**Template No.**
CEMILAC_SYSGP_SRD_09

# Software Requirements Data

# of <LRU/SYSTEM Name>
# for
# <Platform Name>

**Issue/Rev No: 01/00**
**Date of Release: 8 Feb 2025**

| | | | | |
|---|---|---|---|---|
| <DESIGN AGENCY LOGO> | **Document No.:** | | | |
| | **Issue No. :** | <00X> | **Issue Date :** | <DD/MM/YYYY> |
| | **Copy No. :** | 01 of N | **No. of Pages :** | < Total No. of Pages > |
| | **Document Classification :** | ☐ Secret | | ☐ Confidential |
| | | ☐ Restricted | | ☐ Unrestricted |

| **Title:** | **Project/System :** |
|---|---|
| **Software Requirements Data**<br>**of**<br>**<LRU/SYSTEM Name>for <Platform name>** | **<System/Project Name>**<br>**LRU/System Part No.:**<br><No.><br>**Software Criticality Level :**<br>DO-178C Level <A/ B/ C/ D> |

| | **Name & Designation** | **Signature** |
|---|---|---|
| Prepared By | <Design Rep Name>, < Designation> | |
| Reviewed By | <Project Leader Name>, <Designation><br><AWG/QA HOD Name>, <Designation> | |
| Approved By | <RCMA Officer>, <Designation><br><RCMA Name> | |

**<Design Agency Name & Address>**

**Disclaimer:**

This document is a guidance document. Applicable section / table rows may be considered. Any additional details may be added. Any not applicable section/ table rows may be deleted. The template is very general and vary with process to process followed by Development Agency. The document may be fine-tuned with the TAA for finalization.

## Distribution List

| Copy No. | Designation of the Copy Holder | Organisation |
|---|---|---|
| 01 | Head of Design Agency | Design Agency Name |
| 02 | | |
| 03 | | |
| 04 | | |

## Amendment History

| Issue, Rev. No. | Issue, Rev Date | Change Request Ref. | Brief Description of Amendment | Affected Pages/ Section | Changed By | Change Effective Date |
|---|---|---|---|---|---|---|
| 01, 00 | | NA | Initial Issue | NA | NA | Initial |
| | | | | | | |

## Contents

# 1. Introduction

The software requirements process uses the outputs of the system life cycle processes to develop the high-level requirements. These high-level requirements include functional, performance, interface, and safety-related requirements.

## 1.1 Purpose

The purpose of this document is to prepare the Software Requirements Data (SRD) for the project <LRU_NAME>. The Software Requirements Data (SRD) is the basis for software design and implementation.

## 1.2 Scope

This document describes the functional, performance, interface, and safety-related requirements for the project <LRU_NAME>.

## 1.3 Applicable Documents

Define the list of all applicable documents in following sections:

### 1.3.1 External Documents

Define the list of all applicable documents of external origin, relevant for this project.

### 1.3.2 Internal Documents

Define the list of all applicable documents of internal origin, relevant for this project.

## 1.4 Part Number and Nomenclature

Define the details of all software components having unique part number and nomenclature to identify them through the software development life cycle.

## 1.5 Acronyms and Abbreviations

Define all the abbreviations and acronyms with their expanded names in this section.

# 2. System Overview

This section provides an overview of the system, including a description of its functions.

# 3. Software Overview

This section provides an overview of the software, including a description of its functions.

## 3.1 Requirements Allocation

Description of the allocation of system requirements to software in terms of programmable devices/ multiple software items in the same device etc, providing relevant details of various hardware resources available for software development.

## 3.2 Operational Modes

Functional and operational requirements under each mode of operation with attention to potential failure conditions.

## 3.3 Performance Criteria

Precision and accuracy, data rates, min, normal and max loads etc.

## 3.4 Timing Requirements

a) Execution time (iteration time) i.e., time allowed between acquiring of inputs to production of outputs
b) Specific algorithmic time constraints
c) any persistency required for inputs/ outputs
d) Redundancy changeover related timing constraints

## 3.5 Constraints

General description of items that will limit the developers options such as

a) Regulatory policies
b) Hardware limitations
   (e.g., signal timing requirements, Processing Requirements, Memory Size Constraints etc);
c) Parallel Operation;
d) Higher-order language requirements;
e) Reliability Requirements;
f) Criticality of the Application;
g) Safety and security considerations

## 3.6 Hardware and Software Interfaces

<Define hardware and software interfaces through block diagram and text details, how these shall be interacted during operational stage.>

## 3.7 Failure Detection and Recovery

Define the mechanism to detect external and internal failures of the system, failure reporting, actions to be taken in case of partial failures, Redundancy related event recognition and changeover etc.

## 3.8 Partitioning Requirements Allocated to Software

<Define how the partitioned software components interact with each other, and the software level(s) of each partition>.

### 3.9 Protocol

<Define the details of standard/ customized protocol used for communication between hardware and software components or for other purposes. If there is separate document, the same me be referred here, so that the same may be followed for implementation>

### 3.10 Formats

<Define Formats like structure and representation of data exchanged between hardware and software, frequency of inputs and frequency of outputs etc.>

## 4. Software Requirements Identification

The requirements are to be stated with a unique id per requirement, to a level of detail sufficient to enable designers to design a system to satisfy those requirements, and testers to test that the system satisfies those requirements.

Throughout this section, every stated requirement should be externally perceivable by users, operators, or other external systems. These requirements should include at a minimum a description of every input (stimulus) into the system, every output (response) from the system, and all functions performed by the system in response to an input or in support of an output.

These requirements should cover:

a) Validity checks on the inputs
b) Exact sequence of operations
c) Responses to abnormal situations
d) Effect of any other parameters
e) Formulas for input to output conversion
f) Resource sharing and conflict resolution

### 4.1 Functional and Operational Requirements

<Define Functional and Operational Requirements extracted from system requirements that shall be meet by software meet in following manner:

**Use Case Name** **:** <Define Use Case Name e.g. Power On Built In Test >

**Use Case Identifier** **:** < Define Use Case Identifier e.g. S/W Build_UC_03>

**Actors** **:** <Define interaction with external systems, sub-systems, Sensors etc>

**Capability of the Use case:** <Define capability of use case in brief>

**Special Requirements :** <Define Special Requirements (if any) required to implement the software requirement>

**Flow of Events** **:**

**Basic Flow** : Define executional steps in sequence for each requirements

**Alternate Flow** : Define executional steps in sequence for conditional requirements

**Entry criteria** **:** Define Entry criteria to start the execution of this use case.

**Exit criteria** : Define Completion criteria for this use case.

**Input** **:** Define all Inputs required for this use case. e.g. Power Supply, Mode, Input Parameter etc

**Output** **:** Define all Outputs which shall be available after execution of this use case. e.g. Parameter Output etc

**Traceability Links** **:** Define Traceability Links of Technical Specification Document for LRU.

### 4.2 Safety-Related Requirements

<Define safety related requirements which are mandatory to be implemented alongwith functional and operational requirements to ensure that software for airborne systems is reliable and safe.>

### 4.3 Potential Failure Conditions

Define the conditions that represent scenarios where the system might not operate as intended, potentially leading to errors or hazards.

## 5. Requirements Traceability Matrix

Define the forward and backward traceability matrix in table for all software requirements/ sub-requirements defined in SRD w.r.t. System Requirements specification.

## List of Appendix:

<Include the following Appendix (not limited to this) in the document: >

**Appendix A : External Data Elements**

**Appendix C: Use Case Diagram for <LRU_Name>**

**Appendix B: State Chart Diagram for <LRU_Name>**

**Appendix D: Sequence Diagrams for <LRU_Name>.**

**Appendix E: Procedure for Program Downloading for <LRU_Name>.**