**Data Item Description**

**Availability, Reliability & Maintainability**

**ILS-076-020**

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| **DATA ITEM DESCRIPTION** |
| 1. **TITLE**

Availability, Reliability & Maintainability | 1. **IDENTIFICATION NUMBER**

ILS-076-020 |
| 1. **DESCRIPTION / PURPOSE**

The purpose of this DID is to define the Availability, Reliability and Maintainability (ARM) performance of the equipment on board the vessel. |
| 1. **REFERENCES**

Attachments: NilReferences: DID ILS-076-010; DID ILS-081-010; DID ILS-081-20; This DID must be read in conjunction with the appropriate paragraphs of the Statement of Work, Contract Data Requirements List and any references cited in the DID |
| 1. **FORMAT**

The following formatting guidelines must be considered when preparing the deliverables.* 1. Unless a specific template is provided by VSY, the deliverables may be prepared in contractor’s format upon review and approval by VSY.
	2. The format shall not impose any restriction on searching, editing, copying, or printing.
	3. The information shall be provided in English and in French, if available.
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| 1. **CONTENT**
2. Utilizing existing ARM Data and material where available, the Supplier shall supply existing material with a cross reference to the Data requirements below, relevant to the equipment.
3. The operational cycle for the equipment as defined in the SOW. For equipment not nominated in the SOW, the contractor shall state:
	* 1. The anticipated operating profiles on which the maintenance policy, reliability figures and spares provisioning have been based.
		2. Annual predicted usage against the various operating modes.
4. Maximum and minimum equipment operating times (e.g. fully Operational, Standby, and Powered Down) shall be considered when developing ARM.
5. Where the supplier’s solution is ‘existing’ equipment (i.e. maturity of the solution is 100%), evidence and standard of existing models and analyses and / or testing shall be provided.
6. Where the supplier’s solution is ‘new’ or ‘modified’ Equipment (i.e. maturity of the solution is less than 100%), the present status of the equipment shall be identified (i.e. % New or % Modified) for hardware (based on parts count) and software (based on lines of code). New Software represents completely recoded lines; modified indicates changes of parameters, screen menus, etc.).
7. For ‘new’ design or ‘modified’ Equipment, these Data requirements shall be completed with predicted or target data for all new development Equipment.
8. The environmental conditions under which the above data is provided shall be defined. This will include temperature and humidity.
9. The basis for the estimate of reliability shall be defined (i.e. prediction based on a defined method, reliability testing programme results, or in service field data). The detailed basis for the data shall be provided in support of Subcontractor representations.
10. Where the Equipment has been modified evidence of any programme to demonstrate the reliability and maintainability shall be described.
11. Where there are known reliability growth programmes defined these shall be provided, indicating the rationale for the growth programme, starting point data, target points and planned duration.
12. ARM data shall contain information listed below:
13. Reliability, Maintainability and Availability Prediction.
14. Failure Modes, Effects and Criticality Analysis (refer to DID ILS-076-010).
15. Level of Repair Analysis (refer to DID ILS-081-010).
16. RCM Analysis: The report must discuss the reliability assessment results of each analysed system. For each analysed system the critical failures must be identified, their impact on system functionality assessed, and actions mitigating the probability of the failure and / or the impact must be recommended. These recommendations are to be actioned as per the Reliability Assessment Rules in the ILSP
17. Preventative Maintenance Task Analysis (refer to DID ILS-081-20).
18. An Impact assessment of any Engineering Changes to the systems and an analysis, if required, to demonstrate that the reliability of the affected system has not been negatively impacted;
19. A description of each of the systems analysed. The report must describe the system’s criticality to the mission as well as the extent to which the system’s performance may degrade without affecting the function(s) required to perform the mission;
20. A description of the reliability block diagrams and how they have been developed including assumptions made, calculations used and the source of data used, including its associated level of confidence.
21. The report must discuss the reliability assessment results of each analysed system. For each analysed system the critical failures must be identified, their impact on system functionality assessed, and actions mitigating the probability of the failure and / or the impact must be recommended.
22. The report must clearly define the systems and subsystems usage including assumptions made, the input data used and the calculations used.
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