_Lamps_Aspect_2 OR D10in_Con_Downgrade_Most_Restrict)]/{SIGNAL_ASPECT_1 - MOST_RESTRICTIVE_ASPECT}		Basic LS
Eu.LS.7555	Req	when(NOT d3in_Required_Intentionally_Dark)/ D8out_Set_Intentionally_Dark := FALSE;{State-internal in SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7618	Req	when(d2in_Required_Signal_Aspect = "Most Restrict Aspect")[D6in_Fault_Lamps_Most_Restrict]/{SIGNAL_ASPECT_1 - NO_SIGNAL_ASPECT_LAMP_FAILURE}		Basic LS
Eu.LS.6565	Info	SIGNAL_ASPECT_2		Basic LS
Eu.LS.6893	Req	entry/D7out_Set_Signal_Aspect := "Signal Aspect 2"; D8out_Set_Intentionally_Dark := d3in_Required_Intentionally_Dark; Mem_Set_Aspect := "Signal Aspect 2";{State-internal in SIGNAL_ASPECT_2}		Basic LS

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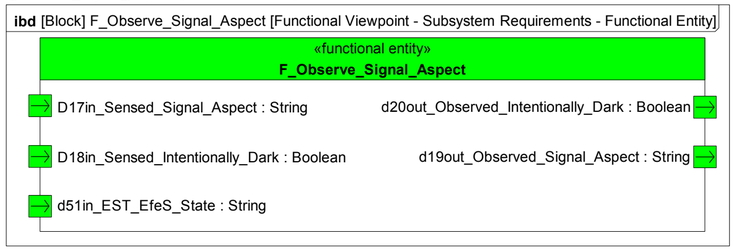
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.7185	Req	when(d3in_Required_Intentionally_Dark)/ D8out_Set_Intentionally_Dark := TRUE;{State-internal in SIGNAL_ASPECT_2}		Basic LS
Eu.LS.6866	Req	when(d2in_Required_Signal_Aspect = "Most Restrict Aspect" OR D5in_Fault_Lamps_Aspect_2)[D6in_Fault_Lamps_Most_Restrict]/{SIGNAL_ASPECT_2 - NO_SIGNAL_ASPECT_LAMP_FAILURE}		Basic LS
Eu.LS.6867	Req	when(d2in_Required_Signal_Aspect = "Most Restrict Aspect" OR D5in_Fault_Lamps_Aspect_2)[NOT D6in_Fault_Lamps_Most_Restrict]/{SIGNAL_ASPECT_2 - MOST_RESTRICTIVE_ASPECT}		Basic LS
Eu.LS.6868	Req	when(d2in_Required_Signal_Aspect = "Signal Aspect 1")[D4in_Fault_Lamps_Aspect_1 AND NOT D6in_Fault_Lamps_Most_Restrict AND (D5in_Fault_Lamps_Aspect_2 OR D10in_Con_Downgrade_Most_Restrict)]/{SIGNAL_ASPECT_2 - MOST_RESTRICTIVE_ASPECT}		Basic LS
Eu.LS.6869	Req	when(d2in_Required_Signal_Aspect = "Signal Aspect 1")[D4in_Fault_Lamps_Aspect_1 AND D6in_Fault_Lamps_Most_Restrict AND (D5in_Fault_Lamps_Aspect_2 OR D10in_Con_Downgrade_Most_Restrict)]/{SIGNAL_ASPECT_2 - NO_SIGNAL_ASPECT_LAMP_FAILURE}		Basic LS
Eu.LS.6870	Req	when(d2in_Required_Signal_Aspect = "Signal Aspect 1")[NOT D4in_Fault_Lamps_Aspect_1]/{SIGNAL_ASPECT_2 - SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7556	Req	when(NOT d3in_Required_Intentionally_Dark)/ D8out_Set_Intentionally_Dark := FALSE;{State-internal in SIGNAL_ASPECT_2}		Basic LS
Eu.LS.6871	Req	when(d9in_Set_Luminosity = "Undefined")/{CONTROLLING_SIGNAL_ASPECT - SET_NO_SIGNAL_ASPECT}		Basic LS
Eu.LS.6579	Info	SET_NO_SIGNAL_ASPECT		Basic LS
Eu.LS.6791	Req	entry/D7out_Set_Signal_Aspect := "No Signal Aspect";{State-internal in SET_NO_SIGNAL_ASPECT}		Basic LS
Eu.LS.6580	Req	when(d51in_EST_EfeS_State = "BOOTING" OR d51in_EST_EfeS_State = "INITIALISING")/Mem_Set_Aspect := "";{OPERATING_VOLTAGE - OPERATING_VOLTAGE}		Basic LS
Eu.LS.6582	Req	when(d51in_EST_EfeS_State = "NO_OPERATING_VOLTAGE" OR d51in_EST_EfeS_State = "FALLBACK_MODE")/{OPERATING_VOLTAGE - NATIONAL_ASPECT}		Basic LS
Eu.LS.7217	Info	F_Observe_Signal_Aspect		Basic LS
Eu.LS.7218	Info	F_Observe_Signal_Aspect [Ports - LS IBD 2] 		Basic LS
Eu.LS.7221	Info	d19out_Observed_Signal_Aspect		Basic LS
Eu.LS.7220	Info	d20out_Observed_Intentionally_Dark		Basic LS
Eu.LS.7222	Info	D17in_Sensed_Signal_Aspect	The port D17in_Sensed_Signal_Aspect represents the sensed state of the Signal Aspect.	Basic LS
Eu.LS.7224	Info	D18in_Sensed_Intentionally_Dark	The port D18in_Sensed_Intentionally_Dark represents the sensed state of intentionally dark.	Basic LS
Eu.LS.7223	Info	d51in_EST_EfeS_State		Basic LS
Eu.LS.7225	Info	F_Observe_Signal_Aspect - Behaviour		Basic LS

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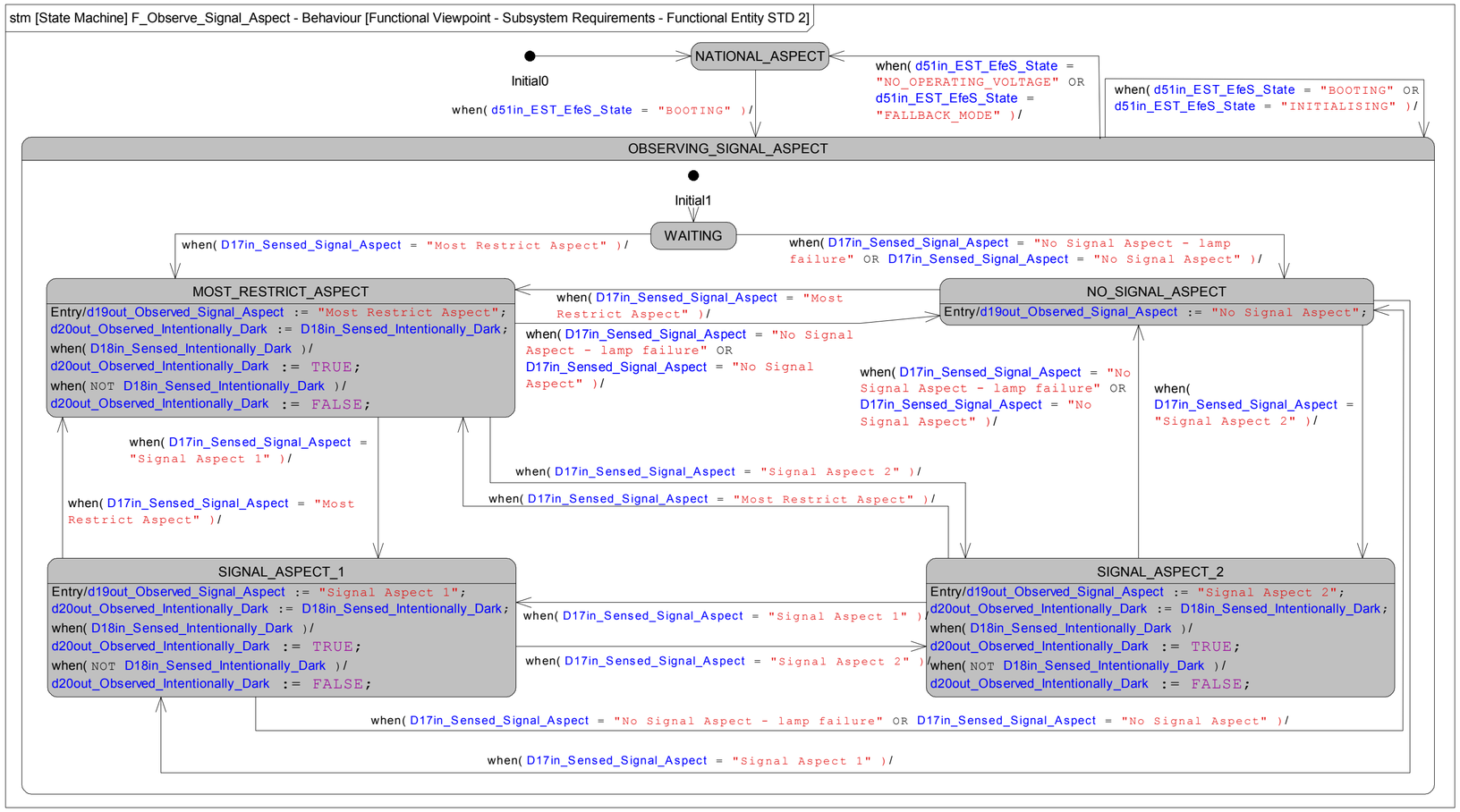
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.7226	Info	Functional Viewpoint - Subsystem Requirements - Functional Entity STD 2		Basic LS



Eu.LS.7227	Info	Initial0		Basic LS
Eu.LS.7228	Req	/{Initial0 - NATIONAL_ASPECT}		Basic LS
Eu.LS.7229	Info	NATIONAL_ASPECT		Basic LS
Eu.LS.7230	Req	when(d51in_EST_EfeS_State = "BOOTING")/{NATIONAL_ASPECT - OBSERVING_SIGNAL_ASPECT}		Basic LS
Eu.LS.7231	Info	OBSERVING_SIGNAL_ASPECT		Basic LS
Eu.LS.7260	Req	when(d51in_EST_EfeS_State = "BOOTING" OR d51in_EST_EfeS_State = "INITIALISING")/{OBSERVING_SIGNAL_ASPECT - OBSERVING_SIGNAL_ASPECT}		Basic LS
Eu.LS.7261	Req	when(d51in_EST_EfeS_State = "NO_OPERATING_VOLTAGE" OR d51in_EST_EfeS_State = "FALLBACK_MODE")/{OBSERVING_SIGNAL_ASPECT - NATIONAL_ASPECT}		Basic LS
Eu.LS.7233	Info	Initial1		Basic LS
Eu.LS.7234	Req	/{Initial1 - WAITING}		Basic LS
Eu.LS.7238	Info	MOST_RESTRICT_ASPECT		Basic LS
Eu.LS.7239	Req	entry/d19out_Observed_Signal_Aspect := "Most Restrict Aspect"; d20out_Observed_Intentionally_Dark := D18in_Sensed_Intentionally_Dark;{State-internal in MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7240	Req	when(D18in_Sensed_Intentionally_Dark)/ d20out_Observed_Intentionally_Dark := TRUE;{State-internal in MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7241	Req	when(D17in_Sensed_Signal_Aspect = "No Signal Aspect - lamp failure" OR D17in_Sensed_Signal_Aspect = "No Signal Aspect")/{MOST_RESTRICT_ASPECT - NO_SIGNAL_ASPECT}		Basic LS
Eu.LS.7242	Req	when(D17in_Sensed_Signal_Aspect = "Signal Aspect 2")/{MOST_RESTRICT_ASPECT - SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7243	Req	when(D17in_Sensed_Signal_Aspect = "Signal Aspect 1")/{MOST_RESTRICT_ASPECT - SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7565	Req	when(NOT D18in_Sensed_Intentionally_Dark)/ d20out_Observed_Intentionally_Dark := FALSE;{State-internal in MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7244	Info	NO_SIGNAL_ASPECT		Basic LS
Eu.LS.7245	Req	entry/d19out_Observed_Signal_Aspect := "No Signal Aspect";{State-internal in NO_SIGNAL_ASPECT}		Basic LS

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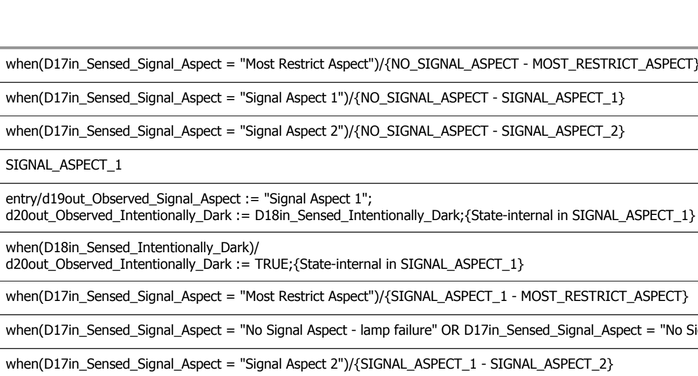
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.7246	Req	when(D17in_Sensed_Signal_Aspect = "Most Restrict Aspect")/{NO_SIGNAL_ASPECT - MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7619	Req	when(D17in_Sensed_Signal_Aspect = "Signal Aspect 1")/{NO_SIGNAL_ASPECT - SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7620	Req	when(D17in_Sensed_Signal_Aspect = "Signal Aspect 2")/{NO_SIGNAL_ASPECT - SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7248	Info	SIGNAL_ASPECT_1		Basic LS
Eu.LS.7249	Req	entry/d19out_Observed_Signal_Aspect := "Signal Aspect 1"; d20out_Observed_Intentionally_Dark := D18in_Sensed_Intentionally_Dark;{State-internal in SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7250	Req	when(D18in_Sensed_Intentionally_Dark)/ d20out_Observed_Intentionally_Dark := TRUE;{State-internal in SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7251	Req	when(D17in_Sensed_Signal_Aspect = "Most Restrict Aspect")/{SIGNAL_ASPECT_1 - MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7252	Req	when(D17in_Sensed_Signal_Aspect = "No Signal Aspect - lamp failure" OR D17in_Sensed_Signal_Aspect = "No Signal Aspect")/{SIGNAL_ASPECT_1 - NO_SIGNAL_ASPECT}		Basic LS
Eu.LS.7253	Req	when(D17in_Sensed_Signal_Aspect = "Signal Aspect 2")/{SIGNAL_ASPECT_1 - SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7566	Req	when(NOT D18in_Sensed_Intentionally_Dark)/ d20out_Observed_Intentionally_Dark := FALSE;{State-internal in SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7254	Info	SIGNAL_ASPECT_2		Basic LS
Eu.LS.7255	Req	entry/d19out_Observed_Signal_Aspect := "Signal Aspect 2"; d20out_Observed_Intentionally_Dark := D18in_Sensed_Intentionally_Dark;{State-internal in SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7256	Req	when(D18in_Sensed_Intentionally_Dark)/ d20out_Observed_Intentionally_Dark := TRUE;{State-internal in SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7257	Req	when(D17in_Sensed_Signal_Aspect = "Most Restrict Aspect")/{SIGNAL_ASPECT_2 - MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7258	Req	when(D17in_Sensed_Signal_Aspect = "No Signal Aspect - lamp failure" OR D17in_Sensed_Signal_Aspect = "No Signal Aspect")/{SIGNAL_ASPECT_2 - NO_SIGNAL_ASPECT}		Basic LS
Eu.LS.7259	Req	when(D17in_Sensed_Signal_Aspect = "Signal Aspect 1")/{SIGNAL_ASPECT_2 - SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7567	Req	when(NOT D18in_Sensed_Intentionally_Dark)/ d20out_Observed_Intentionally_Dark := FALSE;{State-internal in SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7483	Info	WAITING		Basic LS
Eu.LS.7236	Req	when(D17in_Sensed_Signal_Aspect = "Most Restrict Aspect")/{WAITING - MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7237	Req	when(D17in_Sensed_Signal_Aspect = "No Signal Aspect - lamp failure" OR D17in_Sensed_Signal_Aspect = "No Signal Aspect")/{WAITING - NO_SIGNAL_ASPECT}		Basic LS
Eu.LS.6655	Info	F_Control_Luminosity		Basic LS
Eu.LS.6734	Info	F_Control_Luminosity [Ports - LS IBD 3] 		Basic LS
Eu.LS.6664	Info	d11in_Required_Luminosity		Basic LS
Eu.LS.6659	Info	D12in_Con_Luminosity	The port D12in_Con_Luminosity provides configuration values for the default Luminosity. - True: Day - False: Night	Basic LS
Eu.LS.6660	Info	D13in_Luminosity_Day_Fault	The port D13in_Luminosity_Day_Fault represents a Fault of the Day Luminosity.	Basic LS
Eu.LS.6661	Info	D14in_Luminosity_Night_Fault	The port D14in_Luminosity_Night_Fault represents a Fault of the Night Luminosity.	Basic LS
Eu.LS.6742	Info	T5out_SIL_Not_Fulfilled	The port T5out_SIL_Not_Fulfilled indicates that the Initial State Of Outputs could not be achieved in the state BOOTING or INITIALISING.	Basic LS
Eu.LS.6662	Info	D16in_Luminosity_Set_Unchangeable	The port D16in_Luminosity_Set_Unchangeable represents whether the Luminosity can be changed or not.	Basic LS
Eu.LS.6663	Info	d51in_EST_EfeS_State		Basic LS

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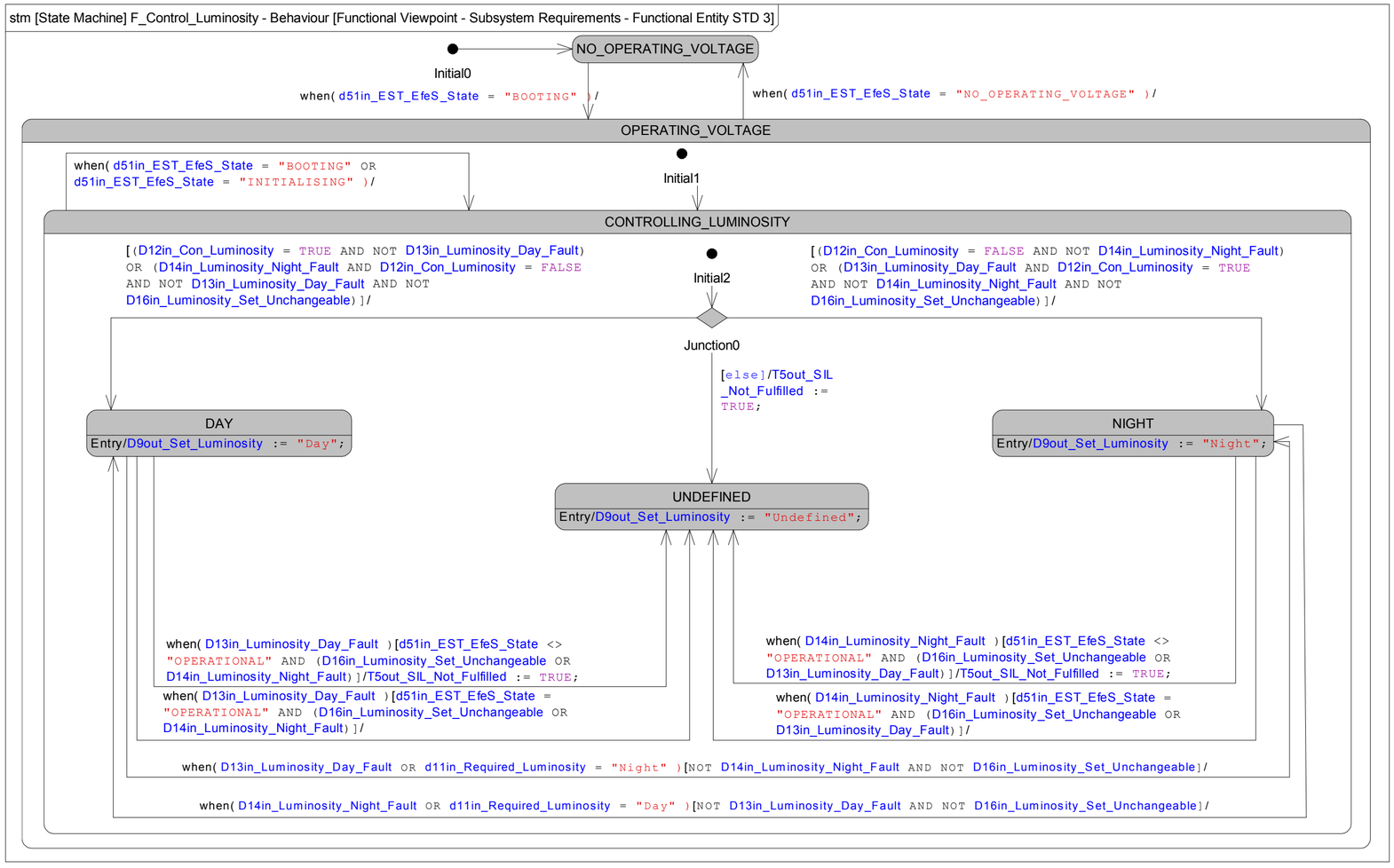
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.6656	Info	D9out_Set_Luminosity	The port D9out_Set_Luminosity indicates the set Luminosity.	Basic LS
Eu.LS.6666	Info	F_Control_Luminosity - Behaviour		Basic LS
Eu.LS.6669	Info	Functional Viewpoint - Subsystem Requirements - Functional Entity STD 3		Basic LS



Eu.LS.6667	Info	Initial0		Basic LS
Eu.LS.6668	Req	/{Initial0 - NO_OPERATING_VOLTAGE}		Basic LS
Eu.LS.6670	Info	NO_OPERATING_VOLTAGE		Basic LS
Eu.LS.6671	Req	when(d51in_EST_EfeS_State = "BOOTING")/{NO_OPERATING_VOLTAGE - OPERATING_VOLTAGE}		Basic LS
Eu.LS.6672	Info	OPERATING_VOLTAGE		Basic LS
Eu.LS.6675	Info	Initial1		Basic LS
Eu.LS.6676	Req	/{Initial1 - CONTROLLING_LUMINOSITY}		Basic LS
Eu.LS.6677	Info	CONTROLLING_LUMINOSITY		Basic LS
Eu.LS.6701	Info	Initial2		Basic LS
Eu.LS.6702	Req	/{Initial2 - Junction0}		Basic LS
Eu.LS.6885	Info	Junction0		Basic LS
Eu.LS.6886	Req	[(D12in_Con_Luminosity = TRUE AND NOT D13in_Luminosity_Day_Fault) OR (D14in_Luminosity_Night_Fault AND D12in_Con_Luminosity = FALSE AND NOT D13in_Luminosity_Day_Fault AND NOT D16in_Luminosity_Set_Unchangeable)]/{Junction0 - DAY}		Basic LS
Eu.LS.6887	Req	[(D12in_Con_Luminosity = FALSE AND NOT D14in_Luminosity_Night_Fault) OR (D13in_Luminosity_Day_Fault AND D12in_Con_Luminosity = TRUE AND NOT D14in_Luminosity_Night_Fault AND NOT D16in_Luminosity_Set_Unchangeable)]/{Junction0 - NIGHT}		Basic LS

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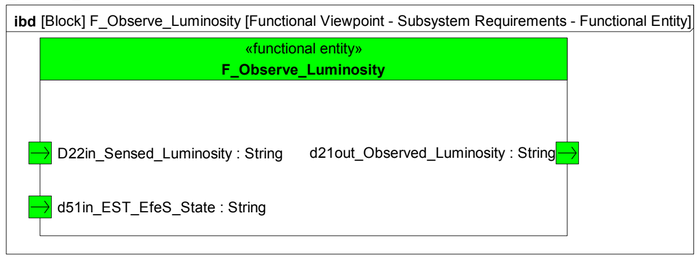
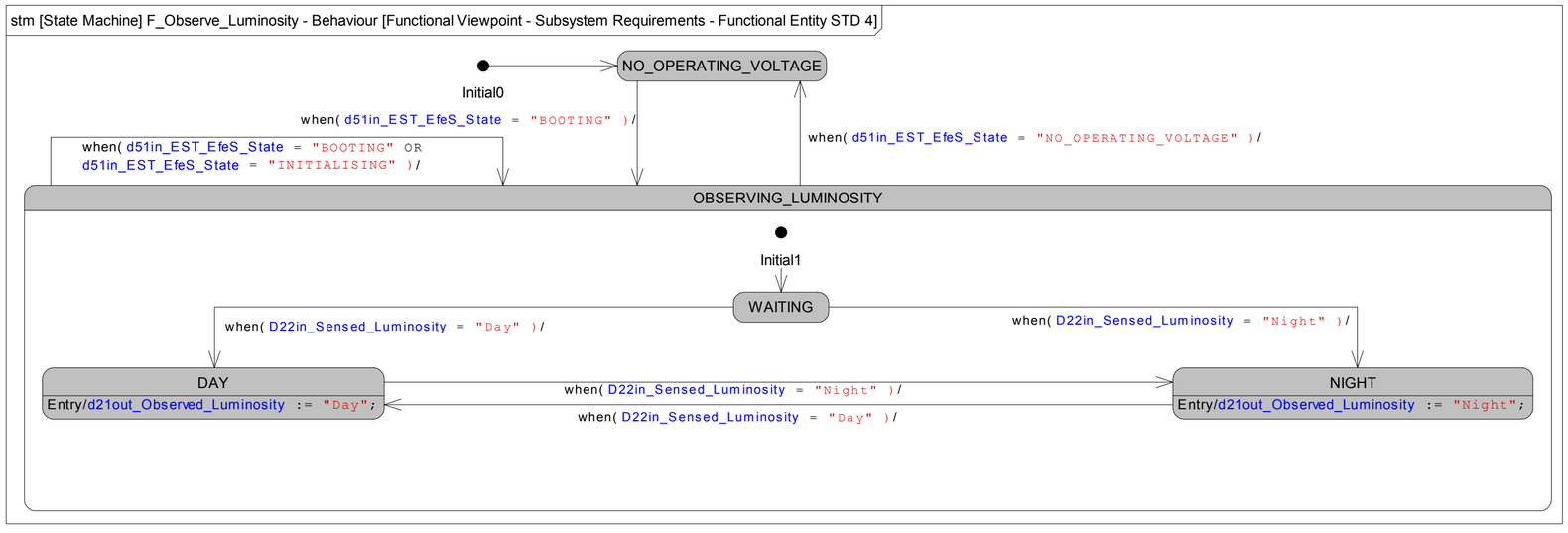
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.6888	Req	[else]/T5out_SIL_Not_Fulfilled := TRUE;{Junction0 - UNDEFINED}		Basic LS
Eu.LS.6725	Info	DAY		Basic LS
Eu.LS.6898	Req	entry/D9out_Set_Luminosity := "Day";{State-internal in DAY}		Basic LS
Eu.LS.6712	Req	when(D13in_Luminosity_Day_Fault)[d51in_EST_EfeS_State <> "OPERATIONAL" AND (D16in_Luminosity_Set_Unchangeable OR D14in_Luminosity_Night_Fault)]/T5out_SIL_Not_Fulfilled := TRUE;{DAY - UNDEFINED}		Basic LS
Eu.LS.6724	Req	when(D13in_Luminosity_Day_Fault)[d51in_EST_EfeS_State = "OPERATIONAL" AND (D16in_Luminosity_Set_Unchangeable OR D14in_Luminosity_Night_Fault)]/{DAY - UNDEFINED}		Basic LS
Eu.LS.6728	Req	when(D13in_Luminosity_Day_Fault OR d11in_Required_Luminosity = "Night")[NOT D14in_Luminosity_Night_Fault AND NOT D16in_Luminosity_Set_Unchangeable]/{DAY - NIGHT}		Basic LS
Eu.LS.6713	Info	NIGHT		Basic LS
Eu.LS.6899	Req	entry/D9out_Set_Luminosity := "Night";{State-internal in NIGHT}		Basic LS
Eu.LS.6705	Req	when(D14in_Luminosity_Night_Fault)[d51in_EST_EfeS_State <> "OPERATIONAL" AND (D16in_Luminosity_Set_Unchangeable OR D13in_Luminosity_Day_Fault)]/T5out_SIL_Not_Fulfilled := TRUE;{NIGHT - UNDEFINED}		Basic LS
Eu.LS.6704	Req	when(D14in_Luminosity_Night_Fault)[d51in_EST_EfeS_State = "OPERATIONAL" AND (D16in_Luminosity_Set_Unchangeable OR D13in_Luminosity_Day_Fault)]/{NIGHT - UNDEFINED}		Basic LS
Eu.LS.6727	Req	when(D14in_Luminosity_Night_Fault OR d11in_Required_Luminosity = "Day")[NOT D13in_Luminosity_Day_Fault AND NOT D16in_Luminosity_Set_Unchangeable]/{NIGHT - DAY}		Basic LS
Eu.LS.6707	Info	UNDEFINED		Basic LS
Eu.LS.6900	Req	entry/D9out_Set_Luminosity := "Undefined";{State-internal in UNDEFINED}		Basic LS
Eu.LS.6674	Req	when(d51in_EST_EfeS_State = "BOOTING" OR d51in_EST_EfeS_State = "INITIALISING")/{CONTROLLING_LUMINOSITY - CONTROLLING_LUMINOSITY}		Basic LS
Eu.LS.6733	Req	when(d51in_EST_EfeS_State = "NO_OPERATING_VOLTAGE")/{OPERATING_VOLTAGE - NO_OPERATING_VOLTAGE}		Basic LS
Eu.LS.7186	Info	F_Observe_Luminosity		Basic LS
Eu.LS.7187	Info	F_Observe_Luminosity [Ports - LS IBD 4] 		Basic LS
Eu.LS.7189	Info	D22in_Sensed_Luminosity	The port D22in_Sensed_Luminosity represents the sensed state of the Luminosity.	Basic LS
Eu.LS.7190	Info	d21out_Observed_Luminosity		Basic LS
Eu.LS.7191	Info	d51in_EST_EfeS_State		Basic LS
Eu.LS.7192	Info	F_Observe_Luminosity - Behaviour		Basic LS
Eu.LS.7193	Info	Functional Viewpoint - Subsystem Requirements - Functional Entity STD 4 		Basic LS
Eu.LS.7194	Info	Initial0		Basic LS
Eu.LS.7195	Req	/{Initial0 - NO_OPERATING_VOLTAGE}		Basic LS

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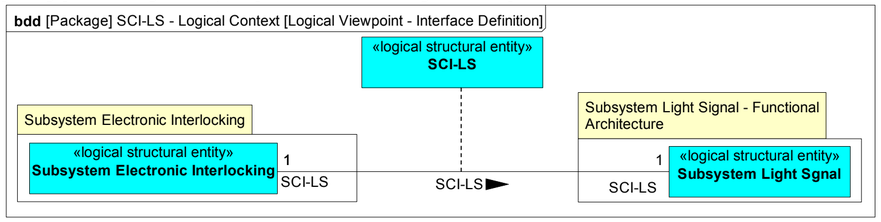
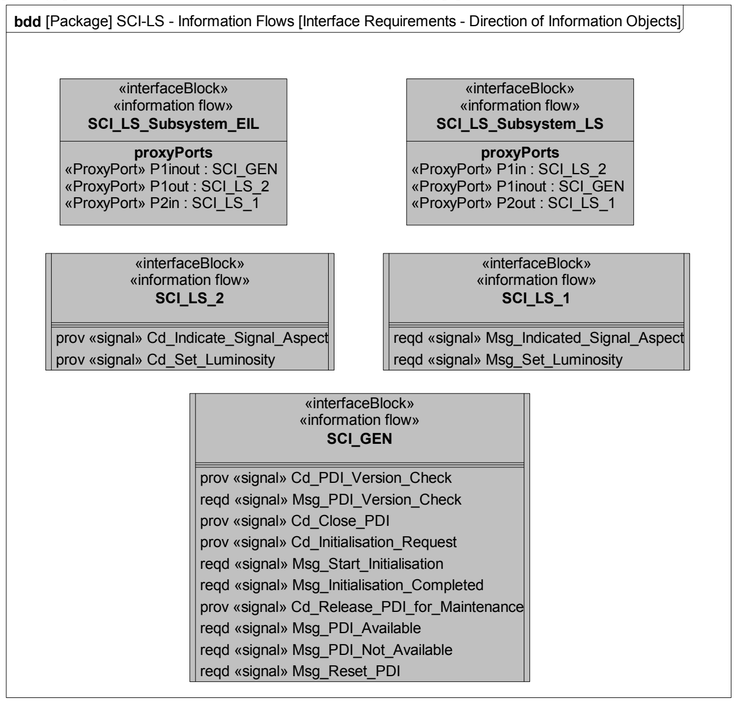
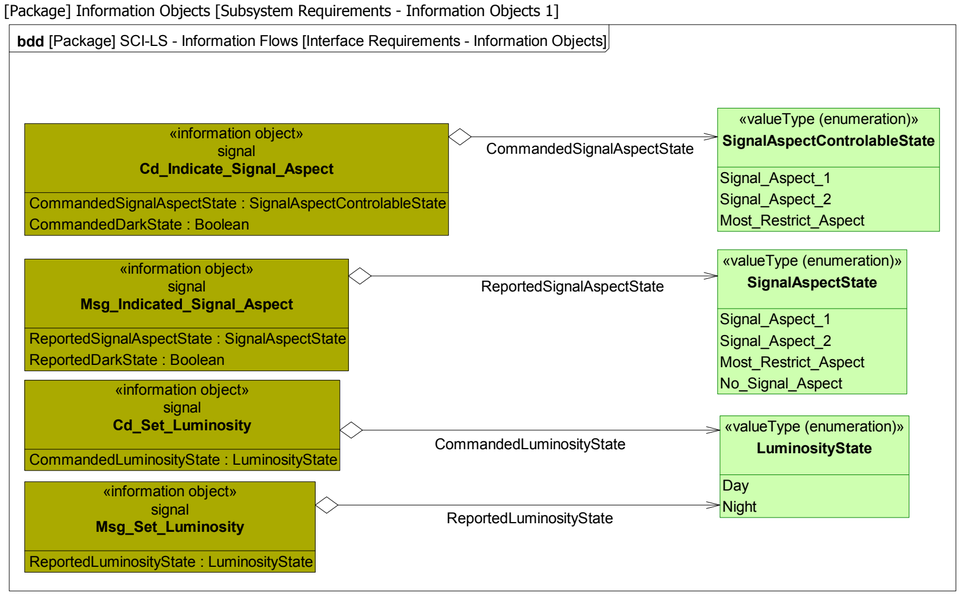
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.7196	Info	NO_OPERATING_VOLTAGE		Basic LS
Eu.LS.7197	Req	when(d51in_EST_EfeS_State = "BOOTING")/{NO_OPERATING_VOLTAGE - OBSERVING_LUMINOSITY}		Basic LS
Eu.LS.7201	Info	OBSERVING_LUMINOSITY		Basic LS
Eu.LS.7206	Info	Initial1		Basic LS
Eu.LS.7207	Req	/{Initial1 - WAITING}		Basic LS
Eu.LS.7203	Info	DAY		Basic LS
Eu.LS.7204	Req	entry/d21out_Observed_Luminosity := "Day";{State-internal in DAY}		Basic LS
Eu.LS.7205	Req	when(D22in_Sensed_Luminosity = "Night")/{DAY - NIGHT}		Basic LS
Eu.LS.7211	Info	NIGHT		Basic LS
Eu.LS.7212	Req	entry/d21out_Observed_Luminosity := "Night";{State-internal in NIGHT}		Basic LS
Eu.LS.7213	Req	when(D22in_Sensed_Luminosity = "Day")/{NIGHT - DAY}		Basic LS
Eu.LS.7215	Req	when(d51in_EST_EfeS_State = "BOOTING" OR d51in_EST_EfeS_State = "INITIALISING")/{OBSERVING_LUMINOSITY - OBSERVING_LUMINOSITY}		Basic LS
Eu.LS.7564	Info	WAITING		Basic LS
Eu.LS.7209	Req	when(D22in_Sensed_Luminosity = "Day")/{WAITING - DAY}		Basic LS
Eu.LS.7210	Req	when(D22in_Sensed_Luminosity = "Night")/{WAITING - NIGHT}		Basic LS
Eu.LS.7216	Req	when(d51in_EST_EfeS_State = "NO_OPERATING_VOLTAGE")/{OBSERVING_LUMINOSITY - NO_OPERATING_VOLTAGE}		Basic LS
Eu.LS.7485	Head	**3.4 Subsystem Light Signal - Interfaces**		
Eu.LS.4685	Head	**3.4.1 SCI-LS (Subsystem - Electronic Interlocking)**		
Eu.LS.6465	Head	**3.4.1.1 SCI-LS - Logical Viewpoint**		
Eu.LS.7597	Head	**3.4.1.1.1 SCI-LS - Logical Context**		
Eu.LS.7492	Info	[Package] SCI-LS - Logical Viewpoint [Interface Definition - Logical Context]  		Basic LS
Eu.LS.7486	Head	**3.4.1.2 SCI-LS - Information Flows**		
Eu.LS.6102	Info	The generic commands and messages through the SCI_LS_Subsystem_EIL are specified in Eu.Doc.119.		Basic LS

ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.7178	Info	[Package] Interface SCI-LS (Subsystem - Electronic Interlocking) [1] 		Basic LS
Eu.LS.7180	Info	[Package] Information Objects [Subsystem Requirements - Information Objects 1] 		Basic LS
Eu.LS.7586	Info	Cd_Indicate_Signal_Aspect	Command (Cd) from the Subsystem - Electronic Interlocking to the Subsystem Light Signal to indicate the transmitted Signal Aspect.	Basic LS
Eu.LS.7587	Info	Cd_Set_Luminosity	Command (Cd) from the Subsystem - Electronic Interlocking to the Subsystem Light Signal to set the transmitted Luminosity.	Basic LS
Eu.LS.7588	Info	Msg_Indicated_Signal_Aspect	Message (Msg) from the Subsystem Light Signal to the Subsystem - Electronic Interlocking of the indicated Signal Aspect.	Basic LS
Eu.LS.7589	Info	Msg_Set_Luminosity	Message (Msg) from the Subsystem Light Signal to the Subsystem - Electronic Interlocking of the set Luminosity.	Basic LS

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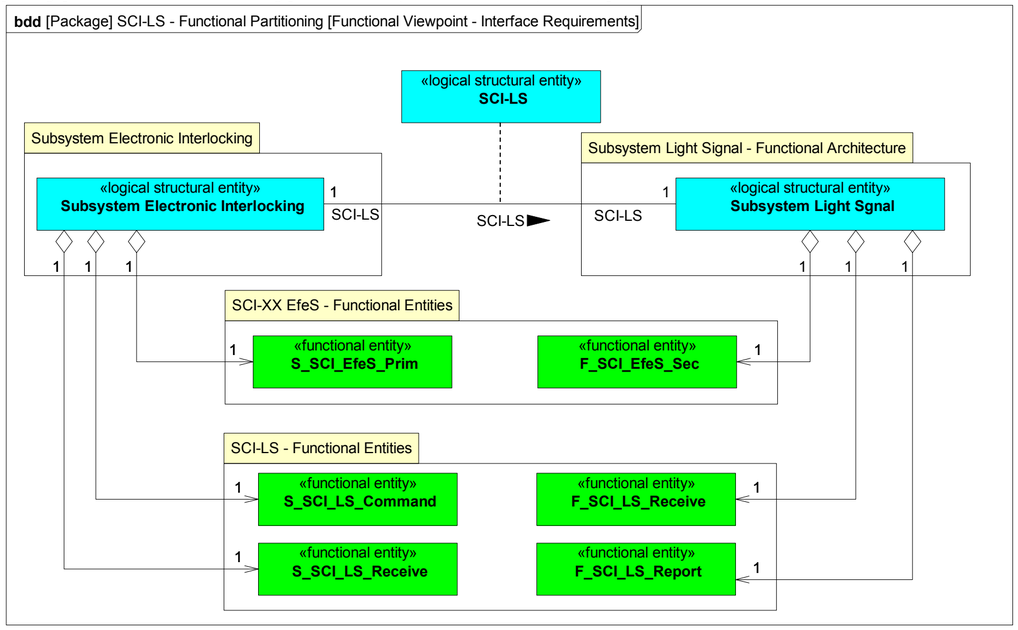
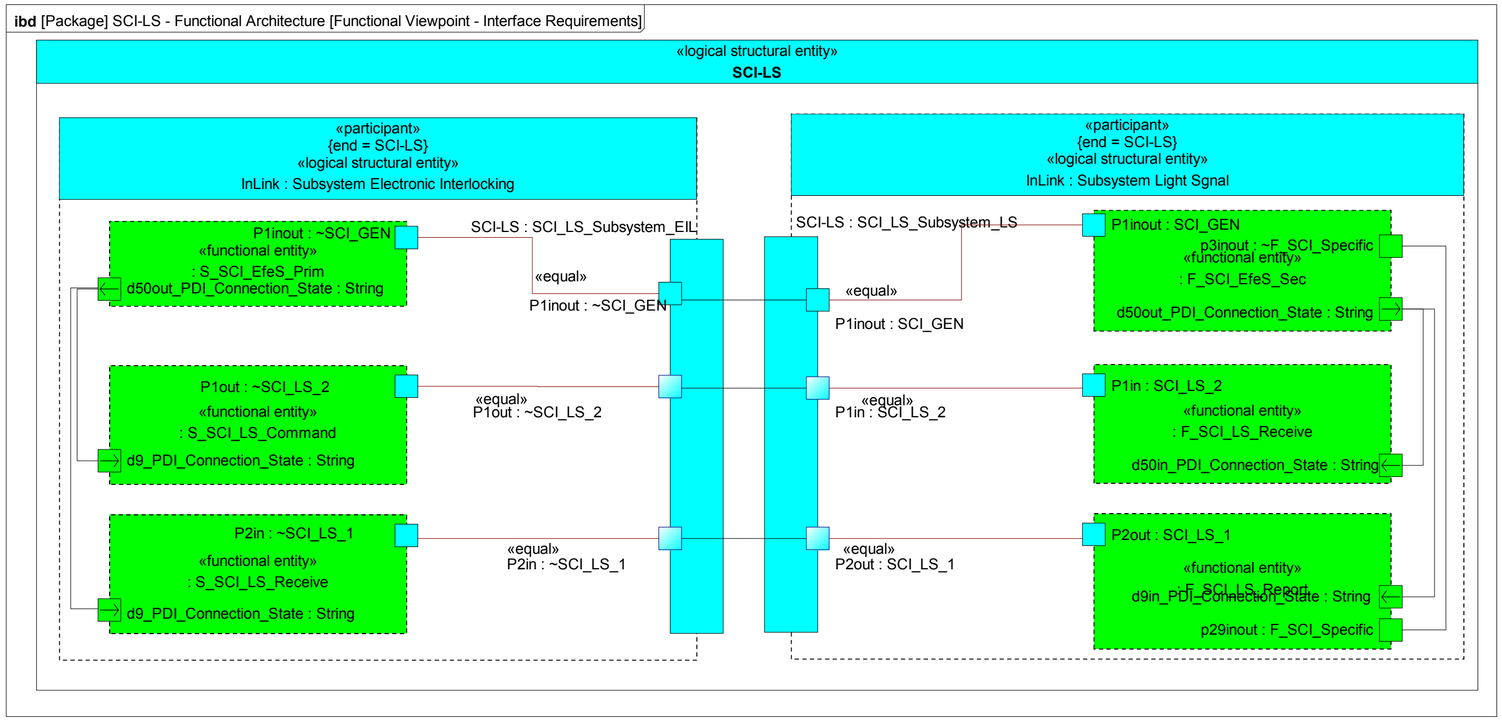
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.7489	Head	**3.4.1.3 SCI-LS - Functional Viewpoint**		
Eu.LS.7585	Head	**3.4.1.3.1 SCI-LS - Functional Partitioning**		
Eu.LS.6474	Info	[Package] SCI-LS - Functional Partitioning [Functional Viewpoint - Interface Requirements] 		Basic LS
Eu.LS.7569	Head	**3.4.1.3.2 SCI-LS - Functional Architecture**		
Eu.LS.6466	Info	SCI-LS		Basic LS
Eu.LS.6471	Info	SCI-LS [Functional Viewpoint - Interface Requirements - Functional Architecture] 		Basic LS
Eu.LS.7570	Head	**3.4.1.3.3 SCI-LS - Functional Entities**		
Eu.LS.6593	Info	F_SCI_LS_Receive		Basic LS

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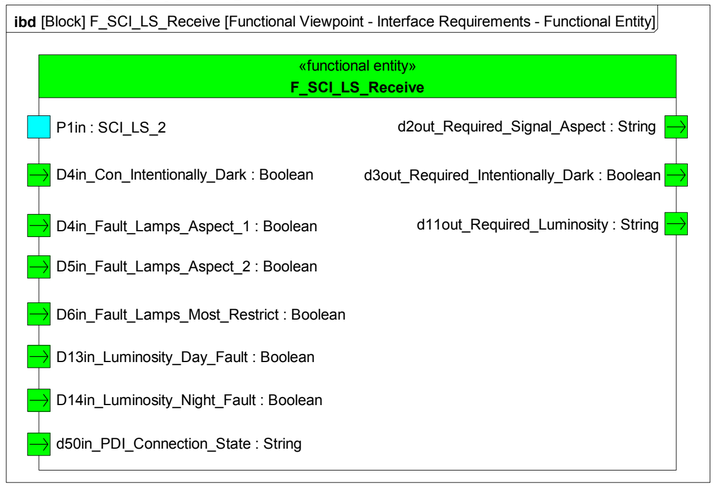
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.6639	Info	[Block] F_SCI_LS_Receive [Ports - SCI_LS IBD 3] 		Basic LS
Eu.LS.7466	Info	P1in	The port P1in exchanges information objects according to SCI_LS_2.	Basic LS
Eu.LS.6601	Info	d2out_Required_Signal_Aspect		Basic LS
Eu.LS.6600	Info	d3out_Required_Intentionally_Dark		Basic LS
Eu.LS.7514	Info	D4in_Fault_Lamps_Aspect_1	The port D4in_Fault_Lamps_Aspect_1 represents a Fault of the Lamps for Signal Aspect 1.	Basic LS
Eu.LS.7515	Info	D5in_Fault_Lamps_Aspect_2	The port D5in_Fault_Lamps_Aspect_2 represents a Fault of the Lamps for Signal Aspect 2.	Basic LS
Eu.LS.7516	Info	D6in_Fault_Lamps_Most_Restrict	The port D6in_Fault_Lamps_Most_Restrict represents a Fault of the Lamps for most restrictive Signal Aspect.	Basic LS
Eu.LS.6602	Info	d11out_Required_Luminosity		Basic LS
Eu.LS.7512	Info	D13in_Luminosity_Day_Fault	The port D13in_Luminosity_Day_Fault represents a Fault of the Day Luminosity.	Basic LS
Eu.LS.7513	Info	D14in_Luminosity_Night_Fault	The port D14in_Luminosity_Night_Fault represents a Fault of the Night Luminosity.	Basic LS
Eu.LS.6596	Info	d50in_PDI_Connection_State		Basic LS
Eu.LS.6595	Info	D4in_Con_Intentionally_Dark	The port D4in_Con_Intentionally_Dark provides the configuration value whether the Subsystem Light Signal is switchable to intentionally dark or not.	Basic LS
Eu.LS.6609	Info	F_SCI_LS_Receive - Behaviour		Basic LS

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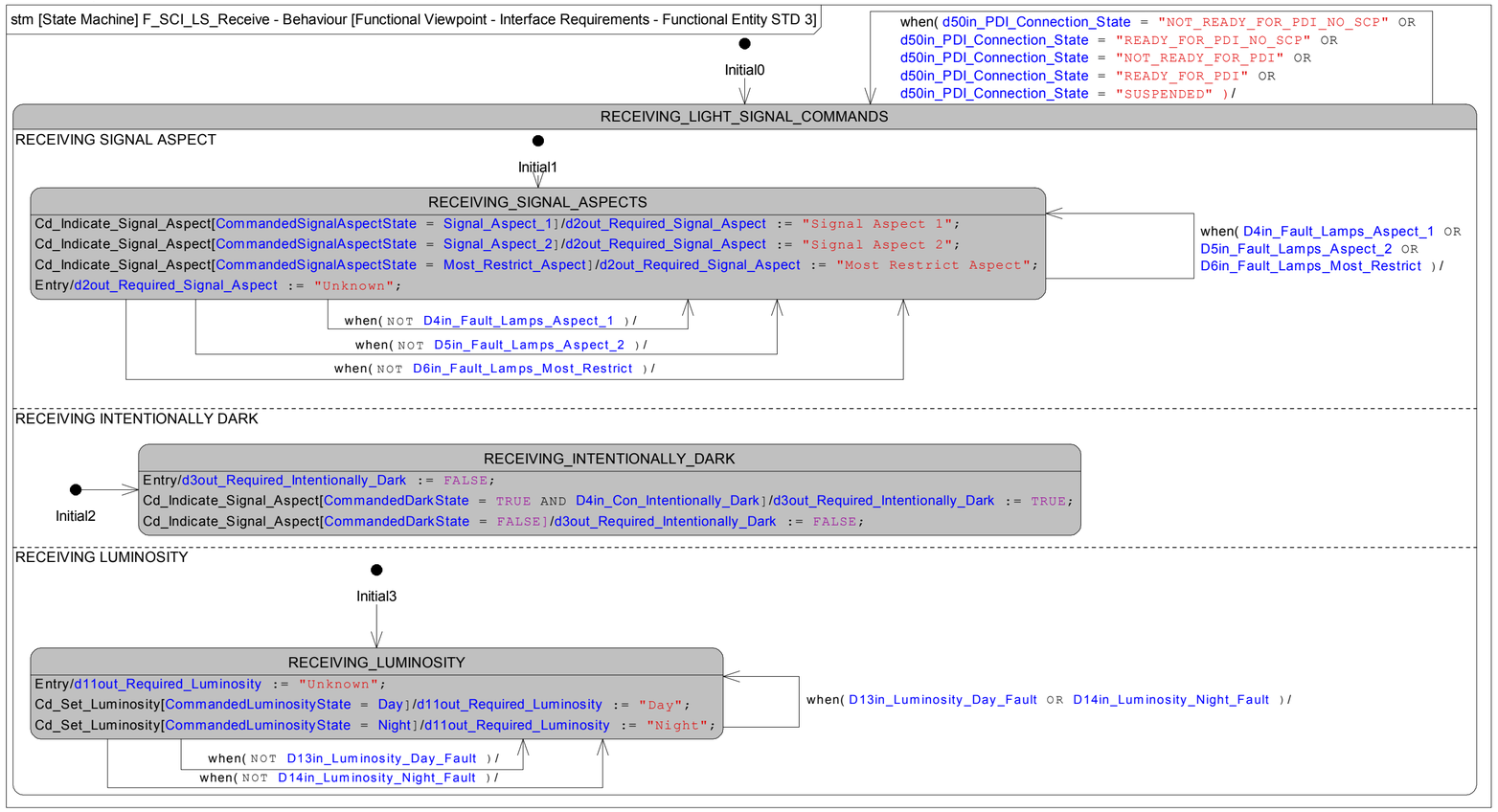
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.6635	Info	Functional Viewpoint - Interface Requirements - Functional Entity STD 3 		Basic LS
Eu.LS.6610	Info	Initial0		Basic LS
Eu.LS.6611	Req	/{Initial0 - RECEIVING_LIGHT_SIGNAL_COMMANDS}		Basic LS
Eu.LS.6636	Info	RECEIVING_LIGHT_SIGNAL_COMMANDS		Basic LS
Eu.LS.7279	Info	RECEIVING SIGNAL ASPECT		Basic LS
Eu.LS.7280	Info	Initial1		Basic LS
Eu.LS.7281	Req	/{Initial1 - RECEIVING_SIGNAL_ASPECTS}		Basic LS
Eu.LS.7282	Info	RECEIVING_SIGNAL_ASPECTS		Basic LS
Eu.LS.7283	Req	Cd_Indicate_Signal_Aspect[CommandedSignalAspectState = Signal_Aspect_1]/d2out_Required_Signal_Aspect := "Signal Aspect 1";{State-internal in RECEIVING_SIGNAL_ASPECTS}		Basic LS
Eu.LS.6614	Req	when(D4in_Fault_Lamps_Aspect_1 OR D5in_Fault_Lamps_Aspect_2 OR D6in_Fault_Lamps_Most_Restrict)/{RECEIVING_SIGNAL_ASPECTS - RECEIVING_SIGNAL_ASPECTS}		Basic LS
Eu.LS.7525	Req	Cd_Indicate_Signal_Aspect[CommandedSignalAspectState = Signal_Aspect_2]/d2out_Required_Signal_Aspect := "Signal Aspect 2";{State-internal in RECEIVING_SIGNAL_ASPECTS}		Basic LS
Eu.LS.7526	Req	Cd_Indicate_Signal_Aspect[CommandedSignalAspectState = Most_Restrict_Aspect]/d2out_Required_Signal_Aspect := "Most Restrict Aspect";{State-internal in RECEIVING_SIGNAL_ASPECTS}		Basic LS
Eu.LS.7527	Req	entry/d2out_Required_Signal_Aspect := "Unknown";{State-internal in RECEIVING_SIGNAL_ASPECTS}		Basic LS
Eu.LS.7573	Req	when(NOT D4in_Fault_Lamps_Aspect_1)/{RECEIVING_SIGNAL_ASPECTS - RECEIVING_SIGNAL_ASPECTS}		Basic LS
Eu.LS.7574	Req	when(NOT D5in_Fault_Lamps_Aspect_2)/{RECEIVING_SIGNAL_ASPECTS - RECEIVING_SIGNAL_ASPECTS}		Basic LS
Eu.LS.7575	Req	when(NOT D6in_Fault_Lamps_Most_Restrict)/{RECEIVING_SIGNAL_ASPECTS - RECEIVING_SIGNAL_ASPECTS}		Basic LS
Eu.LS.7262	Info	RECEIVING INTENTIONALLY DARK		Basic LS
Eu.LS.7265	Req	Initial2		Basic LS
Eu.LS.6619	Req	/{Initial2 - RECEIVING_INTENTIONALLY_DARK}		Basic LS
Eu.LS.6618	Info	RECEIVING_INTENTIONALLY_DARK		Basic LS
Eu.LS.7266	Req	entry/d3out_Required_Intentionally_Dark := FALSE;{State-internal in RECEIVING_INTENTIONALLY_DARK}		Basic LS
Eu.LS.7521	Req	Cd_Indicate_Signal_Aspect[CommandedDarkState = TRUE AND D4in_Con_Intentionally_Dark]/d3out_Required_Intentionally_Dark := TRUE;{State-internal in RECEIVING_INTENTIONALLY_DARK}		Basic LS
Eu.LS.7522	Req	Cd_Indicate_Signal_Aspect[CommandedDarkState = FALSE]/d3out_Required_Intentionally_Dark := FALSE;{State-internal in RECEIVING_INTENTIONALLY_DARK}		Basic LS

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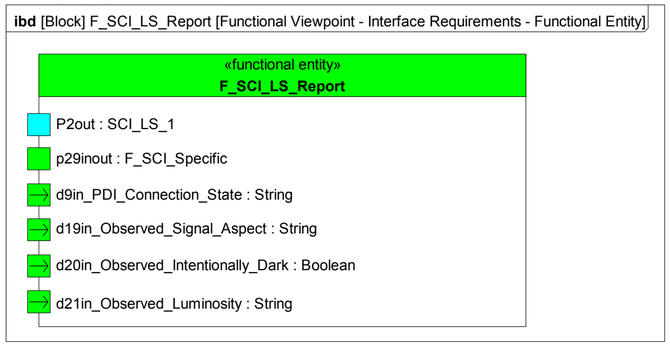
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.7267	Info	RECEIVING LUMINOSITY		Basic LS
Eu.LS.7271	Info	Initial3		Basic LS
Eu.LS.7272	Req	/{Initial3 - RECEIVING_LUMINOSITY}		Basic LS
Eu.LS.7268	Info	RECEIVING_LUMINOSITY		Basic LS
Eu.LS.7270	Req	entry/d11out_Required_Luminosity := "Unknown";{State-internal in RECEIVING_LUMINOSITY}		Basic LS
Eu.LS.7269	Req	when(D13in_Luminosity_Day_Fault OR D14in_Luminosity_Night_Fault)/{RECEIVING_LUMINOSITY - RECEIVING_LUMINOSITY}		Basic LS
Eu.LS.7523	Req	Cd_Set_Luminosity[CommandedLuminosityState = Day]/d11out_Required_Luminosity := "Day";{State-internal in RECEIVING_LUMINOSITY}		Basic LS
Eu.LS.7524	Req	Cd_Set_Luminosity[CommandedLuminosityState = Night]/d11out_Required_Luminosity := "Night";{State-internal in RECEIVING_LUMINOSITY}		Basic LS
Eu.LS.7571	Req	when(NOT D13in_Luminosity_Day_Fault)/{RECEIVING_LUMINOSITY - RECEIVING_LUMINOSITY}		Basic LS
Eu.LS.7572	Req	when(NOT D14in_Luminosity_Night_Fault)/{RECEIVING_LUMINOSITY - RECEIVING_LUMINOSITY}		Basic LS
Eu.LS.7291	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" OR d50in_PDI_Connection_State = "READY_FOR_PDI" OR d50in_PDI_Connection_State = "SUSPENDED")/{RECEIVING_LIGHT_SIGNAL_COMMANDS - RECEIVING_LIGHT_SIGNAL_COMMANDS}		Basic LS
Eu.LS.7292	Info	F_SCI_LS_Report		Basic LS
Eu.LS.7293	Info	[Block] F_SCI_LS_Report [Ports - SCI_LS IBD 4] 		Basic LS
Eu.LS.7467	Info	P2out	The port P2out exchanges information objects according to SCI_LS_1.	Basic LS
Eu.LS.7294	Info	d19in_Observed_Signal_Aspect		Basic LS
Eu.LS.7295	Info	d20in_Observed_Intentionally_Dark		Basic LS
Eu.LS.7296	Info	d21in_Observed_Luminosity		Basic LS
Eu.LS.7297	Info	d9in_PDI_Connection_State		Basic LS
Eu.LS.7584	Info	p29inout		Basic LS
Eu.LS.7298	Info	F_SCI_LS_Report - Behaviour		Basic LS

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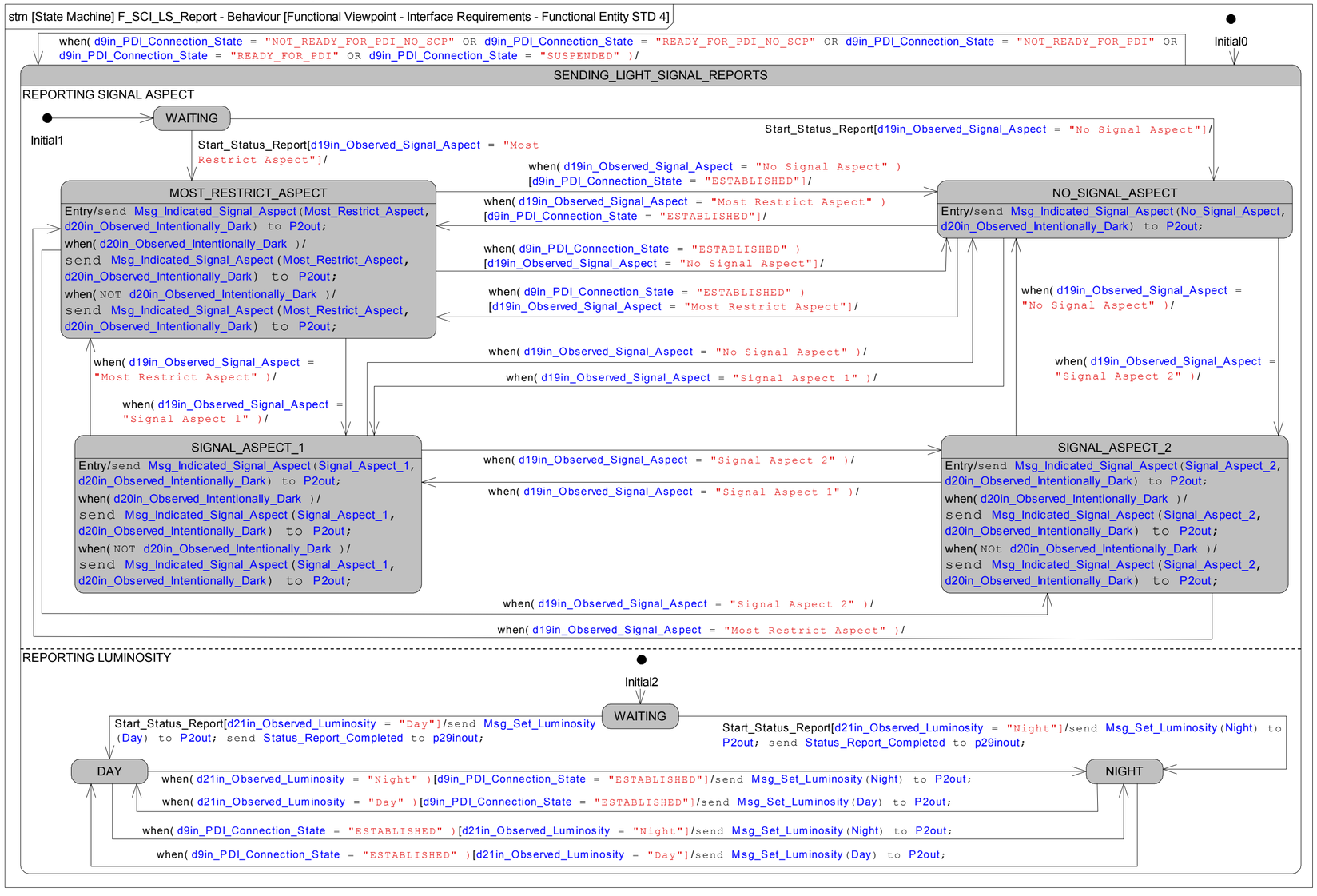
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.7299	Info	Functional Viewpoint - Interface Requirements - Functional Entity STD 4 		Basic LS
Eu.LS.7300	Info	Initial0		Basic LS
Eu.LS.7301	Req	/{Initial0 - SENDING_LIGHT_SIGNAL_REPORTS}		Basic LS
Eu.LS.7302	Info	SENDING_LIGHT_SIGNAL_REPORTS		Basic LS
Eu.LS.7315	Info	REPORTING SIGNAL ASPECT		Basic LS
Eu.LS.7316	Info	Initial1		Basic LS
Eu.LS.7317	Req	/{Initial1 - WAITING}		Basic LS
Eu.LS.7341	Info	WAITING		Basic LS
Eu.LS.7342	Req	Start_Status_Report[d19in_Observed_Signal_Aspect = "No Signal Aspect"]/{WAITING - NO_SIGNAL_ASPECT}		Basic LS
Eu.LS.7343	Req	Start_Status_Report[d19in_Observed_Signal_Aspect = "Most Restrict Aspect"]/{WAITING - MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7318	Info	MOST_RESTRICT_ASPECT		Basic LS
Eu.LS.7319	Req	entry/send Msg_Indicated_Signal_Aspect(Most_Restrict_Aspect, d20in_Observed_Intentionally_Dark) to P2out;{State-internal in MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7320	Req	when(d20in_Observed_Intentionally_Dark)/ send Msg_Indicated_Signal_Aspect(Most_Restrict_Aspect, d20in_Observed_Intentionally_Dark) to P2out;{State-internal in MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7321	Req	when(d19in_Observed_Signal_Aspect = "No Signal Aspect")[d9in_PDI_Connection_State = "ESTABLISHED"]/{MOST_RESTRICT_ASPECT - NO_SIGNAL_ASPECT}		Basic LS

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ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.7322	Req	when(d19in_Observed_Signal_Aspect = "Signal Aspect 2")/{MOST_RESTRICT_ASPECT - SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7323	Req	when(d19in_Observed_Signal_Aspect = "Signal Aspect 1")/{MOST_RESTRICT_ASPECT - SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7579	Req	when(NOT d20in_Observed_Intentionally_Dark)/ send Msg_Indicated_Signal_Aspect(Most_Restrict_Aspect, d20in_Observed_Intentionally_Dark) to P2out;{State-internal in MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7580	Req	when(d9in_PDI_Connection_State = "ESTABLISHED")[d19in_Observed_Signal_Aspect = "No Signal Aspect"]/{MOST_RESTRICT_ASPECT - NO_SIGNAL_ASPECT}		Basic LS
Eu.LS.7324	Info	NO_SIGNAL_ASPECT		Basic LS
Eu.LS.7325	Req	entry/send Msg_Indicated_Signal_Aspect(No_Signal_Aspect, d20in_Observed_Intentionally_Dark) to P2out;{State-internal in NO_SIGNAL_ASPECT}		Basic LS
Eu.LS.7326	Req	when(d19in_Observed_Signal_Aspect = "Most Restrict Aspect")[d9in_PDI_Connection_State = "ESTABLISHED"]/{NO_SIGNAL_ASPECT - MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7327	Req	when(d19in_Observed_Signal_Aspect = "Signal Aspect 2")/{NO_SIGNAL_ASPECT - SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7328	Req	when(d19in_Observed_Signal_Aspect = "Signal Aspect 1")/{NO_SIGNAL_ASPECT - SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7581	Req	when(d9in_PDI_Connection_State = "ESTABLISHED")[d19in_Observed_Signal_Aspect = "Most Restrict Aspect"]/{NO_SIGNAL_ASPECT - MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7329	Info	SIGNAL_ASPECT_1		Basic LS
Eu.LS.7330	Req	entry/send Msg_Indicated_Signal_Aspect(Signal_Aspect_1, d20in_Observed_Intentionally_Dark) to P2out;{State-internal in SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7331	Req	when(d20in_Observed_Intentionally_Dark)/ send Msg_Indicated_Signal_Aspect(Signal_Aspect_1, d20in_Observed_Intentionally_Dark) to P2out;{State-internal in SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7332	Req	when(d19in_Observed_Signal_Aspect = "Most Restrict Aspect")/{SIGNAL_ASPECT_1 - MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7333	Req	when(d19in_Observed_Signal_Aspect = "No Signal Aspect")/{SIGNAL_ASPECT_1 - NO_SIGNAL_ASPECT}		Basic LS
Eu.LS.7334	Req	when(d19in_Observed_Signal_Aspect = "Signal Aspect 2")/{SIGNAL_ASPECT_1 - SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7582	Req	when(NOT d20in_Observed_Intentionally_Dark)/ send Msg_Indicated_Signal_Aspect(Signal_Aspect_1, d20in_Observed_Intentionally_Dark) to P2out;{State-internal in SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7335	Info	SIGNAL_ASPECT_2		Basic LS
Eu.LS.7336	Req	entry/send Msg_Indicated_Signal_Aspect(Signal_Aspect_2, d20in_Observed_Intentionally_Dark) to P2out;{State-internal in SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7337	Req	when(d20in_Observed_Intentionally_Dark)/ send Msg_Indicated_Signal_Aspect(Signal_Aspect_2, d20in_Observed_Intentionally_Dark) to P2out;{State-internal in SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7338	Req	when(d19in_Observed_Signal_Aspect = "Most Restrict Aspect")/{SIGNAL_ASPECT_2 - MOST_RESTRICT_ASPECT}		Basic LS
Eu.LS.7339	Req	when(d19in_Observed_Signal_Aspect = "No Signal Aspect")/{SIGNAL_ASPECT_2 - NO_SIGNAL_ASPECT}		Basic LS
Eu.LS.7340	Req	when(d19in_Observed_Signal_Aspect = "Signal Aspect 1")/{SIGNAL_ASPECT_2 - SIGNAL_ASPECT_1}		Basic LS
Eu.LS.7583	Req	when(NOt d20in_Observed_Intentionally_Dark)/ send Msg_Indicated_Signal_Aspect(Signal_Aspect_2, d20in_Observed_Intentionally_Dark) to P2out;{State-internal in SIGNAL_ASPECT_2}		Basic LS
Eu.LS.7303	Info	REPORTING LUMINOSITY		Basic LS
Eu.LS.7307	Info	Initial2		Basic LS
Eu.LS.7308	Req	/{Initial2 - WAITING}		Basic LS
Eu.LS.7312	Info	WAITING		Basic LS
Eu.LS.7313	Req	Start_Status_Report[d21in_Observed_Luminosity = "Night"]/send Msg_Set_Luminosity(Night) to P2out; send Status_Report_Completed to p29inout;{WAITING - NIGHT}		Basic LS
Eu.LS.7314	Req	Start_Status_Report[d21in_Observed_Luminosity = "Day"]/send Msg_Set_Luminosity(Day) to P2out; send Status_Report_Completed to p29inout;{WAITING - DAY}		Basic LS
Eu.LS.7304	Info	DAY		Basic LS
Eu.LS.7306	Req	when(d21in_Observed_Luminosity = "Night")[d9in_PDI_Connection_State = "ESTABLISHED"]/send Msg_Set_Luminosity(Night) to P2out;{DAY - NIGHT}		Basic LS
Eu.LS.7577	Req	when(d9in_PDI_Connection_State = "ESTABLISHED")[d21in_Observed_Luminosity = "Night"]/send Msg_Set_Luminosity(Night) to P2out;{DAY - NIGHT}		Basic LS
Eu.LS.7309	Info	NIGHT		Basic LS
Eu.LS.7311	Req	when(d21in_Observed_Luminosity = "Day")[d9in_PDI_Connection_State = "ESTABLISHED"]/send Msg_Set_Luminosity(Day) to P2out;{NIGHT - DAY}		Basic LS
Eu.LS.7578	Req	when(d9in_PDI_Connection_State = "ESTABLISHED")[d21in_Observed_Luminosity = "Day"]/send Msg_Set_Luminosity(Day) to P2out;{NIGHT - DAY}		Basic LS
Eu.LS.7344	Req	when(d9in_PDI_Connection_State = "NOT_READY_FOR_PDI_NO_SCP" OR d9in_PDI_Connection_State = "READY_FOR_PDI_NO_SCP" OR d9in_PDI_Connection_State = "NOT_READY_FOR_PDI" OR d9in_PDI_Connection_State = "READY_FOR_PDI" OR d9in_PDI_Connection_State = "SUSPENDED")/{SENDING_LIGHT_SIGNAL_REPORTS - SENDING_LIGHT_SIGNAL_REPORTS}		Basic LS
Eu.LS.6744	Info	S_SCI_LS_Command		Basic LS

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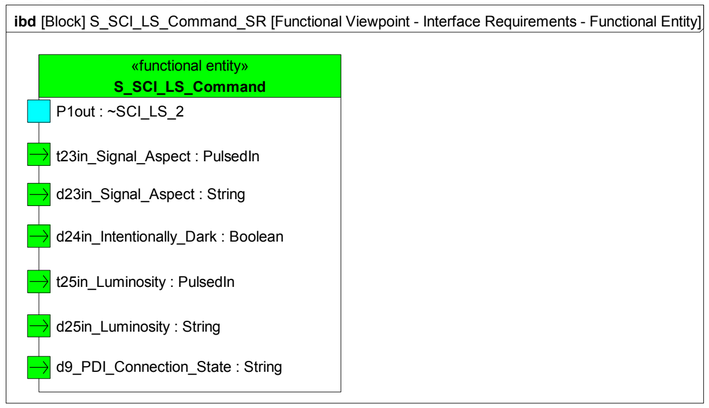
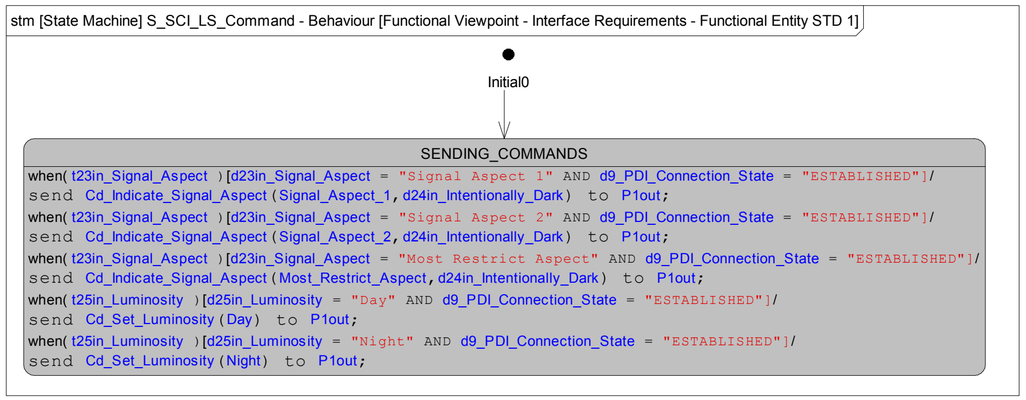
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.6774	Info	[Block] S_SCI_LS_Command_SR [Ports - SCI_LS IBD 1] 		Basic LS
Eu.LS.7468	Info	P1out	The port P1out exchanges information objects according to SCI_LS_2.	Basic LS
Eu.LS.7517	Info	t23in_Signal_Aspect		Basic LS
Eu.LS.6753	Info	d23in_Signal_Aspect		Basic LS
Eu.LS.6752	Info	d24in_Intentionally_Dark		Basic LS
Eu.LS.7518	Info	t25in_Luminosity		Basic LS
Eu.LS.6754	Info	d25in_Luminosity		Basic LS
Eu.LS.6745	Info	d9_PDI_Connection_State		Basic LS
Eu.LS.6758	Info	S_SCI_LS_Command - Behaviour		Basic LS
Eu.LS.6773	Info	Functional Viewpoint - Interface Requirements - Functional Entity STD 1 		Basic LS
Eu.LS.6759	Info	Initial0		Basic LS
Eu.LS.6760	Req	/{Initial0 - SENDING_COMMANDS}		Basic LS
Eu.LS.6771	Info	SENDING_COMMANDS		Basic LS
Eu.LS.7530	Req	when(t23in_Signal_Aspect)[d23in_Signal_Aspect = "Signal Aspect 2" AND d9_PDI_Connection_State = "ESTABLISHED"]/ send Cd_Indicate_Signal_Aspect(Signal_Aspect_2,d24in_Intentionally_Dark) to P1out;{State-internal in SENDING_COMMANDS}		Basic LS
Eu.LS.7531	Req	when(t23in_Signal_Aspect)[d23in_Signal_Aspect = "Most Restrict Aspect" AND d9_PDI_Connection_State = "ESTABLISHED"]/ send Cd_Indicate_Signal_Aspect(Most_Restrict_Aspect,d24in_Intentionally_Dark) to P1out;{State-internal in SENDING_COMMANDS}		Basic LS
Eu.LS.7532	Req	when(t23in_Signal_Aspect)[d23in_Signal_Aspect = "Signal Aspect 1" AND d9_PDI_Connection_State = "ESTABLISHED"]/ send Cd_Indicate_Signal_Aspect(Signal_Aspect_1,d24in_Intentionally_Dark) to P1out;{State-internal in SENDING_COMMANDS}		Basic LS
Eu.LS.7533	Req	when(t25in_Luminosity)[d25in_Luminosity = "Night" AND d9_PDI_Connection_State = "ESTABLISHED"]/ send Cd_Set_Luminosity(Night) to P1out;{State-internal in SENDING_COMMANDS}		Basic LS
Eu.LS.7534	Req	when(t25in_Luminosity)[d25in_Luminosity = "Day" AND d9_PDI_Connection_State = "ESTABLISHED"]/ send Cd_Set_Luminosity(Day) to P1out;{State-internal in SENDING_COMMANDS}		Basic LS
Eu.LS.7379	Info	S_SCI_LS_Receive		Basic LS

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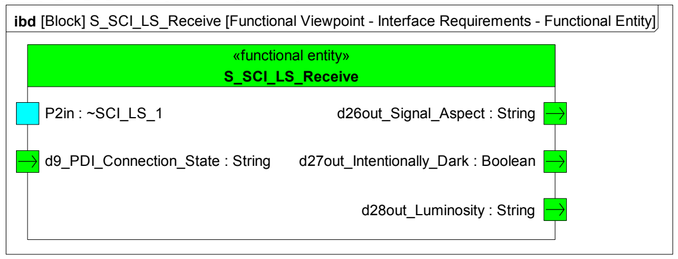
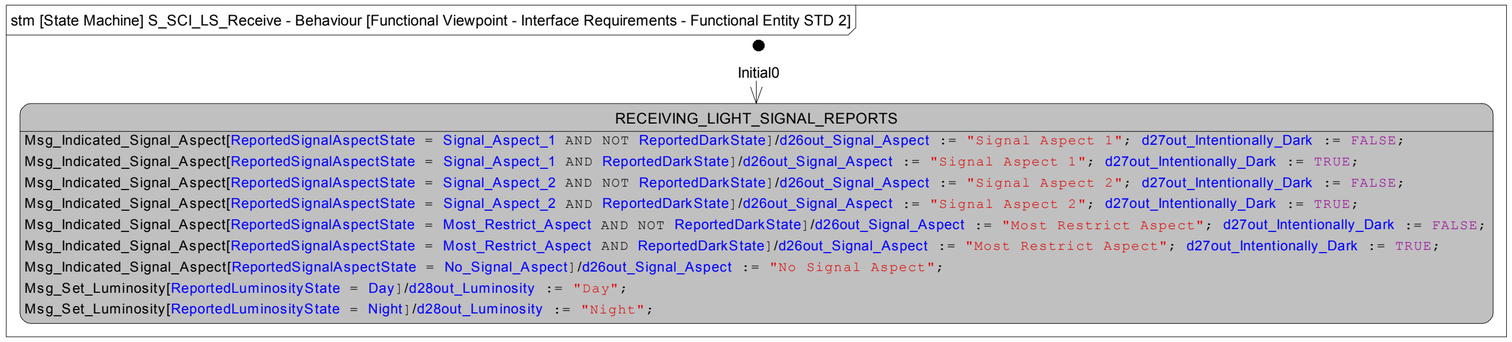
ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.7380	Info	[Block] S_SCI_LS_Receive [Ports - SCI_LS IBD 2] 		Basic LS
Eu.LS.7469	Info	P2in	The port P2in exchanges information objects according to SCI_LS_1.	Basic LS
Eu.LS.7382	Info	d26out_Signal_Aspect		Basic LS
Eu.LS.7383	Info	d27out_Intentionally_Dark		Basic LS
Eu.LS.7384	Info	d28out_Luminosity		Basic LS
Eu.LS.7385	Info	d9_PDI_Connection_State		Basic LS
Eu.LS.7386	Info	S_SCI_LS_Receive - Behaviour		Basic LS
Eu.LS.7387	Info	Functional Viewpoint - Interface Requirements - Functional Entity STD 2 		Basic LS
Eu.LS.7388	Info	Initial0		Basic LS
Eu.LS.7389	Req	/{Initial0 - RECEIVING_LIGHT_SIGNAL_REPORTS}		Basic LS
Eu.LS.7435	Info	RECEIVING_LIGHT_SIGNAL_REPORTS		Basic LS
Eu.LS.7535	Req	Msg_Indicated_Signal_Aspect[ReportedSignalAspectState = Signal_Aspect_1 AND NOT ReportedDarkState]/d26out_Signal_Aspect := "Signal Aspect 1"; d27out_Intentionally_Dark := FALSE;{State-internal in RECEIVING_LIGHT_SIGNAL_REPORTS}		Basic LS
Eu.LS.7536	Req	Msg_Indicated_Signal_Aspect[ReportedSignalAspectState = Signal_Aspect_1 AND ReportedDarkState]/d26out_Signal_Aspect := "Signal Aspect 1"; d27out_Intentionally_Dark := TRUE;{State-internal in RECEIVING_LIGHT_SIGNAL_REPORTS}		Basic LS
Eu.LS.7537	Req	Msg_Indicated_Signal_Aspect[ReportedSignalAspectState = Signal_Aspect_2 AND NOT ReportedDarkState]/d26out_Signal_Aspect := "Signal Aspect 2"; d27out_Intentionally_Dark := FALSE;{State-internal in RECEIVING_LIGHT_SIGNAL_REPORTS}		Basic LS
Eu.LS.7538	Req	Msg_Indicated_Signal_Aspect[ReportedSignalAspectState = Signal_Aspect_2 AND ReportedDarkState]/d26out_Signal_Aspect := "Signal Aspect 2"; d27out_Intentionally_Dark := TRUE;{State-internal in RECEIVING_LIGHT_SIGNAL_REPORTS}		Basic LS
Eu.LS.7539	Req	Msg_Indicated_Signal_Aspect[ReportedSignalAspectState = Most_Restrict_Aspect AND NOT ReportedDarkState]/d26out_Signal_Aspect := "Most Restrict Aspect"; d27out_Intentionally_Dark := FALSE;{State-internal in RECEIVING_LIGHT_SIGNAL_REPORTS}		Basic LS
Eu.LS.7540	Req	Msg_Indicated_Signal_Aspect[ReportedSignalAspectState = Most_Restrict_Aspect AND ReportedDarkState]/d26out_Signal_Aspect := "Most Restrict Aspect"; d27out_Intentionally_Dark := TRUE;{State-internal in RECEIVING_LIGHT_SIGNAL_REPORTS}		Basic LS
Eu.LS.7541	Req	Msg_Indicated_Signal_Aspect[ReportedSignalAspectState = No_Signal_Aspect]/d26out_Signal_Aspect := "No Signal Aspect";{State-internal in RECEIVING_LIGHT_SIGNAL_REPORTS}		Basic LS
Eu.LS.7542	Req	Msg_Set_Luminosity[ReportedLuminosityState = Night]/d28out_Luminosity := "Night";{State-internal in RECEIVING_LIGHT_SIGNAL_REPORTS}		Basic LS
Eu.LS.7543	Req	Msg_Set_Luminosity[ReportedLuminosityState = Day]/d28out_Luminosity := "Day";{State-internal in RECEIVING_LIGHT_SIGNAL_REPORTS}		Basic LS
Eu.LS.4747	Head	**3.4.2 SMI-LS (Subsystem - Maintenance and Data Management)**		
Eu.LS.6104	Info	The generic FlowSpecification and the related FlowProperties through SMI-LS are specified in Eu.Doc.120.		Basic LS
Eu.LS.4696	Head	**3.4.3 SDI-LS (Subsystem - Maintenance and Data Management)**		
Eu.LS.6103	Info	The generic data points through the SDI-LS are specified in Eu.Doc.94. The specific data points through the SDI-LS are specified in Eu.Doc.78.		Basic LS
Eu.LS.7519	Head	**3.4.4 SSI-LS (Subsystem - Security Services Platform)**		
Eu.LS.7520	Info	The generic content through SSI-LS is specified in Eu.Doc.117.		Basic LS
Eu.LS.4662	Head	**3.4.5 LS2 (Train driver)**		
Eu.LS.4663	Info	Train_driver	Definition of the InformationFlow for the visual interface LS2 (Train driver).	Basic LS

ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.4664	Req	No_Signal_Aspect	Change of the indication of the Signal Aspect visually perceivable by the Train driver to a state in which all required Lamps are dark.	Basic LS
Eu.LS.4665	Req	Signal_Aspect	Change of the indication of the Signal Aspect visually perceivable by the Train driver to another valid Signal Aspect in the set Luminosity.	Basic LS
Eu.LS.4666	Head	**3.4.6 LS3 (Indicator)**		
Eu.LS.4667	Info	Indicator	Definition of the InformationFlow for the control interface LS3 (Indicator).	Basic LS
Eu.LS.4668	Req	Output_Channel_State	State of the output channel to the Indicator. State: "Output channel activated", "Output channel deactivated"	Basic LS
Eu.LS.4669	Head	**3.4.7 LS4 (Eurobalise)**		
Eu.LS.4670	Info	Eurobalise	Definition of the InformationFlow for the control interface LS4 (Eurobalise).	Option LS4
Eu.LS.4671	Req	Balise_telegram	The Balise_telegram contains the control information for the Eurobalise generated by the Subsystem Light Signal (C1 interface according to [SUBSET-036]).	Option LS4
Eu.LS.4672	Head	**3.4.8 LS5 (Legacy train protection system)**		
Eu.LS.4673	Info	Legacy_train_protection_system	Definition of the InformationFlow for the visual interface LS5 (Legacy train protection system).	Option LS5
Eu.LS.4674	Req	Output_Channel_State	State of the output channel to the Legacy train protection system. State: "Output channel activated", "Output channel deactivated"	Option LS5
Eu.LS.4675	Head	**3.4.9 LS6 (Basic Data Identifier)**		
Eu.LS.6101	Info	The generic InformationFlow and the related FlowProperties through LS6 are specified in Eu.Doc.20.		Basic LS
Eu.LS.4678	Head	**3.4.10 LS7 (Maintainer)**		
Eu.LS.6141	Info	The generic FlowProperties through LS7 are specified in Eu.Doc.20.		Basic LS
Eu.LS.7177	Info	The defined FlowProperties through LS7 are mandatory only when the physical interfaces related to the specific maintainer information are available on the Subsystem Light Signal. Example: The FlowProperty Output_Channel_Legacy_train_protection_systemX is only mandatory when the Subsystem Light Signal is equipped with an interface to a legacy train protection system.		Basic LS
Eu.LS.4679	Info	Maintainer	Definition of the InformationFlow for the visual interface LS7 (Maintainer).	Basic LS
Eu.LS.4683	Req	Output_Channel_Legacy_train_protection_systemX	Display of the status of the Output_Channel_Legacy_train_protection_systemX of the Subsystem Light Signal at the local status display. The status is displayed for every output channel X of the Legacy train protection system.	Basic LS
Eu.LS.4684	Req	Output_Channel_IndicatorX	Display of the status of the Output_Channel_IndicatorX of the Subsystem Light Signal at the local status display. The status is displayed for every output channel X of the Indicator.	Basic LS
Eu.LS.5726	Req	Light_Point_Status	Display of the status of the light point at the local status display.	Basic LS
Eu.LS.591	Head	**4 RAMSS requirements**		
Eu.LS.5718	Info	The requirements for reliability, availability, maintainability, safety and security are specified in [Eu.Doc.20].		Basic LS
Eu.LS.637	Head	**5 Technical requirements**		
Eu.LS.5686	Info	The generic technical requirements are specified in [Eu.Doc.20].		Basic LS
Eu.LS.639	Head	**5.1 Specific technical interface requirements**		
Eu.LS.6852	Req	It shall be possible to operate a Subsystem - Light Signal in a configuration in which no configurable signal optics is present but only a Eurobalise is controlled. In this configuration the Subsystem - Light Signal shall report all commanded signal aspects and luminosities as activated. Note: this configuration is required for the control of the emergency stop balises in the ETCS operating mode "ETCS L2 without signal".		Option LS4
Eu.LS.640	Head	**5.1.1 Interface to the Point of Service Signalling (PoS-Signalling)**		
Eu.LS.641	Req	Via the technical interface **PoS-Signalling** the data of the functional interface "SCI-LS" shall be exchanged with the Subsystem - Electronic Interlocking as specified in [EU.Doc.92].		Basic LS
Eu.LS.642	Req	Via the technical interface **PoS-Signalling** the data of the functional interface "SMI-LS" shall be exchanged with the Subsystem - Maintenance and Data Management as specified in [Eu.Doc.76].		Basic LS
Eu.LS.643	Req	Via the technical interface **PoS-Signalling** the data of the functional interface "SDI-LS" shall be exchanged with the Subsystem - Maintenance and Data Management as specified in [Eu.Doc.77].		Basic LS

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ID	Type	Requirement Part 1	Requirement Part 2	Func. Pkg.
Eu.LS.7624	Req	Via the technical interface PoS-Signalling the data of the functional interface "SSI-LS" shall be exchanged with the Subsystem - Security Services Platform as specified in [Eu.Doc.117].		Basic LS
Eu.LS.6099	Head	**5.1.2 Interface to the Legacy train protection system**		
Eu.LS.6100	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.		Option LS5
Eu.LS.6122	Head	**5.1.3 Interface to the Eurobalise**		
Eu.LS.6123	Info	These requirements shall be defined in detail by national specifications. Note: In future phases of the System Pillar, national specifications will be replaced by harmonised specifications.		Option LS4
Eu.LS.6124	Req	The Subsystem - Light Signal repeatedly transmits, dependent on the indicated Signal Aspect and/or on any available Track information, a balise telegram to the Eurobalise, which semantically matches the deactivated or activated output channels to the Legacy train protection system.		Option LS4
Eu.LS.6125	Head	**5.1.4 Interface to the Indicator**		
Eu.LS.6126	Info	These requirements shall be defined in detail by national specifications. Note: In future phases of the System Pillar, national specifications will be replaced by harmonised specifications.		Basic LS
Eu.LS.6127	Req	The Subsystem - Light Signal deactivates or activates the configured output channels for the Indicator dependent on the indicated Signal Aspect and/or on any available route information.		Basic LS
Eu.LS.731	Head	**5.2 Time behaviour**		
Eu.LS.732	Req	The time values defined in the chapter Functional requirements specification shall be configured for the operation of the Subsystem - Light Signal.		Basic LS
Eu.LS.733	Head	**5.2.1 Response times**		
Eu.LS.734	Req	The Subsystem - Light Signal shall send the corresponding message telegram to the Subsystem - Electronic Interlocking within 800 ms after successful change of state, according to the specified UseCases.		Basic LS
Eu.LS.735	Req	The Subsystem - Light Signal shall indicate the commanded Signal Aspect or set the commanded luminosity within 1000 ms after receipt of a command telegram. This applies not to Stop-Signals.		Basic LS
Eu.LS.6120	Req	The Subsystem - Light Signal shall indicate a commanded Stop-Signal within 500 ms after receipt of the command telegram.		Basic LS
Eu.LS.736	Req	The Subsystem - Light Signal shall switch the output channels to the subsystem peripheral systems Legacy train protection system and Indicator within 300 ms after a change of state.		Option LS5
Eu.LS.737	Req	The Subsystem - Light Signal shall send a balise telegram to the subsystem peripheral system Eurobalise within 300 ms after successful change of state.		Option LS4
Eu.LS.738	Head	**5.2.2 Flashing cycle**		
Eu.LS.6098	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.		Basic LS
Eu.LS.744	Head	**5.3 Configuration and engineering data**		
Eu.LS.745	Head	**5.3.1 Specific data**		
Eu.LS.746	Req	The specific configuration and engineering data for the Subsystem – Light Signal shall include as a minimum the following information:		Basic LS
Eu.LS.6090	Req	• Adjacent LS systems, connected to the Subsystem - Light Signal (Legacy train protection system, Eurobalise, Indicator).		Basic LS
Eu.LS.6091	Req	• Signal Aspects the particular Subsystem - Light Signal is capable of indicating, downgrade specific information and the most restrictive Signal Aspect.		Basic LS
Eu.LS.6092	Req	• The Luminosities that can be set up at the particular Subsystem - Light Signal (daytime Luminosity, nighttime Luminosity, or both) and the default Luminosity.		Basic LS
Eu.LS.6093	Req	• Instructions for processing the route information transmitted from the Subsystem - Electronic Interlocking. Note: These instructions are required to control Adjacent LS systems like e.g. Legacy train protection system depending on the set up route.		Basic LS
Eu.LS.753	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 sections:		Basic LS
Eu.LS.755	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 non safety-relevant. This data shall be used to calculate the CSNS.		Basic LS
Eu.LS.756	Req	• The remaining configuration data is currently categorised as safety-relevant. This data shall be used to calculate the CSS.		Basic LS
Eu.LS.757	Req	• The engineering data is safety-relevant. This data shall be used to calculate the CSS.		Basic LS

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