

Verification Report for Architecture and Design of Train Positioning Version 0.1

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Abstract

This verification report presents the verification results for the architecture, interfaces and design artifacts for the component "Train Positioning" in the overall openETCS Kernel architecture.

1 Verification of *<architecture and design artifact (component)>*

Roles

- Fausto - Design (PM)
- Jens - Verification of SW/Implementation
- Design/Implementation
- Jan Welvaarts - Design
- Vincent - Simulation/Design
- Marc - Verification
- Jan Welte - Verification
- Bernd Hekele - Verification

1.1 Identity and Configuration of Verification Object

This sections shall provide all basic information defining the *<verification object>*.

<architecture and design artifact(component)>
<designers>
<Covered Software Requirement Specifications>
<Related Systems/Components>

1.2 Software Architecture and Interface Verification

This sections shall provide all verification results concerning the architecture and interface for the verification object.

For all verification aspects addressed in the following section the following 3 points shall be state clearly:

1. Responsible verifier
2. Use verification strategy and technique (with reference to the V&V Plan)
3. Verification results (level of conformity, detected errors or deficiencies and made assumptions)

The following aspects have to be verified (in accordance with EN 50128 7.3.4.42):

1.2.1 Internal Consistency

Are the internal functional allocation and all related input and output consistent?

1.2.2 Adequacy to fulfill Software Requirements

Are the listed functions and all input and outputs adequate to cover the intended Software Requirements? Therefore the following 2 aspects shall be assess:

- Consistency
- Completeness

1.2.3 Readability and Traceability

Are all related system and software requirements uniquely referenced and is the relationship to other documents clearly defined? Are all parts of the architecture and inputs and outputs referenced to the related requirements. Are the elements referred to in the same way in all documents?

1.2.4 Consideration of hardware and software constraints

Does the architecture and interface respect constraints of the software development technique? Does the architecture and interface respect existing hardware constraints?

1.3 Software Design Verification

This sections shall provide all verification results concerning the design specification for the verification object.

For all verification aspects addressed in the following section the following 3 points shall be state clearly:

1. Responsible verifier
2. Use verification strategy and technique (with reference to the V&V Plan)
3. Verification results (level of conformity, detected errors or deficiencies and made assumptions)

The following aspects have to be verified (in accordance with EN 50128 7.3.4.42):

1.3.1 Internal Consistency

Is the design consistent in itself?

1.3.2 Adequacy to fulfill Software Requirements

Is the design and its variables adequate to cover the architecture and all stated interfaces? Does the design cover all intended Software Requirements? Therefore the following 2 aspects shall be assess:

- Consistency
- Completeness

1.3.3 Readability and Traceability

Are all related system and software requirements uniquely referenced and is the relationship to other documents clearly defined? Are all design element referenced to the related requirements? Are all references to the architecture and their interfaces given? Are the elements referred to in the same way in all documents?

1.3.4 Consideration of hardware and software constraints

Does the architecture and interface respect constraints of the software development technique? Does the architecture and interface respect existing hardware constraints?