



ERJU SYSTEM PILLAR

40 System Requirement Specification Traffic CS



System Requirement Specification Traffic CS

DRAFT

Approval By Reviewers

Type of Approval	 Document Review
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Approval by Approvers

Type of Approval	 Document Approval
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1 Preamble

1.1 Purpose

This document is the output of system requirement specification activities (phase 4) as specified in [SPP-349 - [EN 50126-1:2017]] for the SPMS-2823 - Traffic CS System. The objective of this document is to specify a comprehensive and identified set of requirements for the SPMS-2823 - Traffic CS System.

1.2 Intended audience

Domain experts involved in the tendering, development, verification, validation or assessment of the system under consideration (e.g. System Engineers, RAMSS Engineers, Developer, Tester, Assessors, etc).

Note:

This documentation is not intended for a general audience. For a comprehensive understanding of Traffic CS, please refer to the Traffic CS System Concept [SPP-19049 - Traffic CS System Concept V1.0].

1.3 Document context

As shown in SPT2TRAFFIC-13146 the System Requirement Specification Traffic CS is based on the following inputs:

- [SPP-18060 - TCS_System Architecture Description CCS System V0.3]:
This document allocates the functions and requirements identified for the CCS system (System Level 3 system) to the different System Level 4 systems of the CCS system. The SPMS-2823 - Traffic CS System is one of these System Level 4 systems.
Therefore, [SPP-18060 - TCS_System Architecture Description CCS System V0.3] identifies all functions and requirements to be fulfilled by the SPMS-2823 - Traffic CS System.
- [SPP-19169 - TCS_Risk assessment report for the System Architecture Description CCS System_V0.2]:
This document defines safety requirements and application conditions for the Traffic CS system.
Therefore, it is an input for the System Requirement Specification Traffic CS.

Note:

The traceability between the artefacts of the System Level 3 and the System Requirement Specification Traffic CS is shown in [SPP-19852 - TCS_Traceability Report System Requirement Specification Traffic CS_V0.2].

The [SPP-18355 - EET_Systems Engineering Management Plan_V4.0] explains in more detail the dependencies between the different documents.

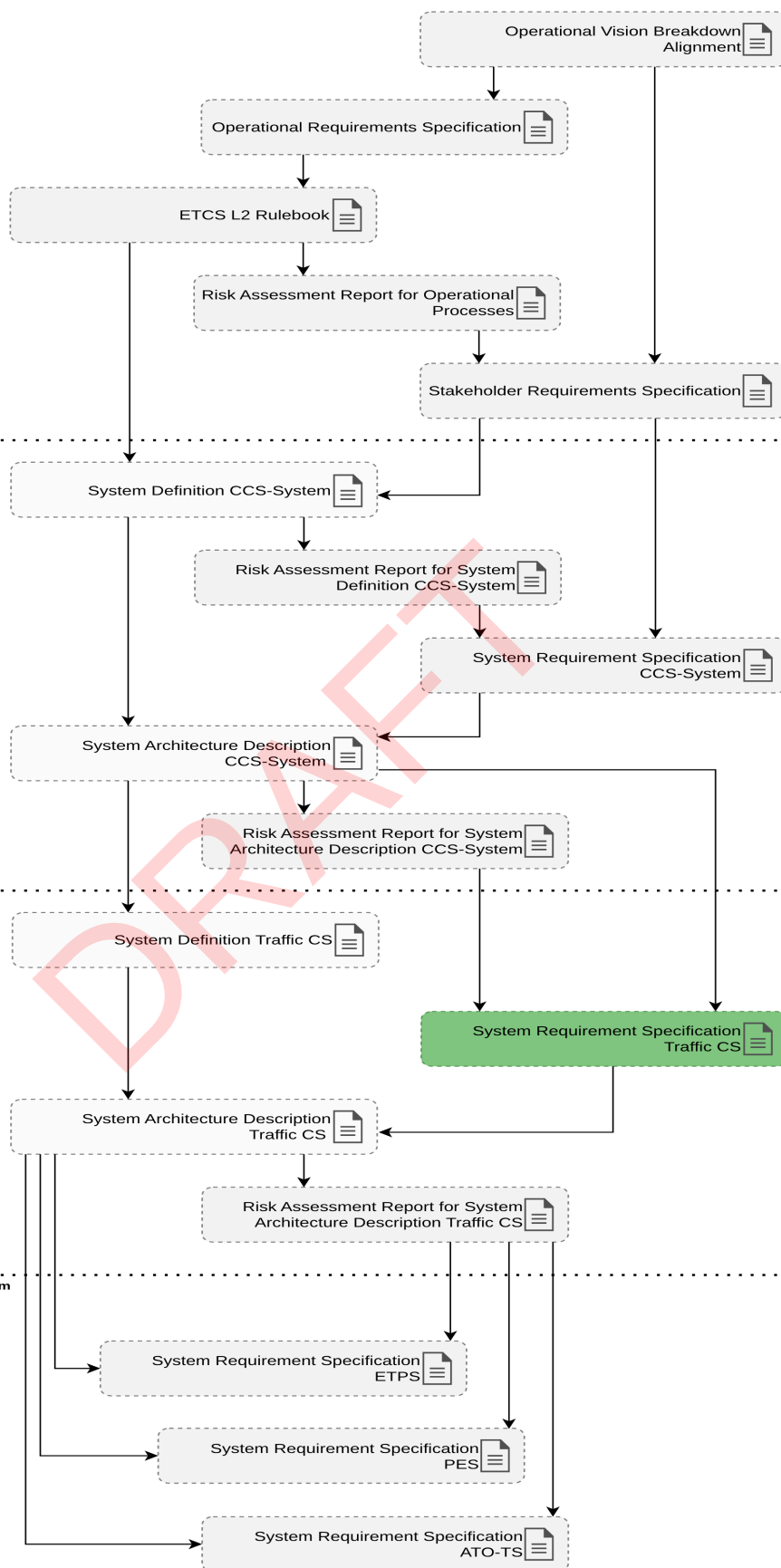
SPT2TRAFFIC-13146 below shows the System Requirement Specification Traffic CS in the context of the overall document list (see also [SPP-19283 - Release Note ESPR1.0]).

ORS

EN50126 - CCS System

EN50126 - Traffic CS System

EN50126 - Subsystems Traffic CS System



1.4 Glossary

1.4.1 Terms and definitions

Term	Definition
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1.4.2 Abbreviations

Abbreviation	Definition
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2 Application Conditions

Will be provided in a future release.

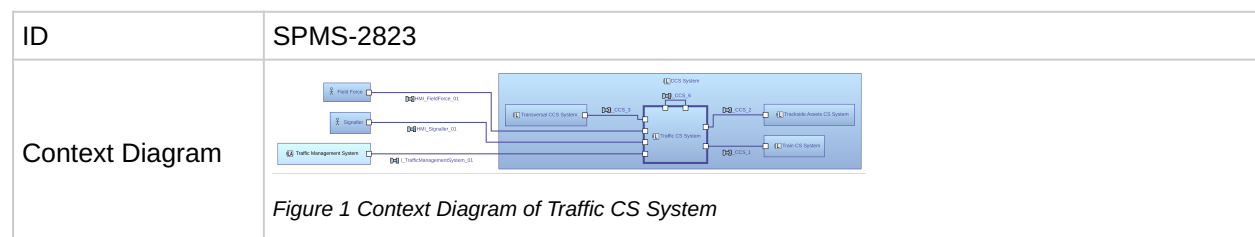
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3 System overview

3.1 System context

Traffic CS System

Is responsible to execute the operational plan while controlling and reporting infrastructure usages. The execution of a plan means controls infrastructure users and infrastructure states in a compatible and safe way to fulfil the plan at the right point in time. For unsafe events (wrong-side failures or events e.g input or process failures) it reacts directly with safe reactions.



3.2 System interfaces

The interfaces of the SPMS-2823 - Traffic CS System are described in the following chapters.

3.2-1 - I_CCS_1

The interface SPMS-2952 - I_CCS_1 connects SPMS-2823 - Traffic CS System with SPMS-2807 - Train CS System.

ID	SPMS-2952
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3.2-2 - I_CCS_2

The interface SPMS-2953 - I_CCS_2 connects SPMS-2823 - Traffic CS System with SPMS-2818 - Trackside Assets CS System.

ID	SPMS-2953
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3.2-3 - I_CCS_3

The interface SPMS-2973 - I_CCS_3 connects SPMS-2819 - Transversal CCS System with SPMS-2823 - Traffic CS System.

ID	SPMS-2973
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3.2-4 - I_TrafficManagementSystem_01

The interface SPMS-2958 - I_TrafficManagementSystem_01 connects SPMS-2813 - Traffic Management System with SPMS-2823 - Traffic CS System.

ID	SPMS-2958
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


3.2-5 - HMI_Signaller_01

The interface SPMS-2963 - HMI_Signaller_01 connects SPMS-2827 - Signaller with SPMS-2823

- Traffic CS System.

ID	SPMS-2963
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3.2-6 - HMI_FieldForce_01

The interface  SPMS-4484 - HMI_FieldForce_01 connects  SPMS-2808 - Field Force with  SPMS-2823 - Traffic CS System.

ID	SPMS-4484
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3.2-7 - I_CCS_6

The interface  SPMS-4619 - I_CCS_6 connects  SPMS-2823 - Traffic CS System with  SPMS-2823 - Traffic CS System.

The internal interface  SPMS-4619 - I_CCS_6 connects an  SPMS-2823 - Traffic CS System instance with another  SPMS-2823 - Traffic CS System instance.

ID	SPMS-4619
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3.3 System modes and states

Will be provided in further release.

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4 System requirements


4.1 Non-functional system requirements

4.1-1 - TrafficCS - Support for the separation between the central system and decentralised lineside devices

TrafficCS shall support decentralised lineside devices through interface from Trackside Assets CS.


ID	SPT2TRAFFIC-16731
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4.1-2 - Traffic CS - EULYNX/EU-Rail System Pillar standardised diagnostic interface, called SDI-xx.

 SPMS-2823 - Traffic CS System shall provide diagnostic information based on the generic part of the EULYNX/EU-Rail System Pillar standardised diagnostic interface, called SDI-xx.


ID	SPT2TRAFFIC-16733
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4.1-3 - ATO GoA 3/4

The  SPMS-2098 - CCS System shall support automatic train operation in GoA 3/4 with ATO over ETCS.

ID	SPP-24423
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4.1-4 - Usage of FRMCS and GSM-R

 SPMS-2823 - Traffic CS System shall support use of FRMCS and GSM-R as the radio connection to vehicles.

ID	SPT2TRAFFIC-4471
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4.1-5 - TrafficCS- manoeuvres with cab-signalling (with no light signals) or using harmonised dwarf light signals.

TrafficCS shall support manoeuvres with cab-signalling (with no light signals) or using harmonised dwarf light signals.

ID	SPP-26714
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4.1-6 - TrafficCS- Evaluation of complementary Sensor information for Trackbound vehicles

TrafficCS shall have the ability to evaluate complementary sensor information for the supervision of trackbound vehicles by standardising the interface and exporting constraints to those sensors.

ID	SPP-26723
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4.1-7 - TrafficCS- Evaluation of complementary Sensor information for non-Trackbound vehicles

TrafficCS shall have the ability to evaluate complementary sensor information for the supervision of Non-trackbound vehicles by standardising the interface and exporting constraints to those sensors.

ID	SPP-27179
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4.1-8 - TrafficCS- Evaluation of complementary Sensor information for trackside personnel

TrafficCS shall have the ability to evaluate complementary sensor information for the supervision of trackside personnel by standardising the interface and exporting constraints to those sensors.

ID	SPP-27180
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4.1-9 - TrafficCS- Evaluation of complementary Sensor information for railway customers

TrafficCS shall have the ability to evaluate complementary sensor information for the supervision of railway customers by standardising the interface and exporting constraints to those sensors.

ID	SPP-27177
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4.1-10 - TrafficCS - Allow the use and combination of different types of sensor technologies and information

TrafficCS shall be able to evaluate information from a combination of different types of sensor technologies and information, in order to increase system availability limiting degraded situation occurrences due to sensor faults.


ID	SPP-26730
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4.1-11 - TrafficCS- Dynamic track path determination

TrafficCS shall support the ability for the trackside CCS to dynamically segmentate and allocate track paths to performed planned operations in the most track capacity-optimal manner in relation to the real time operating state of the network and its assets.

ID	SPP-26750
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4.1-12 - TrafficCS system shall provide standardised interfaces

The  SPMS-2823 - Traffic CS System shall provide standardised interfaces, enabling the connectivity of adapters (which are to be developed by the legacy party) from legacy side in order to avoid any

customizations (e.g. to legacy national scenarios/requirements like Class B ATP systems) in the harmonized CCS systems and products.


ID	SPT2TRAFFIC-16527
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4.1-13 - TrafficCS shall use reference models, reference laboratories and automated compliance testing in accordance with the European approval procedure (CENELEC phases 6 to 9)

The  SPMS-2823 - Traffic CS System shall use reference models, reference laboratories and automated compliance testing in accordance with the European approval procedure (CENELEC phases 6 to 9).


ID	SPT2TRAFFIC-16528
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4.1-14 - Enable implementation of Generic Applications with Safety Cases independent of Configuration Data

The  SPMS-2823 - Traffic CS System shall enable the implementation of an 'Generic Application' based on 'Generic Products'. The 'Generic Application' shall have a full generic safety case in accordance with CENELEC 50126, that is independent of the Configuration Data (Infrastructure Data, Vehicle Data, Parameter Data) utilised. This 'Generic Application' shall have no repercussion on the European type approvals of the used 'Generic Products' of the TrafficCS system.


ID	SPT2TRAFFIC-16529
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4.1-15 - Enable implementation of Generic Products with Safety Cases independent of Configuration Data

The  SPMS-2823 - Traffic CS System shall enable the implementation of 'Generic Products' for its subsystems. Each 'Generic Product' shall have a full generic product safety case in accordance with CENELEC 50126, that is independent of the Configuration Data (Infrastructure Data, Vehicle Data, Parameter Data) utilised.


ID	SPT2TRAFFIC-16530
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4.1-16 - Allow configuration of Generic Application according to local needs within predefined limits

The  SPMS-2823 - Traffic CS System shall allow to define a 'Generic Application', in accordance with CENELEC 50126, that can be configured according to local needs (combination of subsystems + system parametrisation) within predefined limits.


ID	SPT2TRAFFIC-16531
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4.1-17 - Integration of external devices

The  SPMS-2823 - Traffic CS System shall support the integration of external devices during system operation.


ID	SPT2TRAFFIC-16532
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4.1-18 - Upgradeability of adjacent systems

The  SPMS-2823 - Traffic CS System shall support the upgradeability of adjacent systems during system operation.


ID	SPT2TRAFFIC-16533
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4.1-19 - Adherence to operational procedures

The  SPMS-2823 - Traffic CS System shall ensure compliance with established operational procedures and rules during the supervision of operational production.


ID	SPT2TRAFFIC-16534
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4.1-20 - Compliance with safety-critical principles

The  SPMS-2823 - Traffic CS System shall ensure that operational production adheres to safety-critical principles throughout the supervision process.


ID	SPT2TRAFFIC-16535
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4.1-21 - Independence from pre-engineered safety critical logic

The  SPMS-2823 - Traffic CS System shall perform safety supervision independently of any pre-engineered safety critical logic models, such as fixed block sections.


ID	SPT2TRAFFIC-16536
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4.1-22 - Integration of external devices

The  SPMS-2823 - Traffic CS System shall facilitate the integration of external devices with minimal manual configuration and testing requirements.

ID	SPT2TRAFFIC-16537
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4.1-23 - Decoupling of hardware and software components

The  SPMS-2823 - Traffic CS System shall ensure the decoupling of hardware and software components to allow independent life cycles, utilising virtualisation, standard communication buses, and

standardised software-hardware interfaces. This will also ensure continuous supply improvement and avoid obsolescence issues.


ID	SPT2TRAFFIC-16538
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4.1-24 - Use standard hardware components

The  SPMS-2823 - Traffic CS System shall use standard hardware components and ensure safety by software measures.


ID	SPT2TRAFFIC-16539
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4.1-25 - TrafficCS shall be designed in such a way that specified components can be replaced and interconnected without the need to re-approve other components

The  SPMS-2823 - Traffic CS System shall be designed in such a way that specified components can be replaced and interconnected without the need to re-approve other components.

ID	SPT2TRAFFIC-16540
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4.1-26 - TrafficCS shall implement an architecture based on standardised interfaces to facilitate independent safety cases and approval processes for each subsystem

The  SPMS-2823 - Traffic CS System shall implement an architecture based on standardised interfaces to facilitate independent safety cases and approval processes for each subsystem.


ID	SPT2TRAFFIC-16541
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4.1-27 - TrafficCS shall follow modular design principles

The  SPMS-2823 - Traffic CS System shall follow modular design principles.

ID	SPT2TRAFFIC-16542
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4.1-28 - TrafficCS shall acquire system configuration data from a centralised service via a standardised interface, based on EULYNX SMI-xx.

The  SPMS-2823 - Traffic CS System shall acquire system configuration data from a centralised service via a standardised interface, based on EULYNX SMI-xx. Examples for this system configuration data: software updates, configuration values

ID	SPT2TRAFFIC-16543
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4.1-29 - TrafficCS shall avoid as much as possible exported Safety-Related Application Conditions
When implementing safety relevant functions, the SPMS-2823 - Traffic CS System shall avoid as much as possible exported Safety-Related Application Conditions.

ID	SPT2TRAFFIC-16544
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4.1-30 - TrafficCS shall implement an architecture based on standardized interfaces to enable the integration of components from multiple suppliers

The SPMS-2823 - Traffic CS System shall implement an architecture based on standardized interfaces to enable the integration of components from multiple suppliers.

ID	SPT2TRAFFIC-16545
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4.1-31 - TrafficCS shall ensure decoupled lifecycles for its components to simplify asset management

The SPMS-2823 - Traffic CS System shall ensure decoupled lifecycles for its components in order to simplify asset management.

ID	SPT2TRAFFIC-16546
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4.1-32 - TrafficCS shall follow a generic safety approach in encapsulating safety relevant functions within building blocks with a separate safety approvals

The SPMS-2823 - Traffic CS System shall follow a generic safety approach in encapsulating safety relevant functions within building blocks, allowing for separate safety approvals.

ID	SPT2TRAFFIC-16547
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4.1-33 - TrafficCS Hardware, Software and Engineering Data shall be independently upgradeable to minimize engineering efforts and reduce deployment time.

The SPMS-2823 - Traffic CS System Hardware, Software and Engineering Data shall be independently upgradeable in order to minimize engineering efforts and reduce deployment time.


ID	SPT2TRAFFIC-16548
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4.1-34 - TrafficCS shall be based on Generic Products that can be configured using openly available configuration parameters to address varying application needs

The SPMS-2823 - Traffic CS System shall be based on Generic Products that can be configured using openly available configuration parameters to address varying application needs.


ID	SPT2TRAFFIC-16549
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4.1-35 - TrafficCS shall be adaptable to local performance requirements by ensuring the scalability of its software components

The  SPMS-2823 - Traffic CS System shall be adaptable to local performance requirements by ensuring the scalability of its software components and their configuration and installation procedures.


ID	SPT2TRAFFIC-16550
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4.1-36 - TrafficCS shall support scalable PRAMSS targets

The  SPMS-2823 - Traffic CS System shall support scalable PRAMSS target requirements (range of acceptable target values).


ID	SPT2TRAFFIC-16551
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4.1-37 - Execution of Safety Supervision based on predefined procedures

The  SPMS-2823 - Traffic CS System shall execute safety supervision based on predefined procedures, as functional logic and rules, using real-time data related to configurations, track usage, and asset conditions.


ID	SPT2TRAFFIC-16552
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4.1-38 - Minimum required Configuration Data implementation

The  SPMS-2823 - Traffic CS System shall be implemented using only the minimum required set of configuration data necessary for operation.


ID	SPT2TRAFFIC-16553
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4.1-39 - Reduction of engineering complexity

The  SPMS-2823 - Traffic CS System shall be designed to standardise the implementation of internal components and interfaces, minimising unnecessary complexity and variant implementations.


ID	SPT2TRAFFIC-16554
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4.1-40 - Upgradeability of Internal Components

The  SPMS-2823 - Traffic CS System shall support the upgradeability of internal components during system operation.

ID	SPT2TRAFFIC-16555
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4.1-41 - Management of variable System Capabilities

The  SPMS-2823 - Traffic CS System shall automatically manage varying and changing system

capabilities, including pre-defined degraded modes of supervised infrastructure and trains, while maintaining safety, production capacity, and automation at the highest achievable level.

ID	SPT2TRAFFIC-16556
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4.1-42 - Support Backward compatibility within the Target System architecture

The  SPMS-2823 - Traffic CS System shall support backward compatibility between the subsystems of the target system architecture where technically and economically justifiable.

Note: for Traffic CS this would be an enhanced feature to be technically and economically assessed


ID	SPT2TRAFFIC-16557
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4.1-43 - Implement standardised interfaces without hindering of innovation

The  SPMS-2823 - Traffic CS System shall implement standardised interfaces which ensure backward compatibility between systems and subsystems, while allowing different implementations of core functions to ensure innovation.


ID	SPT2TRAFFIC-16558
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4.1-44 - TrafficCS shall reduce engineering complexity

The  SPMS-2823 - Traffic CS System shall design the internal components and internal and external interfaces in such a way that they can be implemented in a standardised way and without unnecessary variants implementation, support of isolated cases or unneeded complexity.

ID	SPT2TRAFFIC-16559
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4.1-45 - TrafficCS designed to reduce OPEX

The  SPMS-2823 - Traffic CS System shall be designed to reduce Opex by prioritising simplification, standardization and automation of Opex processes as far as this is economically justifiable.

Note:

- Opex includes efforts for the following processes: railway operation, railway maintenance, railway migration of CCS system (trackside and trainside), railway engineering as well as system operation, system maintenance and system development and management of system life cycle.

ID	SPT2TRAFFIC-16560
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4.1-46 - TrafficCS shall base the information exchange to/from subsystem component on standard communication interfaces that shall be defined up to the physical layer.

Information exchange to/from subsystem components within interoperable configurations of the defined modular functional system architecture shall be specified in function and form - i.e. the

standard communication interface shall be defined up to the physical layer and it shall constitute a FFFIS - Form Fit Functional Interface Specification (see definition in [SPT2OD-6831](#)).

ID	SPT2TRAFFIC-16561
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4.1-47 - Implementation of TSI

The [SPMS-2823](#) - Traffic CS System shall implement the TSI (Technical Specifications for Interoperability) in order to enable cutting edge technologies, harmonised operational processes and operational rules and to support a Single European Railway Area (SERA).

ID	SPT2TRAFFIC-16562
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4.1-48 - TrafficCS shall support technical and operational interoperability

The [SPMS-2823](#) - Traffic CS System shall support technical and operational interoperability ensuring compatibility among subsystems operating with different system versions.

ID	SPT2TRAFFIC-16563
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4.1-49 - Scalable, modular, multi-layered and standardised TrafficCS architecture

The [SPMS-2823](#) - Traffic CS System shall implement a scalable, modular, multi-layered and standardised architecture that relies on a robust and comprehensive architecture framework.

Notes:

- Subsystems and interfaces within the TrafficCS system are defined during the phase logical architecture of SEMP and will take into account SPT2 architecture guidelines such as "ARC-D2.3 Granularity Concepts and Principles".
- The requirement is to be refined with concrete concepts in further work.

ID	SPT2TRAFFIC-16564
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4.1-50 - TrafficCS shall achieve increased standards of reliability, precision and safety

The [SPMS-2823](#) - Traffic CS System shall ensure higher levels of reliability, precision and safety of the operations in normal and degraded modes regardless of the type of operation (automated, semi-automated or manual).

ID	SPT2TRAFFIC-16565
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4.1-51 - ETCS L2 only

Traffic CS shall be designed to use ETCS L2 as the only train control system (ETCS L2 only, no L 0/1/NTC) and without Line Side Signalling.


Note: The need for the usage optical shunting signals for specific scenarios is acknowledged and covered by  SPT2TRAFFIC-4467 - Shunting operations with light signals.

ID	SPT2TRAFFIC-4967
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4.1-52 - TrafficCS shall be designed to use ETCS L2 without non-harmonised, optical signals.
Traffic CS shall be designed to use ETCS L2 without non-harmonised, optical signals.


ID	SPT2TRAFFIC-16566
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4.1-53 - TrafficCS shall allow the definition of specific application configuration(s) for supporting the supervision of operational production of all types of infrastructure needs and users

The  SPMS-2823 - Traffic CS System shall allow the definition of specific application configuration(s) for supporting the supervision of the operational production of all types of infrastructure needs and users


ID	SPT2TRAFFIC-16567
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4.1-54 - TrafficCS shall be based on standardized products and configurations

The  SPMS-2823 - Traffic CS System shall be based on standardized products and configurations to minimize site-specific engineering efforts and project-specific adaptations.

ID	SPT2TRAFFIC-16568
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4.1-55 - TrafficCS shall minimize the number of configuration parameters for Generic and Specific Applications

The  SPMS-2823 - Traffic CS System shall minimize the number of configuration parameters for Generic and Specific Applications

ID	SPT2TRAFFIC-16569
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4.1-56 - As a Supplier, I want a Traffic CS system implementing an architecture based on on standardized interfaces

As a Supplier, I want a Traffic CS system implementing an architecture based on standardized interfaces, in order to expand the market of my products developing components compatible with systems of other suppliers.

ID	SPT2TRAFFIC-4361
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4.1-57 - EULYNX Standard Communication Interfaces SCI-xx

Traffic CS shall connect to Tracksides Assets using the EULYNX/EU-Rail System Pillar standard interfaces (SCI-xx), with at least Baseline 4 Release 2.

ID	SPT2TRAFFIC-4495
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4.1-58 - Standardised interfaces (FFFIS, FIS) to decouple life cycles and safety cases

Traffic CS shall rely on standardised interfaces (FFFIS, FIS) to decouple life cycles and safety cases of tracksides assets and central control.

ID	SPT2TRAFFIC-5017
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4.1-59 - Enable the system integration of legacy systems

The interface design of Traffic CS shall support viable migration paths including system integration of legacy systems if these can be made compatible with standardised interfaces.

ID	SPT2TRAFFIC-5029
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4.1-60 - Provide a scalable and adaptable system architecture which is suitable for different contexts

Traffic CS shall provide a scalable and adaptable system architecture that is suitable for different contexts depending on the IM use cases.

ID	SPT2TRAFFIC-5037
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4.2 Functional system requirements

4.2-1 - ATO GoA1

Traffic CS shall support manual train operation (GoA 1), optionally with C-DAS as defined in ERTMS/ATO.

ID	SPT2TRAFFIC-4481
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4.2-2 - ATO GoA2

Traffic CS shall support automatic train operation in GoA 2 with ERTMS/ATO.

ID	SPT2TRAFFIC-4480
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4.3 Lifecycle aspects

Will be provided in further release.






Note:


The following type of requirements will be provided in this section:

- **Policy and regulation:**
Requirements from organizational policies and business practices that will affect the operation or performance of the system. In addition, requirements from relevant external regulations shall be listed here. Examples of requirements include multilingual support, labour policies and protection of personnel information.
- **Development, certification and validation:**
Requirements that are relevant to the system development process (also including standardisation initiatives) and further ones that must be met to obtain the certification according to the applicable standards, e.g. tests to be performed, organisation that will be responsible for certification.
- **Manufacturing and assembly:**
Requirements for health and safety criteria, including those basic to the design of the system, with respect to equipment characteristics, methods of operation and environmental influences such as toxic systems and electromagnetic radiation.
- **Commissioning:**
Define the system requirements that are necessary to perform a safe and reliable commissioning.
- **System life cycle sustainment:**
Outline of quality activities, such as review and measurement collection and analysis, to help realize a quality system. Life cycle sustainment also includes provision of facilities needed to provide operational and depot-level support, spares, sourcing and supply, provisioning, technical documentation and data, support-personnel training, initial cadre training and initial contractor-logistics support.
- **Packaging, handling, shipping and transportation:**
Requirements imposed on the system to make certain that it can be packaged, handled, shipped, transported and stored within its intended operational context.
- **Adaptability:**
Requirements that demand flexibility for future adjustments. For example, if the system will require future network bandwidth, the applicable hardware should be specified with extra card slots to accommodate new network cards as demand increases.
- **Longevity:**
Requirements regarding minimum total life expectancy, required operational session duration or planned utilization rate. This is as opposed to the topic availability which would mean requirements for uptime within the expected service life and probability of failure.
- **Decommissioning and disposal:**
Requirements that are necessary to perform a safe and reliable decommissioning and disposal.

5 Appendix

5.1 References

Id	Description	Reference
[ SPP-18362 - EET_Requirements Management Plan Version_1.0]	For System Pillar the plan describes a strategy for traceability between requirements levels, architecture elements and application conditions. Further the type of requirements and their related workflows are defined.	Link
[ SPP-19283 - Release Note ESPR1.0]	This Release Note describes the scope of the ESPR1.0.	Link
[ SPP-18060 - TCS_System Architecture Description CCS System V0.3]	System Architecture of the CCS System according to .	Link
[ SPP-19852 - TCS_Traceability Report System Requirement Specification Traffic CS_V0.2]	This report shows the linking between the artefacts of the System Level 3 and the System Requirement Specification Traffic CS.	Link
[ SPP-19049 - Traffic CS System Concept V1.0]	Traffic CS prepared this document to summarise the most important system requirements for Traffic CS and the solution concept how it is foreseen to fulfil these	Link

Id	Description	Reference
	requirements. Furthermore, assumptions and expectations to external systems outside of Traffic CS are stated and roadmap is presented.	
[EN 50126-1:2017">  SPPRAMSS-349 - EN 50126-1:2017]	Railway Applications – The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 1: Generic RAMS Process	-