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**Software Requirements specification**

**For**

**Radiation Effects Software**

**Sustained Environments**

**VERSION 1.0**

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# Scope

This section identifies the system and software for which requirements are provided, includes an overview of the system, as well as an overview of document contents.

## Identification

## System Overview

Figure 1-1 shows the System Architecture.

Figure 1-1 System Architecture

## Document Overview

This document is organized into the following sections:

* Section 1 defines the purpose of the SRS, a summary of its contents, and provides a brief overview of the system
* Section 2 lists all documents referenced by this SRS
* Section 3 identifies all of the requirements for the CSCI(s) identified in Section 1.1 of this document
* Section 4 identifies the specific qualification methods used to verify the software requirements in this document
* Section 5 discusses the traceability of software requirements in this document to parent requirements
* Section 6 contains a list of acronyms used in this document and their definitions

# Referenced Documents

Table 2-1 contains a list of documents that are referenced within this document.

Table 2-1 Referenced Documents

| Document Number | Document Title | Revision | Date |
| --- | --- | --- | --- |
| A-18-079U | Software Requirements Specification for Radiation Effects Software  Prompt Environments | 1.0.4 | 05/12/2020 |
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# REQUIREMENTS

## Required States and Modes

## CSCI Capability Requirements

The following paragraphs identify the software requirements (or user stories), grouped by capability (or user function).

Table 3-1 describes the system-level requirements, epics or user stories from which the software requirements are sourced.

Table 3-1 Source Materials and System Requirements

| **Rqmt ID** | **Description** | **Acceptance Criteria** | **Target Release** |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

### Geometry

#### Points in Space

The cartesian representation for points in space *shall* be relative to an origin (0,0,0) point on the surface of the earth. The X-Y plane containing (0,0,0) is tangent to the earth. The Z coordinate is normal to the earth sphere at the origin. There is no special meaning to the directions of the X and Y axes except as references in placing objects relative to each other. In the Radiation Effects Software models, this coordinate system is sufficient because all objects will be relatively close to each other and to the origin.

## CSCI External Interface Requirements

### Interface Identification and Diagrams

The CSCI interacts with external entities in the system as depicted in Figure 3-2.

Figure 3-2 CSCI External Interfaces

Table 3-4 lists all of the external interfaces of the CSCI.

Table 3-4 CSCI External Interfaces

| **ID** | **Interface Name** | **External Interface Entity** | **Fixed / Developmental Interface** |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

### External Interface

Table 3-5 describes the (CSCI External Interface ) requirements and assigned qualification method.

Table 3-5 CSCI External Interface Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## 

## CSCI Internal Interface Requirements

The CSCI internal interfaces are depicted in Figure 3-3.

Figure 3-3 CSCI Internal Interfaces

Table 3-6 describes the CSCI Internal Interface requirements and assigned qualification method.

Table 3-6 CSCI Internal Interface Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## CSCI Internal Data Requirements

Table 3-7 describes the CSCI internal data requirements and assigned qualification method.

Table 3-7 CSCI Internal Data Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## Adaptation Requirements

Table 3-8 describes the CSCI adaptation requirements and assigned qualification method.

Table 3-8 CSCI Adaptation Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## Safety Requirements

Table 3-9 describes the CSCI safety requirements and assigned qualification method.

Table 3-9 CSCI Safety Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## Security and Privacy Requirements

Table 3-10 describes the CSCI security and privacy requirements and assigned qualification method.

Table 3-10 CSCI Security and Privacy Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## CSCI Environment Requirements

Table 3-11 describes the CSCI environment requirements and assigned qualification method.

Table 3-11 CSCI Environment Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## Computer Resource Requirements

### Computer Hardware Requirements

Table 3-12 describes the CSCI computer hardware requirements and assigned qualification method.

Table 3-12 CSCI Computer Hardware Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

### Computer Hardware Resource Utilization Requirements

Table 3-13 describes the CSCI computer hardware resource utilization requirements and assigned qualification method.

Table 3-13 CSCI Computer Hardware Resource Utilization Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

### Computer Software Requirements

Table 3-14 describes the CSCI computer software requirements and assigned qualification method.

Table 3-14 CSCI Computer Software Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

### Computer Communications Requirements

Table 3-15 describes the CSCI computer communications requirements and assigned qualification method.

Table 3-15 CSCI Computer Communications Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## Software Quality Factors

Table 3-16 describes the CSCI software quality factors and assigned qualification method.

Table 3-16 CSCI Software Quality Factors

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## Design and Implementation Constraints

Table 3-17 describes the CSCI design and implementation constraints and assigned qualification method.

Table 3-17 CSCI Design and Implementation Constraints

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## Personnel-Related Requirements

Table 3-18 describes the CSCI personnel requirements and assigned qualification method.

Table 3-18 CSCI Personnel Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
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## Training-Related Requirements

Table 3-19 describes the CSCI training requirements and assigned qualification method.

Table 3-19 CSCI Training Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## Logistics-Related Requirements

Table 3-20 describes the CSCI logistics requirements and assigned qualification method.

Table 3-20 CSCI Logistics Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## Other Requirements

Table 3-21 describes the CSCI other requirements and assigned qualification method.

Table 3-21 CSCI Other Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## Packaging Requirements

Table 3-22 describes the CSCI packaging requirements and assigned qualification method.

Table 3-22 CSCI Packaging Requirements

| **Rqmt ID** | **Description** | **Qualification Method** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

## Precedence and Criticality of Requirements

Table 3-23 describes the precedence and criticality of CSCI requirements.

Table 3-23 Precedence and Criticality of CSCI Requirements

| **Rqmt ID** | **Description** | **Precedence/Criticality** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

# QUALIFICATION PROVISIONS

Each requirement in Section 3 has been annotated with one or more qualification methods.

# REQUIREMENTS TRACEABILITY

Requirements traceability from each CSCI requirement in this specification to the source requirement is maintained in [state separate RTM document or requirements management tool].

# Acronyms

|  |  |
| --- | --- |
| Acronym | Definition |
| CSCI | Computer Software Configuration Item |
| DID | Data Item Description |
| IRS | Interface Requirements Specification |
| SRS | Software Requirements Specification |
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