

AIR TRAFFIC AND NAVIGATION SERVICES SOC. LTD
REPUBLIC OF SOUTH AFRICA



**REQUEST FOR PROPOSAL: ATNS/RFP007/FY24.25/A-SMGCS
REPLACEMENT**

**APPOINTMENT OF A SERVICE PROVIDER FOR ADVANCED
SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM
REPLACEMENT PROJECT REQUIRED AT OR TAMBO
INTERNATIONAL AIRPORT (FAOR) and CAPE TOWN
INTERNATIONAL AIRPORT (FACT).**

VOLUME 4

LOGISTICS SUPPORT REQUIREMENTS

JUNE 2024

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TABLE OF CONTENTS

TABLE OF CONTENTS	2
ABBREVIATIONS	4
GLOSSARY OF TERMS	6
1 INTRODUCTION	7
• Overview of the Logistics Support implementation phases	7
• Table 1 – LS implementation phases	8
2 ATNS Logistics Maintenance and Support Concept	10
• Support concept structure	10
• Support Resources	11
3 TENDER RESPONSE	12
4 PHASE 1: DEVELOPMENT PHASE	14
4.1. System Performance Requirements	14
5 SUPPORT CONCEPT	14
5.1 (LSIP) Logistic Support Implementation Plan	15
5.2 Logistic Support Plan (LSP)	15
5.2.1 Reliability, Availability and Maintainability Plan (RAMP)	16
5.3 Training Plan (TP) (Including provision of training)	19
5.3.1 ATC Training	21
5.3.2 Technical Maintenance Training	21
5.3.3 Software and/or Firmware Training	23
5.3.4 Hardware Training	23
5.3.5 Training Requirements	24
5.3.6 General	25
5.4 Spares Plan (SP)	26
5.5 Test Equipment Plan (TEP)	27
5.6 Documentation Plan (DP)	29
5.7 Package Handling Storage and Transport Plan (PHS&TP)	33
5.8 Configuration Management Plan (CMP)	34
5.9 Total LRU Repair Costs (over the System Lifespan)	36
5.10 System Lifespan	38
5.11 Interface Control Document (ICD)	38
6 PHASE 2: IMPLEMENTATION PHASE	39
• Provision of Training Courses	39
• Delivery of all Documentation	39
• Delivery of Spares	39
• Issuing of As-built documents	39

• Delivery of Test Equipment	39
7 PHASE 3 - VALIDATION PHASE	39
8 PHASE 4: APPLICATION PHASE	45
9 Contract Data Requirement List	45
10 Maintenance Support Contract Requirements	47

ABBREVIATIONS

API	Application Programming Interface
ATA	ATNS Training Academy
ATC	Air Traffic Control
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
DME	Distance Measuring Equipment
ET	Engineering Technician
FABL	Bloemfontein Control Centre
FACT	Cape Town Control Centre
FAOR	Johannesburg Control Centre
FAPE	Port Elizabeth 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 Logistic Support
LAN	Local Area Network
LCC	Life Cycle Costing
LRU	Line Replacement Unit
LS	Logistic Support
LSA	Logistic Support Analysis
LSAP	Logistic Support Analysis Plan
LSAR	Logistics Support Analysis Report
LSIP	Logistic Support Implementation Plan
LSP	Logistic Support Plan
LSPP	Logistic 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 Expert
SP	Spares Plan
SSR	Software Support Report
SSS	System Support Suite
TEP	Test Equipment Plan
TP	Training Plan
URS	User Requirement Statement
VDF	Very high frequency Direction Finder
WAN	Wide Area Network
WAM	Wide Area Multilateration

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.

1 INTRODUCTION

This document defines the basic and minimum logistic support requirements for the supply, installation, commissioning and operational acceptance of the systems that will be implemented for all the sites where the A-SMGCS system will be installed. It furthermore describes the Logistic Support (LS) System that is required for the total support of the A-SMGCS 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 A-SMGCS 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.

- **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).

In responding to this tender, tenderers are required to deliver all the draft documents/plans listed in 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

• **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
<ul style="list-style-type: none"> • 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 • Draft Source Code • Draft AIPs 	<ul style="list-style-type: none"> • 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 Document-Issue 1 • Support Contract • Transition Plan – Issue 1 • FMECA – Issue 1 • Source Code – Issue 1 • APIs – Issue 1 • All Software License Certificates 	<ul style="list-style-type: none"> • Provision of Training Courses • Delivery of Documentation • Delivery of Spares • Issuing of As-built documents • Delivery of Test Equipment • Delivery of all Source Code • Delivery of all APIs • Delivery of all Software License Certificates 	<ul style="list-style-type: none"> • RAM Verification • Spares Verification • PHS&T Verification • Documentation Acceptance • CMP Verification • LSP Update • Evaluation of Training Effectiveness • As–Built Documents Verification 	<ul style="list-style-type: none"> • System Utilization, Maintenance and Support till end of Economic Life

<ul style="list-style-type: none">• Draft Certificates of all Software Licenses				
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2 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.

- **Support concept structure**

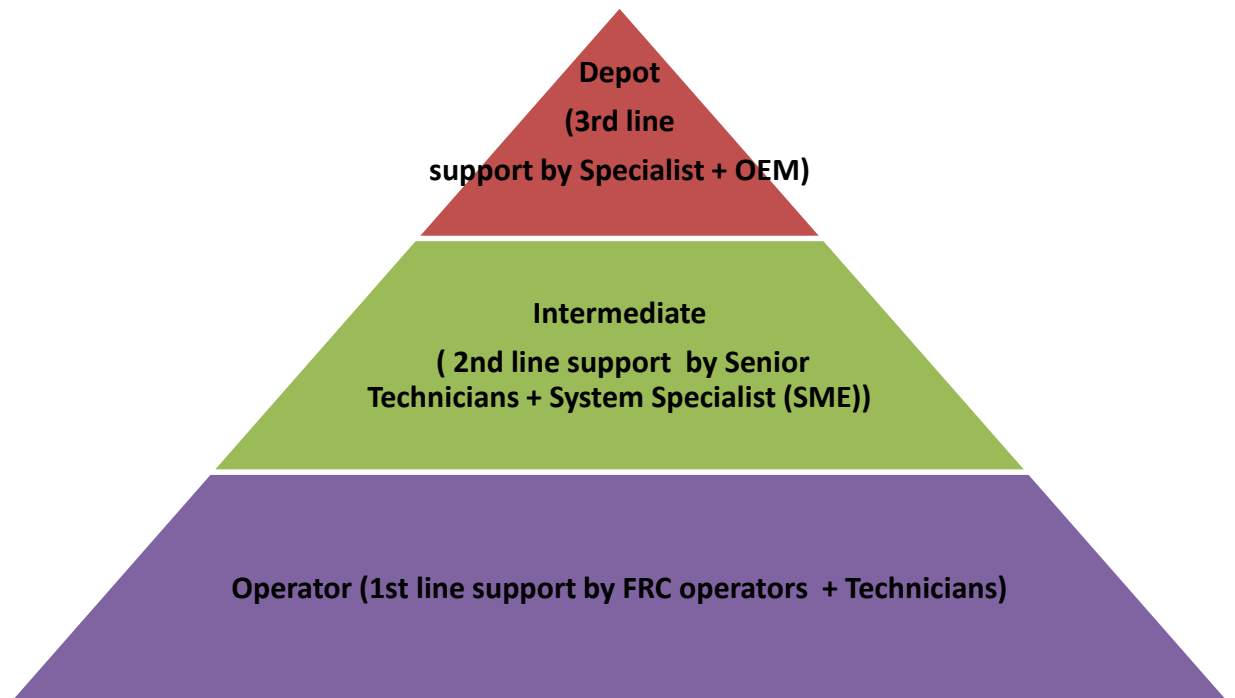


Figure 1 – Support Structure

2.1 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)

2.2 Intermediate or (I) Level maintenance

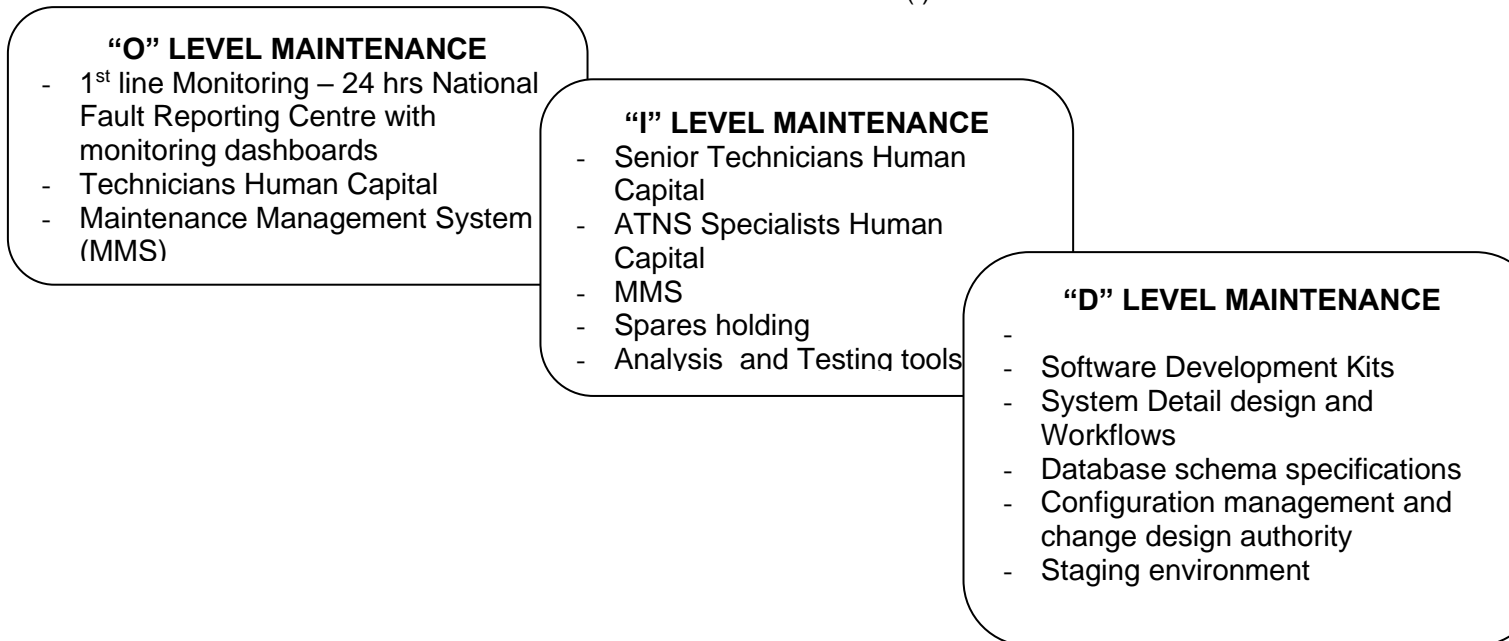
The Intermediate level support is typical 2nd line support within the support concept structure. The “I” level activities will be carried out by ATNS technical staff located at the sites and the local maintenance centre or workshop. The scope of work done during 2nd line support includes corrective and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

2.3 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)



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, Application Programming Interfaces, 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, providing self-sufficiency and independence. In line with this philosophy, ATNS will undertake the following:

- Software failure investigation and detailed fault finding in the product source code;
- Software Configuration for the System;
- Software version release integration and commissioning; and
- Detailed understanding of the system source code. (I)

3 TENDER RESPONSE

The Tenderer shall submit all responses, diagrams, project management documentation and drawings in the English language.

TENDERERS SHALL RESPOND IN FULL TO EACH ITEM IN THE FORMAT PROVIDED. THIS FORMAT SHALL BE FOLLOWED AS THE RESPONSE IN THE SPACE PROVIDED WILL BE THE ONLY RESPONSE USED FOR THE EVALUATION AND ASSESSMENT. NO OTHER DOCUMENTATION AND/OR RESPONSE WILL BE CONSIDERED FOR EVALUATION.

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 Tenderer’s offer meets the requirement.

Tenderers shall ensure that the response correctly addresses the requirement stated. Responses not addressing the requirement of the specific paragraph shall be interpreted as “Not Compliant”.

Tenderers shall declare compliance to each and every paragraph of this Project Management volume in the column labelled "Compliance" as follows:

- C:** fully compliant;
- PC:** partly compliant;
- NC:** not compliant.

For paragraphs marked "PC" or "NC", Tenderer's shall include a statement as to the nature of the variation and may additionally supply supporting information in the space provided to demonstrate how the proposal meets the needs of ATNS.

4 PHASE 1: DEVELOPMENT PHASE

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

4.1. System Performance Requirements

- A. The tenderer shall provide a turnkey A-SMGCS system with a system availability of 99.98% (1.75 hours total downtime), at each site, per year, over a system lifespan of 15 years.

COMPLIANCE (C/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- B. The tenderer shall provide a turnkey A-SMGCS 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 15 years.

COMPLIANCE (C/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- C. In addressing all the failures, the failure severities shall be determined using table 4 in Appendix A. The Tenderer shall submit a draft plan to manage each of the severity ratings in order to achieve the required System performance.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5 SUPPORT CONCEPT

- A. To achieve the system performance requirements stated in Section 4.1 above, ATNS uses a support system that is based on a three-level concept (explained in section

2 above). The Tenderer shall provide a LSP demonstrating how the requirements of the ATNS support concept shall be met.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- B. Consideration shall be given to Bidders who are willing to provide ATNS with their comprehensive system source code and the associated Application Programming Interfaces.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.1 (LSIP) Logistic Support Implementation Plan

The Tenderer 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 Logistic Support deliverables shall be integrated into the Project Management Plan (PMP) under a section called ‘Logistic Support Implementation’. These activities shall be clearly shown on the overall Project Schedule and Work Breakdown Structure.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.2 Logistic Support Plan (LSP)

The Tenderer shall deliver a Logistics Support Plan to define the support system that will be implemented for the ongoing support of the A-SMGCS system during its life cycle (15

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)

The following sections forms part of this plan:

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

COMPLIANCE (C/PC/NC)	
[[INSERT FULL RESPONSE FOR EVALUATION HERE]]	
[[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]]	

5.2.1 Reliability, Availability and Maintainability Plan (RAMP)

The Tenderer 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

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*)

COMPLIANCE (C/NC)	
[[INSERT FULL RESPONSE FOR EVALUATION HERE]]	
[[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]]	

D. The Contractor shall define and conduct a RAM Plan aimed at improving the supportability of the A-SMGCS.

COMPLIANCE (C/PC/NC)	
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<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

E. The Tenderer shall define and conduct a program aimed at achieving the guaranteed Reliability, Availability and Maintainability of each individual system.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

F. The model shall be applicable to:

- All Hardware
- Operating System Software
- Application Software
- A-SMGCS communication infrastructure
- Firmware

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

G. The Tenderer shall define under which conditions the RAM models are achievable.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- H. Tenderer 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.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- I. The Tenderer shall provide a RAM Report containing all Reliability and Availability calculations of all equipment, sub-systems and the total defined system.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- J. The Tenderer shall include a RAM evaluation as part of all design reviews.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- K. The Tenderer 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.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

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 effect FMECA 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 workarounds Measures to reduce probability of failure or their impacts; Software/hardware modification to include fault protection.

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

- A. Based on the ATNS support concept, the Tenderer shall prepare a Training Plan to document the training of ATNS personnel. (l)
- B. This plan details the material to be covered and the how, where and when of the training courses. Training shall be provided to both the Technical Maintenance and ATC personnel.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- C. The Training Plan shall stipulate minimum requirements for all the respective training courses.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

5.3.1 ATC Training

- A. At each airport, the tenderer shall provide basic ATC training to 30 personnel, which shall be scheduled subject to operational rosters.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- B. At each airport, the tenderer shall also provide advanced ATC training to 10 personnel.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.3.2 Technical Maintenance Training

- A. The Tenderer shall develop a Technical Maintenance Training, based on the ATNS Support Concept. In addition to the tenderer's recommended training courses, the tenderer shall provide/cover, but not limited to, the following modules as part of the syllabus:

- Architectural Training

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- Application Training

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- Data and communication Model

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- Database Management

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- System configuration and set-up

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- Troubleshooting and fault finding

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- SMR/MLAT coverage simulation tools

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- B. For each airport, the tenderer shall submit a proposal to provide technical maintenance training, satisfactorily addressing both the O, I and D maintenance/support levels.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.3.3 System Software; Application Software; Proprietary Software; Third-Party Software and Database Management Training

Comprehensive D-level Software training provided to technical personnel, shall be to a level that they will be able to perform any setup function and all changes independent of the Supplier’s assistance, including detailed fault finding in the product source code; detailed understanding of the system source code; turnkey system initial software configuration (installation, commissioning & maintenance) and software version release integration. All software training shall be provided to the level as specified in section 2 above (ATNS Logistics Maintenance and Support Concept) .

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.3.4 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. The course shall provide formal competence assessments and shall contain theoretical and practical training.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.3.5 Training Requirements

- A. In addition to standard training, the tenderer shall also provide E-Learning training, to ensure effective and comprehensive training of all existing and future system operators/ATCs and technicians.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- B. On Job Training (OJT) – The Contractor shall provide formal on-the-job-training during installation. A plan detailing the scope and logistics of OJT shall be submitted.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- C. The Training Plan shall make provision for Continuation Training, i.e. after Final Acceptance, including the necessary resources.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- D. The tenderer shall submit a proposal for the ATA instructors (both ATC and Technician), ATC OJT instructors and Technical maintenance Specialists, to levels that will enable them to provide future training within ATNS.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- E. All tenderer proposed training courses shall provide competency assessments and issue official certification.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.3.6 General

- A. The medium of instruction shall be English, and the instructor(s) must be able to present the training in fluent comprehensible English.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- B. The tenderer shall provide course syllabi with Lesson Plans, Training Aids and material stipulating the objectives, level, methodology and duration of each training.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- C. The Contractor shall provide all training aids and material, including those for all assessments.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

D. Training shall take place at the ATNS facilities

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

E. The Contractor shall complete all relevant training before the SAT of that specific site.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.4 Spares Plan (SP)

A. The Tenderer shall deliver a Spares Plan detailing both the list of spare parts and consumables proposed, including their associated quantities and actual MTBF figures, for the turnkey Surveillance Simulator System. The Bidder shall consider the specified total System availability, the 60-day individual LRU Repair TAT requirement and storage location shall be considered.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

B. The tenderer shall submit a spare parts list/strategy that shall ensure that the required system performance (Sections 5.1 & 6.4) for the full A-SMGCS system (mission equipment and supporting infrastructure) guaranteed for a minimum of 7 years.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- C. The Bidder shall provide a Spares list/strategy shall distinguish between local and overseas sourced components/items, ATNS reserves the right to procure locally sourced items directly.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- D. The Bidder shall provide a Spares Plan shall identify all recommended spare parts and their respective quantities, to be kept at both OR Tambo and Cape Town Stores.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- E. Should the PBU indicate that the tenderer's recommended spare parts and consumables are deficient, the contractor shall supply additional new spares and consumables at their own cost.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.5 Test Equipment Plan (TEP)

- A. The tenderer 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 A-SMGCS.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- B. The Test Equipment Plan shall include details on the type of Test Equipment and its Support plus the allocations to the different Maintenance Levels.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- C. The Plan shall describe all Test Equipment calibration requirements.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- D. The Test Equipment Plan shall cover Built-in Test Equipment and any Diagnostic Software modules.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- E. The Contractor shall validate the sufficiency, capacities and number of Test Equipment during the PBU.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.6 Documentation Plan (DP)

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

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

A. System Documentation (System maintenance & installation)

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

C. Operator Documentation (Operator Handbooks)

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

D. Hardware Maintenance (Equipment maintenance LRU replacement)

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

E. Software and/or Firmware Documentation (Basic Software and/or Firmware, Operating system, utilities)

COMPLIANCE (C/PC/NC)	
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<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>

F. Training Documentation (As per the Training Plan)

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

G. The Contractor shall provide copies of equipment, software and/or firmware Technical documentation to FACT and 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 both hardcopy and in electronic medium.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

H. The Contractor shall, prior to the commencement of the PBU, ensure that all documentation reflects the true configuration of the As-Built A-SMGCS Systems, the serial numbers of all the system LRUs must be recorded on the As-Built documents.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

I. The Contractor 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:

- Training Documentation

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- Equipment Specification/ Data Sheets

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- Device and system verification sign-off sheets

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- OEM and COTS Documentation [to be provided on all relevant equipment]

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- Site configuration

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- Software and/or Firmware configuration

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- Design drawings

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- Equipment Power consumptions schedules

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- Cable schedule

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- List of cables and markings

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- Interface(s) documentation with drawings (ICD and/or API)

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- J. The Contractor shall verify documentation during the presentation of the Technical Courses and such documentation shall be validated during the PBU.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- K. The Contractor shall document any changes / upgrades necessary during the PBU.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

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

- A. The Tenderer 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. ,

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- B. All Packaging material shall be recyclable. The PHS&T Plan shall further address electrostatic discharge, preservation (optimal temperature & humidity levels), UV light/heat exposure related challenges.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.8 Configuration Management Plan (CMP)

- A. The Tenderer shall deliver a Configuration Management Plan to identify the configuration and control actions and procedures necessary for the configuration management of the equipment, documentation, logistic resources plus Software and/or Firmware for the A-SMGCS System project during phases 1, 2 and 3.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- B. The CMP shall provide a formal standard procedure for addressing all engineering changes and support system changes that may be required.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- C. The CMP shall make provision for procedures to ensure that, at the end of the PBU, the backup software and/or 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 jointly performed by the Contractor and ATNS.

COMPLIANCE (C/PC/NC)	
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<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>

- D. The Contractor shall remain responsible for the system configuration management until the end of the PBU.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- E. Any hardware, Software and/or Firmware changes to the repaired units shall be recorded and ATNS be formally advised of the new configuration status.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- F. Towards the end of the PBU the project team, consisting of ATNS and the Contractor, shall conduct an audit of the total configuration status of all hardware and Software and/or Firmware, inclusive of all documentation and support plans.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- G. At the end of the PBU, ATNS will take over the responsibility of Configuration management on the installed system. The Contractor shall, however, state the Contractor's responsibility towards the Supplied System for the remainder of the expected life of the equipment.

COMPLIANCE (C/PC/NC)	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

5.9 Total LRU Repair Costs (over the System Lifespan)

A. The Tenderer shall provide total LRU repair costs, over the complete system lifespan, using the guide on tables 3 below.

COMPLIANCE (C/PC/NC)	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B. The Tenderer 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.

- 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.

COMPLIANCE (C/PC/NC)	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

Table 3: Total LRU Repair Costs

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									

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 3									
LRU4									
TOTAL REPAIR COSTS OVER 15 YEARS – GRAND TOTAL									

5.10 System Lifespan

The required system life cycle shall be 15 years. The Tenderer shall indicate, in their proposal, proven processes and interventions to ensure that indeed the system shall satisfy the required 15-year lifespan, whilst ensuring consistent satisfaction of the system performance requirements (Sections 5.1 & 6.4).

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.11 Source Code

The Bidder shall commit to provide ATNS with the complete system source code at tender. The source code shall be delivered at SAT. The source code shall cover all the turnkey A-SMGCS system's CSCIs of the developed Application Software. During the Maintenance and Support Phase, the source code shall be updated with each software version released, including all the associated documentation.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.12 Application Programming Interface (API)

The Bidder shall provide ATNS with comprehensive APIs (e.g., Web; OS; Library; Database & Remote APIs), to enable all relevant ATNS software applications to share data and functionalities (interface) in a standardized manner.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

5.13 Software Licenses

The Bidder shall indicate what software licenses shall be required for the system, including indicating which ones should be issued once-off and which ones are renewable. All licenses shall be issued in ATNS' name. All software license certificates shall be delivered before SAT.

COMPLIANCE (C/PC/NC)	
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<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>

5.14 Interface Control Document (ICD)

The Tenderer shall provide an ICD for all components of the proposed system, as per international best practices, showing all the required information.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

6 PHASE 2: IMPLEMENTATION PHASE

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

- Provision of Training Courses
- Delivery of all Documentation
- Delivery of Spare Parts
- Issuing of As-built documents
- Delivery of Test Equipment
- Delivery of Source Code, APIs and associated comprehensive documentation
- Delivery of all Software Licenses

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

7 PHASE 3 - VALIDATION PHASE

7.1 PBU

- A. The PBU shall start from the SAT of the first site and end one (1) year after the SAT of the last site.

COMPLIANCE (C/PC/NC)	
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<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- B. During the PBU, both the warranty and the verification of Phase 1 and 2 deliverables shall be executed concurrently.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- C. The warranty shall cover all system repairs and replacements of hardware including the software and firmware corrections and/or modifications. The warranty shall also cover the correction of any other system errors not detected during FAT & SAT.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- D. The PBU shall only start when all the Phase 1 and 2 deliverables are provided to ATNS' satisfaction.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- E. During the PBU, the ATNS technical personnel maintain the system in accordance with Phases 1 and 2 deliverables, however, the delivered system remains the responsibility of the Contractor.

COMPLIANCE (C/PC/NC)	
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<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- F. 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.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- G. During the PBU, any identified deficiencies in Phase 1 and 2 deliverables, shall be corrected at the Contractor's cost.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- H. The PBU shall end when all the clauses mentioned in Phase 3 (Validation Phase) are performed, as determined by ATNS.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- I. The PBU, for the whole system at each site, shall run for a minimum period as stipulated in point 7.1 A above.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

- J. The PBU shall be extended by 12 months should any of the installed systems (FACT of FAOR) not meet the stipulated performance criteria.

COMPLIANCE (C/PC/NC)	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

- K. The system shall remain in PBU until all PBU deliverables are delivered and outstanding failures are closed.

COMPLIANCE (C/NC)	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.2 Verification

- A. 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.

COMPLIANCE (C/PC/NC)	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

- B. Spares Verification

The list of spares, as proposed by the tenderer is verified during this phase.

COMPLIANCE (C/PC/NC)	
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<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

C. Test Equipment Verification

The list of proposed specialized Test Equipment, as proposed by the Tenderer, is verified during this phase.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

D. PHS&T Verification

The Packaging, Handling, Storage and Transport of all spares and support material is verified during this phase, with special attention being paid to addressing electrostatic discharge, preservation (optimal temperature & humidity levels), UV light exposure, etc..

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

E. Evaluation of Training effectiveness

The training received will be verified during the PBU period, if it is found that the training given was not adequate, the Contractor shall retrain the personnel at its cost.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

F. Documentation Acceptance

Final acceptance of all support documentation takes place at the end of this phase.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

G. 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.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

7.3 Updates

A. At the end of this validation period, the effectiveness and applicability of the Logistic Support Plan, which was used as a basis for the support of the A-SMGCS System project, during beneficial use, is reviewed and updated as necessary, by the Contractor.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

B. Towards the end of the PBU, the Contractor shall review and update all Phase 1 and 2 documents, in order to describe the final support of the A-SMGCS System.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

8 PHASE 4: APPLICATION PHASE

The duration of this phase is the economic life of the system, which is considered to be 15 years. This phase commences with the acceptance of all the elements of the Logistic Support Plan, validated during beneficial use, and the transfer of maintenance management responsibility to ATNS. (I)

8.1 Application of Logistic 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 A-SMGCS System project. (I)

9 Contract Data Requirement List

A. The Tenderer 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 tenderer shall provide a CDRL document.

COMPLIANCE (C/PC/NC)	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B. The tenderer shall adhere to the failure severity levels indicated on table 4 below:

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: <ul style="list-style-type: none"> • 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

	<ul style="list-style-type: none"> Priority factor of 7 for critical incidents shall apply for the purpose of calculating penalties
Major (S2)	<p>The availability of the service is considerably restricted. Major impact or potential major impact on business such as, but not limited to:-</p> <ul style="list-style-type: none"> 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 3.5 for major incidents shall apply for the purpose of calculating penalties.
Minor (S3)	<p>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:</p> <ul style="list-style-type: none"> 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 1.4 for minor incidents shall apply for the purpose of calculating penalties.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

C. The tenderer shall adhere to the failure response times and/or restoration times indicated on table 5 below:

TABLE 5 – SERVICE LEVELS (Fault restoration and resolution response times)

Priority Level	Service cover period	Time to respond (per incident/failure)	Time to restore (per incident/failure)	Software Patch (Interim solution)	Software Permanent Solution time
Critical	24 hours/day x 7 days/week x 365 days/year	20 minutes	< 1.75 Hours per year. (Maximum 4 failures per year). (a)	1 day after submission of OEM requirements. (b)	6 Months, from the date of successful Patch. (c)
Major	24 hours/day x 7 days/week x 365 days/year	1 Hour	< 4 Hours per year. (d)	2 days (e)	6 Months (f)
Minor	Business hours (08:00 to 16:30pm, Monday to Friday)	2 Hours	< 2 Working days per fault (g)	2 Months (h)	6 Months (i)

COMPLIANCE (C/PC/NC)
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>

10 Maintenance Support Contract Requirements

- A. **SUPPORT CONTRACT PROPOSAL:** The Tenderer shall provide a 7-year Maintenance and Support (Contract) proposal, as per the ATNS Support Concept (Section 2). The Maintenance and Support Phase proposal shall form part of the Volume 1B contract which will be signed by the parties, and shall commence at the acceptance of PBU. After the initial period of 7 years on the Maintenance and Support Phase, the parties may consider to extend the Maintenance and Support Phase for a further period of 8 years, in order to align with the 15-year system lifespan.

COMPLIANCE (C/PC/NC)
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

- B. **EXPLICIT INDICATION OF EXCLUSIONS:** Listed below, as requirements, are required minimum maintenance and support services, therefore, the Tenderer shall detail all their proposed maintenance support services in their bid. The tenderer shall explicitly emphasise the excluded maintenance support services, if any, plus the rationale for their exclusion.

COMPLIANCE (C/PC/NC)	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

- C. **SUPPORT CONTRACT PRICES:** Tenderer shall provide detailed prices of the Maintenance and Support contract proposal only in Volume 1C. During each year, the Maintenance and Support contract shall cater for quarterly invoicing in arrears, in line with Point S (Penalties) below.

COMPLIANCE (C/PC/NC)	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

- D. **FUTURE HARDWARE PRICING:** The Bidder shall confirm that, as a Contractor, they shall replenish additional spare parts, plus supply, install and commission all other system hardware during the years 8 -15 of the maintenance and support period. The price to replenish the spare parts and supply, install and commission future required hardware shall be indicated at tender. Such pricing may be subject to some form of price escalation formulae, which shall also be provided at tender.

COMPLIANCE (C/PC/NC)	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

- E. **SERVICE & LABOUR RATES**: The Tenderer shall submit a schedule of all the current labour and service rates, for both local and overseas resources, for normal working hours, weekends and public holidays. These will be applicable for additional work deemed to be outside the scope of this contract.

COMPLIANCE (C/PC/NC)	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

- F. **SYSTEM PERFORMANCE GUARANTEED**: The Tenderer shall propose a Maintenance and Support Contract that shall guarantee that the specified System Performance Requirements, as mentioned in section 4.1 are achieved, for the complete system lifespan.

COMPLIANCE (C/PC/NC)	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

- G. **COMPREHENSIVE MAINTENANCE AND SUPPORT PROPOSAL**: The Bidder's Maintenance and Support proposal shall cater for the complete turnkey A-SMGCS System. The proposal shall provide unlimited and comprehensive hardware and software (preventive and corrective) maintenance, covering the whole system, over its initial 7-year period. Software Maintenance shall include, but not limited to, all *System Software* (Utility Software; Programming Language Translators; Firmware; Operating System; Device Drivers); all Application Software; all Proprietary Software; all Third-party Software and the complete Database Management, including modifying the source code and updating databases.

COMPLIANCE (C/PC/NC)	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

- H. **RESPONSE TIMES**: For all Hardware and Software failure corrections, the Maintenance and Support Contract shall adhere to the maximum response times (Service Level Agreement) indicated in table 5 (Section 9 C above).

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- I. **FAILURE CORRECTION REPORT:** The Bidder confirms that they shall provide ATNS with a failure correction report, within 30 days of each fault/failure/Error/Bug correction.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- J. **UNLIMITED LRU REPAIRS AND REPLACEMENTS PLUS ALL-INCLUSIVE EXPENSES:**

The proposed Maintenance and Support Contract/proposal shall cover unlimited hardware/LRU repairs and replacements, for the initial 7-year period. The maintenance and support proposal/agreement shall also include all the LRU repair and replacement associated expenses, including, but not limited to, all actual repairs and replacements costs, all shipping costs, all insurance costs, taxes/duties, etc. The incurred expenses shall include, but not limited to, sending away to factory the faulty LRUs and returning the repaired/replaced LRUs, to ATNS.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- K. **LRU REPAIR TURN AROUND TIME (TAT):** The Bidder shall confirm that, as a Contractor, they shall return each repaired LRU/ hardware component, to ATNS, within 60 calendar days of collection of the faulty one.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- L. **REGULATORY SYSTEM ENHANCEMENTS**: Within the maintenance and support proposal, the Bidder shall supply ATNS with an Adaptive Maintenance, entailing the modification of the system in order to ensure that it complies with all future ICAO Global Air Navigation Plan - Aviation System Block Upgrades and Standards And Recommended Practices, to keep the system usable in a changing or changed environment.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- M. **LATEST SOFTWARE VERSION RELEASES**: The Bidder shall ensure that the entire A-SMGCS system shall always be equipped with the latest versions of all System Software, Application Software, Proprietary Software and third-party software, throughout its expected lifespan (15 years). The Bidder’s proposal shall clearly recommend what hardware may need to be upgraded and at which year of the system lifespan.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- N. **HARDWARE OBSOLESCENCE MANAGEMENT**: The Tenderer shall submit a comprehensive hardware Obsolescence Management strategy that shall be implemented throughout the system lifecycle, to ensure that the system remains compliant to performance requirements stipulated herein and in Volume 2, plus the associated ICAO SARPS.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- O. **RESOURCE PROVISION**: In the event of emergencies, the Bidder confirms that, as a Contractor, they shall make available, within 48 hours after ATNS request, relevant and

highly skilled Technical personnel (who shall correct reported urgent failures) to the specific ATNS site.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- P. **SYSTEM PERFORMANCE & LRU TAT REPORTS:** The Bidder's Support proposal shall cater for both monthly and quarterly system performance reports plus LRU repair TAT reports. Service review meetings shall be held every 3 months, for the duration of the maintenance contract.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- Q. **TRANSPONDER MAINTENANCE AND MANAGEMENT:** The Tenderer shall cover the complete maintenance (including with OEM) and management of all transponders, including transponder vehicle installations, removals and re-installations, permanent decommissioning, associated maintenance plus the corresponding invoicing/payment services, for the duration of the maintenance support period.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

- R. **SOFTWARE VERSION DEPLOYMENT:** Should the Bidder release a software version, intended to resolve a critical or major failure, that ATNS is not able to deploy on the live operational System, for a period of six (6) months or longer, ATNS shall penalize the Bidder 15% of the total maintenance support contract costs, per invoice cycle, until an acceptable software version is successfully implemented.

COMPLIANCE (C/PC/NC)	
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[THE BIDDER SHALL INSERT FULL RESPONSE FOR EVALUATION HERE]

[THE BIDDER SHALL INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

- S. **PENALTIES:** The Bidder confirms that should they contravene the LRU REPAIR TAT (**Section 10.K.** above) and/or Service Levels (**Section 9.C.** above), ATNS shall impose penalties as indicated below (D).

HARDWARE MAINTENANCE PENALTIES

If the individual LRU Repair TAT(s) contravene/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 for a measurement period of three (3) months (a quarter of a year). The Contractor's quarterly hardware support charges shall be reduced by an amount equal to Phw, as per the following formula:

$$\text{Phw} = (\sum m / \text{TAT}) \times 0.1 \times \text{Quarterly Payment}$$

Where,

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

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

TAT = 60 days

0.1 = constant

Quarterly Payment = Amount payable in a three-month period

SOFTWARE MAINTENANCE PENALTIES

In the event of the Contractor not satisfying the Service Levels (**Section 9.C.** 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 by an amount equal to Psw, as per the following formula:

$$\text{Psw} = [(\{ \sum(a) + \sum(b) + \sum(c) + \sum(d) + \sum(e) + \sum(f) + \sum(g) + \sum(h) + \sum(i) \} / 2191.5) \times \text{Priority Factor} \times \text{Quarterly Payment}]$$

Where,

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

Σ = Sum of each of the Service Levels per quarter

(a) to (i) = The Service Levels [Hours] as defined in table 5 under section 9 C.

2191.5 = Total hours in three months/quarter/91.31 days

Quarterly Payment = Amount payable in a three-month period

The calculation for software penalties (Psw) is only applicable for cases where any of the Service Levels are exceeded. Each exceedance by either one Minute or Hour or Day or Month shall be equally deemed to be one (1) unit.

TOTAL PENALTY

$$P = \text{Psw} + \text{Phw}$$

Where P is equal to the total penalty per quarter.

COMPLIANCE (C/PC/NC)	
<i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i>	
<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>	

