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



**REQUEST FOR QUOTATION FOR THE APPOINTMENT OF A SERVICE PROVIDER FOR JUBA NAFISAT TERMINAL INSTALLATION, TESTING AND COMMISSION AT JUBA INTERNATIONAL AIRPORT**

**ATNS-EP- JUBA NAFISAT-190623**

**Juba NAFISAT VSAT Terminal Installation**

**Volume 2 - Part 1**

**TECHNICAL REQUIREMENT SPECIFICATIONS**

**19 JUNE 2023**

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# SCOPE

1. Air Traffic and Navigation Services Company Limited (ATNS) will be installing a VSAT terminal in Juba for the current private NAFISAT VSAT network that is used for fixed aeronautical ATS/DS, AFTN and ATN communications between main Air Traffic Control Centres in the North East African Regions (I).
2. The local South Sudan Civil Aviation Authority plans is planning for second terminal which shall be utilized for backup and training purposes. A quotation shall be provided regarding the additional terminal. ATNS reserve the right to include or exclude the additional in the contract (M).
3. The NAFISAT network is operated and maintained by ATNS from the ATNS operational centre, situated at the OR Tambo International Airport Operational Complex. (I).
4. The terminal based on the ND Satcom technology platform (I).

# INTRODUCTION

1. This document describes the technical parameters and requirements for the installation services of the VSAT terminal. Installation services include satellite terminal outdoor and indoor installation, setting to use, training and commissioning.

# RFQ RESPONSE

1. Bidders shall provide a written response to each paragraph in this Volume 2: Technical Requirement Specifications (M).
2. Requirements marked (I) are for information purposes and the bidders are required (M).
3. Failure to respond as instructed in 3.1 and 3.2 will result in the bid being regarded as non-responsive and subsequently disqualified.
4. Bidders are referred to the relevant paragraphs in Volume 1, stipulating the structure of the response to this tender and are advised to strictly follow these stipulations (M).
5. Any additional or supportive information that the Bidder feels is necessary for clarification shall be included and referred to in the response. (M)

# requirements for ats/ds CIRCUIT connectivity

## ATS/DS Circuit Requirements for the Juba

4.1.1 Table 1 below identifies the different ATS/DS voice circuits required from and between the Juba Air Traffic Control Centre in the North East African and adjacent Regions. The circuit interconnectivity requirements shall be correlated with the circuits depicted in the graphical representation under paragraph 4.1.1 above (M).

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| **COMPLIANCE (C/PC/NC/Noted)** |  |

4.1.2 The ATS/DS circuits as shown shall be catered for (M).

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| **COMPLIANCE (C/PC/NC/Noted)** |  |

**Table 1:** North East African State (Juba) ATD/DS communication circuits (NAFISAT Network) (M).

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| --- | --- |
| **ATS Circuit for Speech Communication** | **VSAT Network** |
| **Terminal I** | **Terminal II** |
| **South Sudan** |
| **Juba** | **Khartoum** | **NAFISAT**  |
|   | **Addid Ababa** | **NAFISAT**  |
|   | **Nairobi** | **NAFISAT**  |
|   | **Entebbe** | **NAFISAT**  |
|   | **Kinshasa** | **NAFISAT/ SADC2** |
|   | **Brazzaville** | **NAFISAT/AFISNET** |
|   | **N'Djamena** | **NAFISAT/AFISNET** |

# requirements for AFTN connectivity

## AFTN Circuit Requirements for Juba

5.1.1 Table 2 below identifies the different AFTN data circuits required from and between Juba Air Traffic Control Centres in the North East African and adjacent Regions. The circuit interconnectivity requirements shall be correlated with the circuits depicted in the graphical representation under paragraph 5.1.1 above (M).

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| **COMPLIANCE (C/PC/NC/Noted)** |  |

5.1.2 The AFTN circuits as shown shall be catered for (M).

**Table 2**: North East African States (Juba) AFTN communication circuits (NAFISAT Network) (M).

|  |  |
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| **Data Circuits for AFTN Communications** | **VSAT Network** |
| **Terminal I** | **Terminal II** |
| **South Sudan** |
| **Juba** | **Khartoum** | **NAFISAT**  |
|   | **Addid Ababa** | **NAFISAT**  |
|   | **Nairobi** | **NAFISAT**  |
|   | **Entebbe** | **NAFISAT**  |
|   | **Kinshasa** | **NAFISAT/ SADC2** |
|   | **Brazzaville** | **NAFISAT/AFISNET** |
|   | **N'Djamena** | **NAFISAT/AFISNET** |
| **COMPLIANCE (C/PC/NC/Noted)** |  |

# requirements for engineering voice and data connectivity

## Engineering Circuits Connectivity Requirements for the Johannesburg and Juba

6.1.1 Table 3 below identifies the engineering voice and data circuits required from and between the Network Maintenance Centres. (M).

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| **COMPLIANCE (C/PC/NC/Noted)** |  |

**Table 3**: Juba and Johannesburg engineering circuits (NAFISAT & SADC/2 Network) (M)

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| --- | --- |
| **Circuits for Data Communications** | **VSAT Network** |
| **Terminal I** | **Terminal II** |
| **South Africa** |
| **Johannesburg** | **Juba** | **NAFISAT/SADC/2** |
| **COMPLIANCE (C/PC/NC/Noted)** |  |

# ATNS vsat network CIRCUIT CONFIGURATIONS

## General Requirement

7.1.1 It is required that the two VSAT terminals be installed in Juba, main and additional as described in the scope of work. The paragraphs below provide details of services provided. It is required that the installation will provide the services as described (M).

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| **COMPLIANCE (C/PC/NC/Noted)** |  |

## Voice Circuit Requirement for ATS/DS Implementation on the NAFISAT and SADC/2 VSAT Networks

7.2.1 The tables under paragraph 4.0 above provide detailed information on the ATS/DS direct speech circuits implemented throughout the ATNS VSAT network. All voice circuits used for ATS/DS speech are at least ITU-T CS-ACELP G.729 or G.729A compliant. The end-user equipment are 2-Wire FXS/FXO compliant. Voice circuits are sized at 16 kbps duplex (each ½ circuit 8 kbps) (M).

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| **COMPLIANCE (C/PC/NC/Noted)** |  |

## Data Circuit Requirements for AFTN Implementation on the NAFISAT and SADC/2 VSAT Networks

7.3.1 The tables under paragraphs 5.0 above provide detailed information on the AFTN data circuits implemented throughout the VSAT network. The end-user AFTN equipment are RS-232 V.24/V.28 asynchronous serial data compliant. AFTN data circuits are sized at a maximum transmission burst rate of 9.6 kbps. The existing AFTN services shall be kept. (M).

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| **COMPLIANCE (C/PC/NC/Noted)** |  |

## Voice and Data Circuit Requirements for Engineering Circuit

7.5.1 Table 3 under paragraph 6.0 above provide detailed information on the existing engineering data circuit implemented between the Juba and the Johannesburg. All engineering data circuits are V.35 and/or X.21, X.27 (V.11) HDLC type synchronous serial data compliant. Engineering data circuits are sized at a maximum transmission burst rate of 64 kbps. (M).

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| **COMPLIANCE (C/PC/NC/Noted)** |  |

7.5.2 Table 3 under paragraph 6.0 also provides detailed information on the engineering voice circuits implemented between Juba and the Johannesburg. All engineering voice circuits are at least ITU-T CS-ACELP G.729 or G.729A compliant. Only 2-Wire FXS/FXO are be provided. Voice circuits are sized at 16 kbps duplex (each ½ circuit 8 kbps). (M).

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| **COMPLIANCE (C/PC/NC/Noted)** |  |