DATA ITEM DESCRIPTION

1. DID NUMBER: DID-ILS-DES-FMECAR-
2. TITLE: Failure Mode, Effects and Criticality Analysis Report
3. DESCRIPTION and intended use

The Failure Mode, Effects and Criticality Analysis (FMECA) Report (FMECAR) documents the results obtained from conducting a FMECA.

The Contractor uses the FMECAR to:

define criteria for Maintenance analysis, Logistic Support Analysis (LSA), test planning, inspection and checkout requirements;

document the maintainability design features that require corrective action;

document the Failure Modes that require Corrective Maintenance;

inform the design program about Failure Modes requiring corrective design actions or system operator work-around procedures;

inform the system safety and system security programs; and

derive information for the Reliability-Centred Maintenance (RCM) analysis process.

The Commonwealth uses the FMECAR to:

understand and evaluate the Contractor’s approach to meeting the requirements for Materiel System reliability and Maintenance;

evaluate the Contractor’s design for Maintenance Support with respect to Corrective Maintenance and Preventive Maintenance activities;

assist with monitoring the progress of the Contractor’s developmental activities under the Contract; and

enable the Commonwealth to undertake Independent Verification and Validation (IV&V) of the Contractor’s FMECA outcomes.

1. INTER-RELATIONSHIPS

The FMECAR is subordinate to the following data items, where these data items are required under the Contract:

Integrated Support Plan (ISP);

Systems Engineering Management Plan (SEMP);

Integrated Reliability, Maintainability and Testability Plan (IRMTP);

System Safety Program Plan (SSPP); and

Materiel System Security Management Plan (MSSMP).

The FMECAR inter-relates with the following data items, where these data items are required under the Contract:

Level Of Repair Analysis Report (LORAR);

Reliability Centred Maintenance Analysis Report (RCMAR);

Task Analysis Report (TAR);

the safety-related data items required under the Contract;

the security-related data items required under the Contract; and

Logistic Support Analysis Record (LSAR).

1. Applicable Documents

The following documents form a part of this DID to the extent specified herein:

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| --- | --- |
| Nil. |  |

1. Preparation Instructions
   1. Generic Format and Content

The data item shall comply with the general format, content and preparation instructions contained in the CDRL clause entitled ‘General Requirements for Data Items’.

The FMECAR need not be developed as one document. It may be divided into volumes and sections, provided that the head document links all sub-documents, and references other data sources, together as a cohesive whole.

The data item shall include a traceability matrix that defines how each specific content requirement, as contained in this DID, is addressed by sections within the data item.

* 1. Specific Content
     1. General

The FMECAR shall document the results of the FMECA and the FMECA-maintainability information.

The FMECAR shall:

provide an overview of the FMECA analysis activities performed, the standards used, and any significant recommendations;

identify the level of analysis;

summarise the results, including the implications for the design of the Mission System, the design of the Support System, system safety, system security, and any other requirements to satisfy the purposes set out in clause 3.2;

document the data sources and techniques used in performing the analysis; and

include a system definition narrative, resultant analysis data, and worksheets.

The ‘worksheets’ supplied as part of the FMECAR shall be organised in descending order aligned to the indenture levels of the Mission System and Support System.

FMECA-maintainability information worksheets shall be organised in the report following the FMECA worksheets for the same indenture level.

For each indenture level, the FMECAR shall contain the following:

FMECA assumptions;

block diagrams;

completed FMECA worksheets; and

completed FMECA-maintainability information worksheets.

* + 1. Logistic Support Analysis Record Information

Where the Contract requires FMECA results to be included within a Logistic Support Analysis Record (LSAR), and the LSAR is concurrently accessible to the Commonwealth, then the FMECAR should minimise duplication of LSAR data and refer to the applicable LSAR data release as part of the report.