




ERJU SYSTEM PILLAR

Risk Assessment report for the Operational Design CCS System



Risk Assessment report for the Operational Design CCS System

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Abstract	This report lists the Operational Processes that were analysed in a safety review at an early stage of the process definitions to ensure the quality and clarity of the operational process description - particularly with regard the involvement of human actors and the definition of their responsibilities.
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1 Preamble

1.1 Purpose



This report lists the Operational Processes that were analysed in a safety review at an early stage of the process definitions to ensure the quality and clarity of the operational process description - particularly with regard the involvement of human actors and the definition of their responsibilities.



The refined Operational Processes will be incorporated in the System definition - and architecture documents which will be analysed in structured Failure Modes and Effects Analyses. Therefore, the documentation of the safety review findings is limited in this report to a checklist of which processes have been analysed and if any new operational hazards were identified.



1.2 Intended Audience



Experts participating in the ER System Pillar, particularly in the OD & Traffic CS domains. Domain experts working on definition of Operational Processes. This document is not intended for a general audience.

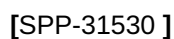
1.3 Document Context

The scope of risk analysis is the defined Operational Processes of the  SPMS-2098 - CCS System with focus on human actors, their tasks and responsibilities. As shown in the illustration below ( SPP-31530 - Dependencies between Configuration Items), the Risk assessment report for the Operational Design is based on the following key inputs:

-  SPP-18098 - OD_ETCS L2 Rulebook]:
This document contains the harmonized operational processes which are envisaged for the future SERA.
-  SPT2TRAFFIC-13108 - ERJU Hazard Database - Main Document]:
This document details the European Railway Harmonized Hazards Database to be used for risk assessment by ERJU SP Domains in accordance with ERJU PRAMS Plan and guidelines.

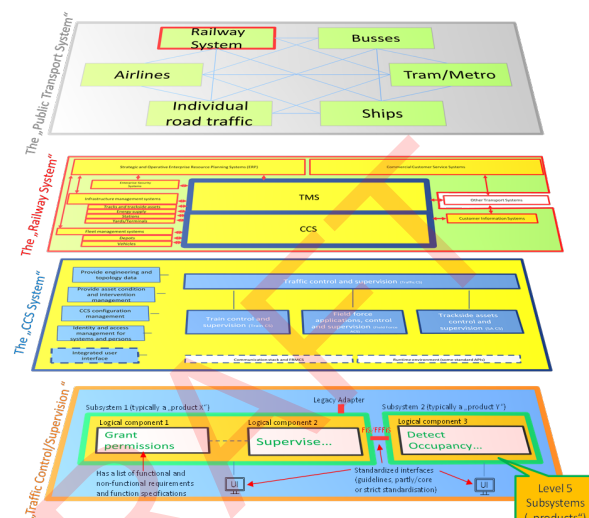
The Risk assessment report for the Operational Design itself is an input document for the Stakeholder Requirement Specification ( SPP-19163 - OD_Stakeholder Requirements Specification CCS System_V0.2) of the  SPMS-2098 - CCS System.

Further details regarding document independencies are described in  SPP-18362 - Requirements Management Plan v2.0]. The positioning of the ETCS L2 Rulebook within the document framework is shown in  SPP-31530 - Dependencies between Configuration Items.



1.4 Glossary

1.4.1 Terms

Term	Definition
System Levels of the System Pillar	<p>The system of systems approach is used inside the System Pillar to recursively refine the structure of the architecture down to the level of subsystems.</p> <p>The following figure shows the decomposition of a system of systems on one consistent example spanning 5 layers of refinement. Level 5 is the actual subsystem layer and is visually integrated into the bottom layer in the following figure to be able to show the relationship to logical components.</p>  <p>Figure 1: System Level 1-5 combined view</p>

1.4.2 Abbreviations

Abbreviation	Definition
CCS	Control-Command and Signalling
FMEA	Failure Mode and Effects Analysis

2 Safety review











2.1 Overview

The table below provides an overview of all analyzed Operational Processes, their related subtopics, current status of the safety review and current status of the rework of the Operational Process definition.

Operational Process	Subtopic	Safety review	Rework of process
Preparation to Train Departure	 SPP-11768 - 101B - t05 - Train departure	done	open
Movement A to B	 SPP-11764 - 102B - t02 - Next operational step unknown	done	open
	 SPP-11766 - 102C - t03 - Observations while driving	done	done
	 SPP-11767 - 102D - t04 - Resume driving after stopping short of scheduled stopping location	done	open
	 SPP-21160 - 102G - t68 - Regular execution of planned train movement	done	open
Train arrival (ending journey)	 SPP-11779 - 103A - t13 - End of mission	done	open
Approaching stop location	 SPP-11781 - 107 - t15 - Arrival at scheduled stop	done	open
Revoke Movement permission	 SPP-11769 - 108A - t06 - Revoke Movement Permission	done	done
	 SPP-17089 - 108B - t62 - Reducing Movement Permission by signaller action for a specific location in case of imminent danger	done	open
	 SPP-21673 - 108C - t64 - Reducing Movement Permission by signaller action for an area in case of imminent danger	done	open
Boarding and disembarking of passengers	 SPP-11785 - 112 - t16 - Platform start	done	open
Manage Usage Restrictions	 SPP-11770 - 403A_on - t07 - Activate planned temporary speed restriction	done	done
	 SPP-11771 - 403A_off - t08 - Deactivate temporary speed restriction	done	done
	 SPP-11776 - 403C - t11 - Handling an unplanned speed restriction	done	open







2.2 Preliminary Hazard Identification

The table below lists all analyzed Operational Processes, all their subtopics and Operational hazards identified by the Risk Management team.

Operational Process	Subtopic	Operational hazard
Preparation to Train Departure	 SPP-11768 - 101B - t05 - Train departure	TBD
Movement A to B	 SPP-11764 - 102B - t02 - Next operational step unknown	TBD
	 SPP-11766 - 102C - t03 - Observations while driving	 SPRM-568 - [SP_1] Lack of observation
	 SPP-11767 - 102D - t04 - Resume driving after stopping short of scheduled stopping location	TBD
	 SPP-21160 - 102G - t68 - Regular execution of planned train movement	TBD
Train arrival (ending journey)	 SPP-11779 - 103A - t13 - End of mission	TBD
Approaching stop location	 SPP-11781 - 107 - t15 - Arrival at scheduled stop	TBD
Revoke Movement permission	 SPP-11769 - 108A - t06 - Revoke Movement Permission	No operational hazards were identified during the analysis.
	 SPP-17089 - 108B - t62 - Reducing Movement Permission by signaller action for a specific location in case of imminent danger	TBD
	 SPP-21673 - 108C - t64 - Reducing Movement Permission by signaller action for an area in case of imminent danger	TBD
Boarding and disembarking of passengers	 SPP-11785 - 112 - t16 - Platform start	TBD
Manage Usage Restrictions	 SPP-11770 - 403A_on - t07 - Activate planned temporary speed restriction	 SPRM-120 - [B.1.2.4] Over-speeding
	 SPP-11771 - 403A_off - t08 - Deactivate temporary speed restriction	 SPRM-120 - [B.1.2.4] Over-speeding
	 SPP-11776 - 403C - t11 - Handling an unplanned speed restriction	TBD

3 Appendix

3.1 References

ID	Description
[ SPT2TRAFFIC-4141 - ERJU Safety Guideline]	The ERJU Safety Guideline practical guidance for ERJU Safety and System Engineers.
[ SPP-28677 - OD_Stakeholder Requirements Specification CCS System_Release 4]	Stakeholder Requirements Specification
[ SPP-18098 - OD_ETCS L2 Rulebook]	ETCS L2 Rulebook
[ SPT2TRAFFIC-13108 - ERJU Hazard Database - Main Document]	This document details the European Railway Harmonized Hazards Database to be used for risk assessment by ERJU SP Domains in accordance with ERJU PRAMS Plan and guidelines.
[ SPT2TRAFFIC-13107 - ERJU PRAMS Plan	This Safety Plan according to Phase 2.EN50126-1 shows the planned safety activities of ERJU System Pillar. It reflects the discussion in the ERJU Workgroup RAMS.
[ SPT2TRAFFIC-13109 - ERJU Risk Assessment Process & Template	This document describes the basic steps for performing risk assessment (focus safety) within ERJU. In addition it provides templates and examples for the risk assessment to be done by the ERJU System Pillar Domain Safety Managers.