**AIR TRAFFIC AND NAVIGATION SERVICES SOC. LTD**

**REPUBLIC OF SOUTH AFRICA**



**REQUEST FOR PROPOSAL ATNS/HO/RFP004/FY22.23/ATFM REPLACEMENT SYSTEM**

**ATFM Replacement Project**

**VOLUME 4**

**LOGISTICS SUPPORT REQUIREMENTS**

**JUNE 2022**

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| TABLE OF CONTENTS |

TABLE OF CONTENTS 2

ABBREVIATIONS 4

GLOSSARY OF TERMS 6

1 INTRODUCTION 7

1.1 Overview of the Logistics Support implementation phases 7

1.2 LS implementation phases 8

2 ATNS LOGISTICS MAINTENANCE AND SUPPORT CONCEPT 9

2.1 Support concept structure 9

2.2 Operator (O) Level support 9

2.3 Intermediate or (I) Level maintenance 10

2.4 Depot or (D) Level maintenance 10

2.5 Support Resources 10

3 GENERAL INSTRUCTIONS TO BIDDERS 12

4 BIDDER/CONTRACTOR OBLIGATIONS 13

5 PHASE 1: DEVELOPMENT PHASE 14

5.1 System Performance Requirements 14

6 SUPPORT CONCEPT 15

6.1 Support Concept Proposal 15

6.2 (LSIP) Logistics Support Implementation Plan 15

6.3 Logistics Support Plan (LSP) 15

6.4 Reliability, Availability and Maintainability Plan (RAMP) 16

6.5 Training Plan (TP) (Including provision of training) 19

6.6 Spares Plan (SP) 24

6.7 Test Equipment Plan (TEP) 26

6.8 Documentation Plan (DP) 27

6.9 Package Handling Storage and Transport Plan (PHS&TP) 29

6.10 Configuration Management Plan (CMP) 30

6.11 Total LRU Repair Costs (over the System Lifespan) 32

6.12 System Lifespan 33

6.13 Interface Control Document (ICD) and Application Program Interface (API) 33

7 PHASE 2: IMPLEMENTATION PHASE 33

8 PHASE 3 - VALIDATION PHASE 34

8.1 PBU 34

8.2 PBU Verification 36

8.3 Updates 39

9 PHASE 4: APPLICATION PHASE 40

9.1 Application of Logistics Support Plan 40

10 CONTRACT DATA REQUIREMENTS LIST 41

11 SYSTEM FAILURE DEFINITION AND RELATED CORRECTION SERVICE LEVELS 41

12 MAINTENANCE SUPPORT CONTRACT REQUIREMENTS 44

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| ABBREVIATIONS |

API Application Program Interface

ATA ATNS Training Academy

ATFM Air Traffic Flow Management

ATNS Air Traffic and Navigation Services State Owned Company Limited

ATNS HO Air Traffic and Navigation Services State Owned Company Limited Head Office

ATS Air Traffic Services

ATSU Air Traffic Services Unit

BITE Built in Test Equipment

CAA Civil Aviation Authority

CDRL Contract Data Requirement List

CMP Configuration Management Plan

CSCI Computer Software Configuration Item

COTS Commercially off-the shelf

EAM Enterprise Asset Management

DP Documentation Plan

ET Engineering Technician

FAOR Johannesburg Control Centre

FAT Factory Acceptance Test

FIR Flight Information Region

FRC Fault Reporting Centre

HAT Hardware Acceptance Test

ICAO International Civil Aviation Organization

ICD Interface Control Document

ILS Integrated Logistics Support

LAN Local Area Network

LCC Life Cycle Costing

LRU Line Replacement Unit

LS Logistics Support

LSA Logistics Support Analysis

LSAP Logistics Support Analysis Plan

LSAR Logistics Support Analysis Report

LSIP Logistics Support Implementation Plan

LSP Logistics Support Plan

LSPP Logistics Support Program Plan

MAS Minimum Acceptable Service

MDT Mean Down Time

MMS Maintenance Management System

MTBF Mean Time Between Failures

MTTR Mean Time To Repair

OEM Original Equipment Manufacturer

OJT On the Job Training

OJTI On-the-Job Training Instructor

PBU Period of Beneficial Use

PC Personal Computer

PHS&T Packaging, Handling, Storage and Transportation

RAM/RMA Reliability, Availability and Maintainability

RAMPP Reliability, Availability and Maintainability Program Plan

RCMS Remote Control and Monitoring System

RF Radio Frequency

RFT Request For Tender

SAAF South African Air Force

SAT Site Acceptance Test

SAN Storage Area Network

SLA Service Level Agreement

SME Subject Matter Expect

SP Spares Plan

SSR Software Support Report

SSS System Support Suite

TEP Test Equipment Plan

TP Training Plan

URS User Requirement Statement

|  |
| --- |
| GLOSSARY OF TERMS |

Availability

The measure of a hardware or software system, subsystem or equipment operational time represented by a ratio of total actual functional time over the total time it is required or expected to function. The availability will be measured and expressed as a percentage.

MTBF

A measure of the reliability of repairable hardware or software system, subsystem or equipment items, represented by the number of functional life units measured in hours, during which all hardware or software system, subsystem or equipment perform within their specified limits in a given period of time.

MTTR

A measure of the maintainability of repairable hardware or software system, subsystem or equipment items, represented by the average (mean) time measured in hours to repair or restore a failed component of a hardware or software system, subsystem or equipment.

Reliability

It is the ability of a hardware or software system, subsystem or equipment to consistently perform according to its specifications over a specified period of time. Reliability is determined by the measure of how often an item fails in a given period of time expressed in terms of (MTBF).

PBU

PBU is the equivalent of a guarantee and warranty period where support validation takes place. During this period, the system is maintained as per the LSP, under the responsibility of the supplier and where there will be concurrent running of both the warranty and the verification of Phase 1 and 2 deliverables.

ATFM Controllers

Refers to the ATFM System Controller Work Station operators who manages Air Traffic Flow services and operations.

# INTRODUCTION

This document defines the basic and minimum logistics support requirements for the supply, installation, commissioning and operational acceptance of the systems that will be implemented for all the sites where the ATFM system will be installed. It furthermore describes the Logistics Support (LS) System that is required for the total support of the ATFM system during project phase, as well as post implementation during the utilization of the system till the end of economic life of the equipment. With already existing and complementary infrastructure assets in place, ATNS aims to have a maintenance model that will ensure seamless integration to the existing processes and procedures for maintenance. The new ATFM system maintenance philosophy should be aligned to the ATNS logistics maintenance and support concept outlined in **Section** 2, as well as the requirements set out in **Sections** 4 - 9. (I)

## Overview of the Logistics Support implementation phases

The Logistics Support implementation will run over a course of four (4) phases, that is, development phase 1A (Submission of Tender); development phase 1B (Contract Baseline); implementation phase 2 (Project Roll-Out); evaluation phase 3 (PBU) and the application phase 4 (System Lifespan). (I)

In responding to this tender, Bidders are required to deliver all the draft documents/plans listed in Table 1 under the “SUBMISSION OF TENDER” column (Phase 1A – Development).

Each phase deliverables will result in the achievement of the following milestones:

Phase 1A – Short-listing

Phase 1B – Contract award

Phase 2 – Site Acceptance Test

Phase 3 - Final System Acceptance

Phase 4 – Decommissioning

## LS implementation phases

Table 1 - LS implementation phases

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | SUBMISSION OF TENDER | CONTRACT BASELINE | PROJECT ROLL-OUT | PBU | SYSTEM LIFESPAN |
|  | PHASE 1A - DEVELOPMENT | PHASE 1B – DEVELOPMENT | PHASE 2 – IMPLEMENTATION | PHASE 3 - EVALUATION | PHASE 4 - APPLICATION |
|  | * LSIP - Draft
* LSAR - Draft
* LSP - Draft
* RAMP - Draft
* Training Plan – Draft
* Spares Plan– Draft
* Test Equipment Plan – Draft
* Documentation Plan
* PHS&T Plan – Draft
* CMP – Draft
* TOTAL LRU REPAIR COSTS – Draft
* ICD Document - Draft
* Support Contract -Draft
* Transition Plan – Draft
* FMECA - Draft
 | * Review and Issue before Contract award
* LSAR – Issue1
* LSP – Issue 1
* RAMP - Issue 1
* Training Plan – Issue 1
* Spares Plan– Issue 1
* Test Equipment Plan – Issue 1
* Documentation Plan - Issue 1
* PHS&T Plan – Issue 1
* CMP – Issue 1
* TOTAL LRU REPAIR COSTS – Issue 1
* ICD/API Document-Issue 1
* Support Contract
* Transition Plan – Issue 1
* FMECA – Issue 1
 | * Provision of Training Courses
* Delivery of Documentation
* Delivery of Spares
* Issuing of As-built documents
* Delivery of Test Equipment
 | * RAM Verification
* Spares Verification
* PHS&T Verification
* Documentation Acceptance
* CMP Verification
* LSP Update
* Evaluation of Training Effectiveness
* As–Built Documents Verification
 | * Utilization till end of Economic Life
 |

# ATNS LOGISTICS MAINTENANCE AND SUPPORT CONCEPT

The ATNS maintenance is segmented into two regions that comprise of Northern and Southern Regions, where Northern region covers maintenance centres such as O.R. Tambo (Johannesburg), King Shaka (Durban) and Bram Fischer (Bloemfontein) and Southern region covering Cape Town, Port Elizabeth, George and East London. The ATNS support concept’s aim is to ensure that ATNS can achieve the performance objectives as contracted with its customers. To achieve the performance objectives, the ATNS maintenance and support concept is based on a three-tiered support model comprising of Operator, Intermediate and Depot level support, as demonstrated in Figure 1. (I)

## Support concept structure

Figure 1 – Support Structure

## Operator (O) Level support

The operator level support is typical 1st line support in the support concept structure. The activities in the O level are carried out by ATNS technical personnel. The activities include first line monitoring through the Fault Reporting Centre, Equipment fault diagnosis and restoration of service by reconfiguration is done by means of Remote Control Monitoring Systems from the allocated maintenance Centre. (I)

## Intermediate or (I) Level maintenance

The Intermediate level support is typical 2nd line support within the support concept structure. The “I” level activities will be carried out by ATNS technical staff located at the sites and the local maintenance centre or workshop. The scope of work done during 2nd line support includes corrective and (routine) preventative maintenance for software application, database and hardware down to both CSCI and LRU levels where applicable. (I)

## Depot or (D) Level maintenance

This support level is typically 3rd line support within the structure, where “D” level maintenance covers all software/hardware failure investigations, advanced troubleshooting and provision of workarounds, rectifications and enhancements. At hardware level, this would typically be component level maintenance. (I)

## Support Resources

In order for ATNS to be able to fulfill the maintenance performance objectives and to effectively operate within the framework of the support concept, typical high-level support resources are demonstrated in the Figure below necessary for the fulfillment of the O, I and D level maintenance activities but not limited to: (I)

**“O” LEVEL MAINTENANCE**

* 1st line Monitoring – 24 hrs National Fault Reporting Centre with monitoring dashboards
* Technicians Human Capital
* Maintenance Management

 System (MMS)

**“I” LEVEL MAINTENANCE**

* Senior Technicians Human Capital
* ATNS Specialists Human Capital
* MMS
* Spares holding
* Analysis and Testing tools

**“D” LEVEL MAINTENANCE**

* Software Development Kits
* System Detail design and Workflows
* Database schema specifications
* Configuration management and change design authority
* Staging environment

For “O” level maintenance activities, the support resources used, but not limited to, include the 24-hour manned Fault Reporting Centre. This serves as the first interface wherein operational clients report faults, on system issues, as well as enables dispatching of technicians on duty. ATNS also has a computerized maintenance management system that has the entire ATNS asset components loaded on it, for ensuring that all system performance issues are remedied and addressed according to a set out SLA. ATNS has spares stores at each maintenance center for the technical systems. A set of analysis and testing tools are located primarily at the local centers based on the complement of systems that reside in that station. (I)

The “D” level support is predominantly concerned with managing maintenance and support issues that have been escalated from O and I maintenance levels. A set of advanced skills by subject matter experts is required for the fulfillment of “D” level operational requirements using resources such as source codes, advance troubleshooting, change management plus advanced application and database skills, in order to become change control design authority for software centric systems. (I)

In the past ATNS acquired skills in hardware “D” level support at component level, however with the evolution of technologies to software-based systems, it has become ATNS strategic imperative to up-skill its human capital to be able to conduct “D” level support for software systems. It is the objective of ATNS to build a partnership model with the successful bidder on the up skilling of ATNS staff to conduct software “D” level support. (I)

#  GENERAL INSTRUCTIONS TO BIDDERS

The Bidder shall submit all responses, diagrams, documentation and drawings according to the GENERAL INFORMATION AND INSTRUCTIONS TO BIDDER’S document and in the English language.

To assist Bidders only, each paragraph or article has been appended throughout with the letters “(M)”, “(D)”, “(O)” or “(I)”, to indicate whether the requirement is **M**andatory, **D**esirable, **O**ptional or for **I**nformation only.

**ALL RESPONSES TO THE REQUIREMENTS IN THIS DOCUMENT SHALL BE PROVIDED AS FOLLOWS:**

BIDDERS SHALL RESPOND IN FULL TO EACH ITEM IN THE FORMAT PROVIDED AND REFERENCES (CHAPTER, SECTION, PAGE NUMBER, PARAGRAPH NUMBER) TO DOCUMENTS AND RELEVANT INFORMATION SUPPORTING THE RESPONSES SHALL BE INDICATED IN THE SPACE PROVIDED. THIS INFORMATION WILL BE THE **ONLY RESPONSE USED FOR THE EVALUATION AND ASSESSMENT**.

Responses, provided in the space allowed, that are not clear or inadequate or the lack thereof shall be interpreted as **“Not Compliant”** even though the compliance column is declared as “Comply” and/or the Bidder’s offer meets the requirement. Bidders shall ensure that each response correctly addresses the requirement stated. Responses not addressing the requirement of the specific paragraph shall be interpreted as **“Not Compliant”**.

Bidders shall declare compliance to each and every paragraph of this document, based on the paragraph classification, in the response block provided opposite the column labelled “Compliance”. Bids will be evaluated as follows:

C: fully compliant = 2 points:

PC: partly compliant = 1 point;

NC: not compliant = 0 points.

Noted: Noted and accepted (applicable to paragraphs marked as “I”, not containing requirements)

Bidders shall, for paragraphs declared “PC” or “NC”, include a statement as to the nature of the variation and may supply additional supporting information in the space provided to demonstrate how the proposal may still meet the needs of ATNS.

**Paragraphs marked “(M)”**, indicates that the requirement is mandatory and Bidders that do not comply with the requirement **shall** be disqualified for further evaluation.

**Paragraphs marked “(D)”**, indicates that the requirement is desirable, and the Bidder is expected to declare their level of compliance, provide a formal response and reference supporting documents.

**Paragraphs marked “(I)”**, indicates that the requirement is for information, however the Bidder is still expected to respond and provide information if requested. Any information gathered herein may form part of the contractual terms.

**Paragraphs marked “(O)”**, indicates that the requirement is optional, and the Bidder may decide how to respond.

# BIDDER/CONTRACTOR OBLIGATIONS

The Bidder shall provide a compliance statement to each specification to confirm that, if the Bidder is appointed as the Contractor, all requirements and obligations stated in this specification shall be complied with. (D)

|  |  |
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| **COMPLIANCE (C/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

# PHASE 1: DEVELOPMENT PHASE

During this first phase, the overall support programme and all the support elements shall be developed and documented. (I)

## System Performance Requirements

1. The Bidder shall provide a turnkey ATFM system with a system availability of 99.98% (1.75 hours total downtime), at each site, per year, over a system lifespan of 10 years. (D)

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| **COMPLIANCE (C/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall provide a turnkey ATFM system with a system reliability of 98.9% over a period of 24 hours (a maximum of 4 system/critical failures), at each site, per year, over a system lifespan of 10 years. (D)

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| **COMPLIANCE (C/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. In addressing all the failures, the failure severities shall be determined using table 4 in Section 11. The Bidder shall submit a draft plan to manage each of the severity ratings in order to achieve the required System performance. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

# SUPPORT CONCEPT

## Support Concept Proposal

To achieve the system performance requirements stated in Section 5.1 above, ATNS uses a support system that is based on a three-level concept (explained in section 2 above). The Bidder shall provide a proposal demonstrating how the requirements of the ATNS support concept will be met. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

## (LSIP) Logistics Support Implementation Plan

The Bidder shall deliver a Logistics Support Implementation Plan that documents the schedule for all the logistics support deliverables/activities to be implemented during phases 1, 2 and 3, as listed in Table 1 (Section 1.). All the Logistics Support deliverables shall be integrated into the Project Management Plan (PMP) under a section called ‘Logistics Support Implementation’. These activities shall be clearly shown on the overall Project Schedule and Work Breakdown Structure. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

## Logistics Support Plan (LSP)

The Bidder shall deliver a Logistics Support Plan to define the support system that will be implemented for the ongoing support of the ATFM system during its life cycle (10 years). The support system used during phase 3 will strictly follow this LSP, in order to verify the effectiveness of this plan prior to final acceptance and implementation in phase 4. (I)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER MAY INSERT A RESPONSE WHERE APPLICABLE]* |

The following sections forms part of this plan:

RAM, Training, Spares, Test equipment, Documentation, PHS&T and Maintenance Planning (Concept, type and level) (I)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER MAY INSERT A RESPONSE WHERE APPLICABLE]* |

## Reliability, Availability and Maintainability Plan (RAMP)

1. The Bidder shall deliver a Reliability, Availability, and Maintainability Plan to describe the RAM model to be used and how the RAM studies are to be conducted. The plan shall define the verification process and the classification and definition of failures, as well as the remedial action to be taken should deviations be found. RAM Programme shall be initiated during Phase 1 and maintained throughout the life cycle of the equipment. (D)

Tasks: System Models (*Block diagrams of equipment & LRU MTBF and MDT)*

Predictions (*Reliability, Availability and Maintainability)*

 Analysis (*Reliability, Availability and Maintainability)*

 Verification (*Reliability, Availability and Maintainability)*

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| **COMPLIANCE (C/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall define and conduct a RAM Plan aimed at improving the supportability of the ATFM. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall define and conduct a program aimed at achieving the guaranteed Reliability, Availability and Maintainability of each individual system. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The RAM model shall be applicable to the Turnkey ATFM System, but not limited to the components below:
* All Hardware
* Operating System Software
* Application Software
* ATFM communication infrastructure
* Firmware

The Bidder shall indicate which components are covered in his RAM model. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall define under which conditions the RAM models are achievable. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. Bidder shall provide the general RAM Models (RAM Flow Diagrams) and relevant figures, examples of calculations, and the results of their predictions, as part of their tender. The reliability predictions shall be based on guaranteed actual MTBFs. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall provide a RAM Report containing all Reliability and Availability calculations of all equipment, sub-systems and the total defined system. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall include a RAM evaluation as part of all design reviews. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall submit a Failure Modes Effects and Criticality Analysis (FMECA) report, as per the suggested structure, but not limited to, in the Table 2 below. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

Table 2 - FMECA

|  |  |
| --- | --- |
| **Action** | **Output Summary** |
| Step 1: Identify, Define and List the Possible Hardware and Software Functional Failures | List of identified possible System functional failures |
| Step 2: Identify and List the Potential Effects of each of the Hardware and Software Failures | List of System and subsystem Effect(s)  |
| Step 3: Assess and rate each effect according to the criticality and consequences of its impact  | Criticality assignment for each effectFMECA Table |
| Step 4: Assign a Probability or likelihood to each Failure Mode | Probability or likelihood assignment for each failure |
| Step 5: Identify and document any concerns or possible vulnerable areas of the analysis | Documented assumptions, concerns and vulnerable areas of the analysis model |
| Step 6 Determine the impact of failures on the cost, schedule, and/or technical performance independently or simultaneously | List of impact of failures |
| Step 7 Prioritize the failure modes by ranking them from the highest priority to the lowest based on the probability of occurrences and their impacts | A prioritized list of failure modes Updated and prioritized table |
| Step 8: Identify Corrective Actions to Eliminate or Reduce the High Probability Failure Modes | List of actions to eliminate failure modes; or documented workaroundsMeasures to reduce probability of failure or their impacts;Software/hardware modification to include fault protection.  |

## Training Plan (TP) (Including provision of training)

1. Based on the ATNS support concept, the Bidder shall prepare a Training Plan to document the training of ATNS personnel. (I)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER MAY INSERT A RESPONSE WHERE APPLICABLE]* |

1. On the training plan, the Bidder shall detail the full training material to be covered and the how, where and when of all the training courses. Training shall be provided to both the Technical Maintenance and ATFM Controllers. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. On the Training Plan, the Bidder shall stipulate minimum requirements for all the respective training courses. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

### ATFM Controller Training

1. The Bidder shall provide basic ATFM Controller training to 22 personnel, which shall be scheduled subject to operational rosters. The scope of this level of training includes among others, introduction to ATFM concepts, services, overview of the system architecture, a tour of the features available for basic operation tasks. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall also provide advanced ATFM Specialist training/Train-the-Trainer to 8 personnel. At this level of training, ATFM Specialists shall be equipped with the necessary skills and techniques to setup and configure advanced features of the system plus enabling ATFM Specialists/Instructors to provide future advance training within ATNS. (D)

|  |  |
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| *COMPLIANCE (C/PC/NC)* |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

### Technical Maintenance Training

1. The Bidder shall develop a Technical Maintenance Training, based on the ATNS Support Concept. In addition to the Bidder’s recommended training courses, the Bidder shall provide/cover, but not limited to, the following modules as part of the syllabus: (D)
* Architectural Training
* Application Training
* Data and communication Model
* Database Management
* System configuration and set-up
* Troubleshooting and fault finding

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall submit a proposal to provide technical maintenance training courses, satisfactorily addressing both the O, I (basic Technical Maintenance Training – 10 personnel) and D (advanced Technical Maintenance Training/Train-the-Trainer – 6 personnel) maintenance/support levels. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

### Software and/or Firmware Training

Training provided to technical personnel (as per 6.5.2 above), shall be to a level that they will be able to perform any setup function and all changes independent of the Supplier’s assistance. Software and/or Firmware training shall be provided to the level required for normal operation of the system and its upgrades. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

### Hardware Training

The course shall address the full system architecture to the level of “O”; “I” & “D” Maintenance and shall include training, where required, for Packaging, Handling, Storage and Transportation. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

### Training Requirements

1. In addition to standard training, the Bidder shall also provide E-Learning training, to ensure effective and comprehensive training of all existing and future system ATFM Controllers and technicians. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. Installation Shadowing – The Contractor shall cater for installation shadowing by ATNS personnel during the ATFM system installation. The Bidder shall submit a plan detailing the scope and logistics of the installation shadowing. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. As per requirements 6.5.1 B and 6.5.2 B above, the Bidder shall submit a training plan covering both the ATFM Controllers and Technical Specialists/Instructors training, to levels that will enable them to provide future advanced training within ATNS. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. All Bidder proposed training courses shall contain theoretical and practical training, plus, provide competency assessments. The Bidder shall issue formal OEM training certification. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

### General

1. **The Bidder shall ensure that the medium of instruction, for all training courses, shall be English. The Contractor’s instructor(s) shall present all the training courses in fluent comprehensible English. (D)**

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall provide course syllabi with Lesson Plans, Training Aids and material stipulating the objectives, level, methodology and duration of each training. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Contractor shall provide all training aids and material, including those for all assessments. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall plan for all training to take place at the ATNS facilities (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Contractor shall complete all relevant training before the SAT of that specific site. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

## Spares Plan (SP)

1. The Bidder shall deliver a Spares Plan that details the level and distribution of all spares and is based on the results of the Logistics Support Analysis (LSA) process and the MTBF predictions. Total System availability, turnaround times and storage location shall be considered. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall submit a spare parts strategy that will ensure that the required performance of the full ATFM system (mission equipment and supporting infrastructure) to be delivered through this tender is guaranteed for a minimum of 10years. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall provide a Spares strategy that shall distinguish between local and overseas sourced items. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall provide a Spares Plan that shall identify all recommended spares and their respective quantities, to be kept at OR Tambo Store. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. Should the PBU indicate that the Bidder’s recommended spare parts and consumables are deficient, the contractor shall supply additional new spares/consumables at their own cost. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

## Test Equipment Plan (TEP)

1. The Bidder shall submit a Test Equipment Plan that details the requirement, acquisition, distribution, and support of all standard and specialised test equipment, required for the support of the ATFM. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall ensure that the Test Equipment Plan shall include details on the type of Test Equipment and its Support, plus, the allocations to the different Maintenance Levels. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall provide a Plan that shall describe all Test Equipment calibration requirements. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall provide a Test Equipment Plan that shall cover Built-in Test Equipment and any other Diagnostic Software modules. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall indicate how they shall validate the sufficiency, capacities and number of Test Equipment during the PBU. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

## Documentation Plan (DP)

1. The Bidder shall deliver a Documentation Plan defining all applicable documentation, to be delivered. The delivery of all documentation shall be completed prior to the commencement of Phase three. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall provide the following documents as a minimum. (D)
* System Documentation (System maintenance & installation).
* Operator Documentation (Operator Handbooks).
* Hardware Maintenance (Equipment maintenance LRU replacement) documentation.
* Software and Firmware Documentation (Basic Software and Firmware, Operating system, utilities).
* Training Documentation (As per the Training Plan).

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Contractor shall provide copies of equipment, software and firmware Technical documentation to FAOR Maintenance Centres; ATNS HO and ATNS ATA. The documentation will be in a format and quality acceptable to ATNS. All documentation shall be provided in an electronic medium. Hardcopies shall only be accepted based on prior arrangement with ATNS. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Contractor shall, prior to the commencement of the PBU, ensure that all documentation reflects the true configuration of the As-Built ATFM Systems, the serial numbers of all the system LRUs must be recorded on the As-Built documents. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall confirm that they shall supply full documentation for the installation, connection and configuration of all hardware and software modules, and cabling for the As-build installation. As-built document shall consist of: (D)
* Training Documentation
* Equipment Specification/ Data Sheets
* Device and system verification sign-off sheets
* OEM and COTS Documentation [to be provided on all relevant equipment]
* Site configuration
* Software and Firmware configuration
* Design drawings
* Equipment Power consumptions schedules
* Cable schedule
* List of cables and markings
* Interface(s) documentation with drawings (ICD and API)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall confirm that they shall verify documentation during the presentation of the Technical Courses and such documentation shall be validated during the PBU. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Contractor shall document any changes / upgrades necessary during the PBU. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

## Package Handling Storage and Transport Plan (PHS&TP)

1. The Bidder shall deliver a Package Handling Storage and Transport Plan that addresses the requirements for resources, processes, procedures, design, considerations, and methods to ensure that all system, equipment, and support items are preserved, packaged, handled, and transported properly during both the implementation and support phases of the project. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. Bidder to confirm that all Packaging material shall be recyclable. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

## Configuration Management Plan (CMP)

1. The Bidder shall deliver a Configuration Management Plan to identify the configuration and control actions and procedures necessary for the configuration management of the equipment, documentation, logistics resources plus Software and Firmware for the ATFM System project during phases 1, 2 and 3. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall ensure that the CMP provides formal standard procedures for addressing all engineering changes and support system changes that may be required. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall ensure that the CMP makes provision for procedures to ensure that, at the end of the PBU, the backup software and firmware at each centre, contain all the upgrades and patches implemented during the PBU. This activity or procedure is the responsibility of the Contractor and shall take the form of a configuration audit performed by the Contractor. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Contractor shall confirm that they remain responsible for the system configuration management until the end of the PBU. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. Any hardware, Software and Firmware changes to the repaired units shall be recorded by the Contractor and ATNS shall be formally advised of the new configuration status. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall confirm that an audit of the complete configuration status of all ATFM System hardware, software and Firmware, including all system documentation and support plans shall be performed. The Contractor shall execute this audit before the end of PBU. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

## Total LRU Repair Costs (over the System Lifespan)

1. The Bidder shall provide total LRU repair costs, over the complete system lifespan, using the guide on Table 3 below. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall submit a complete breakdown of all the LRU’s of the system. The following information, but not limited to the list, should be contained with respect to each LRU in the list. (D)
* The total number of each LRU installed
* Each LRU MTBF figure (based on actual data)
* Is the LRU repairable?
* Number of possible LRU repairs during the system lifespan
* Individual LRU Cost. etc.

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

Table 3 – Total LRU Repair Cost

| Description | MTBF (Hours) | Site 1 | Site 2 | Site 3 | Total Number Installed | Repairable (Yes/No) | Number of Possible repairs per lifespan (Based on MTBF) | Unit Price (as at tender) | Total Repair costs (over the lifespan) – [multiply columns F, H & I] |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| LRU 1 |  |  |  |  |  |  |  |  |  |
| LRU 2 |  |  |  |  |  |  |  |  |  |
| LRU 3 |  |  |  |  |  |  |  |  |  |
| LRU4 |  |  |  |  |  |  |  |  |  |
| TOTAL REPAIR COSTS OVER 10 YEARS – GRAND TOTAL |  |

## System Lifespan

The required system life cycle shall be 10 years. The Bidder shall indicate, in their proposal, proven processes and interventions to ensure that the system shall satisfy the 10-year required lifespan. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

## Interface Control Document (ICD) and Application Program Interface (API)

The Bidder shall provide APIs and ICDs for all components of the proposed system, as per international best practices, showing all the required information. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

# PHASE 2: IMPLEMENTATION PHASE

The provision of the deliverables mentioned below must be provided in this phase. (I)

* Provision of Training Courses
* Delivery of all Documentation
* Delivery of Spares
* Issuing of As-built documents
* Delivery of Test Equipment

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER MAY INSERT A RESPONSE WHERE APPLICABLE]* |

# PHASE 3 - VALIDATION PHASE

## PBU

1. The Bidder confirms that the PBU shall start from the SAT of the first site and end one (1) year after the SAT of the last site. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder confirms that, during the PBU, they shall concurrently execute both the warranty and the verification of Phase 1 and 2 deliverables. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall confirm that their warranty shall cover the Turnkey ATFM System repairs, modifications and replacements of hardware, software and firmware. The warranty shall also cover the correction of any other system errors not detected during FAT & SAT. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall ensure that all the Phase 1 and 2 deliverables are provided, to ATNS’ satisfaction, that is, before the start of the PBU. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder confirms that, during the PBU, ATNS technical personnel shall maintain the system in accordance with Phases 1 and 2 deliverables, however, the delivered system remains the responsibility of the Contractor until the end of PBU. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. All the Phase 1 and 2 deliverables shall be validated by both ATNS and the Contractor to determine whether the support system is proving effective. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. During the PBU, any identified deficiencies in Phase 1 and 2 deliverables, shall be corrected at the Contractor’s cost. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall confirm that the PBU shall end when all the requirements mentioned in Phase 3 (Validation Phase) are satisfied, as determined by ATNS. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall confirm that the PBU, for the whole system at each site, shall run for a minimum period as stipulated in point 8.1 A above. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall confirm that the PBU will be extended by 12 months should the installed ATFM System not satisfy the stipulated performance requirements. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The system shall remain in PBU until all PBU deliverables are satisfactorily provided and all associated outstanding failures are closed. (D)

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| **COMPLIANCE (C/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

## PBU Verification

1. System Performance Verification

The Contractor shall provide regular equipment failure monthly reports on the actual system performance/RAM figures achieved. The Contractor shall initiate remedial action where deficiencies are identified. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. Spares Verification

The Contractor shall verify the adequacy of the proposed list of spares during the PBU phase. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. Test Equipment Verification

The Contractor shall verify the sufficiency of their proposed list of specialized Test Equipment. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. PHS&T Verification

The Contractor shall ensure that the Packaging, Handling, Storage and Transport of all spares and support material is adequate. The Bidder confirms that they shall pay special attention to the turnaround time of modules returned for repair or replacement. This requirement has a direct bearing on the Bidder’s proposed level of spares holding. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. Evaluation of Training effectiveness

The Contractor shall ensure that the training received is sufficient. Should ATNS discover that the training provided by the Contractor was not adequate, the Contractor shall retrain the personnel at its own cost. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. Documentation Acceptance

The Contractor shall ensure that all requisite support documents are delivered. Final acceptance of all support documentation takes place at the end of this phase. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. Configuration - Validation and Acceptance

Towards the end of PBU, prior to the final acceptance of the system, the Contractor shall audit the total configuration of the turnkey solution and provide a detailed configuration report. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

## Updates

1. At the end of this validation period, the Contractor shall review and update all the Phase 1 and 2 documents (especially the Logistics Support Plan), verifying their effectiveness and applicability, such that these documents describe the final support methodology of the ATFM System. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

# PHASE 4: APPLICATION PHASE

The duration of this phase is the economic life of the system, which is considered to be 10 years. This phase commences with the acceptance of all the elements of the Logistics Support Plan, validated during beneficial use, and the transfer of maintenance management responsibility to ATNS. (I)

## Application of Logistics Support Plan

The LSP compiled, updated and verified during phases 1, 2 and 3, is now used as the standard control document for the on-going support of the ATFM System project. (I)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER MAY INSERT A RESPONSE WHERE APPLICABLE]* |

# CONTRACT DATA REQUIREMENTS LIST

1. The Bidder shall take note of all the phases 1, 2 & 3 Logistics Support requirements/deliverables and the indicated delivery time frames, as depicted in Table 1 (**Section** 1.2). Using the information in Table 1, the Bidder shall provide CDRL documents. (D)

|  |  |
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

# SYSTEM FAILURE DEFINITION AND RELATED CORRECTION SERVICE LEVELS

A. The Bidder shall adhere to the failure priority/severity levels indicated on Table 4 below: (D)

Table 4 – Definition of Severity Levels

|  |  |
| --- | --- |
| Priority Level | Description  |
| Critical (S1) | Emergency with the highest priority, indicating severe and acute operational problems where the availability of the service or essential functionality is severely impaired. Critical impact on business such as, but not limited to:* Total outage of primary equipment
* Equipment failure or significant reduction in traffic handling capacity
* Prevented access to the equipment due to system failure
* Severe impairment of system administration
* Loss of access to recovery operations
* Failure of an important feature (upgrade from Minor service)
* Loss of major functionality such as inability to add needed/required services, loss of access to the equipment, inability to perform equipment backups (upgrade from Major)
* Failure of redundant equipment (Upgrade from Major)
* When 3 Major problems have occurred and are pending resolution, the priority level should be escalated to Critical
* Priority factor of 1 for critical incidents shall apply for the purpose of calculating penalties
 |
| Major(S2) | The availability of the service is considerably restricted. Major impact or potential major impact on business such as, but not limited to:- * One server non operational
* Problem threatens to escalate to Critical priority
* Prevents collection of data required for the equipment. This can typically include extraction of data/statistics
* Acute technical problem of primary equipment
* Loss of diagnostic functionality
* Significant degradation of access for recovery operations on peripherals
* Significant degradation of equipment alarms, critical, major or trouble reporting
* More than 1 (internal to ATNS) operational/technical position experiencing a similar SW or HW related problem. A single external client service failure due to any CSCI or any other system SW or HW failure as a result of any system related SW bug, upgrade, modification, configuration, interference, system design or baseline of the system performed/supplied by the vendor/supplier.
* Priority factor of 0.5 for major incidents shall apply for the purpose of calculating penalties.
 |
| Minor(S3) | Queries and problems that are related to non-acute operational problems and important technical queries. Medium impact on the business such as, but not limited to: * Failure of non-critical warnings and alerts
* Any problem deemed less significant than the ones above
* Any item, including documentation that can generate procedural problems.
* General queries. Minor impact on business such as:-
* General documentation problems
* Input / Output message format problems
* No impact on customers or any other systems integrating to the network
* Priority factor of 0.2 for minor incidents shall apply for the purpose of calculating penalties.
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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The Bidder shall adhere to the failure response times and restoration times indicated on Table 5 below: (D)

Table 5 - Service Levels (Fault restoration and resolution response times)

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| **Priority Level**  | **Service cover period**  | **Time to acknowledge and respond (per incident/failure)**  | **Time to restore**  | **Software Patch (Interim solution)**  | **Software Permanent Solution time**  |
| Critical (S1) | 24 hours/day x 7  days/week x 365  days/year  | 10 minutes after fault raised with OEM. **(a)**  | ˂ Total of 1.75 Hours per year. (Maximum 4 failures per year.) **(b)**  | 1 day after submission of OEM requirements. **(c)**  | 1 Month, from the date of successful Patch **(d)**  |
| Major (S2)  | 24 hours/day x 7  days/week x 365  days/year  | 20 minutes after fault raised with OEM. **(e)**  | ˂ Total of 4 Hours per year. **(f)**  | 3 days **(g)**  | 3 Months **(h)**  |
| Minor (S3)  | 24 hours/day x 7  days/week x 365  days/year | 30 minutes after fault raised with OEM. **(i)**  | < Total of 2 days per year. **(j)**  | 2 Months **(k)**  | 6 Months **(l)** |

**Notes:**

* The calculation of the Response Times listed above shall only start when the Contractor/OEM has received all the required information it has requested from ATNS. The Contractor shall not be penalized for delays caused by ATNS.

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| **COMPLIANCE (C/PC/NC)** |  |
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# MAINTENANCE SUPPORT CONTRACT REQUIREMENTS

1. **SUPPORT CONTRACT PROPOSAL**: The Bidder shall provide a 10-year Maintenance and Support Contract proposal, as per the ATNS Support Concept. The Maintenance and Support contract will be signed concurrently with the System acquisition contract and shall commence at the end of PBU. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
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1. **COMPREHENSIVE MAINTENANCE AND SUPPORT PROPOSAL**: As per the ATNS Support Concept, Bidders shall provide a comprehensive turnkey ATFM System maintenance and support proposal. The Maintenance and Support Contract shall cater for the complete turnkey ATFM System, including, but not limited to, third party hardware and software; Systems Software, Applications Software, Firmware and Hardware failure corrections. The Bidder shall include full details on the proposed maintenance support services included in their proposal. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. **SUPPORT CONTRACT PRICES**: The Bidder shall provide detailed prices of the Maintenance and Support contract proposal in Volume 1C. The rest of the Support Contract details, excluding pricing, shall be provided in Volume 4. During each year, the Maintenance and Support shall cater for quarterly invoicing in arrears, in line with Sections 12.N and O below. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. **SERVICE & LABOUR RATES**: The Bidder shall submit a schedule of all labour and service rates, for both local and overseas resources, for normal working hours, weekends and public holidays. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. **SYSTEM PERFORMANCE GUARANTEE**: The Bidder shall propose a Maintenance and Support Contract that shall guarantee that the specified System Performance Requirements, as mentioned in section 5.1 are achieved, for the complete system lifespan. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. **RESPONSE TIMES**: For Hardware, Software and Firmware failure corrections, the Maintenance and Support Contract shall adhere to the maximum response times (Service Level Agreement) indicated in Table 5 (**Section** 11 B above). (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. **FAILURE CORRECTION REPORT**: The Bidder confirms that they shall provide ATNS with a failure correction report, within 7 days of each fault/failure/Error/Bug correction. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. **LRU EXPENSES**: The proposed Maintenance and Support Contract shall cover unlimited LRU repairs/replacements, for the System lifespan. The maintenance and support agreement shall also cover all the LRU repair/replacement associated expenses, including, but not limited to, actual repairs/replacements, shipping, insurance, taxes, etc. The incurred expenses shall include, but not limited to, sending away to factory the faulty LRUs and returning the repaired LRUs, to ATNS. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. **LRU REPAIR TURN AROUND TIME** (TAT): The Contractor shall return each repaired LRU/component, to ATNS, within 60 calendar days of collection of the faulty one. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. **ICAO COMPLIANCY**: The Bidder shall submit an evolution roadmap that demonstrates how the delivered system is ensured to remain compliant with ICAO standards and recommendations during the expected lifespan. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. **LATEST SOFTWARE VERSIONS**: The Contractor shall ensure, in consultation and agreement with ATNS, that the entire system is always equipped with the latest Systems Software, Applications Software, third party software and Firmware versions throughout its expected lifespan (10 years). (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. **HARDWARE OBSOLESCENCE MANAGEMENT**: The Bidder shall submit a comprehensive turnkey ATFM System Hardware Obsolescence and Performance Management strategy that will be implemented throughout the system lifecycle, to ensure that the system remains compliant to performance requirements stipulated herein and in Volume 2. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. **RESOURCE PROVISION**: In the event of emergencies, the Contractor shall make available, within 48 hours after ATNS request, a relevant highly skilled Technical personnel to the specific ATNS site. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. **SYSTEM PERFORMANCE REPORTS**: The Bidder shall ensure that the Maintenance and Support Contract caters for both monthly and quarterly system performance and LRU repair TAT reports. The Contractor shall ensure that Service review meetings shall be held every 3 months, for the duration of the maintenance contract. (D)

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| **COMPLIANCE (C/PC/NC)** |  |
| *[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. PENALTIES: The Bidder confirms that should they contravene the LRU REPAIR TAT (**Section *12.I****.* above) and/or Service Levels (**Section *11.B****.* above), ATNS shall impose penalties. (D)

**HARDWARE MAINTENANCE PENALTIES**

In the event that individual LRU Repair TATs exceed 60 calendar days, the total number of days exceeded (for all LRUs in contravention of the 60 calendar days target) shall be calculated. This calculation shall be combined over a measurement period of three (3) months (quarter of a year). The Contractor’s quarterly hardware support charges shall be reduced (in line with **Sections *12.C & 12.N*** above) by an amount equal to Phw, as per the following formula:

Phw = (Σm/TAT) x Quarterly Payment [Currency on the invoice]

Where,

m = Total Repair Time for each LRU that exceeds the TAT (e.g., if TAT = 68 days, then m = 8)

Phw = Penalty due to hardware [Currency on the invoice]

TAT = 60 days

**SOFTWARE MAINTENANCE PENALTIES**

ln the event of the Contractor not satisfying the Service Levels (**Section *11.B****.* above), the Contractor shall be liable for penalties.

The penalty (if applicable) shall be calculated per quarter. The Contractor’s quarterly software support charges shall be reduced (in line with **Sections *12.C & 12.N*** above) by an amount equal to Psw, as per the following formula:

Psw = [({ Σ(a) + Σ(b) + Σ(c) + Σ(d) + Σ(e) + Σ(f) + Σ(g) + Σ(h) + Σ(i) + Σ(j) + Σ(k) + Σ(l) }/ 2190 (total hours in a quarter)) x (quarterly payment (currency on the invoice)]

Where,

Psw = Penalty due to software [Currency on the invoice]

Σ = Sum of each of the Service Levels per quarter

(a) to (l) =The Service Levels [Hours] as defined in table 5 under section 11 B.

The calculation for software penalties (Psw) is only applicable for cases where any of the Service Levels are exceeded.

**TOTAL PENALTY**

P = Psw + Phw

Where P is equal to the total penalty per quarter.

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| **COMPLIANCE (C/PC/NC)** |  |
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| *[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

-- END VOLUME 4 --