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

REQUEST FOR PROPOSAL NO: ATNS/TPQ/RPF048/23.24/ AMHS-AFTN REPLACEMENT

AMHS/AFTN REPLACEMENT PROJECT

Volume 2

TECHNICAL SPECIFICATIONS

February 2024

TABLE OF CONTENTS

ABBREVIATIONS

ACAD	African Central Aeronautical Database
ACSA	Airports Company South Africa
AES	Aeronautical E-Services
AFTN	Aeronautical Fixed Telecommunication Network
AIM	Aeronautical Information Management
AIS	Aeronautical Information Service
AIXM	Aeronautical Information Exchange Model
AMHS	Aeronautical Message Handling System
AMS	Aeronautical Message Switching
AMSS	Automatic Message Switching System
ANAIS	Aeronautical Automated Information System
ANSP	Air Navigation Service Provider
ARCC	Aeronautical Rescue Coordination Centre
ARO	Aeronautical Reporting Office
ASIA/PAC	Asia Pacific
A-SMGCS	Advanced Surface Movement Guidance and Control System
ATA	Aviation Training Academy
ATC	Air Traffic Control
ATCC	Air Traffic Control Centre
ATFM	Ait Traffic Flow Management
ATM	Air Traffic Management
ATN	Aeronautical Telecommunication Network
ATNS ATA	ATNS Aviation Training Academy
ATNS	Air Traffic and Navigation Services SOC. Ltd.
ATSMHS	ATS Message Handling Service
ATSU	Air Traffic Service Unit
CAMU	Central Airspace Management Unit
CFL	Cleared Flight Level
CIDIN	Common ICAO Data Interchange Network
CM	Configuration Management
CTOT	Calculated Take Off Time
DDS	Data Distribution Service
Doc	Document
DMZ	Demilitarized Zone
DNS	Domain Name System
EFS	Electronic Flight Strip
EOBT	Estimated Off Block Time
EUR	Europe
FDO	Flight Data Operator
FIXM	Flight Information Exchanged Model
FPL	Flight Plan
FPLN	Flight Plan
HMI	Human Machine Interface
ICAO	International Civil Aviation Organisation
IEEE	Institute of Electrical and Electronics Engineers
IP	Internet Protocol
IPSEC	Internet Protocol Security
LAN	Local Area Network
MET	Meteorology
MTCU	Message Transfer and Control Unit
NAS	Network Area Storage
NetBIOS	Network Basic Input/Output System
NIST	National Institute of Standards
NOTAM	Notice to Airmen
NTP	Network Time Protocol
OEM	Original Equipment Manufacturer
OS	Operating System

PBU	Period of Beneficial Use
PIB	Pre-flight Information Bulletin
QNH	Pressure Setting for Altimeters (Usually in Hecto-pascals)
RCMS	Remote Control Monitoring System
SAM	South America
SAN	Storage Area Network
SAR	Search and Rescue
SAT	Site Acceptance Test
SID	Standard Instrument Departure
SITA	Société International De Télécommunications Aéronautiques
SNMP	Simple Network Management Protocol
SOAP	Simple Object Access Protocol
SSS	System Support Suite
SSH	Secure Shell
SSL	Secure Sockets Layer
STAR	Standard Terminal Arrival Route
SWIM	System Wide Information Management
TCP/IP	Transmission Control Protocol/ Internet Protocol
TLS	Transport Layer Security
URS	User Requirement Statement
UTC	Universal Coordinated Time
VPN	Virtual Private Network
WS	Workstation
iWXXM	ICAO Weather Information Exchange Model

DEFINITIONS

Within this document:

Local Area Network (LAN)	is a computer network that interconnects computers within a limited area such as a residence, school, laboratory, university campus or office building.
Workstation	is defined as the generic term for a computer with associated monitor, keyboard and mouse.
Operator workstations	are defined as those workstations that support all the system management functions.
Technical workstations	are defined to be the same as the Operator workstation and are only distinguished by the user level and access rights.
User workstations	are defined as those workstations that support the AMHS/AFTN UA application software, are interconnected with the Main System and normally situated at a remote location.
Operator	is defined as the person that interacts with the Main system in support of the system management functions, whether that be technical or operational.
User	is defined as the person that interacts with the HMI of the AMHS/AFTN UA application software.
Window manager	is system software that controls the placement and appearance of windows within a windowing system in a graphical user interface.

1   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.

2   INTRODUCTION

2.1   Project Overview

This project calls for the supply, delivery, installation and customization of an ATS Message Switching System (AMSS) consisting of an Aeronautical Message Handling System (AMHS) and an Aeronautical Fixed Telecommunication Network (AFTN), with the main system to be deployed at the O. R. Tambo International Airport (Johannesburg). The project will furthermore establish a disaster recovery system (to be deployed in the FAOR SSS Building) and a training and evaluation system (at the ATNS ATA (ATNS Aviation Training Academy)).

This specification defines the requirements for the transmission, processing, and storage of aeronautical messages related to AMHS and AFTN local and international networks and in compliance with the relevant ICAO recommendations and industry standards. The specifications further define the requirements for the system performance, training and the supporting infrastructure.

2.2   Project Deliverables

A) The Project shall replace the existing AMHS and AFTN system with a new integrated Aeronautical Message Handling System (AFTN/AMHS) in compliance with the international Civil Aviation Organisation (ICAO) requirements. (I)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B) The system shall have the full ATS Message Server, AFTN/AMHS and AFTN/EMAIL gateway functionality and shall maintain all existing connections and existing system interfaces. (I)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

C) The system shall incorporate the features of a conventional AFTN switch in full accordance with ICAO Annex 10 recommendations to ensure that existing AFTN connectivity are maintained and to allow for the transition from conventional AFTN to AMHS where applicable. (I)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

D) The project shall deploy a disaster recovery system whereby functionality and connections to local and international clients and systems are maintained in the event of a disaster befalling the main system. A demonstration of the capability and functionality will be required. (I)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

E) The project shall deploy a training and evaluation system at the ATNS ATA similar to the operational system in order to facilitate operational and technical training as well as acting as the test and evaluation system. (I)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

F) The project shall deploy the latest technology and system functionality. (I)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

3   REFERENCES

A. ICAO Annex 10, Volume II, Communication Procedures including those with PANS status, 7th Edition, July 2016.

B. ICAO Annex 10, Volume III, Communication Systems, Part I, Digital Data Communication Systems, 2nd Edition, July 2007.

C. ICAO Doc 9880, Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols (Part 1 to 4), 2nd Edition, 2016.

D. ICAO Doc 9896, Manual for the ATN using IPS Standards and Protocols, 2nd Edition, 2015

E. ICAO Doc 4444, Procedures for Air Navigation Services - Air Traffic Management,16th Edition, 2016.

CHAPTER 1: GENERAL SPECIFICATIONS

4   SYSTEM LOCATIONS/CLIENTS

The AMSS shall be deployed to serve the following clients:

- Domestic ATSU Clients (ATNS and Private ATSU);

- Domestic Other Clients (SAAF, SAWS);

- International Clients;

- ATNS Systems.

The Bidder shall take note of the current locations and interfaces as defined in the tables below and shall confirm that the system shall be deployed and configured to maintain existing service delivery to the clients at these locations. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

4.1   Domestic ATSU Clients

DESIGNATOR	AIRPORT	LOCATION	* INTERFACE
ATSU: ATNS			
FABL	Bloemfontein Airport	Bloemfontein	AMHS UA-P7
FACT	Cape Town International Airport	Cape Town (Multiple clients)	AFTN/AMHS
FAEL	East London Airport	East London	AMHS UA-P7
FAGG	George Airport	George	AMHS UA-P7
FAGM	Germiston Rand Airport	Germiston	AMHS UA-P7
FAKM	Kimberley Airport	Kimberley	AMHS UA-P7
FAKN	Kruger Mpumalanga Airport	Nelspruit	AMHS UA-P7
FALA	Lanseria Airport	Lanseria	AMHS UA-P7
FALE	King Shaka International Airport	Durban	AMHS UA-P7
FAMM	Mafikeng Airport	Mafikeng	AMHS UA-P7
FAOR	O. R. Tambo International Airport	Johannesburg (Multiple clients)	AFTN/AMHS
FAPE	Port Elizabeth Airport	Port Elizabeth	AMHS UA-P7
FAPM	Pietermaritzburg Airport	Pietermaritzburg	AMHS UA-P7
FAPN	Pilanesberg Airport	Pilanesberg	AMHS UA-P7
FAPP	Polokwane Airport	Polokwane	AMHS UA-P7
FAUP	Upington Airport	Upington	AMHS UA-P7
FAUT	Umtata Airport	Umtata	AMHS UA-P7
FAVG	Virginia Airport	Durban	AMHS UA-P7

FAWB	Wonderboom Airport	Wonderboom	AMHS UA-P7
FARB	Richard's Bay Airport	Richard's Bay	AMHS UA-P7
ATSU: PRIVATE			
FAGC	Grand Central Airport	Midrand	AMHS UA-P7

* AMHS UA-P7 is currently implemented, however the Bidder may also offer AMHS UA-P3 at these locations.

4.2 Domestic Other Clients

DESCRIPTION	LOCATION		INTERFACE
MARITIME	Cape Town Maritime	Cape Town	AFTN RS-232
SACAA	Civil Aviation Authority	Midrand	AMHS UA-P7
SAAF	Langebaanweg AFB	Cape Town	AFTN RS-232
	Mariepskop LASS	Hoedspruit	AFTN RS-232
	SAAF HQ [BACS]	Waterkloof	AFTN RS-232
	Ysterplaat AFB Signal Office	Cape Town	AFTN RS-232
	Ysterplaat AFB ATC Tower	Cape Town	AFTN RS-232
	Waterkloof AFB	Waterkloof	AFTN RS-232
SAWS	Pretoria	Pretoria	AMHS UA-P3
	O. R. Tambo International Airport	Johannesburg	AMHS UA-P3

4.3   International Clients

DESIGNATOR	AIRPORT	COUNTRY	AMHS STATUS	INTERFACE
AFISNET				
FCBB	Brazzaville	Congo	AMHS Ready	AFTN/RS-232
FMMM	Antananarivo	Madagascar	AMHS Ready	AFTN/RS-232
CAFSAT				
GOOO	Dakar	Senegal	AMHS Ready	AFTN/RS-232
LEEE	Las Palmas	Spain	AMHS Ready	AFTN/RS-232
SAEZ	Buenos Aires	Argentina	N/A	AFTN/RS-232
SBRE	Recife	Brazil	N/A	AFTN/RS-232
NAFISAT				
FSIA	Victoria	Seychelles	N/A	AFTN/RS-232
HKJK	Nairobi	Kenya	AMHS Ready	AMHS/MTA-P1
SADC [VSAT II]				
FBSK	Gaborone	Botswana	AMHS Ready	AMHS/MTA-P1
FDSK	Manzini	Eswatini	AMHS Ready	AMHS/UA-P3
FIMP	Plaisance	Mauritius	AMHS Ready	AMHS/MTA-P1
FLKK	Lusaka	Zambia	AMHS Ready	AMHS/MTA-P1
FMMM	Antananarivo	Madagascar	AMHS Ready	AFTN/RS-232
FNLU	Luanda	Angola	N/A	AFTN/RS-232
FQBR	Beira	Mozambique	N/A	AFTN/RS-232
FQMA	Maputo	Mozambique	N/A	AFTN/RS-232
FVHA	Harare	Zimbabwe	N/A	AFTN/RS-232
FWKI	Lilongwe	Malawi	AMHS Ready	AFTN/RS-232
FXMM	Maseru	Lesotho	N/A	AFTN/RS-232
FYWH	Windhoek	Namibia	N/A	AFTN/RS-232
FZAA	Kinshasa	DRC	AMHS Ready	AFTN/TCPIP
HBBA	Bujumbura	Burundi	N/A	AFTN/RS-232
HRYR	Kigali	Rwanda	N/A	AFTN/RS-232
HTDA	Dar-Es-Salaam	Tanzania	N/A	AFTN/RS-232
HUEN	Entebbe	Uganda	AMHS Ready	AMHS/MTA-P1
OTHER INTERFACE CONNECTIONS				
FHSH	Saint Helena	Saint Helena	N/A	AFTN/TCPIP
YBBB	Canberra	Australia	AMHS Ready	AMHS/MTA-P1
WSSS	SITA	Singapore	AMHS Ready	AMHS/MTA-P1

4.4 ATNS Systems

SYSTEM	LOCATION		INTERFACE
ACAD	Head Office [Bruma]	Johannesburg	AMHS/MTA-P1
	O. R. Tambo International Airport	Johannesburg	AMHS/MTA-P1
AIM [ANAIS]	O. R. Tambo International Airport	Johannesburg	AFTN/AMHS
ASMGCS	Cape Town	Cape Town	AFTN/TCPIP
	O. R. Tambo International Airport	Johannesburg	AFTN/TCPIP
ATFM/CAMU	O. R. Tambo International Airport	Johannesburg	AFTN/TCPIP
ATM System (TopSky)	O. R. Tambo International Airport Cape Town International Airport	Johannesburg Cape Town	AFTN/AMHS
ATIS & D-ATIS	Various locations	N/A	AMHS

4.5 ATNS Future Systems

ATNS is current preparing for the future deployment of the following systems:

DESCRIPTION	LOCATION		INTERFACE
ATIS Replacement	FAEL, FAPE, FAGG, FABL & ATA		AMHS
EFS	Various locations		AMHS

5 IT REQUIREMENTS

A) The system shall incorporate the principle of least functionality by disabling or uninstalling unused/ unnecessary operating system and OS functionality, including protocols, ports, and services. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B) Only the required and necessary software for the operation of the system shall be installed and the system shall incorporate measures to limit the software that can be installed, and the functionality of that software i.e. Comply with NIST [SP 800-53] controls CM-6 Configuration Settings and CM-7 Least Functionality. BIDDERS shall provide a list of the software that will be installed and confirm compliance to NIST [SP 800-53] controls as stated. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	

> *[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]*

C) The following principles shall be incorporated in the system:

   a. The system shall utilize Secure Services and ports, including, DNS over port 53.

   b. The system shall implement Secure Network protocols; including, NetBIOS, IPv6 and network interfaces; including, Bluetooth, IEEE 802.11, and infrared.

   c. The system shall implement secure methods of remote access via SSL, VPN, SSH, and IPSEC.

   d. The system shall implement access control to control permissions to files, directories, registry keys, and restricting user activities such as modifying system logs or installing applications.

   e. The system shall implement Secure Management of identifiers/accounts; including, changing default account names, determining length of time until inactive accounts are disabled, using unique usernames, establishing user groups.

   f. The system shall implement Secure Authentication controls: including, password length, use of special characters, minimum password age, multifactor authentication/use of tokens.

   g. The system shall implement Secure Audit settings; including, capturing key events such as failures, logons, permission changes, unsuccessful file access, creation of users and objects, deletion and modification of system files, registry key and kernel changes.

   h. The system shall implement Secure System settings; including, session timeouts, number of remote connections, session lock.

   i. The system shall use Cryptography - use only FIPS 140-3 validated cryptographic protocols and algorithms to protect data in transit and in storage.

   j. The system shall allow for vendor-released patches in response to identified vulnerabilities, including, software updates to be installed.

   k. The system shall use approved, signed software, if supported.

   l. The system shall implement safeguards through software to protect end-user machines against attack, including, antivirus, antispyware, anti-adware, personal firewalls, host-based intrusion detection systems.

   m. The system shall apply network protections, including, TLS, IPSEC.

   n. The network installation security requirements; for example, within a DMZ, on a specific subnet, as required, shall be defined for the system.

   o. The technical specification and design documentation, system security documentation, system procedures, etc. shall be maintained and updated throughout the life of the system.

   p. Data loss prevention requirements shall be defined for the system, i.e. Classify the data traversed across the LAN as Public or Private. This will allow ATNS Security to ensure that Private information is not shared outside the network.

BIDDERS shall indicate compliance and provide supporting documentation and statements for each of the sub-specification as stated in a to p above. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

D) The system design shall cater for and ensure that, the installation is behind the current ATNS firewall and Intrusion prevention systems. BIDDERS shall provide an architectural system design drawing to support compliance to the specification. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

E) If access from mobile devices are catered for, the system shall incorporate mobile device security. The Bidder shall specify security requirements of any devices used to access the system from corporate or personal mobile devices. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

F) The system design shall ensure that remote access to the application is only accessible via the VPN. BIDDERS shall indicate how this is achieved in the system design. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

G) The system design shall ensure that all applications are only accessible publicly via the firewall. BIDDERS shall provide an architectural system design drawing to support compliance to the specification. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

H) The system shall implement access rights to enable role-based access control at application and device level. BIDDERS shall provide details on the access rights implemented. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

CHAPTER 2: TECHNICAL HARDWARE SPECIFICATIONS

6   TECHNICAL HARDWARE SPECIFICATIONS

6.1   System Hardware Components

A)   The System shall consist of the following main components:

- AFTN/AMHS Main System;
- AFTN/AMHS D&R System;
- AFTN/AMHS Operator workstations;
- AFTN/AMHS User workstations;
- AFTN/AMHS Training and Evaluation System;
- Backup SAN;
- NTP Server;
- Network Switches and Routers;
- Serial-to-Ethernet Device;
- Cabinets.

6.1.1   AFTN/AMHS Main servers

a.   The system shall be delivered with two AFTN/AMHS servers, operated in main/hot standby configuration; each of the servers shall be equipped with a redundant disk array (RAID 6 configuration). The BIDDERS shall submit details on the AFTN/AMHS architecture and shall provide a system layout drawing. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b.   The main system will be deployed in the equipment room in the ATNS Operational Complex situated at OR Tambo International Airport. (I)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c.   The option of deploying the system, whether it be the Main D&R or Training and Evaluation, in a virtual server environment shall be included as an alternative solution covering both hardware and software. BIDDERS shall provide supporting information if they can support the deployment in a virtual server environment. (O)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

6.1.2　AFTN/AMHS D&R servers

　　a. The system shall be delivered with two AFTN/AMHS D&R (Disaster and Recovery) servers, operated in main/hot standby configuration; each of the servers shall be equipped with a redundant disk array (RAID 6 configuration). The BIDDERS shall submit details on the AFTN/AMHS D&R architecture and shall provide a system layout drawing. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

　　b. The D&R system will be deployed in the equipment room of the SSS Building situated at the O. R. Tambo International Airport. The network connection between the main and D&R systems is through a shared fibre optic system with bandwidth allocation based on required capacity. (I)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

　　c. The D&R system shall be supplied with D&R Operator workstations with quantities and deployment as defined in Appendix B: OPERATOR WORKSTATION LOCATIONS AND QUANTITIES. BIDDERS shall confirm the quantity of workstations required, provide a list of hardware to support the workstation requirement with associated specifications. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

6.1.3   AFTN/AMHS Operator Workstations

a. The system shall be delivered with Operator workstations, each equipped with a minimum 32" adjustable monitor screen, keyboard and a mouse, unless specified otherwise. BIDDERS shall include full details of the offered hardware. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The system shall cater for printing from the Operator workstation on existing ATNS network printers. BIDDERS shall confirm capability to print on network printers. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The Operator workstations shall be deployed within the following units: (I)
- Aeronautical Reporting Office [ARO];
- Aeronautical Telecommunication Network [ATN] Centre;

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The system shall be supplied with Operator workstations according to the quantities and deployment as defined in Appendix B: OPERATOR WORKSTATION LOCATIONS AND QUANTITIES. BIDDERS shall confirm the quantity of workstations required, provide a list of hardware to support the workstation requirement with associated specifications. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

6.1.4 AFTN/AMHS User Workstations/Terminal

a. User workstations/terminals are defined as those workstations/terminals that support the AFTN/AMHS UA system and application software and is interconnected with the Main System. (I)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The system shall be delivered with User workstations, each equipped with an adjustable monitor screen not exceeding 24", keyboard and a mouse, unless specified otherwise. BIDDERS shall include full details of the offered hardware. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The system shall cater for printing from the User workstation on existing ATNS network printers. BIDDERS shall provide supporting documentation. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The system shall be supplied with User workstations at the various ATNS ATSU across the country according to quantities and deployment as defined in Appendix A: USER WORKSTATION LOCATIONS AND QUANTITIES. BIDDERS shall confirm the quantity of workstations required, provide a list of hardware to support the workstation requirement with associated specifications. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

6.1.5   AFTN/AMHS Training and Evaluation System

a. The training and evaluation system shall consist of two AFTN/AMHS servers, operated in main/hot standby configuration; each of the servers shall be equipped with a redundant disk array (RAID 6 configuration). The BIDDERS shall submit details on the Training and Evaluation architecture and shall provide a system layout drawing. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The training and evaluation system shall be supplied with Operator and User workstations according to the quantities and deployment as defined in Appendix A and Appendix B. BIDDERS shall confirm the quantity of workstations required, provide a list of hardware to support the workstation requirement with associated specifications. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

6.1.6   Backup SAN (Storage Area Network)

a. The Main System shall be provided with a backup SAN. BIDDERS shall provide full details of the backup SAN offered. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The backup SAN shall be clustered and have a minimum storage capacity (volume) of 10TB. BIDDERS shall provide the technical specifications of the backup SAN offered. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

6.1.7 NTP Server

a. The system shall be delivered with a redundant GPS-based time server with NTP interface. BIDDERS shall provide full details to support compliance to the requirement. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

6.1.8 Network

a. All network switches and routers shall be supplied with dual power supply units. BIDDERS shall include full details on the offered network switches and routers offered. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. Redundant LAN connecting servers shall be provided for the operator working positions and local User workstations. BIDDERS shall include full details on the offered LAN connection servers offered. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The Main System shall be equipped with one redundant FAST/Gigabit Ethernet LAN interface for the connection to the redundant operational LAN. BIDDERS shall include full details on the offered LAN interface offered. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. A proposed network configuration and layout shall be incorporated in the system design and detailed on a network diagram with all components clearly indicated and detailed. The network system design shall incorporate the existing ATNS WAN, however new network components (switches and routers) shall be proposed. The proposed network diagram shall be included as part of the offer. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

6.1.9   Serial-to-Ethernet Device

a. The serial-to-ethernet device servers shall meet the following minimum requirements:

- The device servers shall be rack mountable;

- The device servers shall support at least the RS-232 serial standard;

- The device servers shall have at least 8x serial ports for connection of serial-to-ethernet devices;

- The device servers shall support port number configuration for each of the serial ports;

- The device servers shall have at least 2x Ethernet (RJ45) ports;

- The device servers shall have a console port (RS232/RJ45);

- The device servers shall support baud rates from 50 bps up to and including 115200 kbps;

- The device servers shall support 5, 7 and 8 data bits;

- The device servers shall support 1, 1.5 and 2 stop bits;

- The device servers shall support even, none and odd parity;

- The device servers shall support RTS/DTS, CTS/DTR and XON/XOFF flow control signals;

- The device servers shall support SNTP for time management;

- The device servers shall support SNMP for monitoring;

- The device servers shall support configuration options such as a web console (http/https), serial console and telnet/secure shell (ssh) console.

BIDDERS shall include full details of the serial-to-ethernet device servers offered as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

6.2   System Hardware Specifications

6.2.1   Server Specifications

a. The servers shall be based on the latest commercial off the shelf servers available and supported in South Africa. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The server's performance and capacity shall not be a limiting factor to the performance of the overall system. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The system servers shall at least be dual redundant. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The system architecture shall be based on a 'parallel operation' (hot standby) server configuration. The server redundancy must be Multiple Computation Redundancy (MCR) to allow both servers to compute all data simultaneously while only one outputs data. The master ensures that the slave's computation is the same as that of the master. Therefore, the hot standby server is immediately ready to take over operation when the master fails from the point of failure. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

e. RAID6 System: Mass storage disks and associated controller devices shall be hot swappable drives to be easily replaceable during operation in case of errors. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

6.2.2   Workstation Computer Specifications

a. The workstations shall be based on the latest commercial off the shelf computers available and supported in South Africa. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The workstation computer shall cater for the connection of a standard USB wired English QWERTY keyboard. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The workstation computer shall cater for the connection of a standard wired optical USB scroll mouse. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

d. The workstation computer, if separate from the monitor, shall fit in the available space of 750 mm x 150 mm x 550 mm (depth x width x height). BIDDERS shall provide the technical specifications of the workstation computer offered as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

e. ATNS preference for the User workstation computer is for ultra slim desktops that are mounted on a stand with the monitor with a single NIC for all towers excluding FAOR. FAOR shall be equipped with dual NIC to support the dual LAN. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f. The workstation computers hardware performance specifications shall be provided such that it shall support the requirements of the offered software as well as existing ATNS system software (ATM/AIM) that will be re-deployed on the new hardware platform. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

6.2.3   Workstation Monitor Screen Specifications

a. The type of monitor screen (e.g. LED / LCD / TFT LCD) and resolution shall support the graphical requirements of the system software as well as complimenting and mitigating the implications resulting from the different physical environments (e.g. ATSU Tower with sunlight reflections, Briefing and Communication Centre with artificial lights) where

the screens will be deployed. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

 b. The monitor screen shall support viewing in sunlight and dark environments. BIDDERS shall provide the technical specifications of the monitors offered to support the requirement as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

 c. The monitor screen shall support high brightness with low reflection and shall cater for the adjustment of the brightness during night operations. BIDDERS shall provide the technical specifications of the monitors offered to support the requirement as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

 d. The system shall be delivered with all relevant software and screen drivers to support the various offered monitor screens. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

 User workstation

e. The resolution on the User workstation monitor display shall be at least 1280x1024 pixels. BIDDERS shall provide the technical specifications of the monitors offered to support the requirement as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f. The User workstation monitor screen, deployed at all remote ATSU, shall not exceed 24", unless specified otherwise. BIDDERS shall provide the technical specifications of the monitors offered to support the requirement as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

Operator and Technical workstation

g. The Operator workstation monitor screen display shall be at least 3840x2160 pixels. BIDDERS shall provide the technical specifications of the monitors offered to support the requirement as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

h. The Operator workstation monitor screen, shall be a minimum of 32", unless specified otherwise. BIDDERS shall provide the technical specifications of the monitors offered to support the requirement as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

i. The Technical workstation monitor screen, shall be 24" to fit current available space. BIDDERS shall provide the technical specifications of the monitors offered to support the requirement as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

6.3 Cabinets

A) The servers and network equipment shall be installed in 19", 42U cabinets. BIDDERS shall provide full details of the offered cabinets and number of cabinets based on their system design. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B) The cabinets shall be equipped with suitable cooling fans. BIDDERS shall clearly indicate where the fans will be installed and provide the technical specifications of the fans as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

C) The preferred colour of the cabinets is RAL7021 (black grey). (I)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

D) Each cabinet shall be earthed and connected to the site earth. All equipment within the cabinet shall be appropriately earthed. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

E) Each cabinet shall be provided with a Static Switch, connected to the main and backup power supply in a secure way. BIDDERS shall provide full details of the offered Static Switch. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

F) Each cabinet shall be provided with surge protected PDU's (Power Distribution Unit) that contains International Electrotechnical Commission (IEC) C13 sockets and at least two (2) IEC Type C (Europlug/Two pin plug) sockets. The number of C13 sockets shall be calculated based on the proposed equipment deployment in the cabinet with a minimum of two (2) spare sockets. BIDDERS shall provide full details of the offered PDU's. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

G) The cabinets shall be supplied with a cable management system. BIDDERS shall provide full details of the offered cable management system. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

H) All panels, connectors and cabling shall be clearly labelled and documented. BIDDERS shall provide full details of the offered labelling methodology. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

6.4 Performance and sizing

A) The main system performance and resources shall not be a limiting factor in the number of locations or the number of operator or User workstations that can be deployed by ATNS within South Africa. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B) The system shall consist of modular units (Hardware and Software) that allow scaling of Operator, Technical and User workstation numbers to suit the environment – easily configurable through dataset or command line or other user-friendly means. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

C) The Main System shall have the capacity to cater for at least 500 interfaces connections in the future that are scalable and that can be configured to support either asynchronous (V.24), synchronous serial lines (V.24 or V.11), TCP-IP etc. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

D) The Main System shall be capable of handling a continues message input rate of at least 200 messages per second with a mean input-output ratio of 1:2 with no accumulation of messages within the Main System. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	

Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

E) The Main System shall be capable of handling a continues message input rate of at least 100 AFTN messages and at least 100 AMHS/X.400 messages in a mixed message input of AFTN and AMHS/X.400 messages. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

F) The Main System shall be capable of handling the continues message input rate with any combination of message addressees. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

G) The AFTN/AMHS gateway shall support the simultaneous transformation of AFTN to AMHS and AMHS to AFTN messages to support the Main System throughput. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

H) A data transmission latency of five seconds or less is acceptable. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	

> [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

6.5 Message Queue

A) The Main System shall provide a message queuing capacity for up to 200 000 messages. Messages shall be queued in order of the oldest to the newest message. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B) Messages shall be queued until transmitted by the Main System or discarded by the operator. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

C) Messages queuing within the Main System shall have no detrimental effect on system performance. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

D) If a message is discarded from a queue, the Main System shall ensure that the message is flagged accordingly as OLD, DEL or SYS depending on the nature of discard (i.e.: purged or expired) and stored. A notification shall be raised in the form of an alarm indicating that the message, including its CI/CSN has been discarded from the queue and assigned a discarding flag DEL, OLD or SYS with an associated CSN. It shall also be possible to repeat these messages. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

6.6 Redundant System Operation

A) The Main System shall be designed so that it does not have a single point of failure. Shared components must be avoided as far as possible. BIDDERS shall provide supporting information and system layout drawings as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B) The redundant Main System shall automatically switch over from the main to the standby server upon detection of a fault based on the fault conditions as specified in paragraph 7.2.5. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

C) The switchover of the Main System shall not take longer than five (5) seconds. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

D) It shall be possible to initiate a manual switchover of the Main System. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

CHAPTER 3: MAIN SYSTEM TECHNICAL SOFTWARE SPECIFICATIONS

7   MAIN SYSTEM TECHNICAL SOFTWARE SPECIFICATIONS

7.1   System Software Components

7.1.1   Operating Software

    a. ATNS preference for the Operating Software of the system servers are the Linux operating software. BIDDERS shall indicate the operating software of the servers and version of the software offered. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

    b. ATNS preference for the Operating Software of the workstations are the latest Windows operating software. BIDDERS shall indicate the operating software of the workstations and version of the software offered. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

    c. The system shall be delivered with the installation disks and manuals for each of the operating software installed. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.1.2   Application Software

    a. The system shall be delivered with the AMHS/AFTN application software on external HDD. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

7.1.3   Software Licenses

a.   The system shall be delivered with all the required software licenses, consisting of but not limited to, the operating system, database software and AFTN/AMHS application software for all delivered components. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.1.4   Databases

a.   The databases within the Main System shall be individually configurable to cater for variable sizes and retention times (e.g. message database up to 3 months (90 days) days, event database up to 3 months (90 days) days). The sizes and retention times shall not be limited by the system design but shall only depend on the available resources. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b.   The system shall cater for on-line storage for a minimum of 3 months (90 days) of information (data), followed by a short-term archive capacity for a minimum of 12 months (365 days) of information (data) as well as an off-line archive capacity for 5 years. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The system shall include the functionality to retrieve information from the short-term
    archive based on the operator permission. BIDDERS shall provide supporting information
    as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The system shall include the functionality to identify stored and archived information that
    should not be deleted. This information shall be kept indefinitely or until the limitation is
    lifted by an authorized operator. BIDDERS shall provide supporting information as part
    of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

e. The system shall cater for consolidation and association in the storing and archiving
    function so that all information, whether it be messages, events, faults, status etc. can be
    retrieved based on search selection criteria (e.g. Day, time duration, information type etc.).
    BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.2 System Management

7.2.1 System Management Principles

a. The main system shall implement a consistent system management framework for the
    unified management of all AFTN and AMHS components in one application. BIDDERS
    shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

b. The system management framework shall provide an interface that supports as a minimum,

- the management of the system configuration;
- the management of message handling functions;
- the management of system functions (re-initialisation, reboot, etc.);
- the monitoring, logging, retrieval, and inspection of faults and erroneous situations encountered;
- the gathering of statistics;
- the management of security and access controls.

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The system shall implement protective mechanisms when the internal resources are reduced to a minimum. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The Main System shall however still respond to operator commands when the protective mechanisms are active. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.2.2   User Interfaces

a. The operation and control of the main System and its components shall be provided through a state-of-the-art coloured graphical user interface (GUI), based on WIMP

(windows, icons, menus, and pull-down menus) technology and controlled by mouse and keyboard. State-of-the-art in this context is defined as the most recent developed product, incorporating the newest ideas and features. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. All the windows within the GUI shall be subject to the control exercised by the window manager used. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The proposal shall include sample's or screenshots of the GUI offered. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The window manager shall cater for the ergonomic customisation of the windows. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

e. The System shall implement syntactic and semantic checks to prevent incorrect operator input (e.g. wrong keys, invalid range of data, inconsistent data). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f. The Main System shall manage conflicting inputs from operators with the same permissions when more than one operator is active. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

g. The System shall request a confirmation on any command issued that could potentially impact the operational integrity of the Main System (e.g. Main System shutdown) and shall confirm user authorization level. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

h. The System shall cater for Main System commands (e.g. Main System component shutdown) that can be entered via the GUI, to be activated by means of scripts. It shall be possible to schedule the execution of these scripts. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

i. The HMI shall provide means to directly access the most commonly used windows and menus of the HMI. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.2.3 Main System Configuration

    a. The Main System shall support the configuration of the system components in an easy and user-friendly way. Easy and user-friendly in this context is defined as easy to use, not difficult to learn and the user is assisted and guided by the system. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.2.4 System Monitoring

    a. The system shall record all monitored system events in an event log. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

    b. The events shall be categorised in order of priority. For example:

- Critical;
- Normal;
- Information;

    BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

    c. All critical events shall be acknowledged by the user/operator. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. These event logs shall be applicable to the following components and peripherals of the system:

7.2.4.1 Hardware Components
i. Any change to the status of components and peripherals. For example:
- o Online/offline status of the servers;
- o Online/offline status of the configured physical interfaces on the servers;
- o Online/offline status of the configured disks on the servers;
- o Online/offline status of the routers including all configured ports;
- o Online/offline status of the switches including all configured ports;

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.2.4.2 Software Components
i. The application software event logs shall be accessible to the users/operators through the HMI.
BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

ii. The event log shall contain at least the following information:
- o The date/time of the event;
- o The event description (text);
- o The event identifier;
- o Acknowledgement of the event (where applicable);

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

iii. Where configuration changes to objects has taken place, the event log shall contain information such as:

- o The object that was modified;

- o The date/time the object was modified;

- o The user/operator responsible for the modification;

- o The original and new values of the modified object;

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

e. It shall be possible to associate a specific action with an event. Events associated with an error or fault will be managed according to paragraph 7.2.5. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f. System events shall be indicated online in the form of an alarms popup window. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

g. It shall be possible to search and retrieve events from the event log, based on event selection criteria (fields in the event log) and any combinations of them (i.e. by means of Boolean expressions). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	

Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

h. All events logged shall be available for retrieval from the system for at least the minimum retention period of 3 months and shall form part of a daily backup schedule (online and to archive). All events older than the minimum retention period, shall be deleted from the system. Restoring from archive shall be done for those events outside of the minimum retention period. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

i. The Main System shall cater for the display of the information about the system state and the connectivity to its users by means of graphical depictions. The display shall cater for user connections via more than one communication line. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.2.5   Fault and Error Handling

a. The Main System shall implement continuous supervision of the health state of all its components. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The Main System shall implement fault and error management and shall log all faults and errors in appropriate logs for a configurable period (minimum retention period of 3 months

(90 days)). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. Different fault and error handling mechanisms shall be implemented for all components of the software for logging.

- Normal operational software alarms shall be written to an alarms log.
- In the event of operational software failure, the failure core/dump information, shall be written to a core/dump log;

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The Main System shall automatically take action (e.g. switchover or re-assign resources) upon the detection of a fault. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

e. The Main system shall take the following action with regards to any software failure detected:

- Automatically restart the application software;
- In case of automatic restart failure, prompt for manual restart of the application software;

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

f. The Main system shall take the following action with regards to any hardware failure detected:

- In case of main server failure (main/standby configuration), automatically switchover the application software from the main server to the standby server;

- In case of host failure (virtual configuration), automatically migrate/relocate all virtual machines on the failed host to other hosts in the environment;

- The Main system shall not perform any automatic action in case of a complete system (operational system hardware) failure. Manual intervention shall be required to perform a failover to the D&R system;

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

g. The Main System shall be able to perform an automatic re-initialisation with full recovery (e.g. restart of the affected system components) as part of its fault and error management process, upon detection of a fault. The maximum number of automatic restarts shall be configurable (to prevent infinite restart loops). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

h. The Main System shall cater for the following restart options in the event of a manual reinitialization (restart):

- Restart with full recovery (no messages are lost);

- Restart without messages queue recovery (all pending queues are lost);

- Restart without the day's messages (all pending queues and messages for the day are lost);

- Restart with no recovery (all pending queues and days of traffic stored on disk are lost).

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

i. There shall be no loss in messages, including pending message transactions, during a switchover from the primary to the standby server. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

j. The system shall have a restart time (restart of all applications) of less than 5 minutes. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.2.6   Diagnosis and Statistics

a. The Main System shall collect information for diagnostics and statistics on its various components. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The system shall, on request from the operator, display and update the diagnostic information of a given system component based on a configurable rate. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

c. The Main System shall automatically calculate statistical data per minute, hour, day, month, and year based on the diagnostic data. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The statistical data shall be stored in a statistics database for retrieval and analysis. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

e. The system shall capture diagnostic and statistical data for at least the following object levels:

- messaging (overall, circuit-specific, AFTN-specific, AMHS/X.400-specific),
- communication protocols,
- physical interfaces (availability, number of link failures)
- system components.

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f. The Main System shall provide diagnostics and statistics on the system performance, usage of system resources, usage of system resources, and availability of system components. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

g. The Main System shall provide statistics for the system-internal message transfer times, calculated separately for queued and normally transferred messages. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

h. The Main System shall provide the function to generate user-configurable statistical reports based on selectable criteria (object levels, sources etc.). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

i. The Main System shall cater for the exporting of diagnostic and statistical data in human-readable format and in CSV format. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.2.7   Security Management

a. Over and above the generic IT requirements as stipulated in paragraph 5, the Main System shall implement security management, including authentication, authorisation, and access control for users. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

b. The Main System shall enable users/operators to only access the system via a log-in procedure protected by a password. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The main system shall apply the following password policy:

Password Expiration	Every 30 days
Minimum Length	8 characters
Password Complexity	Enabled (e.g. minimum number of characters, alpha and numerical characters, uppercase and lowercase characters, etc.)
Password History	Last 10 passwords
Account Lockout	After 5 unsuccessful consecutive logon attempts
Lock-Out Duration	Lockout will remain in place until the password is reset by the system administrator.

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The system shall allow user/operators groups, assigned to a configurable subset of the system functions, to be created. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

e. The system shall allow users/operators to be assigned to one or several groups. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f. The system shall not limit the number of users/operators logged in simultaneously. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

g. The system shall monitor and record on a real time basis all users and operators accessing or attempting to access the system. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.3   ATS Message Switching Centre

A) The System shall support the exchange of messages via AFTN and AMHS. The Bidder shall provide documented proof of at least one (1) AMHS/AFTN system, similar to the system offered, has been installed and commissioned during the past seven (7) years in an ICAO member state. (D)

B) The System shall cater for a gateway to enable the exchange of messages between AFTN and AMHS. The Bidder shall provide documented proof that the AMHS/AFTN system deployed is acting as an international ATS message centre. (D)

C) The System shall cater for a gateway to enable the exchange of messages between AFTN and EMAIL. The Bidder shall provide documented proof that the exchange of messages between AFTN and EMAIL is operational within an existing deployed system. (D)

D) The system shall handle messages as defined in ICAO Annex 10 Volume II and ICAO Doc 9880, supporting both Basic and Extended Services. BIDDERS shall provide supporting documentation that both Basic and Extended services are supported by the system. (D)

7.4   Message Handling

A) The system shall come with the standard message format as defined in ICAO Annex 10, Volume II and shall allow ATNS with administrator rights to modify the templates in an event that the ICAO format changes. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B) The system shall be able to deal with misrouted messages as defined in ICAO Doc 9880. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

C) The system shall allow for access to online AMHS/AFTN reference documentation. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

D) The system shall connect and interface with the currently installed communication networks (ATN and AFTN). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

7.4.1   AFTN Message Handling

    a.   The System shall be compliant to the ICAO AFTN standards as specified in ICAO, Annex 10, Volume II. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

    b.   The System shall process AFTN messages in both ITA-2 and IA-5 coding/format as defined in ICAO Annex 10, Volume II. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

    c.   The System shall incorporate a code conversion to be able to automatically convert the coding/format as per ICAO Annex 10 recommendations, depending on the routing settings and the AFTN client requirements. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

    d.   The System shall communicate with AFTN clients using asynchronous communication protocols including Teletype (TTY), X.25, TCP/IPv4 and v6, and SMTP. BIDDERS shall provide supporting information as part of the tender response. (D) (One client are still on X.25 with the intension to migrate to AMHS)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

e. The system shall be supplied and delivered with an ethernet-serial device server with "a minimum of 4" serial asynchronous RS232 inputs to cater for existing AFTN clients. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f. The System shall interface with automated ATM systems to exchange AFTN messages via Simple Object Access Protocol (SOAP). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

g. The Main System shall support alternate routing on TCP level when used for AFTN transport. If a TCP/IP VC becomes unavailable, the system shall automatically use up to 8 alternate TCP/IP VCs. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

h. The system shall cater for the configuration of the length of the channel sequence number to consist of either three or of four figures to cater for various clients. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

i. The System shall support the configuration of the alignment function per communication partner to be "CR LF" or "CR CR LF". The System shall cater for messages received that deviate from these alignment functions. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

j. The system shall automatically date and time stamp all incoming and outgoing messages as defined by ICAO Annex 10, Volume II. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

k. The system shall be able to handle all ICAO standard messages as defined by ICAO Annex 10, Volume II. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

l. The system shall cater for the handling of messages based on the allocated categories as defined by ICAO, Annex 10, Volume II, Par 4.4, being:

- distress messages;
- urgency messages;
- flight safety messages;
- meteorological messages;
- flight regularity messages;
- aeronautical information services (AIS) messages;
- aeronautical administrative messages;
- service messages.

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

m. The System shall cater for the automatic generation and processing of AFTN SVC messages (Service Messages), e.g. in case of interrupted message reception the main System shall automatically request repetition of the missing messages. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

n. The system shall cater for the standard AFTN routing tables including single addresses, collective addresses and multiple dissemination capability. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

o. The system shall cater for the following configurable routing procedures:

- Copying of incoming AFTN messages "as is" to one or more pre-defined AFTN circuits,

- Parallel delivery of outgoing messages to one or more pre-defined AFTN circuits.

- Automatic diversion to an alternate AFTN circuit as and if defined, if the default AFTN circuit is not available,

- Permanent diversion to an alternate AFTN circuit,

- Circuit-specific pausing (blocking of messages in the transmission queue of the circuit),

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

p. The system shall cater for a search and replace function of single addresses contained in collective addresses to facilitate the management of collective addresses. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

q. The System shall cater for the handling of AFTN messages with a message text length exceeding 1,800 characters as defined in ICAO Annex 10, Volume II. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

r. The system shall allow the maximum message text length that are acceptable to be defined for each AFTN station as defined in ICAO, Annex 10, Volume II. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

s. It shall be possible to refine these specifications per message category (e.g. NOTAM, FPL, etc.). For each specification, it shall be possible to select the corrective operation on an over-length message text: truncate (cut), segment, or reject. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

t. The system shall cater for automatic message correction of erroneous messages received by the system (e.g. messages that have an invalid message format or contain invalid characters or character sequences).   BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

u. The system shall cater for the manual correction of erroneous messages, if the system cannot automatically correct the message as defined above.   BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

v. The system shall cater for each of the automatic actions to be configurable per client based on their capability.   BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.4.2   AMHS

a. The implementation of the functional objects, related procedures and protocols shall comply with ICAO Doc 9880. Furthermore, the System shall comply to the X.400 and X.500 base standards and profiles as specified by ICAO Doc 9880. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The main system shall implement an ATS Message Server supporting the Basic and the Extended ATSMHS. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The ATS Message Server shall furthermore be supported through the implementation of an X.400 MTA (Message Transfer Agent) and of an X.500 DS (Directory Server). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The main System shall implement the following ATSMHS Functional Groups, as defined in ICAO Doc 9880, being: Basic, IHE (IPM heading extension), FTBP (File transfer body part), DIR (Use of directory) and SEC (Security). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

e. The main System shall support the exchange of AMHS messages with other MTAs using the X.400 MTS Transfer Protocol (P1) and with User Agents or Message Stores using the X.400 MTS Transfer Protocol (P3) and X.400 MTS Access Protocol (P7). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f. The main System shall, in support of the extended ATSMHS, provide an ATS message user agent (MUA) that includes a Directory User Agent (DUA) supporting the Directory access protocol (DAP) profile and the DUA object classes and attributes types as specified in ICAO Doc 9880 Part IV. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

g. In addition to the specifications by ICAO Doc 9880, the following AFTN/AMHS gateway events shall be logged:

- MTA-bind,
- MTA-bind error, and
- MTA-unbind.

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

h. For the exchange of AMHS messages (using P1, P3 or P7) the Main System shall implement transport services in compliance with ICAO doc 9880 and 9896. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

i. The Main System shall support multiple, simultaneous associations without affecting each other. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

j. The Main System shall support multiple, simultaneous associations to a given adjacent MTA. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

k. The Main System shall allow modifications of AMHS configurations and routing without restarting the system. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.4.3   AFTN/AMHS Gateway

a. The Main System shall implement an AFTN/AMHS Gateway supporting the Basic and the Extended ATS Message Handling Service. In turn, this requires the implementation of an X.400 MTA, of a Message Transfer and Control Unit (MTCU) and of an X.500 DUA. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. In support of the Extended ATSMHS the Main System shall implement the following ATSMHS Functional Groups: Basic, IHE, DIR and SEC. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The Main System shall be able to support an access to the ATN Directory/EDS using the X.500 Directory Access Protocol (DAP). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The implementation of the functional objects, related procedures and protocols identified above shall comply with ICAO Doc 9880. In turn, this requires compliance to the X.400 and X.500 base standards and profiles as specified by ICAO Doc 9880. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

e. The AFTN/AMHS Gateway shall support the XF address scheme, the Common AMHS Addressing Scheme (CAAS) with full interoperability between these addressing schemes. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f. The AFTN/AMHS Gateway shall support a standard message priority scheme that can be mapped onto or derived from AFTN/AMHS priorities.   BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.4.4   AFTN/EMAIL Gateway

The system shall be able to perform the following functions:

a. On reception, convert an EMAIL message to an AFTN formatted message. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. On transmission, convert an AFTN formatted message to EMAIL. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.4.5 AFTN/AMHS Interface to ATNS Billing System

a. The main system shall cater for a billing solution that will provide daily/periodic files in comma separated values (CSV), based on the fields contained in a flight plan, to the ATNS Billing server. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The billing solution shall provide a graphical user interface (GUI) either accessible through the HMI or as a standalone application for configuration purposes. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The GUI shall allow for the selection/deselection of values as per defined FPL and FPL related message fields. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

    d. The GUI shall also allow for the configuration of the following parameters:

- Frequency of generation (daily, hourly, hour slice, etc.) as a scheduled tasks/crontab;
- Delivery method:
  - Email Addresses as attachment (ability to define multiple email recipients);
  - SCP (Secure Copy);
  - FTP (File Transfer Protocol)
- CSV file separation characters;

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

    e. The generated billing files shall be stored on the main system for a minimum retention period of 3 months (90 days). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

    f. The billing solution shall allow for the manual generation of the billing files. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

g. All generated billing files older than the minimum retention period, shall be deleted from the main system via a scheduled task/crontab. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.5 Message Functions

The system shall be able to perform the following message functions:

[a] Send, receive and re-route messages;

[b] Routing table cross checking to ensure delivery to valid AMHS/AFTN routings;

[c] Re-transmission of messages;

[d] Group [collective] addressing;

[e] Cross-referencing messages of the same flight;

[f] Handle ICAO and non-ICAO (i.e. AIDC, ADEXP, SITA, etc.) message formats;

[g] Message storing;

[h] Message archiving;

[i] Message search;

[j] Message retrieval;

[k] Message reprocessing;

[l] Statistical data management;

[m] Messages queues management;

[n] Overflow management; and

[o] Verify message formats, to ensure only the specified message formats are accepted by the system.

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.5.1 Message Creator, Submission and Delivery

a. The Main System shall provide an internal AFTN message creation facility (AFTN message composer) with the following features:

- menu-driven input of AFTN header (up to 21 addresses, priority, optional heading information) and message text;

- online checking mechanisms, e.g. checking for not allowed characters or character sequences;

- indication of message text length;

- full syntactical message check before the message is submitted.

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The Main System shall provide an internal AMHS message creation facility (AMHS user agent) with the following features:

- menu-driven input of the elements of an AMHS ATS message fully compatible with ICAO ATN SARPs message profiles AMH21,

- online checking mechanisms, e.g. checking for not allowed characters or character sequences;

- address book support,

- probes,

- full syntactical message check before the message is submitted.

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The Main System shall store the input (AFTN and AMHS) under a user definable name (template) for later reuse. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The Main System shall not limit the number of templates, (AFTN and AMHS) that can be stored. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

e. The Main System shall provide AFTN Terminals and AMHS mailboxes, which allow to directly send messages to the Main System. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f. Mailboxes shall be directly visible and shall indicate the number of pending messages (outbox) and the number of messages still to be read (inbox). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

g. It shall be possible to configure mailboxes with visible and audible alarm attributes. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

h. It shall be possible to assign multiple mailboxes to any defined AMHS user. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

i. It shall be possible to route, within the AMHS routing table, any recipient address to a defined AMHS (P1/P3/P7). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

j. The system shall allow access mailboxes for inspection (message viewer). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

k. The system shall cater for messages to be transferred from a mailbox into the internal AFTN message composer or AMHS user agent for further processing. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

l. The system shall cater for the generation of a reply message out of a mailbox message, where the destination address will be the originator's address. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.5.2   AFTN Test Message Generator Circuits

a. The Main system shall cater for an AFTN test message facility in accordance with ICAO Annex 10. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The Main System shall cater for the generation of AFTN test message generator circuits that will:

- generate and insert AFTN messages (up to 21 addresses, priority, message text) of random or fixed length and variable frequency,
- insert a defined number of AFTN messages,
- insert test AFTN messages permanently,
- act as message sink for incoming AFTN messages.

    BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The Main System shall cater for the activation and deactivation of AFTN test message generator circuits. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The Main System shall be able to handle several AFTN test message generator circuits in parallel. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

7.5.3   Re-transmission of messages

a. The Main System shall provide means to re-transmit AFTN and AMHS/X.400 messages from the message log. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The Main system shall allow messages to be selected for re-transmission using the same message selection criteria and combinations as detailed in "Search & Retrieval" under paragraph 7.5.4. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. It shall be possible to re-transmit messages to their original destinations and to re-route the messages (i.e. to input the messages into the routing process again). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The Main System shall allow the operator to control the message repetition load (e.g. by enabling the operator to issue the repetition of bulks of messages). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	

> *[INSERT FULL RESPONSE FOR EVALUATION HERE]*
>
> *[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]*

7.5.4   Message Storing, Search & Retrieval, and Tracing

Storing

a. The main System shall implement legal recording for the AFTN components as specified by ICAO Annex 10, Volume II and for traffic logging for the AMHS components as specified by ICAO Doc 9880. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The main System shall automatically record, store or save every AFTN message processed by the System, whether it is received, re-transmitted or generated for a period of at least 3 months (90 days). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. A message database for online access to the last 3 months (90 days) of recorded data shall be available. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The Main System shall record the text of received and of generated messages in their entirety. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

e. The Main System shall log each significant step in the processing of messages. This includes as a minimum AFTN/AMHS conversion, expansion of X.400 distribution lists, generation of related messages (e.g. AFTN service messages, X.400 reports). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f. The Main System shall log information on whether messages and/or addressees of the messages were paused and/or diverted during message processing. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

g. If several pausing or diversion operations were applied to a given message or its addressees, the message log shall provide an operation history up to a reasonable depth. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

Search & Retrieve

h.   The Main System shall retrieve messages from the message log using at least the following message selection criteria and combinations of them (by means of the Boolean expressions "and", "or", "not"):

- incoming AFTN circuits;

- incoming AMHS/X.400 circuits;

- outgoing AFTN circuits;

- outgoing AMHS/X.400 circuits;

- AFTN channel identifier in/out;

- AFTN channel sequence number in/out;

- AFTN priority;

- AMHS/X.400 priority;

- AFTN recipients;

- AMHS/X.400 recipients;

- AFTN filing time;

- AFTN originator;

- AMHS/X.400 originator;

- Message text patterns;

- Message Category;

- Message number.

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

Tracing

i.   It shall be possible to trace the message flow of all messages processed by the Main System. For instance, starting with a given message received by the Main System, it shall be possible to perform an immediate forward trace to all resulting messages transmitted by the Main System. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

j. It shall be possible to trace the message flow directly from AMHS/X.400 messages received to the resulting AFTN messages transmitted and vice versa for messages transported through the AFTN/AMHS gateway. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.5.5   Archiving

a. The main system shall include the function to archive the traffic logs and/or Main System events and parts of it. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The main system shall ensure that messages, traffic logs and events moved/copied from the "online" logs to an archive do not lose any information (i.e. the information in the log and in the archive shall be the same, when retrieving a message or system event from the log or from the archive will result in the same information being presented). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. Automatic Archiving: The Main System shall automatically generate daily archives of traffic and system event logs. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. Manual Archiving: The Main System shall be able to generate on request, from either a user or a system operator, archives of the "online" message and system event logs in the event that the automatic archive fails. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

7.5.6 Message Queues Management

a. The Main System shall maintain separate message queues for AFTN and AMHS/X.400 circuits. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The Main System shall allow the message queues to be inspected separately. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c. The Main System shall allow a message queue to be selected and shall display the messages contained in the message queue. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d. The Main System shall display messages contained in a circuit-specific message queue depending on their processing state. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

e. The Main System shall select messages contained in a message queue using the same message selection criteria and combinations as applicable and detailed in "Search & Retrieval" under paragraph 7.5.4. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f. The Main System shall allow the following functions to be applied on selected messages contained in a message queue:

- diversion to a different communication partner (only AFTN),
- de-blocking of paused messages,
- discarding (regular termination of the message transaction by operator intervention),
- performing non-delivery (AMHS only),
- reprocessing/rerouting (i.e. input the messages into the routing process again),
- tracing backwards.

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

g. The Main System shall provide means to configure message queue thresholds in terms of "number of messages in a message queue" and message overdue times. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

h. Message overdue times shall be configurable per AFTN or AMHS/X.400 message priority. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

i. The Main System shall inform the operator when the message queue thresholds are exceeded, or message overdue times are expired with corresponding message queue alarms. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

j. The main system shall include a message queue management function that ensures that no messages are lost during main system downtime and/or outage of a circuit (external interface connection). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

CHAPTER 4: SUB-SYSTEMS TECHNICAL SOFTWARE SPECIFICATIONS

8   SUB-SYSTEMS TECHNICAL SOFTWARE SPECIFICATIONS

8.1   AFTN/AMHS User Agent (UA) Subsystem

8.1.1   Application Software

a.   The application software of the AFTN/AMHS UA client/server Subsystem shall be delivered with the required software licenses.   BIDDERS shall provide supporting information and a list of software licences as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b.   The AFTN/AMHS UA Subsystem shall be installed and interconnected with the Main System.   BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c.   The AFTN/AMHS UA Subsystem shall be installed and commissioned with all the required software packages.   BIDDERS shall provide supporting information and a list of all software packages as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d.   The AFTN/AMHS UA Subsystem shall support operation on any commercial off-the-shelf (COTS) PC hardware and Operating Software (Microsoft Windows, Linux operating systems).   BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	

[INSERT FULL RESPONSE FOR EVALUATION HERE]

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

e. ATNS preference would be for the AFTN/AMHS UA Subsystem software to be an operating system independent application. (I)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f. The AFTN/AMHS UA Subsystem shall be based on scalable and easily extendable client-server architecture. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

g. The AFTN/AMHS UA Subsystem shall implement an ATS Message User Agent supporting the Basic and the Extended ATS Message Handling Service (ATSMHS). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

h. In support of the Extended ATSMHS the AFTN/AMHS UA Subsystem shall implement the following ATSMHS Functional Groups: Basic, IHE, FTBP, DIR and SEC. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

i. The AFTN/AMHS UA Subsystem shall support the exchange of AMHS messages with the MTA using the X.400 MTS Transfer Protocol (P3) and X.400 MTS Access Protocol (P7). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

j. The AFTN/AMHS UA Subsystem shall support the access to the ATN Directory/EDS using the X.500 DS (Directory Server). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

k. The implementation of the functional objects, related procedures and protocols shall comply with ICAO Doc 9880. In turn, this requires compliance to the X.400 and X.500 base standards and profiles as specified by ICAO Doc 9880. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

l. The AFTN/AMHS UA Subsystem software shall provide an AFTN application with the same look and feel to support message exchange via AFTN. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

m. The AFTN/AMHS UA Subsystem shall provide the following major services and characteristics:

- creating, editing, operating, transmitting, receiving, forwarding, sorting, searching, viewing, and printing messages and probes;

- support of XF and Common AMHS Addressing Scheme;

- support of AMHS free text messages;

- support of the X.400 file-transfer-body-part for conveyance of arbitrary contents, in case the AMHS Functional Group FTBP is implemented (attachments);

- independence of the client operating system;

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

n. The AFTN/AMHS UA Subsystem shall allow the configuration of at least 200 user mailboxes and the management of at least 500 registered users. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

o. The AFTN/AMHS UA Subsystem shall provide an online help system. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

p. The online help shall either be accessible via the navigation menu or context-sensitively from the corresponding template or application window. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

q. All data including user settings and access rights shall be stored in the database of the central server.   BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

r. The AFTN/AMHS UA Subsystem application shall provide at least the following services for system administrators:

- setup, editing, deletion and monitoring AFTN/AMHS UA users and groups,
- setup, editing, deletion and monitoring mailboxes,
- possibility to monitor the system health and the application health,

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

8.1.2   Message Creation and Transmission

a. The access protocol shall be HTTPS to secure the transmission of messages. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b. The AMHS UA shall parse entered data for compliance with destination capabilities before being accepted for transmission. Messages not conforming to the destination capabilities shall not be accepted for transmission and the 'User' shall be suitably notified. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

c.   The AFTN/AMHS UA Subsystem shall prevent users from sending erroneous or incomplete ATS messages in as far as it can be detected by the system. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

d.   To facilitate the message creation process, the AFTN/AMHS UA Subsystem shall provide ATS message forms. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

e.   The message forms provided by the terminal shall at least provide the following message types:

- FPL, DLA, CHG, CNL, DEP, ARR, AFP, CPL, EST, CDN, ACP, ALR, RCF, SPL, RQS., RQP
- NOTAM, SNOWTAM, ASHTAM,
- METAR, TAF, SPECI, AIRMET, SIGMET, RQM

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

f.   The message forms shall enable syntactic and (where appropriate) semantic validation. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	

> *[INSERT FULL RESPONSE FOR EVALUATION HERE]*
>
> *[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]*

g. The Subsystem shall support specifying custom message forms using a form editor. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

h. The form editor window shall allow specifying the message header (addressees, priority) and a message body. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

i. The custom forms shall be selectable in the same way as the predefined ones. A selection dialogue will be opened when accessing the respective menu item. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

j. Messages shall be checked on correctness during the message creation process. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

k. Where an error is detected, the particular text field within the message form shall be highlighted or indicated and supplemented by textual error description. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

l. The AFTN/AMHS UA Subsystem shall provide a free-text message entry message form. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

m. Flight routes shall be stored in the central database rather than on the terminal. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

n. The AFTN/AMHS UA Subsystem shall accept and deliver correctly formatted and addressed messages from the Main System to one or more mailboxes on the AFTN/AMHS UA terminal. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

o. The AFTN/AMHS UA Subsystem shall enable the user to search for, recall, display, operate, and print messages that are up to 3 months (90 days) days old. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

p.   The AFTN/AMHS UA ATS message templates shall enable the user to generate and submit new flight plans and related messages from previous plans and messages with a minimum of text re-entry. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

8.1.3   Message Management

a.   The AFTN/AMHS UA Subsystem shall support forwarding messages automatically based on filters. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

b.   The AFTN/AMHS UA Subsystem shall support monitoring of the same mailbox by multiple users concurrently. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

c.   The AFTN/AMHS UA Subsystem shall support the monitoring of multiple mailboxes by a single user. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)

Responding with C/PC/NC only without proof will not be accepted.

[INSERT FULL RESPONSE FOR EVALUATION HERE]

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

d. The AFTN/AMHS UA Subsystem shall be able to print message automatically. This function shall be configurable with the default selection being "off". BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)

Responding with C/PC/NC only without proof will not be accepted.

[INSERT FULL RESPONSE FOR EVALUATION HERE]

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

e. The AFTN/AMHS UA Subsystem shall support sorting incoming messages to message folders based on configurable filters. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)

Responding with C/PC/NC only without proof will not be accepted.

[INSERT FULL RESPONSE FOR EVALUATION HERE]

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

f. The AFTN/AMHS UA Subsystem shall offer an interface for automated systems to retrieve messages from the mailboxes via Simple Object Access Protocol (SOAP). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)

Responding with C/PC/NC only without proof will not be accepted.

[INSERT FULL RESPONSE FOR EVALUATION HERE]

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

g. This SOAP retrieval interface shall provide filter commands for ATS-related information such as message type, departure aerodrome, destination aerodrome, aircraft type, estimated off block time, and free-text. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)

Responding with C/PC/NC only without proof will not be accepted.

[INSERT FULL RESPONSE FOR EVALUATION HERE]

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

h. The AFTN/AMHS UA Subsystem shall offer an interface for automated systems to send messages via Simple Object Access Protocol (SOAP). BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

9   SYSTEM FUNCTIONAL REQUIREMENTS

9.1   Central Configuration and Software Server

A) The configuration of the Main System, the D&R system, Training and Evaluation System and the AFTN/AMHS UA Subsystem shall be maintained centrally by means of a configuration server. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B) The Main System, the D&R system, Training and Evaluation System and the AFTN/AMHS UA Subsystem application software shall be maintained centrally by means of a software server. Other software (e.g. operating system) is not affected by this requirement. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

9.2   Training and Evaluation System Operation

A) The Training and Evaluation system shall have several configuration sets (e.g. training system, test and evaluation system similar to the operational system, etc.) that can be selected and declared active. The different configuration sets shall be continuously maintained. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B) The re-configuration of the Training and Evaluation system shall be performed automatically, and no hardware or software modification shall be necessary. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

9.3   Dual Site Handling – D&R and Remote System Operation

A) The solution shall consist of a Main System and a Disaster and Recovery (D&R) system at a separate location. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B) The transition to the D&R system for continuation of the regular operational service, in case of emergency, shall be performed within fifteen (15) minutes from the time that the command is issued, given that the D&R system is operational, and all databases are synchronized. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

C) The D&R system operational databases (configuration, parameters, software releases, traffic, statistics, and events) shall be continuously updated from the main site to ensure a swift switchover without loss of data. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

D) Disruption of the network service shall not impact on the operation of the main system or the D&R system. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

E) The D&R system shall provide the same functionality as the Main System and maintain all interconnections. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

F) Activating the operational service at the D&R system shall be operator initiated. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

G) The switchover and transition from the main system to the D&R system (and vice versa) shall be transparent for remote systems. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

10 OTHER TECHNICAL REQUIREMENTS

10.1 Civil Works

A) The preparation of the site, such as installation of antennas incl. lightning protection (e.g. for GPS time signal), LAN infrastructure, etc. for the proposed system to be deployed in the locations as defined in Appendix A and Appendix B shall be catered for. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

10.2 Power Supply

A) The main system and all equipment supplied shall operate from a mains power supply as defined below:

- 230 VAC, Tolerance: +15%, -15%
- Frequency: 50 Hz, Tolerance: +2 Hz, -2 Hz

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

10.3 Environmental Conditions

A) The system and its auxiliary components shall operate continuously under the following environmental conditions without any degradation in performance.

Indoors

	Parameter	Value
1	Temperature	-5°C to +35°C
2	Relative Humidity	10% to 80% (non-condensing)

BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	

> *[INSERT FULL RESPONSE FOR EVALUATION HERE]*
>
> *[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]*

10.4 Communication Lines

A) The System cabinets shall provide connector panels for LAN and serial WAN connections. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B) Provision of LAN and serial WAN cabling from the Main Distribution Frame (MDF) to the cabinets. BIDDERS shall provide supporting information as part of the tender response. (D)

COMPLIANCE (C/PC/NC/Noted) *Responding with C/PC/NC only without proof will not be accepted.*	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

11 ENVIRONMENTAL AND SUSTAINABILITY REQUIREMENTS

The supplier of the AMSS system will be required to demonstrate social and environmental responsibility in terms of:

- Materials and Product Lifecycle
- Waste handling and disposal
- Energy Efficiency

11.1 Materials and Product Lifecycle

A) **Sustainable Procurement**: As part of the tender process the supplier will be required to indicate what measures are taken to address sustainability impacts of their product lifecycle i.e. manufacturing process of the equipment purchased must demonstrate social and environmental responsibility. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B) **Material safety**: Materials used shall be harm free (e.g. non-flammable and non-explosive) and therefore composition of materials will not in any way be a risk to human health, should a person be in contact with these materials. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

11.2 Waste handling and disposal

A) The utilisation of resources and disposal of the existing equipment and waste during various stages of the project shall take into consideration and adhere to the ATNS Integrated Waste Management Policy which is based on the National Environmental Management Act and National Environmental Management: Waste Act. Certificates of disposal shall be submitted to ATNS. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	

[INSERT FULL RESPONSE FOR EVALUATION HERE]
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

B) The applicable national regulations (including the section 28: Duty of care, of the NEMA) and environmental bylaws, as applicable, shall be adhered to. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

11.3 Energy Efficiency

A) As part of the tender process the supplier will be required to provide the most energy efficient equipment available and details on the power consumption for each component of the system shall be provided. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

B) The supplier shall furthermore indicate what energy efficiency measures were considered in the equipment, and associated infrastructure selected and proposed. (D)

COMPLIANCE (C/PC/NC/Noted)	
Responding with C/PC/NC only without proof will not be accepted.	
[INSERT FULL RESPONSE FOR EVALUATION HERE]	
[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]	

APPENDIX A: USER WORKSTATION LOCATIONS AND QUANTITIES

Fifty one (51) user workstations [UWS], consisting of hardware and software, shall be deployed countrywide as per the quantities and locations as described in the table below:

Airport	Location	Quantity
Bloemfontein Airport	Air Traffic Control Tower	1x UWS
Cape Town International Airport	Air Traffic Control Tower	1x UWS
	Flight Data Operator [FDO]	1x UWS
East London Airport	Air Traffic Control Tower	1x UWS
George Airport	Air Traffic Control Tower	1x UWS
Germiston Rand Airport	Air Traffic Control Tower	1x UWS
Grand Central Airport	Air Traffic Control Tower	1x UWS
Head Office [Bruma]	Aeronautical Information	1x UWS
	Finance [Billing]	1x UWS
Kimberley Airport	Air Traffic Control Tower	1x UWS
King Shaka International Airport	Air Traffic Control Tower	1x UWS
Kruger Mpumalanga International Airport	Air Traffic Control Tower	1x UWS
Lanseria International Airport	Air Traffic Control Tower	1x UWS
Mafikeng Airport	Air Traffic Control Tower	1x UWS
O. R. Tambo International Airport	Air Traffic Control Tower	1x UWS
	Aeronautical Reporting Office	10x UWS
	Aeronautical Rescue Coordination Centre	1x UWS
	Central Airspace Management Unit	1x UWS
	Flight Data Operator	1x UWS
Disaster & Recovery System	FAOR Emergency Tower	1x UWS
Disaster & Recovery System	SSS	4x UWS
Pietermaritzburg Airport	Air Traffic Control Tower	1x UWS
Pilanesberg Airport	Air Traffic Control Tower	1x UWS
Polokwane Airport	Air Traffic Control Tower	1x UWS
Port Elizabeth Airport	Air Traffic Control Tower	1x UWS
Richard's Bay Airport	Air Traffic Control Tower	1x UWS
Umthata Airport	Air Traffic Control Tower	1x UWS
Upington Airport	Air Traffic Control Tower	1x UWS
Virginia Airport	Air Traffic Control Tower	1x UWS
Wonderboom Airport	Air Traffic Control Tower	1x UWS
ATNS Training Academy	Training & Evaluation System	9x UWS

APPENDIX B: OPERATOR WORKSTATION LOCATIONS AND QUANTITIES

Eleven (11) operator workstations [OWS] shall be deployed as per the quantities and locations as described in the table below:

Airport	Location	Quantity
O. R. Tambo International Airport	Aeronautical Telecommunication Network	3x OWS
	Technical Support [Maintenance]	3x OWS
Disaster & Recovery System	Technical Support SSS Building	1x OWS
Disaster & Recovery System	SSS Building	2x OWS
ATNS Training Academy	Training & Evaluation System	2x OWS

THE END