EULYNX Initiative

Europe's Rail Joint Undertaking

Requirements specification for External Level Crossing System

Document number: Eu.Doc.111
Version: 2.2 (1.A)

© EULYNX Partners

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 2

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

3 Functional requirements specification 2

3.1 External Level Crossing System - General Infos and Assumptions 2

3.2 External Level Crossing System - Logical Viewpoint 2

3.2.1 External Level Crossing System - Logical Context 2

3.3 External Level Crossing System - Functional Viewpoint 3

3.3.1 Definition of time values 3

3.3.2 External Level Crossing System - Functional Context 3

3.3.3 External Level Crossing System - Functional Partitioning 14

3.3.4 External Level Crossing System - Functional Architecture 14

3.4 External Level Crossing System - Interfaces 16

3.4.1 SCI-LX (Subsystem - Electronic Interlocking) 16

3.4.1.1 SCI-LX - Logical Viewpoint 16

3.4.1.1.1 SCI-LX - Logical Context 16

3.4.1.2 SCI-LX - Information Flows 16

3.4.1.3 SCI-LX - Functional Viewpoint 17

3.4.1.3.1 SCI-LX - Functional Partitioning 17

3.4.1.3.2 SCI-LX - Functional Architecture 18

3.4.1.3.3 SCI-LX - Functional Entities 19

3.4.2 SDI-LX (Subsystem - Maintenance and Data Management) 24

3.4.3 SMI-LX (Subsystem - Maintenance and Data Management) 24

3.4.4 SSI-LX (Subsystem - Security Services Platform) 24

3.4.5 LX1 (Basic Data identifier) 24

3.4.6 LX2 (Maintainer) 24

4 RAMSS requirements 24

5 Technical requirements 24

5.1 Specific technical interface requirements 24

5.1.1 Interface to the Point of Service - Signalling (PoS - Signalling) 24

5.2 Time behaviour 24

5.3 Configuration and engineering data 25

5.3.1 Specific data 25

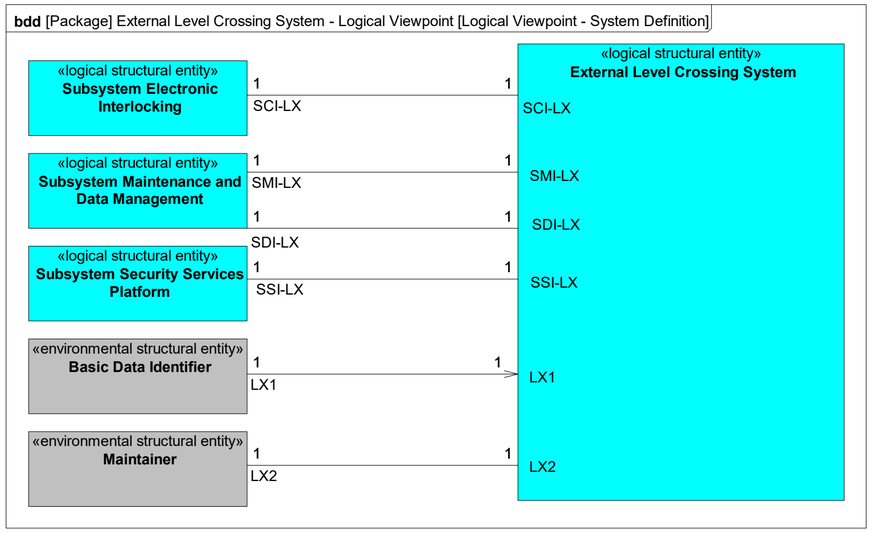
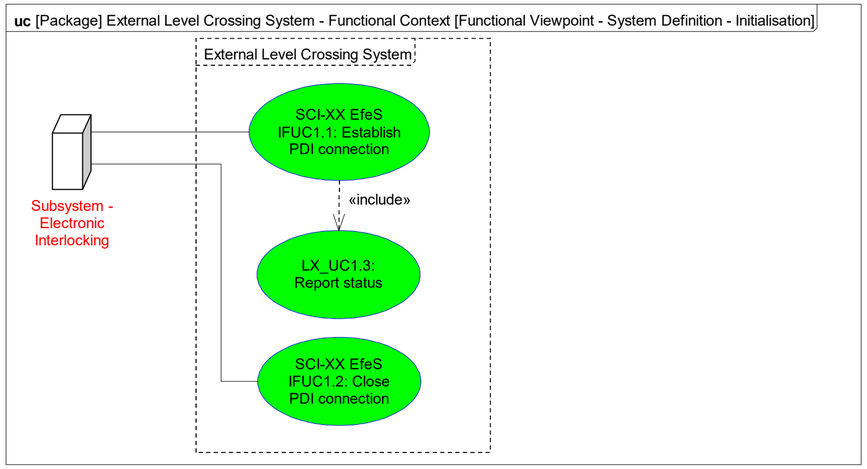
© EULYNX Partners

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1	Head	**1 Introduction**		Default
Eu.LX.2	Head	**1.1 Release information**		Default
Eu.LX.3	Info	[Eu.Doc.111] Requirements specification for External Level Crossing System CENELEC Phase: 4 Version: 2.2 (1.A) Approval date:		Default
Eu.LX.4	Info	**Version history**		Default
Eu.LX.1763	Info	version number: 2.0 (0.A) date: 16.05.2022 author: Philipp Wolber model version: 18 Generic interface and subsystem requirements for SCI version: 1.0 (0.A) review: CCB changes: EULX-479, EULX-492, EULX-493, EULX-495, EULX-506		Default
Eu.LX.1771	Info	version number: 2.1 (0.A) date: 30.03.2023 author: Marie Gehrmann, Dominik Smajgl, Filip Giering, Philipp Wolber model version: 21 Generic interface and subsystem requirements version: 4.0 (0.A) Generic interface and subsystem requirements for SCI version: 1.0 (0.A) review: - changes: EULX-522, EULX-523, EULX-534		Default
Eu.LX.1849	Info	version number: 2.1 (1.A) date: 11.05.2023 author: Philipp Wolber 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: EULX-539, EULX-541, EULX-542, EULX-547		Default
Eu.LX.1856	Info	version number: 2.2 (0.A) date: 28.06.2023 author: Philipp Wolber 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: CCB changes: EULX-552, EULX-553, EULX-558, EULX-560, EULX-561		Default
Eu.LX.1864	Info	version number: 2.2 (1.A) date: 15.12.2023 author: Philipp Wolber model version: 25 Generic interface and subsystem requirements version: 4.0 (4.A) Generic interface and subsystem requirements for SCI version: 1.0 (4.A) review: M&T changes: EULX-521, EULX-578, EULX-584, EULX-586, EULX-587, EULX-588, EULX-590, EULX-598		Default
Eu.LX.32	Head	**1.2 Impressum**		Default
Eu.LX.33	Info	Publisher: **EULYNX Initiative** A full list of the **EULYNX Partners** can be found on www.eulynx.eu/index.php/members.		Default
Eu.LX.34	Info	Responsible for this document: EULYNX Project Management Office www.eulynx.eu		Default
Eu.LX.35	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.		Default
Eu.LX.36	Head	**1.3 Purpose**		Default
Eu.LX.37	Info	The purpose of the document is the specification of requirements for the interface SCI-LX for the development of the EULYNX System.		Default
Eu.LX.38	Info	This document describes functional requirements for the interface SCI-LX.		Default
Eu.LX.39	Info	This document is intended for the following users: • safety authorities • infrastructure managers • safety assessors • signalling system suppliers • validators		Default
Eu.LX.40	Info	This document is the basis for the implementation by the supplier and for approval by the infrastructure manager.		Default
Eu.LX.41	Head	**1.4 Applicable standards and regulations**		Default
Eu.LX.42	Info	A list of applicable standards and regulations used in EULYNX is listed in the EULYNX Reference Document List [Eu.Doc.12].		Default

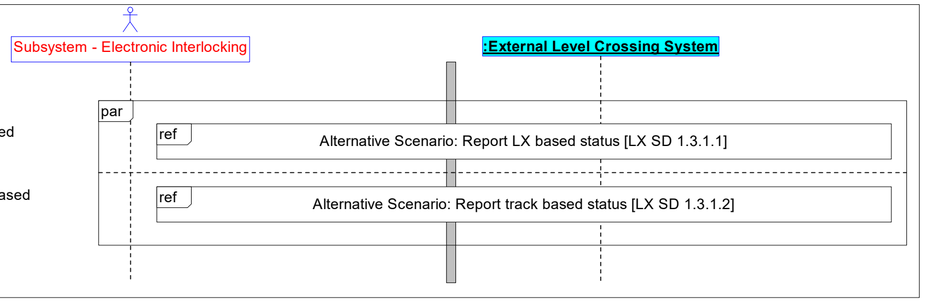
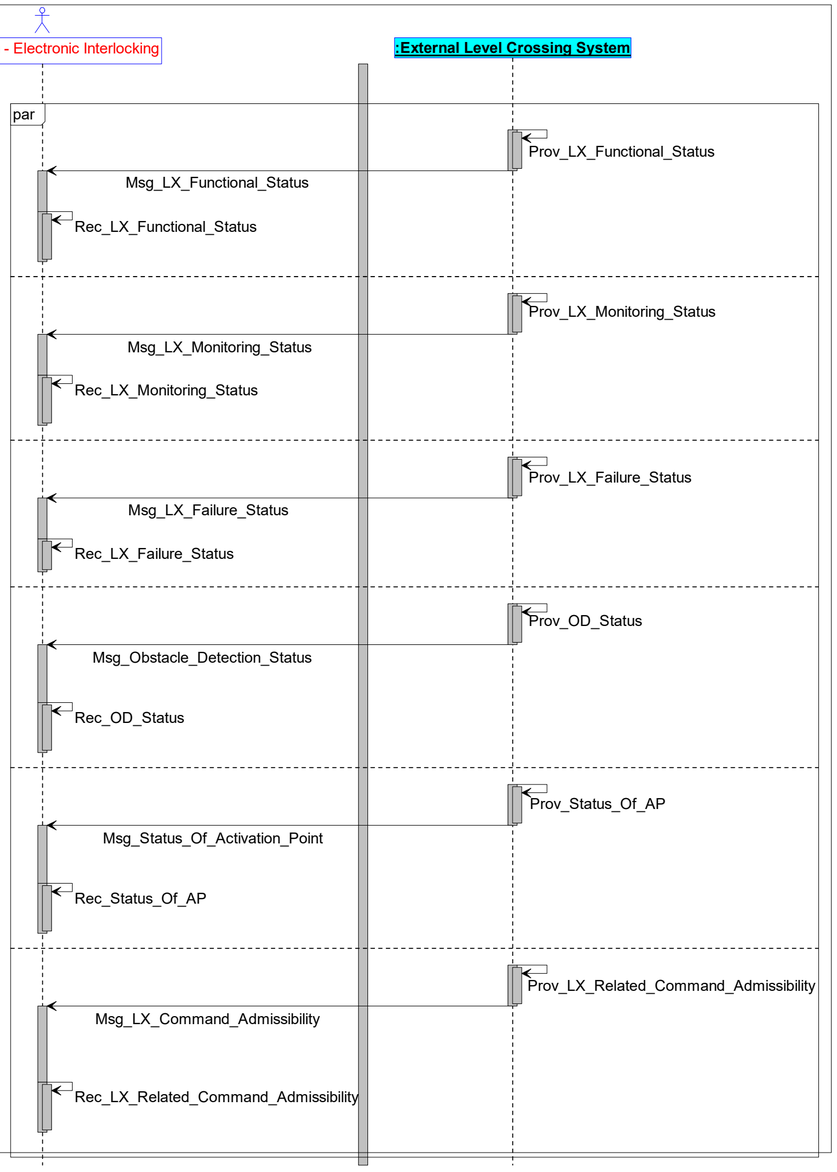
© EULYNX Partners

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.43	Head	**1.5 Applicable documents**		Default
Eu.LX.44	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].		Default
Eu.LX.45	Head	**1.6 Terms and abbreviations**		Default
Eu.LX.46	Info	The terms and abbreviations are listed in the EULYNX Glossary [Eu.Doc.9].		Default
Eu.LX.47	Head	**1.7 Variability management**		Default
Eu.LX.48	Info	Applicability column indicates the applicability of the requirement or information object per EULYNX partner. Value "Default" means the object applies to all EULYNX partners. Value "IM code" means the object applies specifically to the stated EULYNX partner. IM codes follow the pattern "abcdyz", where abcd is the UIC numeric code for railway companies and yz is by default "00".		Default
Eu.LX.49	Head	**1.8 Definition of object types**		Default
Eu.LX.50	Info	The following definition for object types is applied in this document:		Default
Eu.LX.51	Info	• "Req" - This denotes a mandatory requirement.		Default
Eu.LX.1865	Info	• "Def" - This denotes referenceable model elements that are used in the model-based creation of requirements		Default
Eu.LX.53	Info	• "Info" - This denotes additional information to help understand the specification. These objects do not specify any additional requirements.		Default
Eu.LX.54	Info	• "Head" - This denotes chapter headings.		Default
Eu.LX.55	Head	**1.9 Modelling**		Default
Eu.LX.56	Info	The section "Functional requirements specification" follows a model based systems engineering process using Systems Modelling Language (SysML) and defines the information objects (stimuli and responses) exchanged over the SCI-LX interface.		Default
Eu.LX.57	Info	The diagrams presented in this document are modelled in SysML [SysML].		Default
Eu.LX.58	Info	The rules for the interpretation of the model based parts of specification are defined in [Eu.Doc.29].		Default
Eu.LX.59	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.		Default
Eu.LX.60	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.		Default
Eu.LX.61	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”.		Default
Eu.LX.62	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".		Default
Eu.LX.1866	Info	State machines or several state machines linked together in a Functional Architecture define the totality of all functional requirements of an SUS or an SIUS in a coherent and consistent manner. State diagrams of a corresponding state machine are marked with the object type “Req”. For the later design and implementation, it is not the description language SysML that is binding, but the domain-specific meaning expressed by it. The specified behavior can be converted into a vendor specific language but must retain the domain specific meaning describing the functional requirements. The specific model elements are additionally specified and defined by object type “Def” to allow for traceability to supplier designs or test cases. The compliance of products to the specifications must be demonstrated by testing against EULYNX test cases, which are derived from the functionality specified by the models.		Default
Eu.LX.63	Head	**2 Conditions of use**		Default
Eu.LX.1772	Req	All references to Eu.Doc.20 refer to version 4.0 (4.A) of that document.		Default
Eu.LX.1629	Req	All references to Eu.Doc.119 refer to version 1.0 (4.A) of that document.		Default
Eu.LX.1773	Req	References to Eu.Doc.120 do not refer to a concrete version of that document. The applicable version shall be defined by national specifications.		Default
Eu.LX.64	Info	The specifications defined in this document shall follow the requirements of the EULYNX System Architecture Specification [Eu.Doc.16].		Default
Eu.LX.65	Req	The specifications defined in this document shall be complemented by the generic requirements specified in Generic interface and subsystem requirements for SCI [Eu.Doc.119].		Default
Eu.LX.1226	Head	**3 Functional requirements specification**		Default
Eu.LX.1810	Head	**3.1 External Level Crossing System - General Infos and Assumptions**		Default
Eu.LX.1833	Head	**3.2 External Level Crossing System - Logical Viewpoint**		Default
Eu.LX.1834	Head	**3.2.1 External Level Crossing System - Logical Context**		Default

© EULYNX Partners

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1835	Def	[Package] External Level Crossing System - Logical Viewpoint [Logical Viewpoint - System Definition]  		Default
Eu.LX.1795	Head	**3.3 External Level Crossing System - Functional Viewpoint**		Default
Eu.LX.1796	Head	**3.3.1 Definition of time values**		Default
Eu.LX.1797	Info	The generic time values for SCI are specified in Eu.Doc.119.		Default
Eu.LX.1798	Info	The generic time values for SMI are specified in Eu.Doc.120.		Default
Eu.LX.1690	Head	**3.3.2 External Level Crossing System - Functional Context**		Default
Eu.LX.1274	Info	[Package] External Level Crossing System - Functional Context [Functional Viewpoint - System Definition - Initialisation]  		Default
Eu.LX.1275	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.		Default
Eu.LX.1276	Info	LX_UC1.3: Report status	The Connection Domain-UseCase "LX_UC1.3: Report status" defines the process of transmitting the status data between the External Level Crossing System and the Subsystem - Electronic Interlocking during the establishment of the PDI connection.	Default

© EULYNX Partners

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1857	Info	Main Success Scenario: Report status [LX SD 1.3.1] **sd** Main Success Scenario: Report status [LX SD 1.3.1] Main Success Scenario: Report status [LX SD 1.3.1] **par** **1.a1** The External Level Crossing System reports LX based status. **also par** **1.b1** The External Level Crossing System reports track based status. **end par**  	This SD is part of [SCI-XX EfeS IF SD 1.1.1] in Eu.Doc.119.	Default
Eu.LX.1277	Info	Alternative Scenario: Report LX based status [LX SD 1.3.1.1] **sd** Alternative Scenario: Report LX based status [LX SD 1.3.1.1] Alternative Scenario: Report LX based status [LX SD 1.3.1.1] **par** **1.a1** The External Level Crossing System provides the LX functional status. **1.a2** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the LX functional status. **1.a3** The Subsystem - Electronic Interlocking received the current LX functional status of the External Level Crossing System. **also par** **1.b1** The External Level Crossing System provides the LX monitoring status. **1.b2** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the LX monitoring status. **1.b3** The Subsystem - Electronic Interlocking received the current LX monitoring status of the External Level Crossing System. **also par** **1.c1** The External Level Crossing System provides the LX failure status. **1.c2** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the LX failure status. **1.c3** The Subsystem - Electronic Interlocking received the LX failure status of the External Level Crossing System. **also par** **1.d1** The External Level Crossing System provides the current status of the Obstacle detector. **1.d2** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the status of the Obstacle detector. **1.d3** The Subsystem - Electronic Interlocking received the status of the Obstacle detector of the External Level Crossing System. **also par** **1.e1** The External Level Crossing System provides the status of the Activation point. **1.e2** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the status of the Activation point. **1.e3** The Subsystem - Electronic Interlocking received the status of the Activation point of the External Level Crossing System. **also par** **1.f1** The External Level Crossing System provides the admissible LX related commands. **1.f2** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the admissible LX related commands. **1.f3** The Subsystem - Electronic Interlocking received the admissible LX related commands of the External Level Crossing System. **end par**  	This SD is part of [LX SD 1.3.1].	Default

© EULYNX Partners

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1482	Info	Alternative Scenario: Report track based status [LX SD 1.3.1.2]	This SD is part of [LX SD 1.3.1].	007900 008000 008200

sd Alternative Scenario: Report track based status [LX SD 1.3.1.2]

Alternative Scenario: Report track based status [LX SD 1.3.1.2]

par

loop [for each Track]

1.a1.1 The External Level Crossing System provides the track related functional status.

1.a1.2 The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the track related functional status.

1.a1.3 The Subsystem - Electronic Interlocking received the track related functional status of the External Level Crossing System.

end loop

also par

loop [for each Track]

1.b1.1 The External Level Crossing System provides the track related monitoring status.

1.b1.2 The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the track related monitoring status.

1.b1.3 The Subsystem - Electronic Interlocking received the current track related monitoring status of the External Level Crossing System.

end loop

also par

loop [for each Track]

1.c1.1 The External Level Crossing System provides the track related failure status.

1.c1.2 The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the track related failure status.

1.c1.3 The Subsystem - Electronic Interlocking received the track related failure status of the External Level Crossing System.

end loop

also par

loop [for each Track]

1.d1.1 The External Level Crossing System provides the status of the Detection element.

1.d1.2 The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the status of the Detection element.

1.d1.3 The Subsystem - Electronic Interlocking received the status of the Detection element of the External Level Crossing System.

end loop

also par

loop [for each Track]

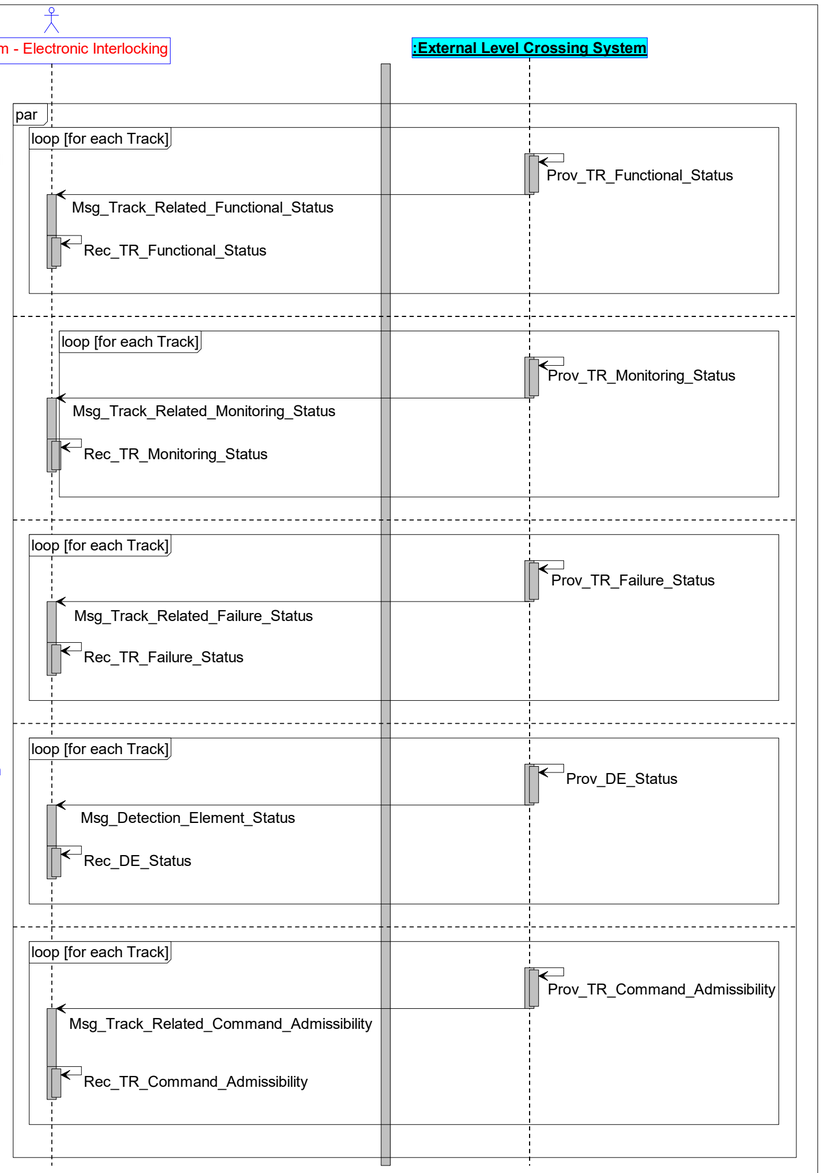
1.e1.1 The External Level Crossing System provides the admissible track related commands.

1.e1.2 The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the admissible track related commands.

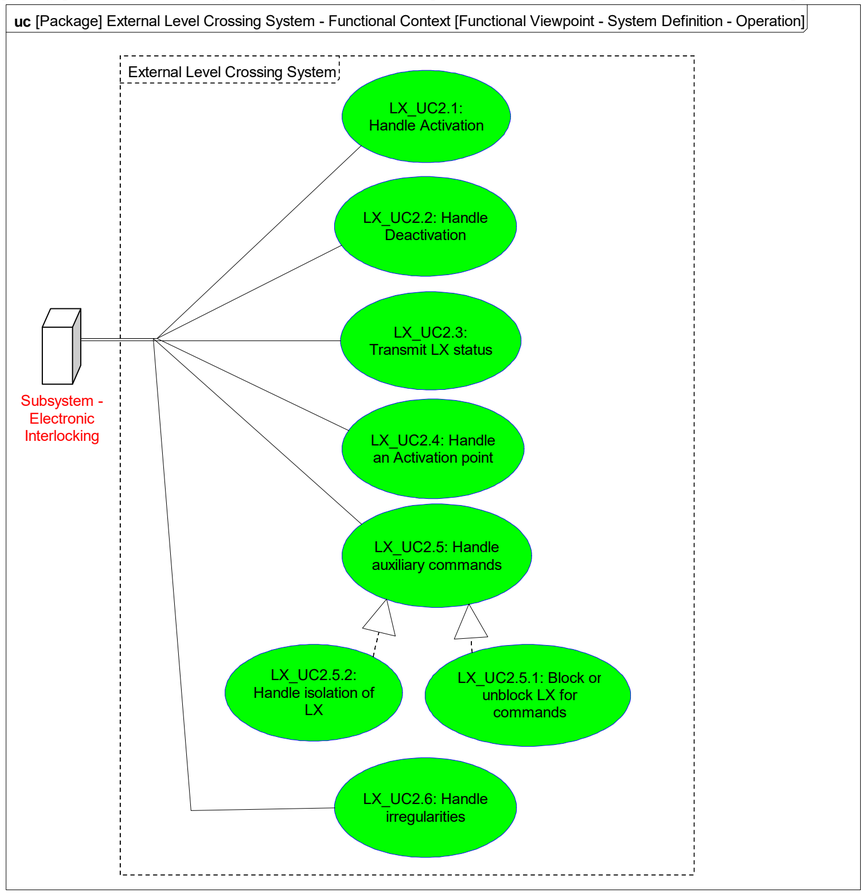
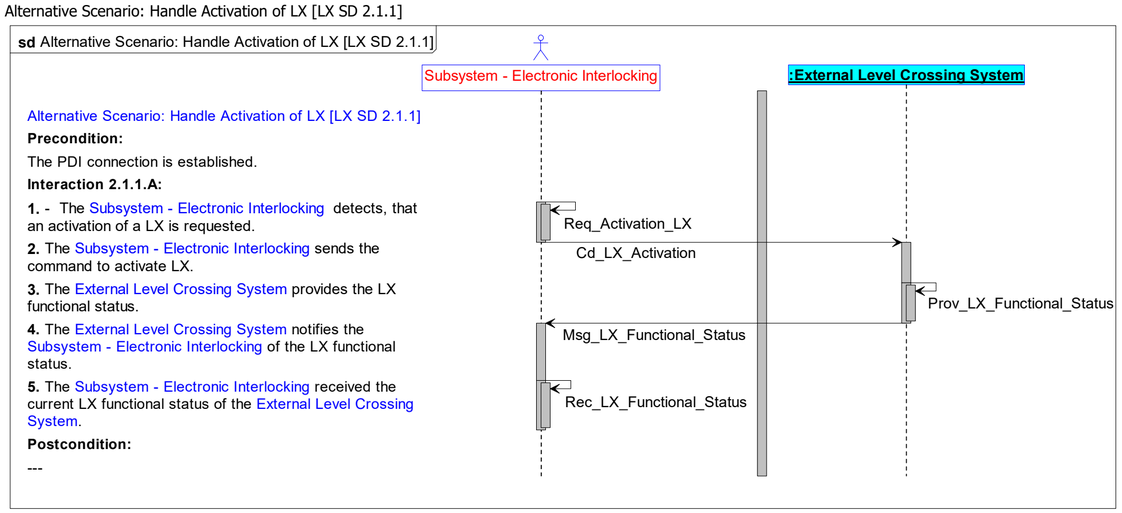
1.e1.3 The Subsystem - Electronic Interlocking received the admissible track related commands of the External Level Crossing System.

end loop

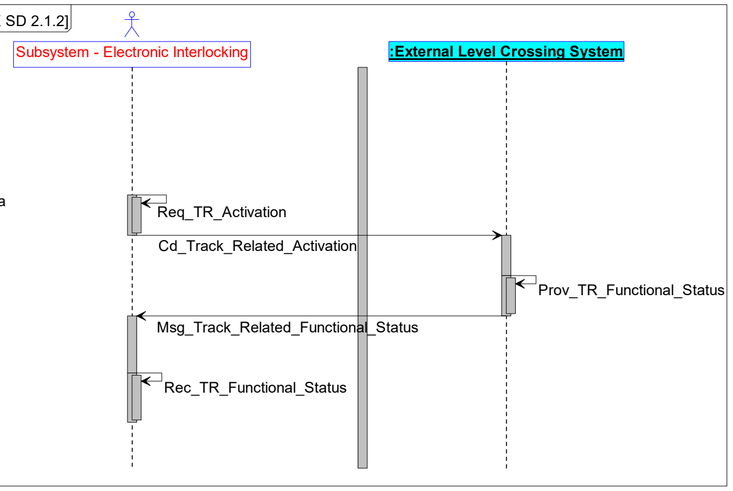
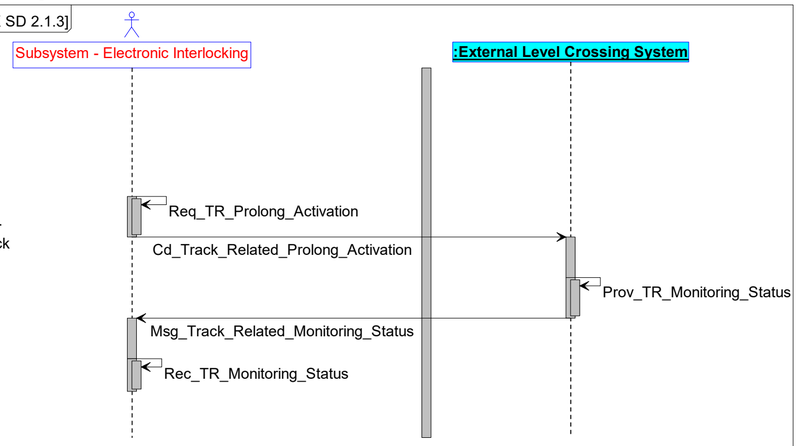
end par

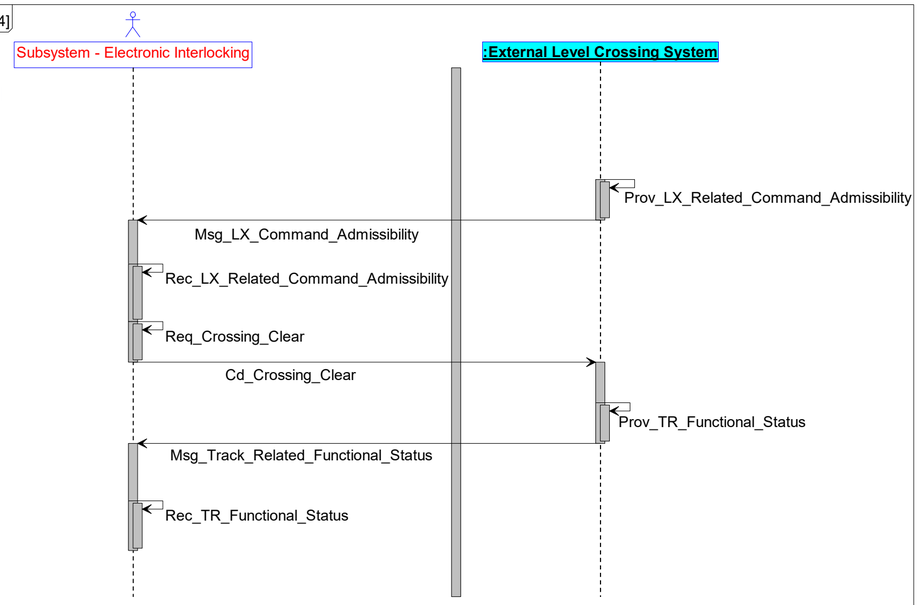
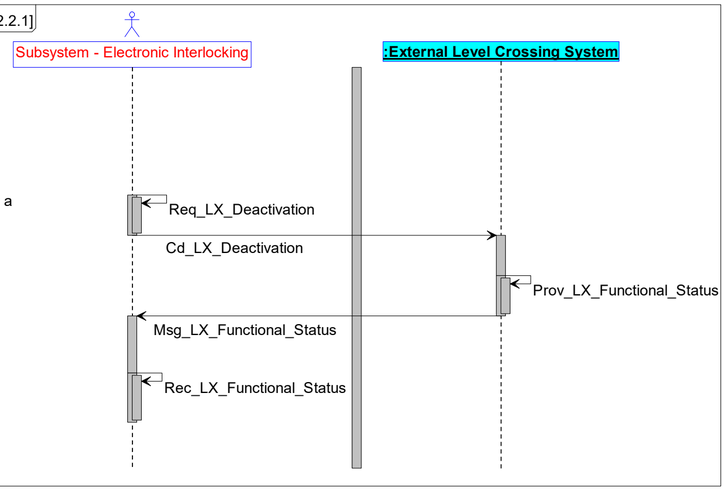


© EULYNX Partners

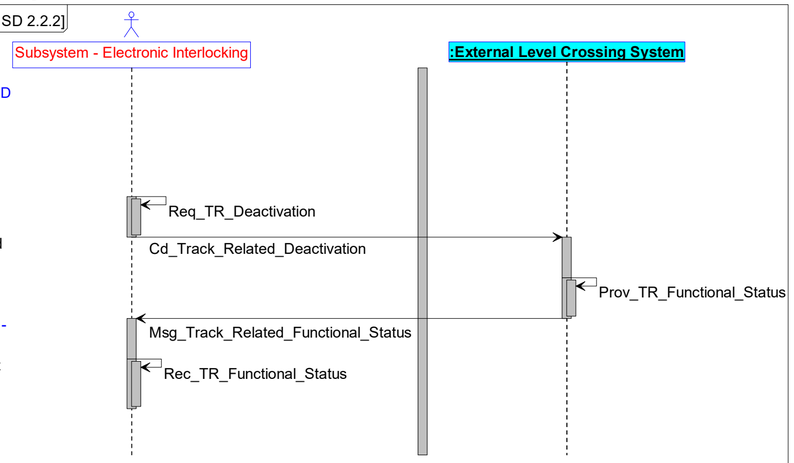
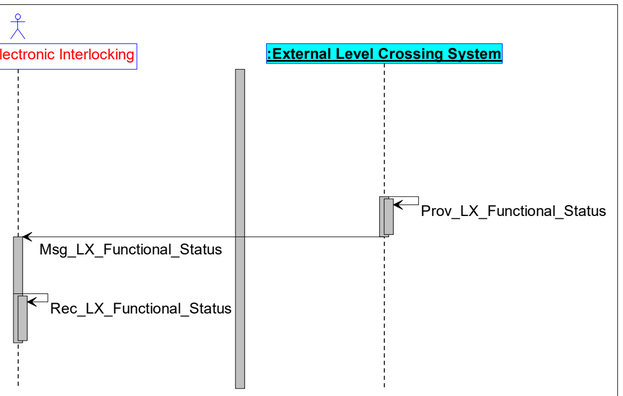
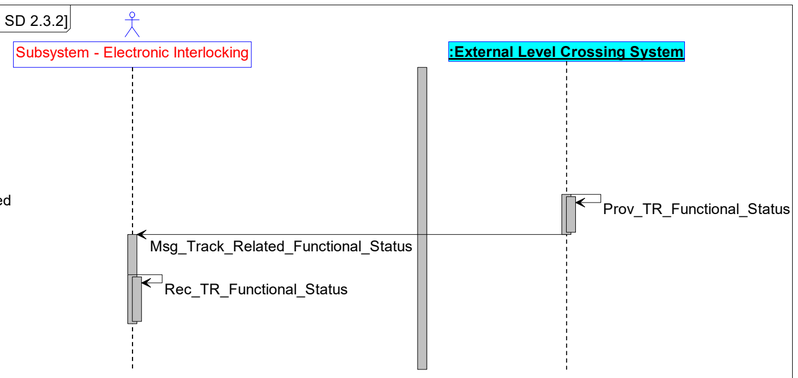
ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1279	Info	[Package] External Level Crossing System - Functional Context [Functional Viewpoint - System Definition - Operation]  		Default
Eu.LX.1280	Info	LX_UC2.1: Handle Activation	The Connection Domain-UseCase "LX_UC2.1: Handle Activation" defines the process of activating the LX.	Default
Eu.LX.1281	Info	Alternative Scenario: Handle Activation of LX [LX SD 2.1.1]  		007600 007900 008200

© EULYNX Partners

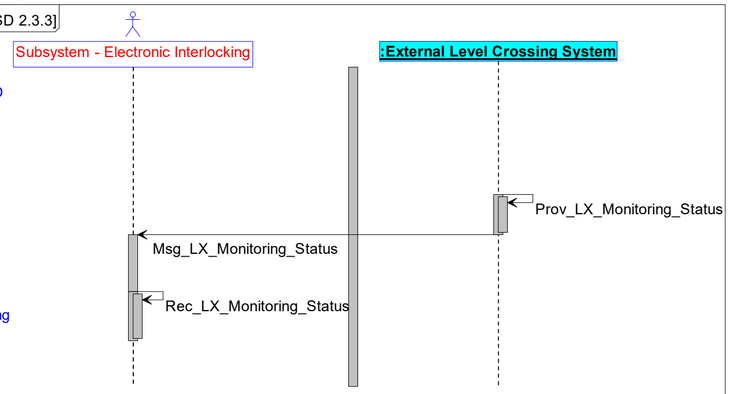
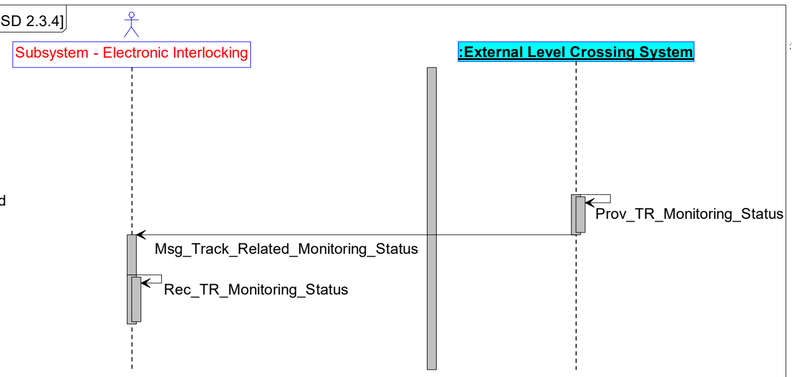
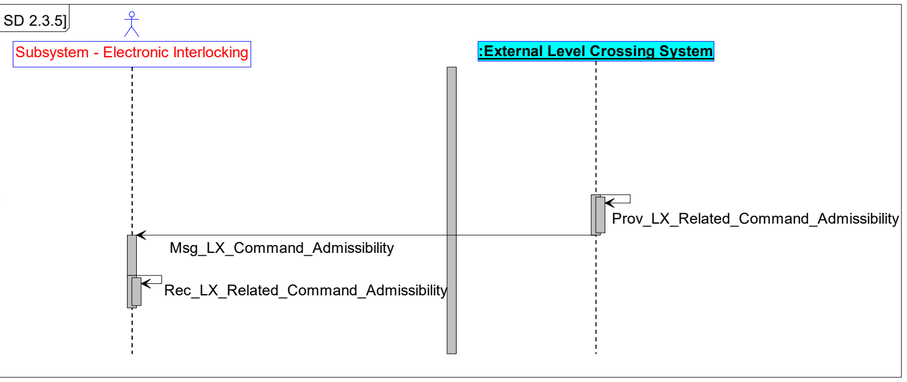
ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1282	Info	Alternative Scenario: Handle a track related Activation [LX SD 2.1.2] **sd** Alternative Scenario: Handle a track related Activation [LX SD 2.1.2] Alternative Scenario: Handle a track related Activation [LX SD 2.1.2] **Precondition:** The PDI connection is established. **Interaction 2.1.2.A:** **1.** - The Subsystem - Electronic Interlocking detects, that a track related activation of a LX is requested. **2.** The Subsystem - Electronic Interlocking sends the command to activate LX track related. **3.** The External Level Crossing System provides the track related functional status. **4.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the track related functional status. **5.** The Subsystem - Electronic Interlocking received the current track related functional status of the External Level Crossing System. **Postcondition:** ---  		007900 008000 008200
Eu.LX.1283	Info	Alternative Scenario: Handle a track related prolongation of LX activation [LX SD 2.1.3] **sd** Alternative Scenario: Handle a track related prolongation of LX activation [LX SD 2.1.3] Alternative Scenario: Handle a track related prolongation of LX activation [LX SD 2.1.3] **Precondition:** The PDI connection is established. **Interaction 2.1.3.A:** **1.** - The Subsystem - Electronic Interlocking detects, that an enabling or disabling for a track related prolongation of the activation of a LX is requested. **2.** The Subsystem - Electronic Interlocking sends the command to prolong track related the LX activation. **3.** The External Level Crossing System provides the track related monitoring status **4.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the track related monitoring status. **5.** The Subsystem - Electronic Interlocking received the current track related monitoring status of the External Level Crossing System. **Postcondition:** ---  		007900 008000

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1284	Info	Alternative Scenario: Protect Level Crossing [LX SD 2.1.4] **sd** Alternative Scenario: Protect Level Crossing [LX SD 2.1.4] Alternative Scenario: Protect Level Crossing [LX SD 2.1.4] **Precondition:** The PDI connection is established. **Interaction 2.1.4.A:** **1.** - The External Level Crossing System provides the admissible LX related commands. **2.** The External Level Crossing System notifies that the crossing clear command is admissible. **3.** The Subsystem - Electronic Interlocking received the admissible LX related commands of the External Level Crossing System. **4.** The Subsystem - Electronic Interlocking detects the request for sending the crossing clear command. **5.** The Subsystem - Electronic Interlocking sends the command that the LX is free of obstacles. **6.** The External Level Crossing System provides the track related functional status. **7.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the track related functional status. **8.** The Subsystem - Electronic Interlocking received the current track related functional status of the External Level Crossing System. **Postcondition:** ---  	The Obstacle detector has failed or is not installed.	008000
Eu.LX.1285	Info	LX_UC2.2: Handle Deactivation	The Connection Domain-UseCase "LX_UC2.2: Handle Deactivation" defines the process of deactivating the LX.	Default
Eu.LX.1286	Info	Alternative Scenario: Handle Deactivation of LX [LX SD 2.2.1] **sd** Alternative Scenario: Handle Deactivation of LX [LX SD 2.2.1] Alternative Scenario: Handle Deactivation of LX [LX SD 2.2.1] **Precondition:** The PDI connection is established. **Interaction 2.2.1.A:** **1.** - The Subsystem - Electronic Interlocking detects, that a deactivation of a LX is requested. **2.** The Subsystem - Electronic Interlocking sends the command to deactivate LX. **3.** The External Level Crossing System provides the LX functional status. **4.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the LX functional status. **5.** The Subsystem - Electronic Interlocking received the current LX functional status of the External Level Crossing System. **Postcondition:** ---  		007600 007900 008200

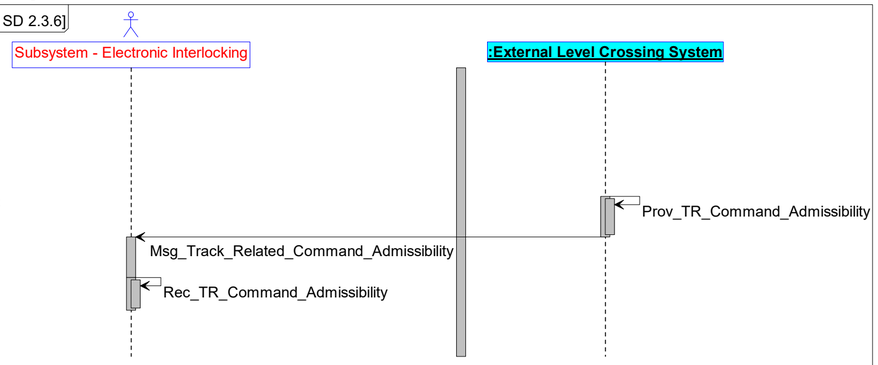
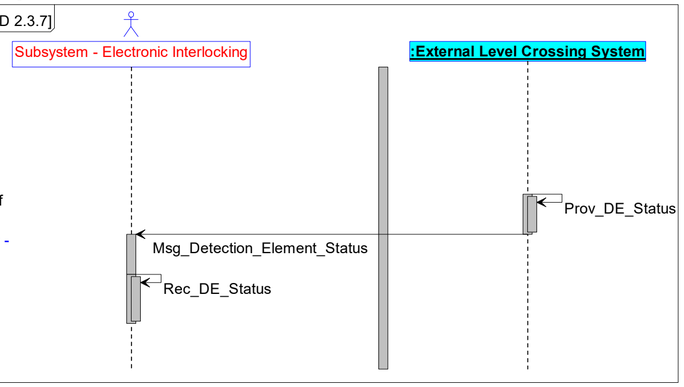
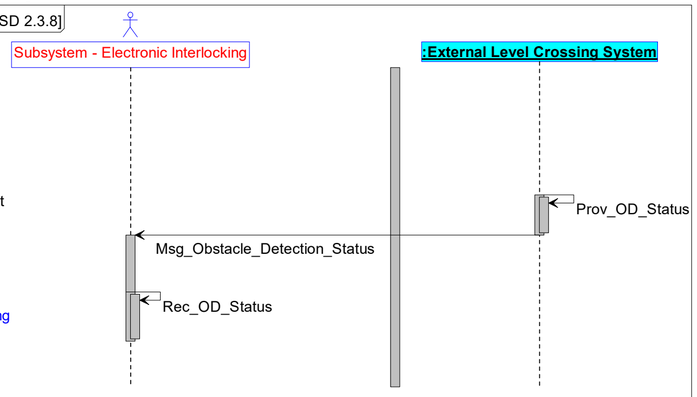
© EULYNX Partners

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1287	Info	Alternative Scenario: Handle a track related Deactivation [LX SD 2.2.2] **sd** Alternative Scenario: Handle a track related Deactivation [LX SD 2.2.2] Alternative Scenario: Handle a track related Deactivation [LX SD 2.2.2] **Precondition:** The PDI connection is established. **Interaction 2.2.2.A:** **1.** - The Subsystem - Electronic Interlocking detects, that a track related deactivation is requested. **2.** The Subsystem - Electronic Interlocking sends the command to deactivate LX track related. **3.** The External Level Crossing System provides the track related functional status. **4.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the track related functional status. **5.** The Subsystem - Electronic Interlocking received the current track related functional status of the External Level Crossing System. **Postcondition:** ---  		007900 008000 008200
Eu.LX.1288	Info	LX_UC2.3: Transmit LX status	The Connection Domain-UseCase "LX_UC2.3: Transmit LX status" defines reporting of LX status messages.	Default
Eu.LX.1289	Info	Alternative Scenario: Report LX Functional Status [LX SD 2.3.1] **sd** Alternative Scenario: Report LX Functional Status [LX SD 2.3.1] Alternative Scenario: Report LX Functional Status [LX SD 2.3.1] **Precondition:** The PDI connection is established. **Interaction 2.3.1.A:** **1.** - The External Level Crossing System provides the LX functional status. **2.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the LX functional status. **3.** The Subsystem - Electronic Interlocking received the current LX functional status of the External Level Crossing System. **Postcondition:** ---  		Default
Eu.LX.1290	Info	Alternative Scenario: Report track related Functional Status [LX SD 2.3.2] **sd** Alternative Scenario: Report track related Functional Status [LX SD 2.3.2] Alternative Scenario: Report track related Functional Status [LX SD 2.3.2] **Precondition:** The PDI connection is established. **Interaction 2.3.2.A:** **1.** - The External Level Crossing System provides the track related functional status. **2.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the track related functional status. **3.** The Subsystem - Electronic Interlocking received the current track related functional status of the External Level Crossing System. **Postcondition:** ---  		007900 008000 008200

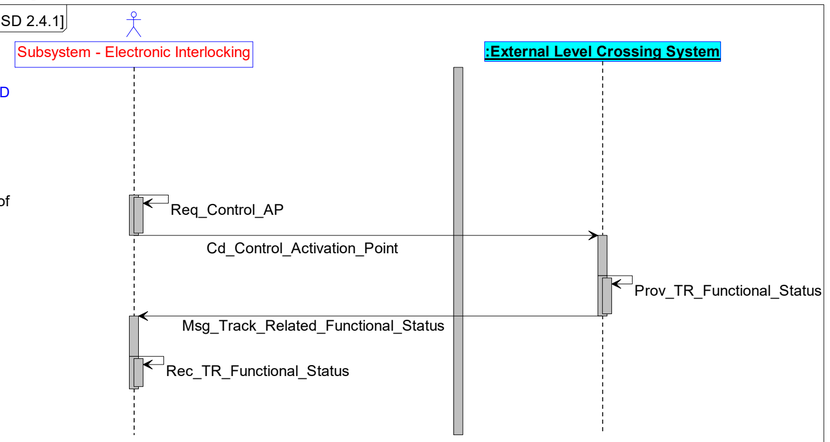
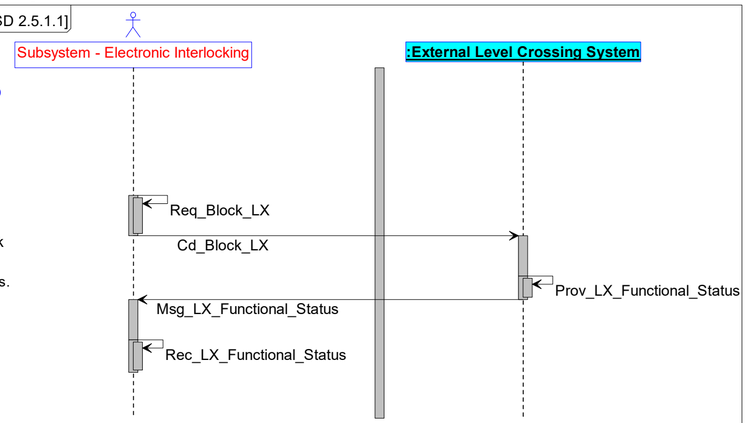
© EULYNX Partners

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1291	Info	Alternative Scenario: Report LX Monitoring Status [LX SD 2.3.3] **sd** Alternative Scenario: Report LX Monitoring Status [LX SD 2.3.3] Alternative Scenario: Report LX Monitoring Status [LX SD 2.3.3] **Precondition:** The PDI connection is established. **Interaction 2.3.3.A:** **1.** - The External Level Crossing System provides the LX monitoring status. **2.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the LX monitoring status. **3.** The Subsystem - Electronic Interlocking received the current LX monitoring status of the External Level Crossing System. **Postcondition:** ---  		007900 008000 008200
Eu.LX.1292	Info	Alternative Scenario: Report track related Monitoring Status [LX SD 2.3.4] **sd** Alternative Scenario: Report track related Monitoring Status [LX SD 2.3.4] Alternative Scenario: Report track related Monitoring Status [LX SD 2.3.4] **Precondition:** The PDI connection is established. **Interaction 2.3.4.A:** **1.** - The External Level Crossing System provides the track related monitoring status **2.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the track related monitoring status. **3.** The Subsystem - Electronic Interlocking received the current track related monitoring status of the External Level Crossing System. **Postcondition:** ---  		007900 008000 008200
Eu.LX.1293	Info	Alternative Scenario: Report LX related admissible commands [LX SD 2.3.5] **sd** Alternative Scenario: Report LX related admissible commands [LX SD 2.3.5] Alternative Scenario: Report LX related admissible commands [LX SD 2.3.5] **Precondition:** The PDI connection is established. **Interaction 2.3.5.A:** **1.** - The External Level Crossing System provides the admissible LX related commands. **2.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the admissible LX related commands. **3.** The Subsystem - Electronic Interlocking received the admissible LX related commands of the External Level Crossing System. **Postcondition:** ---  		008000 008200

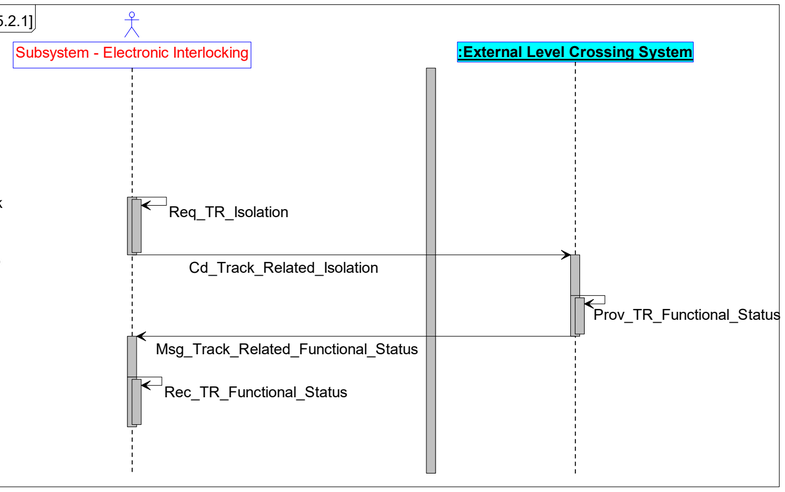
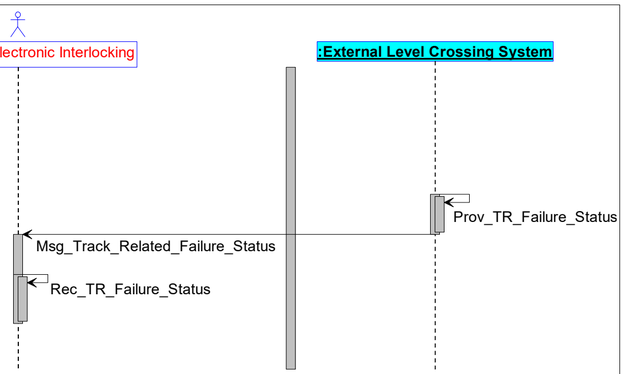
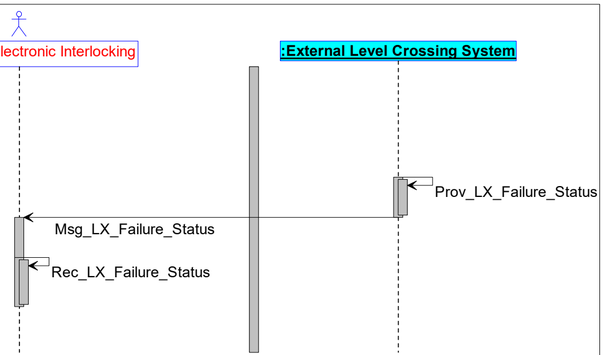
© EULYNX Partners

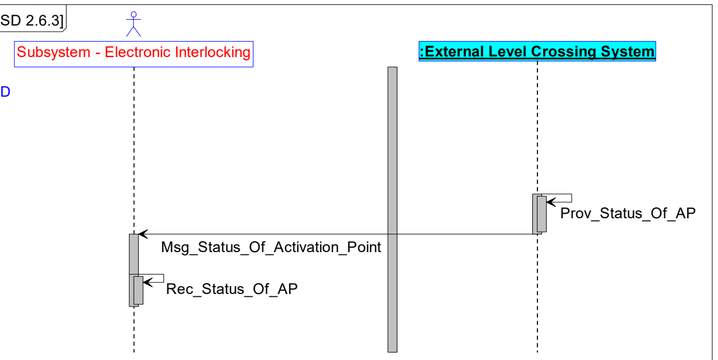
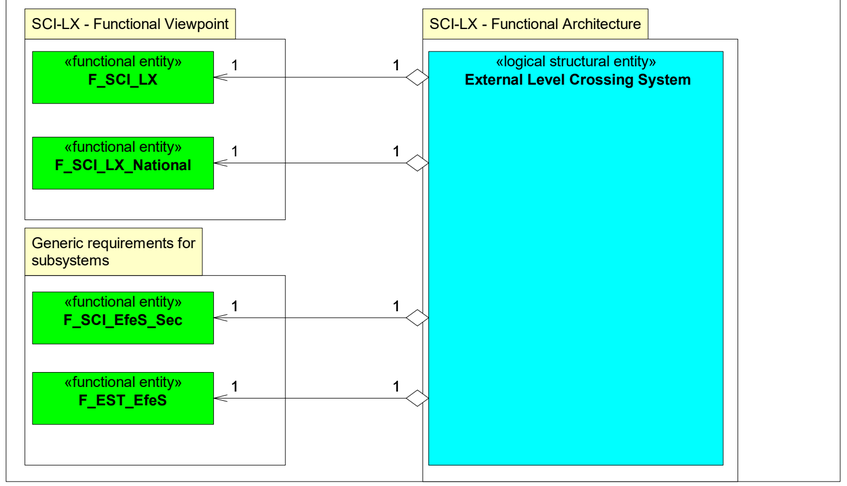
ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1294	Info	Alternative Scenario: Report track related admissible commands [LX SD 2.3.6] **sd** Alternative Scenario: Report track related admissible commands [LX SD 2.3.6] Alternative Scenario: Report track related admissible commands [LX SD 2.3.6] **Precondition:** The PDI connection is established. **Interaction 2.3.6.A:** **1.** - The External Level Crossing System provides the admissible track related commands. **2.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the admissible track related commands. **3.** The Subsystem - Electronic Interlocking received the admissible track related commands of the External Level Crossing System. **Postcondition:** ---  		008000 008200
Eu.LX.1295	Info	Alternative Scenario: Report Detection element Status [LX SD 2.3.7] **sd** Alternative Scenario: Report Detection element Status [LX SD 2.3.7] Alternative Scenario: Report Detection element Status [LX SD 2.3.7] **Precondition:** The PDI connection is established. **Interaction 2.3.7.A:** **1.** - The External Level Crossing System provides the status of the Detection element. **2.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the status of the Detection element. **3.** The Subsystem - Electronic Interlocking received the status of the Detection element of the External Level Crossing System. **Postcondition:** ---  		007600 007900
Eu.LX.1296	Info	Alternative Scenario: Report Obstacle detector Status [LX SD 2.3.8] **sd** Alternative Scenario: Report Obstacle detector Status [LX SD 2.3.8] Alternative Scenario: Report Obstacle detector Status [LX SD 2.3.8] **Precondition:** The PDI connection is established. **Interaction 2.3.8.A:** **1.** - The External Level Crossing System provides the current status of the Obstacle detector. **2.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the status of the Obstacle detector. **3.** The Subsystem - Electronic Interlocking received the status of the Obstacle detector of the External Level Crossing System. **Postcondition:** ---  		008000
Eu.LX.1298	Info	LX_UC2.4: Handle an Activation point	The Connection Domain-UseCase "LX_UC2.4: Handle an Activation point" defines the control of an Activation point.	Default

© EULYNX Partners

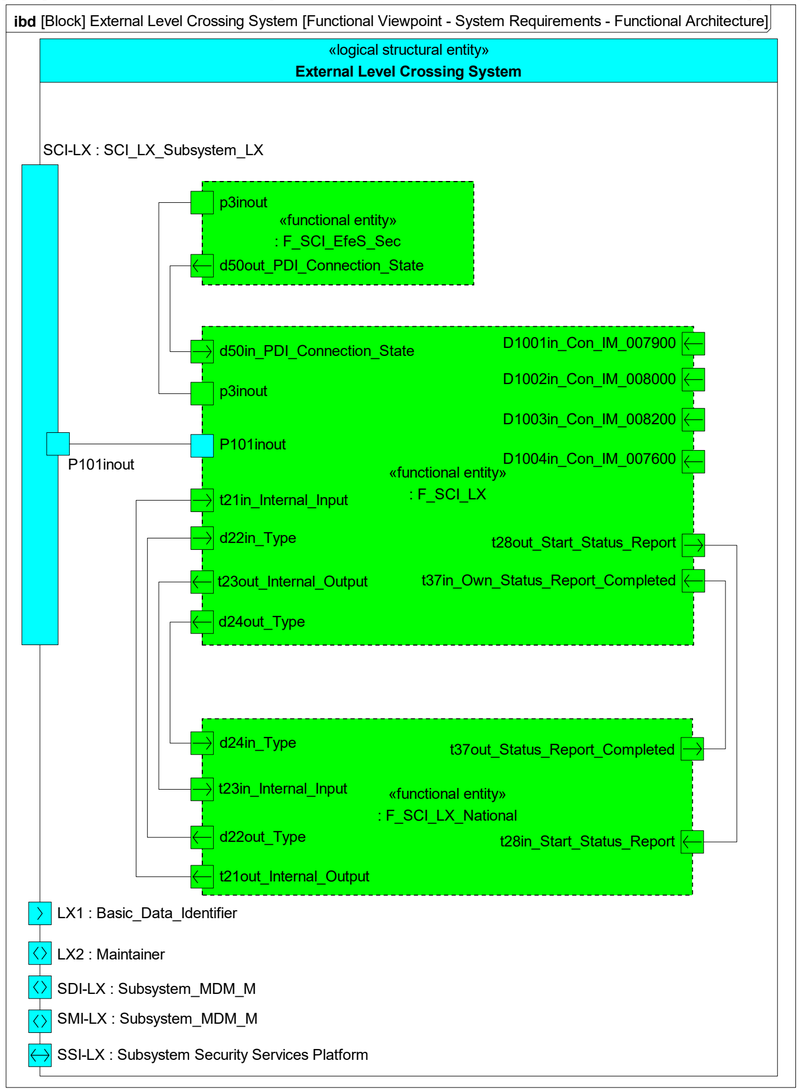
ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1299	Info	Main Success Scenario: Handle the control of an Activation point [LX SD 2.4.1] **sd** Main Success Scenario: Handle the control of an Activation point [LX SD 2.4.1] Main Success Scenario: Handle the control of an Activation point [LX SD 2.4.1] **Precondition:** The PDI connection is established. **Interaction 2.4.1.A:** **1.** - The Subsystem - Electronic Interlocking detects, that the control of an Activation point is requested. **2.** The Subsystem - Electronic Interlocking sends the command to control an Activation point. **3.** The External Level Crossing System provides the track related functional status. **4.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the track related functional status. **5.** The Subsystem - Electronic Interlocking received the current track related functional status of the External Level Crossing System. **Postcondition:** ---  		007900 008000
Eu.LX.1302	Info	LX_UC2.5: Handle auxiliary commands	The Connection Domain-UseCase "LX_UC2.5: Handle auxiliary commands" collects System-UsesCases defining the specific auxiliary commands.	Default
Eu.LX.1306	Info	LX_UC2.5.1: Block or unblock LX for commands	The Connection Domain-UseCase "LX_UC2.5.1: Block or unblock LX for commands" defines the behaviour of the External Level Crossing System receiving a command to block or unblock the LX for commands.	008000
Eu.LX.1307	Info	Main Success Scenario: Block or unblock the LX for commands [LX SD 2.5.1.1] **sd** Main Success Scenario: Block or unblock the LX for commands [LX SD 2.5.1.1] Main Success Scenario: Block or unblock the LX for commands [LX SD 2.5.1.1] **Precondition:** The PDI connection is established. **Interaction 2.5.1.1.A:** **1.** - The Subsystem - Electronic Interlocking detects, that a block or unblock of the LX for commands is requested. **2.** The Subsystem - Electronic Interlocking sends the command to block or unblock the LX for commands. **3.** The External Level Crossing System provides the LX functional status. **4.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the LX functional status. **5.** The Subsystem - Electronic Interlocking received the current LX functional status of the External Level Crossing System. **Postcondition:** ---  		008000
Eu.LX.1308	Info	LX_UC2.5.2: Handle isolation of LX	The Connection Domain-UseCase "LX_UC2.5.2: Handle isolation of LX" defines the behaviour of the External Level Crossing System receiving a command to isolate the LX.	007900

© EULYNX Partners

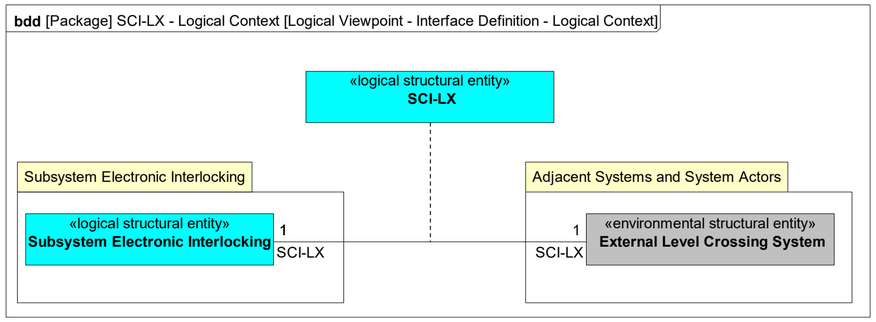
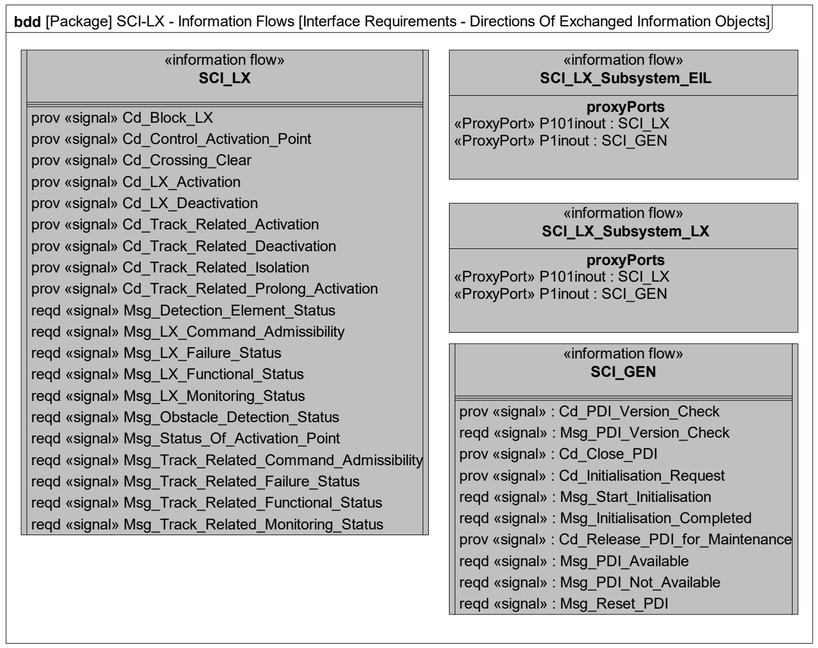
ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1312	Info	Alternative Scenario: Handle an isolate LX command [LX SD 2.5.2.1] **sd** Alternative Scenario: Handle an isolate LX command [LX SD 2.5.2.1] Alternative Scenario: Handle an isolate LX command [LX SD 2.5.2.1] **Precondition:** The PDI connection is established. **Interaction 2.5.2.1.A:** **1.** - The Subsystem - Electronic Interlocking detects, that a track related activation or deactivation of the isolation of a LX is requested. **2.** The Subsystem - Electronic Interlocking sends the command to activate or deactivate the isolation of the LX track related. **3.** The External Level Crossing System provides the track related functional status. **4.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the track related functional status. **5.** The Subsystem - Electronic Interlocking received the current track related functional status of the External Level Crossing System. **Postcondition:** ---  		007900
Eu.LX.1483	Info	LX_UC2.6: Handle irregularities	The Connection Domain-UseCase "LX_UC2.6: Handle irregularities" defines the behaviour of the External Level Crossing System when an irregularity occurs.	Default
Eu.LX.1484	Info	Alternative Scenario: Report Track related Failure Status [LX SD 2.6.1] **sd** Alternative Scenario: Report Track related Failure Status [LX SD 2.6.1] Alternative Scenario: Report Track related Failure Status [LX SD 2.6.1] **Precondition:** The PDI connection is established. **Interaction 2.6.1.A:** **1.** - The External Level Crossing System provides the track related failure status. **2.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the track related failure status. **3.** The Subsystem - Electronic Interlocking received the current track related failure status of the External Level Crossing System. **Postcondition:** ---  		007900 008000 008200
Eu.LX.1485	Info	Alternative Scenario: Report LX Failure Status [LX SD 2.6.2] **sd** Alternative Scenario: Report LX Failure Status [LX SD 2.6.2] Alternative Scenario: Report LX Failure Status [LX SD 2.6.2] **Precondition:** The PDI connection is established. **Interaction 2.6.2.A:** **1.** - The External Level Crossing System provides the LX failure status. **2.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the LX failure status. **3.** The Subsystem - Electronic Interlocking received the current LX failure status of the External Level Crossing System. **Postcondition:** ---  		Default

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1486	Info	Alternative Scenario: Report Failure Status of an Activation point [LX SD 2.6.3] **sd** Alternative Scenario: Report Failure Status of an Activation point [LX SD 2.6.3] Alternative Scenario: Report Failure Status of an Activation point [LX SD 2.6.3] **Precondition:** The PDI connection is established. **Interaction 2.6.3.A:** **1.** - The External Level Crossing System the status of the Activation point. **2.** The External Level Crossing System notifies the Subsystem - Electronic Interlocking of the status of the Activation point. **3.** The Subsystem - Electronic Interlocking received the status of the Activation point of the External Level Crossing System. **Postcondition:** ---  		008000
Eu.LX.1808	Head	**3.3.3 External Level Crossing System - Functional Partitioning**		Default
Eu.LX.1809	Def	[Package] External Level Crossing System - Functional Partitioning [Functional Viewpoint - System Requirements] **bdd** [Package] External Level Crossing System - Functional Partitioning [Functional Viewpoint - System Requirements]  		Default
Eu.LX.1799	Head	**3.3.4 External Level Crossing System - Functional Architecture**		Default
Eu.LX.1800	Info	External Level Crossing System		Default

© EULYNX Partners

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1801	Def	[Block] External Level Crossing System [Functional Viewpoint - System Requirements - Functional Architecture]  		Default
Eu.LX.1802	Def	LX1		Default
Eu.LX.1803	Def	LX2	The functional Maintenance/Operation/Display interface to the Maintainer. The InformationFlow through the interface is defined by "Maintainer".	Default
Eu.LX.1804	Def	SCI-LX		Default
Eu.LX.1805	Def	SDI-LX	The functional Diagnostic interface to the Subsystem - Maintenance and Data Management for the InformationFlow through the interface, which is defined by "Subsystem_MDM_D".	Default
Eu.LX.1806	Def	SMI-LX	The functional Maintenance Interface to the Subsystem - Maintenance and Data Management for the InformationFlow through the interface, which is defined by "Subsystem_MDM_M".	Default
Eu.LX.1807	Def	SSI-LX	The Security Service Interface to the Subsystem Security Services Platform. The InformationFlow through the interface is further defined in SSI-LX (Subsystem - Security Services Platform).	Default

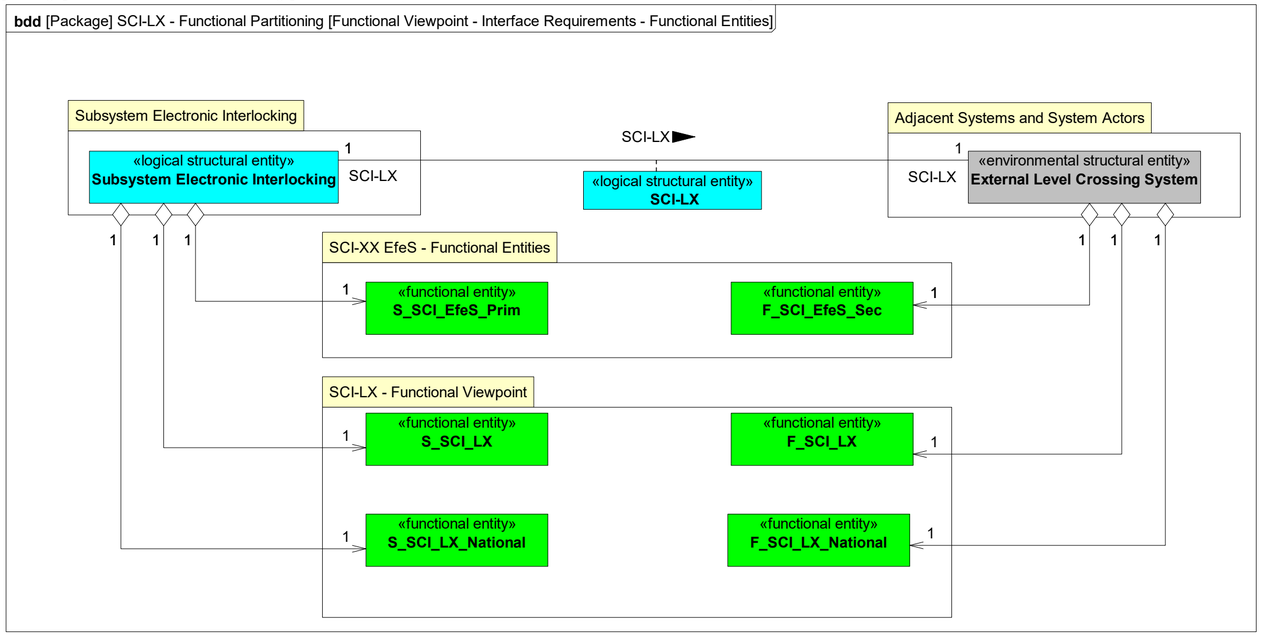
© EULYNX Partners

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1811	Head	**3.4 External Level Crossing System - Interfaces**		Default
Eu.LX.1816	Head	**3.4.1 SCI-LX (Subsystem - Electronic Interlocking)**		Default
Eu.LX.1691	Head	**3.4.1.1 SCI-LX - Logical Viewpoint**		Default
Eu.LX.1752	Head	**3.4.1.1.1 SCI-LX - Logical Context**		Default
Eu.LX.1230	Def	[Package] SCI-LX - Logical Context [Logical Viewpoint - Interface Definition - Logical Context]  		Default
Eu.LX.1631	Head	**3.4.1.2 SCI-LX - Information Flows**		Default
Eu.LX.1767	Info	The generic commands and messages through the SCI-LX are specified in [Eu.Doc.119].		Default
Eu.LX.1632	Def	[Package] SCI-LX - Information Flows [Interface Requirements - Directions Of Exchanged Information Objects]  		Default
Eu.LX.1732	Def	Cd_Block_LX	Command (Cd) from Subsystem - Electronic Interlocking to External Level Crossing System to block or unblock the LX for commands.	008000
Eu.LX.1733	Def	Cd_Control_Activation_Point	Command (Cd) from Subsystem - Electronic Interlocking to External Level Crossing System to request to enable or to disable a determined Activation point.	007900 008000
Eu.LX.1734	Def	Cd_Crossing_Clear	Command (Cd) from Subsystem - Electronic Interlocking to External Level Crossing System that the Level Crossing protection area is free of obstacles.	008000
Eu.LX.1735	Def	Cd_LX_Activation	Command (Cd) from Subsystem - Electronic Interlocking to External Level Crossing System to activate LX related.	007600 007900 008200

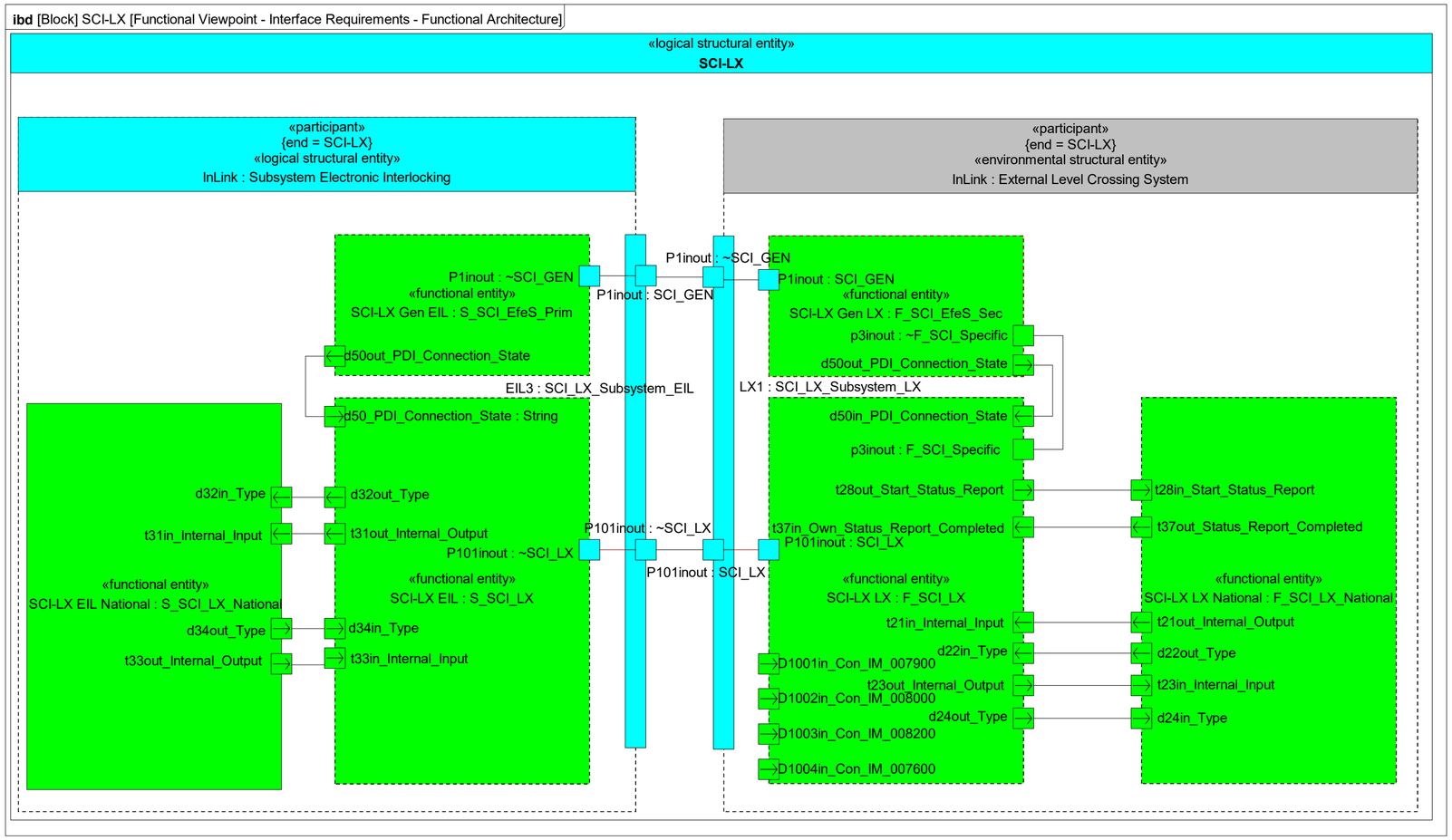
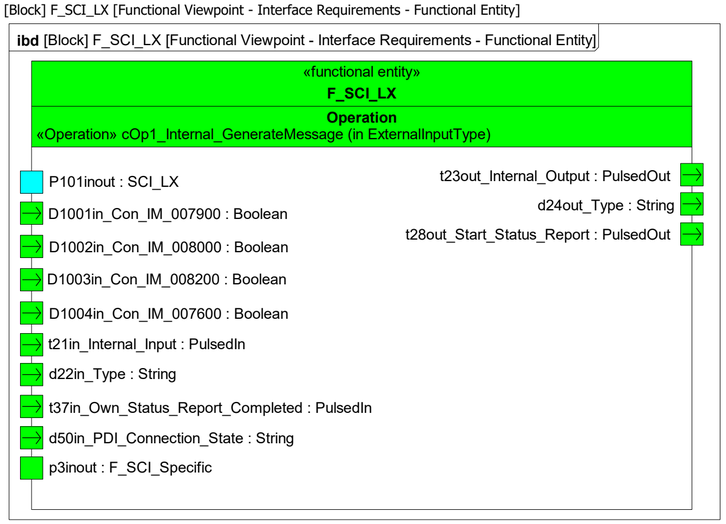
© EULYNX Partners

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1736	Def	Cd_LX_Deactivation	Command (Cd) from Subsystem - Electronic Interlocking to External Level Crossing System to deactivate LX related.	007600 007900 008200
Eu.LX.1737	Def	Cd_Track_Related_Activation	Command (Cd) from Subsystem - Electronic Interlocking to External Level Crossing System to activate track or route related.	007900 008000 008200
Eu.LX.1738	Def	Cd_Track_Related_Deactivation	Command (Cd) from Subsystem - Electronic Interlocking to External Level Crossing System to deactivate the LX track related.	007900 008000 008200
Eu.LX.1739	Def	Cd_Track_Related_Isolation	Command (Cd) from Subsystem - Electronic Interlocking to External Level Crossing System to isolate the LX track related.	007900
Eu.LX.1740	Def	Cd_Track_Related_Prolong_Activation	Command (Cd) from Subsystem - Electronic Interlocking to External Level Crossing System to either prolong an activated LX track related or to cancel the prolongation of the activated LX track related.	007900 008000
Eu.LX.1741	Def	Msg_Detection_Element_Status	Message (Msg) from External Level Crossing System to Subsystem - Electronic Interlocking about a changed Detection element status.	007600 007900
Eu.LX.1742	Def	Msg_LX_Command_Admissibility	Message (Msg) from External Level Crossing System to Subsystem - Electronic Interlocking to inform about LX related admissible commands.	008000 008200
Eu.LX.1743	Def	Msg_LX_Failure_Status	Message (Msg) from External Level Crossing System to Subsystem - Electronic Interlocking that the LX failure status has been changed.	Default
Eu.LX.1744	Def	Msg_LX_Functional_Status	Message (Msg) from External Level Crossing System to Subsystem - Electronic Interlocking that the LX functional status has been changed.	Default
Eu.LX.1745	Def	Msg_LX_Monitoring_Status	Message (Msg) from External Level Crossing System to Subsystem - Electronic Interlocking that the LX monitoring status has been changed.	007900 008000 008200
Eu.LX.1746	Def	Msg_Obstacle_Detection_Status	Message (Msg) from External Level Crossing System to Subsystem - Electronic Interlocking about a changed Obstacle detector status.	008000
Eu.LX.1747	Def	Msg_Status_Of_Activation_Point	Message (Msg) from External Level Crossing System to Subsystem - Electronic Interlocking to report the status of determined Activation Point(s).	008000
Eu.LX.1748	Def	Msg_Track_Related_Command_Admissibility	Message (Msg) from External Level Crossing System to Subsystem - Electronic Interlocking to inform about track related admissible commands.	008000 008200
Eu.LX.1749	Def	Msg_Track_Related_Failure_Status	Message (Msg) from External Level Crossing System to Subsystem - Electronic Interlocking that the Track related failure status has been changed.	007900 008000 008200
Eu.LX.1750	Def	Msg_Track_Related_Functional_Status	Message (Msg) from External Level Crossing System to Subsystem - Electronic Interlocking that a Track related functional status has been changed.	007900 008000 008200
Eu.LX.1751	Def	Msg_Track_Related_Monitoring_Status	Message (Msg) from External Level Crossing System to Subsystem - Electronic Interlocking that a Track related monitoring status has been changed.	007900 008000 008200
Eu.LX.1658	Head	**3.4.1.3 SCI-LX - Functional Viewpoint**		Default
Eu.LX.1730	Head	**3.4.1.3.1 SCI-LX - Functional Partitioning**		Default

© EULYNX Partners

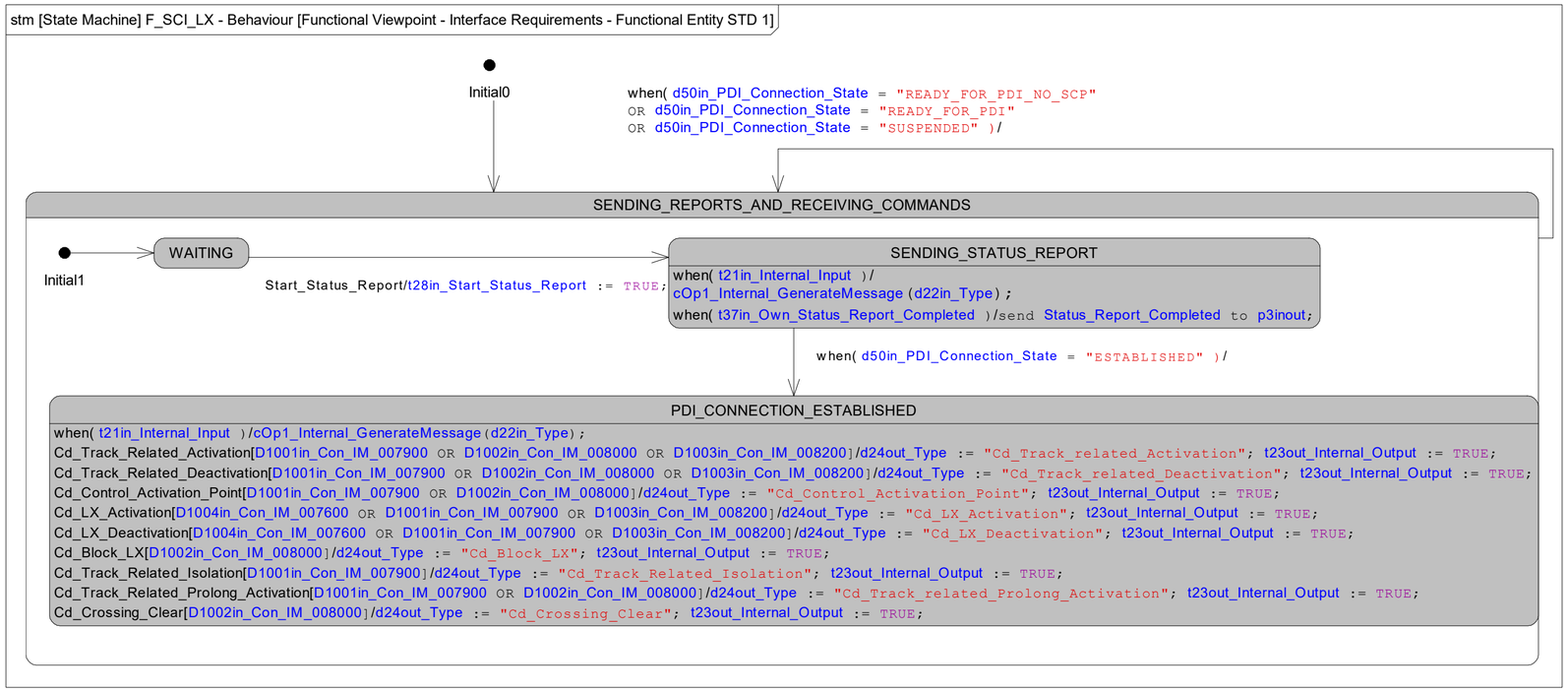
ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1493	Def	[Package] SCI-LX - Functional Partitioning [Functional Viewpoint - Interface Requirements - Functional Entities]  		Default
Eu.LX.1272	Info	The generic requirements are specified in [Eu.Doc.119].		Default
Eu.LX.1728	Head	**3.4.1.3.2 SCI-LX - Functional Architecture**		Default
Eu.LX.1491	Info	SCI-LX		Default

© EULYNX Partners

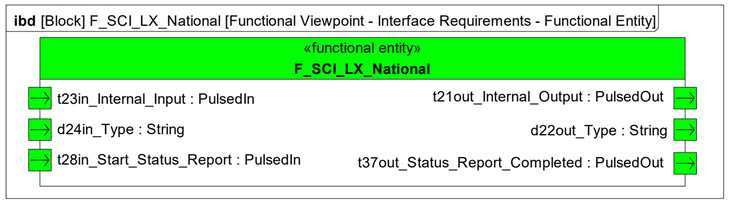
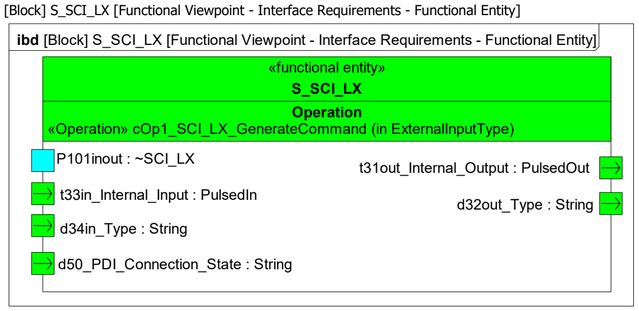
ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1492	Def	[Block] SCI-LX [Functional Viewpoint - Interface Requirements - Functional Architecture] **ibd** [Block] SCI-LX [Functional Viewpoint - Interface Requirements - Functional Architecture]  		Default
Eu.LX.1729	Head	**3.4.1.3.3 SCI-LX - Functional Entities**		Default
Eu.LX.1495	Info	F_SCI_LX		-
Eu.LX.1507	Req	[Block] F_SCI_LX [Functional Viewpoint - Interface Requirements - Functional Entity] **ibd** [Block] F_SCI_LX [Functional Viewpoint - Interface Requirements - Functional Entity]  		-
Eu.LX.1498	Def	/* cOp1_Internal_GenerateMessage */ if (ExternalInputType = "Msg_LX_Failure_Status") then send Msg_LX_Failure_Status to P101inout;	cOp1_Internal_GenerateMessage	-

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
		elseif (ExternalInputType = "Msg_LX_Functional_Status") then send Msg_LX_Functional_Status to P101inout; elseif (ExternalInputType = "Msg_LX_Monitoring_Status" AND (D1001in_Con_IM_007900 OR D1002in_Con_IM_008000 OR D1003in_Con_IM_008200)) then send Msg_LX_Monitoring_Status to P101inout; elseif (ExternalInputType = "Msg_Track_related_Failure_Status" AND(D1001in_Con_IM_007900 OR D1002in_Con_IM_008000 OR D1003in_Con_IM_008200)) then send Msg_Track_Related_Failure_Status to P101inout; elseif (ExternalInputType = "Msg_Track_related_Functional_Status" AND (D1001in_Con_IM_007900 OR D1002in_Con_IM_008000 OR D1003in_Con_IM_008200)) then send Msg_Track_Related_Functional_Status to P101inout; elseif (ExternalInputType = "Msg_Track_related_Monitoring_Status" AND (D1001in_Con_IM_007900 OR D1002in_Con_IM_008000 OR D1003in_Con_IM_008200)) then send Msg_Track_Related_Monitoring_Status to P101inout; elseif (ExternalInputType = "Msg_Detection_Element_Status" AND (D1004in_Con_IM_007600 OR D1001in_Con_IM_007900)) then send Msg_Detection_Element_Status to P101inout; elseif (ExternalInputType = "Msg_LX_Command_Admissibility" AND (D1002in_Con_IM_008000 OR D1003in_Con_IM_008200)) then send Msg_LX_Command_Admissibility to P101inout; elseif (ExternalInputType = "Msg_Obstacle_Detection_Status" AND D1002in_Con_IM_008000) then send Msg_Obstacle_Detection_Status to P101inout; elseif (ExternalInputType = "Msg_Status_Of_Activation_Point" AND D1002in_Con_IM_008000) then send Msg_Status_Of_Activation_Point to P101inout; elseif (ExternalInputType = "Msg_Track_related_Command_Admissibility" AND (D1002in_Con_IM_008000 or D1003in_Con_IM_008200)) then send Msg_Track_Related_Command_Admissibility to P101inout; end if		
Eu.LX.1500	Def	D1001in_Con_IM_007900	The port D1001in_Con_007900 provides the configuration value whether an interlocking is configured for the infrastructure manager 007900.	-
Eu.LX.1501	Def	D1002in_Con_IM_008000	The port D1002in_Con_008000 provides the configuration value whether an interlocking is configured for the infrastructure manager 008000.	-
Eu.LX.1502	Def	D1003in_Con_IM_008200	The port D1003in_Con_008200 provides the configuration value whether an interlocking is configured for the infrastructure manager 008200.	-
Eu.LX.1770	Def	D1004in_Con_IM_007600	The port D1004in_Con_IM_007600 provides the configuration value whether an interlocking is configured for the infrastructure manager 007600.	-
Eu.LX.1534	Def	t21in_Internal_Input		-
Eu.LX.1505	Def	d22in_Type		-
Eu.LX.1539	Def	t37in_Own_Status_Report_Completed		-
Eu.LX.1597	Def	t28out_Start_Status_Report		-
Eu.LX.1535	Def	t23out_Internal_Output		-
Eu.LX.1506	Def	d24out_Type		-
Eu.LX.1660	Def	P101inout	The port P101inout exchanges information objects according to SCI_LX_Subsystem_LX.	-
Eu.LX.1508	Info	F_SCI_LX - Behaviour		-

© EULYNX Partners

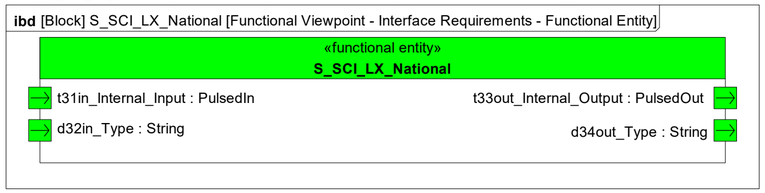
ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1529	Req	Functional Viewpoint - Interface Requirements - Functional Entity STD 1  	This state machine diagram describes the requirements for the following functionalities: - receives the observed track related activation status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed track related deactivation status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed control activation point status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed LX activation status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed LX deactivation status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed Block LX status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed track related isolation status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed track related prolong activation status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed crossing clear status from internal logic and reports this to the Subsystem - Electronic Interlocking	-
Eu.LX.1509	Def	Initial0		-
Eu.LX.1510	Def	/{Initial0 - SENDING_REPORTS_AND_RECEIVING_COMMANDS}		-
Eu.LX.1515	Def	SENDING_REPORTS_AND_RECEIVING_COMMANDS		-
Eu.LX.1518	Def	Initial1		-
Eu.LX.1519	Def	/{Initial1 - WAITING}		-
Eu.LX.1522	Def	SENDING_STATUS_REPORT		-
Eu.LX.1618	Def	when(t21in_Internal_Input)/ cOp1_Internal_GenerateMessage(d22in_Type);{State-internal in SENDING_STATUS_REPORT}		-

© EULYNX Partners

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1818	Def	when(t37in_Own_Status_Report_Completed)/send Status_Report_Completed to p3inout;{State-internal in SENDING_STATUS_REPORT}		-
Eu.LX.1528	Def	when(d50in_PDI_Connection_State = "ESTABLISHED")/{SENDING_STATUS_REPORT - PDI_CONNECTION_ESTABLISHED}		-
Eu.LX.1527	Def	when(d50in_PDI_Connection_State = "READY_FOR_PDI_NO_SCP" OR d50in_PDI_Connection_State = "READY_FOR_PDI" OR d50in_PDI_Connection_State = "SUSPENDED")/{SENDING_REPORTS_AND_RECEIVING_COMMANDS - SENDING_REPORTS_AND_RECEIVING_COMMANDS}		-
Eu.LX.1513	Def	PDI_CONNECTION_ESTABLISHED		-
Eu.LX.1614	Def	Cd_Track_Related_Activation[D1001in_Con_IM_007900 OR D1002in_Con_IM_008000 OR D1003in_Con_IM_008200]/d24out_Type := "Cd_Track_related_Activation"; t23out_Internal_Output := TRUE;{State-internal in PDI_CONNECTION_ESTABLISHED}		-
Eu.LX.1615	Def	when(t21in_Internal_Input)/cOp1_Internal_GenerateMessage(d22in_Type);{State-internal in PDI_CONNECTION_ESTABLISHED}		-
Eu.LX.1661	Def	Cd_Track_Related_Prolong_Activation[D1001in_Con_IM_007900 OR D1002in_Con_IM_008000]/d24out_Type := "Cd_Track_related_Prolong_Activation"; t23out_Internal_Output := TRUE;{State-internal in PDI_CONNECTION_ESTABLISHED}		-
Eu.LX.1662	Def	Cd_Block_LX[D1002in_Con_IM_008000]/d24out_Type := "Cd_Block_LX"; t23out_Internal_Output := TRUE;{State-internal in PDI_CONNECTION_ESTABLISHED}		-
Eu.LX.1663	Def	Cd_Control_Activation_Point[D1001in_Con_IM_007900 OR D1002in_Con_IM_008000]/d24out_Type := "Cd_Control_Activation_Point"; t23out_Internal_Output := TRUE;{State-internal in PDI_CONNECTION_ESTABLISHED}		-
Eu.LX.1664	Def	Cd_Crossing_Clear[D1002in_Con_IM_008000]/d24out_Type := "Cd_Crossing_Clear"; t23out_Internal_Output := TRUE;{State-internal in PDI_CONNECTION_ESTABLISHED}		-
Eu.LX.1665	Def	Cd_LX_Activation[D1004in_Con_IM_007600 OR D1001in_Con_IM_007900 OR D1003in_Con_IM_008200]/d24out_Type := "Cd_LX_Activation"; t23out_Internal_Output := TRUE;{State-internal in PDI_CONNECTION_ESTABLISHED}		-
Eu.LX.1666	Def	Cd_LX_Deactivation[D1004in_Con_IM_007600 OR D1001in_Con_IM_007900 OR D1003in_Con_IM_008200]/d24out_Type := "Cd_LX_Deactivation"; t23out_Internal_Output := TRUE;{State-internal in PDI_CONNECTION_ESTABLISHED}		-
Eu.LX.1667	Def	Cd_Track_Related_Deactivation[D1001in_Con_IM_007900 OR D1002in_Con_IM_008000 OR D1003in_Con_IM_008200]/d24out_Type := "Cd_Track_related_Deactivation"; t23out_Internal_Output := TRUE;{State-internal in PDI_CONNECTION_ESTABLISHED}		-
Eu.LX.1668	Def	Cd_Track_Related_Isolation[D1001in_Con_IM_007900]/d24out_Type := "Cd_Track_Related_Isolation"; t23out_Internal_Output := TRUE;{State-internal in PDI_CONNECTION_ESTABLISHED}		-
Eu.LX.1511	Def	WAITING		-
Eu.LX.1512	Def	Start_Status_Report/t28in_Start_Status_Report := TRUE;{WAITING - SENDING_STATUS_REPORT}		-
Eu.LX.1817	Def	d50in_PDI_Connection_State		-
Eu.LX.1819	Def	p3inout		-
Eu.LX.1587	Info	F_SCI_LX_National		-
Eu.LX.1590	Req	[Block] F_SCI_LX_National [Functional Viewpoint - Interface Requirements - Functional Entity]  		-
Eu.LX.1591	Def	t23in_Internal_Input		-
Eu.LX.1588	Def	d24in_Type		-
Eu.LX.1596	Def	t28in_Start_Status_Report		-
Eu.LX.1592	Def	t21out_Internal_Output		-
Eu.LX.1589	Def	d22out_Type		-
Eu.LX.1593	Def	t37out_Status_Report_Completed		-
Eu.LX.1541	Info	S_SCI_LX		-
Eu.LX.1550	Req	[Block] S_SCI_LX [Functional Viewpoint - Interface Requirements - Functional Entity]  		-
Eu.LX.1543	Def	/* cOp1_SCI_LX_GenerateCommand */ if ExternalInputType = "Cd_Track_related_Activation" then send Cd_Track_Related_Activation to P101inout; elseif ExternalInputType = "Cd_Track_related_Deactivation" then send Cd_Track_Related_Deactivation to P101inout; elseif ExternalInputType = "Cd_Control_Activation_Point" then send Cd_Control_Activation_Point to P101inout; elseif ExternalInputType = "Cd_LX_Activation" then	cOp1_SCI_LX_GenerateCommand	-

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
		send Cd_LX_Activation to P101inout; elseif ExternalInputType = "Cd_LX_Deactivation" then send Cd_LX_Deactivation to P101inout; elseif ExternalInputType = "Cd_Block_LX" then send Cd_Block_LX to P101inout; elseif ExternalInputType = "Cd_Track_Related_Isolation" then send Cd_Track_Related_Isolation to P101inout; elseif ExternalInputType = "Cd_Track_related_Prolong_Activation" then send Cd_Track_Related_Prolong_Activation to P101inout; elseif ExternalInputType = "Cd_Crossing_Clear" then send Cd_Crossing_Clear to P101inout; end if		
Eu.LX.1583	Def	t33in_Internal_Input		-
Eu.LX.1548	Def	d34in_Type		-
Eu.LX.1584	Def	t31out_Internal_Output		-
Eu.LX.1549	Def	d32out_Type		-
Eu.LX.1669	Def	P101inout	The port P101inout exchanges information objects according to SCI_LX_Subsystem_EIL.	-
Eu.LX.1551	Info	S_SCI_LX - Behaviour		-
Eu.LX.1572	Req	Functional Viewpoint - Interface Requirements - Functional Entity STD 2 stm [State Machine] S_SCI_LX - Behaviour [Functional Viewpoint - Interface Requirements - Functional Entity STD 2] Initial0 SENDING_COMMANDS_AND_RECEIVING_MESSAGES when(t33in_Internal_Input)[d50_PDI_Connection_State = = "ESTABLISHED"]/cOp1_SCI_LX_GenerateCommand(d34in_Type); Msg_LX_Failure_Status/d32out_Type := "Msg_LX_Failure_Status"; t31out_Internal_Output := TRUE; Msg_LX_Functional_Status/d32out_Type := "Msg_LX_Functional_Status"; t31out_Internal_Output := TRUE; Msg_LX_Monitoring_Status/d32out_Type := "Msg_LX_Monitoring_Status"; t31out_Internal_Output := TRUE; Msg_Track_Related_Failure_Status/d32out_Type := "Msg_Track_related_Failure_Status"; t31out_Internal_Output := TRUE; Msg_Track_Related_Functional_Status/d32out_Type := "Msg_Track_related_Functional_Status"; t31out_Internal_Output := TRUE; Msg_Track_Related_Monitoring_Status/d32out_Type := "Msg_Track_related_Monitoring_Status"; t31out_Internal_Output := TRUE; Msg_Detection_Element_Status/d32out_Type := "Msg_Detection_Element_Status"; t31out_Internal_Output := TRUE; Msg_LX_Command_Admissibility/d32out_Type := "Msg_LX_Command_Admissibility"; t31out_Internal_Output := TRUE; Msg_Obstacle_Detection_Status/d32out_Type := "Msg_Obstacle_Detection_Status"; t31out_Internal_Output := TRUE; Msg_Status_Of_Activation_Point/d32out_Type := "Msg_Status_Of_Activation_Point"; t31out_Internal_Output := TRUE; Msg_Track_Related_Command_Admissibility/d32out_Type := "Msg_Track_related_Command_Admissibility"; t31out_Internal_Output := TRUE;	This state machine diagram describes the requirements for the following functionalities: - receives the observed track related activation status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed track related deactivation status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed control activation point status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed LX activation status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed LX deactivation status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed Block LX status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed track related isolation status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed track related prolong activation status from internal logic and reports this to the Subsystem - Electronic Interlocking - receives the observed crossing clear status from internal logic and reports this to the Subsystem - Electronic Interlocking	-
Eu.LX.1552	Def	Initial0		-
Eu.LX.1553	Def	/{Initial0 - SENDING_COMMANDS_AND_RECEIVING_MESSAGES}		-

© EULYNX Partners

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1556	Def	SENDING_COMMANDS_AND_RECEIVING_MESSAGES		-
Eu.LX.1620	Def	Msg_LX_Failure_Status/d32out_Type := "Msg_LX_Failure_Status"; t31out_Internal_Output := TRUE;{State-internal in SENDING_COMMANDS_AND_RECEIVING_MESSAGES}		-
Eu.LX.1621	Def	when(t33in_Internal_Input)[d50_PDI_Connection_State = = "ESTABLISHED"]/cOp1_SCI_LX_GenerateCommand(d34in_Type);{State-internal in SENDING_COMMANDS_AND_RECEIVING_MESSAGES}		-
Eu.LX.1670	Def	Msg_Track_Related_Failure_Status/d32out_Type := "Msg_Track_related_Failure_Status"; t31out_Internal_Output := TRUE;{State-internal in SENDING_COMMANDS_AND_RECEIVING_MESSAGES}		-
Eu.LX.1671	Def	Msg_Track_Related_Functional_Status/d32out_Type := "Msg_Track_related_Functional_Status"; t31out_Internal_Output := TRUE;{State-internal in SENDING_COMMANDS_AND_RECEIVING_MESSAGES}		-
Eu.LX.1672	Def	Msg_Track_Related_Monitoring_Status/d32out_Type := "Msg_Track_related_Monitoring_Status"; t31out_Internal_Output := TRUE;{State-internal in SENDING_COMMANDS_AND_RECEIVING_MESSAGES}		-
Eu.LX.1673	Def	Msg_Detection_Element_Status/d32out_Type := "Msg_Detection_Element_Status"; t31out_Internal_Output := TRUE;{State-internal in SENDING_COMMANDS_AND_RECEIVING_MESSAGES}		-
Eu.LX.1674	Def	Msg_LX_Command_Admissibility/d32out_Type := "Msg_LX_Command_Admissibility"; t31out_Internal_Output := TRUE;{State-internal in SENDING_COMMANDS_AND_RECEIVING_MESSAGES}		-
Eu.LX.1675	Def	Msg_LX_Functional_Status/d32out_Type := "Msg_LX_Functional_Status"; t31out_Internal_Output := TRUE;{State-internal in SENDING_COMMANDS_AND_RECEIVING_MESSAGES}		-
Eu.LX.1676	Def	Msg_LX_Monitoring_Status/d32out_Type := "Msg_LX_Monitoring_Status"; t31out_Internal_Output := TRUE;{State-internal in SENDING_COMMANDS_AND_RECEIVING_MESSAGES}		-
Eu.LX.1677	Def	Msg_Obstacle_Detection_Status/d32out_Type := "Msg_Obstacle_Detection_Status"; t31out_Internal_Output := TRUE;{State-internal in SENDING_COMMANDS_AND_RECEIVING_MESSAGES}		-
Eu.LX.1678	Def	Msg_Status_Of_Activation_Point/d32out_Type := "Msg_Status_Of_Activation_Point"; t31out_Internal_Output := TRUE;{State-internal in SENDING_COMMANDS_AND_RECEIVING_MESSAGES}		-
Eu.LX.1679	Def	Msg_Track_Related_Command_Admissibility/d32out_Type := "Msg_Track_related_Command_Admissibility"; t31out_Internal_Output := TRUE;{State-internal in SENDING_COMMANDS_AND_RECEIVING_MESSAGES}		-
Eu.LX.1820	Def	d50_PDI_Connection_State		-
Eu.LX.1601	Info	S_SCI_LX_National		-
Eu.LX.1604	Req	[Block] S_SCI_LX_National [Functional Viewpoint - Interface Requirements - Functional Entity]  		-
Eu.LX.1605	Def	t31in_Internal_Input		-
Eu.LX.1602	Def	d32in_Type		-
Eu.LX.1606	Def	t33out_Internal_Output		-
Eu.LX.1603	Def	d34out_Type		-
Eu.LX.1827	Head	**3.4.2 SDI-LX (Subsystem - Maintenance and Data Management)**		Default
Eu.LX.1828	Info	The generic data points through the SDI-LX are specified in Eu.Doc.94.		Default
Eu.LX.1829	Head	**3.4.3 SMI-LX (Subsystem - Maintenance and Data Management)**		Default
Eu.LX.1830	Info	The generic InformationFlows and the related FlowProperties through the SMI-LX are specified in Eu.Doc.120.		Default
Eu.LX.1831	Head	**3.4.4 SSI-LX (Subsystem - Security Services Platform)**		Default
Eu.LX.1832	Info	The generic content through SSI-LX is specified in Eu.Doc.117.		Default
Eu.LX.1812	Head	**3.4.5 LX1 (Basic Data identifier)**		Default
Eu.LX.1813	Info	The generic FlowSpecification and the related FlowProperties through LX1 are specified in Eu.Doc.20.		Default
Eu.LX.1814	Head	**3.4.6 LX2 (Maintainer)**		Default
Eu.LX.1815	Info	The generic FlowProperties through LX2 are specified in Eu.Doc.20.		Default
Eu.LX.1774	Head	**4 RAMSS requirements**		Default
Eu.LX.1775	Info	The requirements for reliability, availability, maintainability, safety and security are specified in [Eu.Doc.20].		Default
Eu.LX.1776	Head	**5 Technical requirements**		Default
Eu.LX.1777	Info	The generic technical requirements are specified in [Eu.Doc.20].		Default
Eu.LX.1780	Head	**5.1 Specific technical interface requirements**		Default
Eu.LX.1781	Head	**5.1.1 Interface to the Point of Service - Signalling (PoS - Signalling)**		Default
Eu.LX.1782	Req	Via the technical interface **PoS-Signalling** the data of the functional interface "SCI-LX" shall be exchanged with the Subsystem - Electronic Interlocking as specified in [Eu.Doc.92].		Default
Eu.LX.1783	Req	Via the technical interface **PoS-Signalling** the data of the functional interface "SMI-LX" shall be exchanged with the Subsystem - Maintenance and Data Management as specified in [Eu.Doc.76].		Default
Eu.LX.1784	Req	Via the technical interface **PoS-Signalling** the data of the functional interface "SDI-LX" shall be exchanged with the Subsystem - Maintenance and Data Management as specified in [Eu.Doc.77].		Default
Eu.LX.1785	Req	Via the technical interface **PoS-Signalling** the data of the functional interface "SSI-LX" shall be exchanged with the Subsystem - Security Services Platform as specified in [Eu.Doc.117].		Default
Eu.LX.1786	Head	**5.2 Time behaviour**		Default

© EULYNX Partners

ID	Type	Requirement Part 1	Requirement Part 2	Appl.
Eu.LX.1787	Info	The time values defined in the chapter Functional requirements specification (Eu.LX.1796) shall be configured for the operation of the External Level Crossing System.		Default
Eu.LX.1788	Head	**5.3 Configuration and engineering data**		Default
Eu.LX.1789	Head	**5.3.1 Specific data**		Default
Eu.LX.1790	Req	The specific configuration and engineering data for the External Level Crossing System shall be defined by national specifications.		Default
Eu.LX.1791	Req	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:		Default
Eu.LX.1792	Req	• The non-safety-relevant configuration data shall be defined by national specifications. This data shall be used to calculate the CSNS.		Default
Eu.LX.1793	Req	• The remaining configuration data is currently categorised as safety-relevant. This data shall be used to calculate the CSS.		Default
Eu.LX.1794	Req	• The engineering data is safety-relevant. This data shall be used to calculate the CSS.		Default

© EULYNX Partners