

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



**REQUEST FOR PROPOSAL NO:  
ATNS/TPQ/RPF051/23.24/ VCS REPLACEMENT**

**VCS REPLACEMENT AT NON-REGULATED  
AIRPORTS PROJECT**

**Volume 2**

**TECHNICAL SPECIFICATIONS**

**March 2024**

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**ABBREVIATIONS**

ACSA	Airports Company South Africa
ATA	Aviation Training Academy
ATC	Air Traffic Controller
ATM	Air Traffic Management
ATNS ATA	ATNS Aviation Training Academy
ATNS	Air Traffic and Navigation Services SOC. Ltd.
ATS	Air Traffic Service
ATSU	Air Traffic Service Unit
COTS	Commercial of-the-shelf
DS	Direct Speech
FAGM	Rand
FAKM	Kimberley
FAKN	Kruger Mpumalanga
FAMM	Mafikeng
FAPM	Pietermaritzburg
FAPN	Pilanesberg,
FAPP	Polokwane
FARB	Richards Bay
FAUP	Upington
FAUT	Umtata
FAVG	Virginia
FAWB	Wonderboom
HMI	Human Machine Interface
ICAO	International Civil Aviation Organisation
IEEE	Institute of Electrical and Electronics Engineers
NTP	Network Time Protocol
OEM	Original Equipment Manufacturer
OJTI	On-the-job Training Instructor
PABX	Private Automated Branch Exchange
PC	Personal Computer
PCUG	Private Closed User Group
PBU	Period of Beneficial Use
PTT	Press to Talk
RCM	Remote Control and Monitoring
SAN	Storage Area Network
SAT	Site Acceptance Test
SNMP	Simple Network Management Protocol
TCP/IP	Transmission Control Protocol/ Internet Protocol
UPS	Uninterrupted Power Supply
VCS	Voice Communication System
VHF	Very High Frequency
VPN	Virtual Private Network
WP	Working Positions

## DEFINITIONS

Within this document:

<b>Workstation</b>		Is defined as the generic term for a computer with associated monitor, keyboard and mouse.
<b>Controller Working Position (CWP)</b>		Provides the HMI between the System and the ATC.
<b>Technical Working Position</b>		Are the same as the Controller Working Position, except without a foot switch and different user level and access rights.
<b>VCS cabinet</b>		Contains the main system (servers), interface modules,
<b>Radio</b>		Use of radio refers to VHF radio.

## 1 GENERAL INSTRUCTIONS TO BIDDERS

The Tenderer shall submit all responses, diagrams, project management documentation and drawings according to the GENERAL INFORMATION AND INSTRUCTIONS TO TENDERERS 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 **Mandatory**, **Desirable**, **Optional** or for **Information** 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 Tenderer’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 in the column labelled “Compliance” 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 additionally supply supporting information in the space provided to demonstrate how the proposal meets the needs of ATNS.

For paragraphs marked “(M)”, indicates that the requirement is mandatory and proposals not compliant with the requirement shall be disqualified for further evaluation.

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

## **2 INTRODUCTION**

### **2.1 Project Overview**

Most of the regional airports in South Africa have single position control towers, with a simple radio control unit having a hand microphone and a desk speaker. The simple radio control unit would typically allow controllers to select between main and standby transmitters and receivers and change loudspeaker volume. Most regional airports have at least two Telkom (Local telecommunication service provider) phones and in some case three or even more. The most critical telephone line is either the ATS DS (Air Traffic Service Direct Speech) unit or PCUG (Private Closed User Group). Other telephone lines are normal Telkom subscriber lines.

The Voice Communication System (VCS) interface radio, telephone and intercom circuits into the loudspeaker, handset and headset. The VCS system also provides the interface to radio transmitters and receivers. The VCS system permits air/ground and ground/ground communication for aeronautical safety.

### **2.2 Project Scope**

This project calls for the procurement, supply, installation and commissioning of a new Voice Communication System (VCS) as replacement for the existing VCS as currently deployed in FAPM, FAVG, FAWB, FAPP, FAGM, FAUP, FAKM, FAPN, FAMM, FAKN and FAUT and a new VCS at FARB and ATA during the 2024/2025 financial year with associated maintenance and support contract and subsequent decommissioning and disposal of the old system.

This specification defines the requirements for the transition to the new VCS and the requirements for the system performance, training and the supporting infrastructure.

### **2.3 Project Deliverables**

- A. The Project shall replace the existing VCS with a new VCS in compliance with the International Civil Aviation Organisation (ICAO) requirements.
- B. The VCS shall maintain all existing connections and existing system interfaces.
- C. The VCS shall interface to telephone lines, VHF channels, working position background recording microphone and legal recording system.
- D. 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.
- E. The project shall deploy the latest technology and system functionality.

### **3 REFERENCES**

- A. EUROCAE ED-137 INTEROPERABILITY STANDARDS FOR VOIP ATM COMPONENTS
- B. EUROCAE ED-136 VOICE OVER INTERNET PROTOCOL (VOIP) AIR TRAFFIC MANAGEMENT (ATM) SYSTEM OPERATIONAL AND TECHNICAL REQUIREMENTS
- C. ICAO Doc 9896 (Part III, Paragraph 7.0, Voice over Internet Protocol (VoIP))



## **CHAPTER 1: GENERAL SPECIFICATIONS**

## 4 SYSTEM DEPLOYMENT

### 4.1 Airport ATSU's

- A. The VCS shall be deployed at the following airport ATSU's. The Bidder shall cater for the services and frequency allocations per airport. (D)

Nr	AIRPORT	SERVICES	FREQUENCY
1.	Pietermaritzburg (FAPM)	Tower (Main and Standby) Emergency	122,0 MHz 121,5 MHz
2.	Virginia (FAVG)	Tower (Main and Standby) Emergency	120,6 MHz 121,5 MHz
3.	Wonderboom (FAWB)	Tower (Main and Standby) Ground (Main and Standby) Emergency	118,35 MHz 120,6 MHz 121,5 MHz
4.	Polokwane (FAPP)	Tower (Main and Standby) Emergency	119,75 MHz 121,5 MHz
5.	Rand (FAGM)	Tower (Main and Standby) Emergency	118,7 MHz 121,5 MHz
6.	Upington (FAUP)	Tower (Main and Standby) Emergency	121,3 MHz 121,5 MHz
7.	Kimberley (FAKM)	Tower (Main and Standby) Approach (Main and standby) Emergency	118,2 MHz 119,4 MHz 121,5 MHz
8.	Pilanesberg, (FAPN)	Tower (Main and Standby) Emergency	118,4 MHz 121,5 MHz
9.	Mafikeng (FAMM)	Tower (Main and Standby) Emergency	119,3 MHz 121,5 MHz
10.	Kruger Mpumalanga (FAKN)	Tower (Main and Standby) Emergency	119,2 MHz 121,5 MHz
11.	Umtata (FAUT)	Tower (Main and Standby) Emergency	121,3 MHz 121,5 MHz
12.	Richards Bay (FARB)	Tower (Main and Standby) Emergency	118,9 MHz 121,5 MHz
13.	Aviation Training Academy (ATA)	N/A	N/A

**Table 1: ATSU Locations**

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

### 4.2 Quantities

- A. The VCS with the telephone interface, VHF radio interface, technical working positions and controller working positions shall be deployed as indicated in the table below. The Bidder shall confirm that their proposal covers the quantities and requirements stipulated in the table below. (D)

Nr	AIRPORT	TOTAL STATION	TELEPHONE INTERFACE	VHF RADIO INTERFACE	TECHNICAL WP's	CONTROLLER WP's	TOTAL WP's
1.	FAPM	2	2	3	1	2	2
2.	FAVG	2	2	3	1	2	2
3.	FAWB	3	4	5	1	3	4
4.	FAPP	2	2	3		2	2
5.	FAGM	2	4	3		3	3
6.	FAUP	2	4	3	1	2	3
7.	FAKM	2	4	5	1	2	3
8.	FAPN	2	3	3		2	2
9.	FAMM	2	3	3		2	2
10.	FAKN	3	4	3	1	2	3
11.	FAUT	2	2	3	1	2	3
12.	FARB	0	2	3	1	2	2
13.	ATA	1	2	2	3		3
	<b>TOTAL</b>				<b>8</b>	<b>26</b>	<b>34</b>

Table 2: VCS Quantities

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

#### 4.3 Layout and Design

- A. The VCS Controller Working Position layout and design shall incorporate the following requirements. The Bidder shall indicate how their proposal incorporates the requirements per airport stated. (D)

Nr	STATION	CONTROLLER WORKING POSITION LAYOUT
1.	Pietermaritzburg (FAPM)	The speaker and connector module separated from the VCS HMI.
2.	Virginia, (FAVG)	The speaker and connector module separated from the VCS HMI.
3.	Wonderboom, (FAWB)	The speaker and connector module separated from the VCS HMI.
4.	Polokwane (FAPP)	All CWP components (connector module and HMI and speakers) shall be in one unit.
5.	Rand (FAGM)	The speaker and connector module separated from the VCS HMI.
6.	Upington, (FAUP)	All CWP components (connector module and HMI and speakers) shall be in one unit.
7.	Kimberley (FAKM)	All CWP components (connector module and HMI and speakers) shall be in one unit.
8.	Pilanesberg, (FAPN)	The speaker and connector module separated from the VCS HMI.
9.	Mafikeng (FAMM)	All CWP components (connector module and HMI and speakers) shall be in one unit.
10.	Kruger Mpumalanga (FAKN)	The speaker and connector module separated from the VCS HMI. "FAKN has a console with two (2) steps. The HMI shall be installed on the top platform corresponding to the ATC working surface, and the speakers on the platform below the working surface."
11.	Umtata (FAUT)	The speaker and connector module separated from the VCS HMI. "The VCS HMI shall be on the console, while the speakers and connector module shall be mounted underneath the consoles' working surface."
12.	Richards Bay (FARB)	The speaker and connector module separated from the VCS HMI.

Table 3: CWP INSTALLATION REQUIREMENTS

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

- B. The connector module shall be positioned on the console such that it is easily accessible to the ATC operating from a seated position. Bidders shall provide supporting information as part of the tender response. (D)

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

**4.4 Deployment Locations**

- A. The VCS cabinet for Richards Bay (FARB) shall be installed inside the separate equipment shelter from the control tower, that will be made available by ATNS. (I)

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

- B. The VCS cabinet and VCS CWP's for the ATA shall be installed in the Electronics Laboratory. (I)

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

- C. The VCS cabinets and Technical WP's for all other stations shall be installed in the equipment room of the relevant ATSU. (I)

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

- D. The VCS CWP's shall be installed in the control tower cab at each airport. (I)

<b>COMPLIANCE (C/PC/NC/Noted)</b>	
-----------------------------------	--

*[INSERT FULL RESPONSE FOR EVALUATION HERE]*

**5 IT REQUIREMENTS**

- A. The VCS System design shall incorporate the principle of least functionality by identifying any unused/ unnecessary operating system and OS functionality, including protocols, ports, and services that could potentially be disabled or uninstalled in order to meet the ATNS Cyber Security Policy requirements. The disabling or uninstallation shall only be done in consultation with ATNS. Bidders shall indicate compliance and provide supporting information as part of the tender response. (D)

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

- B. The following principles shall be incorporated on the VCS System: Bidders shall indicate compliance and provide supporting documentation and statements for each of the sub-specification as stated below. (D)
  - a. The VCS System shall utilise Secure Services and ports, including, DNS over port 53.
  - b. The VCS System shall implement Secure Network protocols; including, NetBIOS, IPv6 and network interfaces; including, Bluetooth, IEEE 802.11, and infrared.
  - c. The VCS System shall implement secure methods of remote access via SSL, SFTP, SCP,
  - d. VPN, SSH, and IPSEC.
  - e. The VCS 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.
  - f. The VCS 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.
  - g. The VCS System shall implement Secure Authentication controls: including, password length, use of special characters, minimum password age, multifactor authentication/use of tokens.
  - h. The VCS 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.

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

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

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

The VCS System shall use approved, signed software, if supported.

i. The VCS System shall implement safeguards through software to protect end-user machines against attack, including, antivirus, antispayware, anti-adware, personal  
j. firewalls, host-based intrusion detection systems.

k. The VCS System shall apply network protections, including, TLS, IPSEC.

l. The network installation security requirements: for example, within a DMZ, on a specific subnet, as required, shall be defined for the VCS System.

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

Data loss prevention requirements shall be defined for the VCS System, i.e., Classify the  
p. 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.

q. The VCS System design shall cater for and ensure that, the installation is behind the firewall and Intrusion prevention systems.

r. If access from mobile devices are catered for, the VCS System shall incorporate mobile device security.

s. The VCS System design shall ensure that remote access to the application is only  
t. accessible via the VPN.

u. The VCS System design shall ensure that all applications are only accessible publicly via the firewall.

The VCS System shall implement access rights to enable role-based access control at application and device level.

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

## 6 GENERAL SPECIFICATIONS

### 6.1 Power Supply

A. The main system and all equipment supplied shall operate from the standard South African utility power supply as defined below:

- 230 VAC, Tolerance: ± 10%

- Frequency: 50 Hz, Tolerance: ± 5%

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

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

**6.2 Electrical Installation**

- A. The CWPs and VCS cabinets shall be wired to accept dual power feeds (essential and non-essential power feeds). Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The CWPs and VCS cabinets shall cater for a static switch to seamlessly switch between the two power feeds. Bidders shall provide supporting information as part of the tender response. (D)

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

- C. ATNS will make available (where feasible) two power feeds to each cabinet. (I)

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

- D. The system shall be delivered and installed with all required circuit breakers and cabling. Bidders shall provide supporting information as part of the tender response. (D)

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

<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>
--

E. Provision shall be made for a new electrical cable route at the ATA. This will require a hole through the wall between the distribution board (DB) and the Electronics Laboratory. Bidders shall provide supporting information and cost as part of the tender response. (D)

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

F. The system shall be connected to the mains power supply via dedicated essential power (UPS) plugs at ATA. Bidders shall provide supporting information as part of the tender response. (D)

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

G. New isolators to accommodate the new system shall be provided for the FAPM distribution board (DB). Bidders shall provide supporting information as part of the tender response. (D)

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

H. Provision shall be made to provide and install an additional essential power (UPS) plug point in the control tower cab at FAPN. Bidders shall provide supporting information as part of the tender response. (D)

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



### 6.3 Installation Certificates

- A. A Certificate of Compliance (CoC) shall be issued at each station for the electrical work done. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. All electrical works shall comply with the South African National Standards (SANS) 10142-1 The wiring of premises – Part 1: Low-voltage installations (Edition 3: 2020). Bidders shall provide supporting information as part of the tender response. (D)

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

### 6.4 Environmental Conditions

- A. The system and its auxiliary components shall operate continuously under the following indoor environmental conditions without any degradation in performance. Bidders shall provide supporting information as part of the tender response. (D)

	Parameter	Value
1	Temperature	0°C to +40°C
2	Relative Humidity	10% to 90% (non-condensing)

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

### 6.5 Decommissioning and Disposal

- A. The existing VCS shall be decommissioned and disposed of in line with the ATNS Integrated Waste Management Policy. (I)

<b>COMPLIANCE (C/PC/NC/Noted)</b>	
-----------------------------------	--

*[INSERT FULL RESPONSE FOR EVALUATION HERE]*

## **CHAPTER 2: SYSTEM FUNCTIONS AND PERFORMANCE**

## 7 MAIN SYSTEM

- A. The VCS system shall, as a minimum, provide communication interfaces to both digital and analogue Telephone lines, VHF transmitter and receiver radios. Bidders shall provide supporting information to confirm compliance as well as details of all communication interfaces supported by the system as part of the tender response. (D)

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

- B. The VCS system shall enable the ATC to communicate, from the respective controller positions, through Telephone lines, VHF radios and Intercom. Bidders shall provide supporting diagrams and information as part of the tender response. (D)

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

## 8 CONTROLLER WORKING POSITION

### 8.1 HMI Requirements

- A. The CWP shall be based on Touch Screen technology. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The Human Machine Interface (MHI) on the CWP shall provide the ATC access to a predetermined selection of radios and telephone channels and intercom services. Bidders shall provide supporting information and system capacity as part of the tender response. (D)

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

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

C. The HMI shall allow the ATC to select controls (buttons, links, sliding bars, pages, text etc) to activate the required response with a single touch. Bidders shall provide supporting information, pictures and diagrams as part of the tender response. (D)

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

D. The HMI shall, once a control has been selected or pressed, provide a positive and unambiguous indication that the control has been selected or pressed. Bidders shall provide supporting information as part of the tender response. (D)

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

E. The HMI shall cater for interfaces/ functions to be grouped and displayed on separate pages. Bidders shall provide supporting information, pictures and diagrams as part of the tender response. (D)

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

a.

F. The HMI shall cater for, at least, the following pages:

b.

Radio page – The page shall contain the selection of VHF transmitters and receivers. The page shall allow for a minimum of 8 radio channels to be displayed per page, depending on the screen size.

Telephone page – Provision shall be made for four (4) telephone pages. The pages shall be configurable to contain pre-programmed ATS telephone numbers or pre-programmed Communication Service Provider telephone numbers. The priority dialling sequence shall be configurable based on individual control position requirements. The pages shall allow for a minimum of 28 numbers or buttons to be displayed per page, depending on the screen size.

Dial-pad or keypad page - Provision shall be made for the manual dialling of non-pre-programmed numbers on the Communication Service Provider (Telkom) line.

Set-up page– A set-up or user configuration page that will cater for the set-up of individual user preferences such as: Adjust or mute the volume of headsets, the desk speakers, screen brightness or contrast and positioning of interactive controls, etc.

c. Information page - A separate page containing information on the position configuration, alarms, warnings and status of the VCS system etc.

d. Bidders shall provide supporting information, pictures and diagrams as part of the tender response. (D)

e.

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

G. The HMI shall display the status of each individual radio channel. Bidders shall provide supporting information, pictures and diagrams as part of the tender response. (D)

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

H. The HMI shall provide for each radio channel a separate main and standby radio button. Bidders shall provide supporting information, pictures and diagrams as part of the tender response. (D)

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

I. The HMI shall allow the controller to control the main/standby switching-over from the CWP by selecting either the main or the standby receiver or transmitter. Bidders shall provide supporting information, pictures and diagrams as part of the tender response. (D)

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

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]
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J. The HMI shall have the functionality to independently set-up the volume for the telephone/intercom, the frequency monitored and frequency in use. Bidders shall provide supporting information, pictures and diagrams as part of the tender response. (D)

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

K. The HMI shall present to the controller a pre-programmed crash alarm function. Bidders shall provide supporting information, pictures and diagrams as part of the tender response. (D)

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

L. The crash alarm function shall have the following attributes:

- a. The crash alarm shall be configurable to either be visible/appear or not on the screen.
- b. Access to the crash alarm shall always be available and displayed independently of the screen or page displayed.
- c. Activation of the crash alarm shall generate an audible sound at the airport fire station.

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

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

M. Access to pre-programmed functions, such as the crash alarm, shall always be available and displayed independently of the screen or page displayed. Bidders shall provide supporting information as part of the tender response. (D)

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

<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>
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N. The technical working position shall be the same as the controller working position except that there will not be a foot switch installed. (I)

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

O. The HMI shall clearly display the UTC (Universal Coordinated Time) time that is synchronised to the master clock via TCP/IP. The HMI displayed time must be an accurate source of reference. Bidders shall provide supporting information as part of the tender response. (D)

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

P. The font of the time displayed shall have a height of 12 millimetres (mm) and be readable in an ATC tower environment. Bidders shall provide supporting information as part of the tender response. (D)

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

**8.2 CWP sub-systems**

a.

**8.2.1 Foot Switch / Handset / Headset**

The CWP shall cater for the connection of desk speaker(s), foot switch, handset, headset and on-position recording microphone. Bidders shall provide supporting information as part of the tender response. (D)

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



The headset, footswitch, and desk speaker(s) shall be utilised primarily for VHF communication. Bidders shall provide supporting information as part of the tender response. (D)

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

The handset shall be utilised primarily for telephone conversations. Bidders shall provide supporting information as part of the tender response. (D)

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

The handset may also be used for VHF communication and the headset for telephone calls. Bidders shall provide supporting information as part of the tender response. (D)

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

The system shall cater for press to talk (PTT) to be activated from either the handset, headset button, or footswitch. Bidders shall provide supporting information as part of the tender response. (D)

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

**8.2.2 Headset Sockets**

The CWP shall have three headset connector sockets. The connections shall cater for:

- The ATC on duty
- On-the-job Training Instructor (OJTI) or Supervisor and,
- The student ATC or spare headset socket.

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

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

The CWP shall cater for the handover from the student ATC to the ATC on duty. whereby the ATC taking over the shift can plug in and listen, while OJTI and student ATC are still plugged in. Bidders shall provide supporting information as part of the tender response.

(D)

b.

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

The instructor shall have the capability to monitor the student ATC handover to the ATC on duty. Bidders shall provide supporting information as part of the tender response. (D)

c.

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

d.

The OJTI / Supervisor headset connector shall be the primary connection. This means that PTT activation by the OJTI / Supervisor shall override the ATCs PTT, thus preventing the ATC from transmitting. Bidders shall provide supporting information as part of the tender response. (D)

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

e.

The OJTI / Supervisor socket shall be clearly distinguishable from the other sockets. Bidders shall provide supporting information as part of the tender response. (D)

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

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

Connecting or disconnecting the headset shall not interfere with the legal recording signal presented to the recording system. Bidders shall provide supporting information as part of the tender response. (D)

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

Connecting or disconnecting headsets shall not impact on the intensity or volume of the signal presented to the recording system. Bidders shall provide supporting information as part of the tender response. (D)

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

Connecting or disconnecting headsets shall not impact on the intensity or volume of the signal presented to the other connection sockets. Bidders shall provide supporting information as part of the tender response. (D)

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

**8.2.3 Desk Speakers**

The CWP shall make provision for the channelling of the audio output to the desk speakers. Bidders shall provide supporting information as part of the tender response. (D)

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

The CWP shall detect if the headset is connected and automatically switch from speakers to headset communication and vice versa. Bidders shall provide supporting information as part of the tender response. (D)

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

Telephone calls shall be muted (inaudible) when the ATC is transmitting, but shall show on the HMI. Bidders shall provide supporting information as part of the tender response. (D)

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

The system shall enable the ATC to end a telephone call either on the HMI or by putting the headset down. Bidders shall provide supporting information as part of the tender response. (D)

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

There shall be no crosstalk between telephone and VHF communication services. Bidders shall provide supporting information as part of the tender response. (D)

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

## 9 AUDIO ROUTING “(SWITCHING UNIT)”

A. The System shall cater for the routing of the audio from the ATC to the external equipment (e.g. Transmitter, receiver and PABX) via the interface subsystem(s). Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The System shall cater for the routing of the audio received via the interface subsystem(s) from the external equipment to the ATC. Bidders shall provide supporting information as part of the tender response. (D)

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

- C. The system shall have redundancy in the switching unit to avoid common points of failure. Bidders shall provide supporting information as part of the tender response. (D)

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

## 10 TELEPHONE FUNCTIONALITY/ SERVICES

### 10.1 Telephone Calls

- A. The CWP's shall have access to all the telephone lines, via the interface subsystem(s), used at the control tower. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The VCS shall have a configurable grouping function to enable the ATC to initiate a telephone call to a pre-set ground party (or a predefined group of parties) by pressing a single key. Bidders shall provide supporting information as part of the tender response. (D)

<b>COMPLIANCE (C/PC/NC/Noted)</b> <i>Responding with C/PC/NC only without proof will not be accepted.</i>	
--	--

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

- C. The system shall cater for caller identification, whereby the HMI shall display the name or origin of the incoming telephone call. Bidders shall provide supporting information as part of the tender response. (D)

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

- D. The CWP shall provide a ringing tone when an incoming call is received. If the ATC is already on another call, the CWP shall provide a brief beep and a visual indication of the incoming call. Bidders shall provide supporting information as part of the tender response. (D)

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

- E. The system shall allow incoming telephone calls to be accepted on either the headset or the
  - a. handset. Bidders shall provide supporting information as part of the tender response. (D)
  - b. If the ATC is using a headset, incoming calls may be accepted by touching the ringing button on the HMI.  
The ATC may also accept incoming calls by picking up the handset from the cradle.

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

- F. Answering telephone calls shall not result in any signal level variation. Bidders shall provide supporting information as part of the tender response. (D)

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

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]
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- G. The System shall cater for an OJTI / Supervisor cut-in function to allow the OJTI / Supervisor to break in on an existing telephone call at another CWP. Bidders shall provide supporting information as part of the tender response. (D)

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

**10.2 Call Hold Function**

- A. The System shall cater for a hold or pause function on active calls, that will allow the ATC to continue with the call at a later stage, without having to release or drop the call. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The System shall cater for the simultaneously accept, hold and queue of up to five (5) incoming direct line calls. Bidders shall provide supporting information as part of the tender response. (D)

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

- C. The System shall allow the ATC to communicate with aircraft or to make other telephone calls, while an incoming call is on hold. The system shall notify a caller that he/she is on hold by means of a holding tone or similar means. Bidders shall provide supporting information as part of the tender response. (D)

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

<i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i>
--

- D. The system shall support at least six (6) incoming communications (One active and five in queue) at the same time. Bidders shall provide supporting information as part of the tender response. (D)

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

- E. The VCS shall enable the ATC to accept a call that has been initiated using an Indirect Access Code. Bidders shall provide supporting information as part of the tender response. (D)

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

**10.3 Conference Function**

- A. The System shall have a conference function that will allow several parties to share a common communication channel that enables them to talk to each other. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The System shall allow the ATC to add an incoming call into the currently active conference call. Bidders shall provide supporting information as part of the tender response. (D)

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



**10.4 Call Queue Function**

- A. The System shall have the capability to queue incoming calls and provide a visual indication to the ATC of the order they were received. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The System shall allow the ATC to accept the incoming queued calls in any order. Bidders shall provide supporting information as part of the tender response. (D)

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

**10.5 Manual Dialling**

- A. The System shall cater for the manual dialling of telephone numbers, thus allowing ATC to make calls to numbers that are not pre-programmed into the HMI. Bidders shall provide supporting information as part of the tender response. (D)

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

**10.6 Call Transfer Function**

- A. The System shall cater for the transfer of telephone calls from one controller position to another controller position. Bidders shall provide supporting information as part of the tender response. (D)

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

B. The System shall cater for Controller “A” to phone a number and then transfer the call to another controller position after a brief conversation or without conversation. Bidders shall provide supporting information as part of the tender response. (D)

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

C. It shall be possible to transfer incoming calls on the VCS system to an internal switchboard number or phone connected to the Centre exchange. Bidders shall provide supporting information as part of the tender response. (D)

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

D. It shall be possible to change a telephone call priority. Bidders shall provide supporting information as part of the tender response. (D)

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

a.

If controller “A” calls controller “B”, when controller “B” is already busy on another call, it shall be possible for controller “A” to press the priority button to intrude into the conversation of controller “B”. Bidders shall provide supporting information as part of the tender response. (D)

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

b.

Controller “A” shall be able to communicate with controller “B” without disconnecting the initial conversation. That means the person on the first telephone call with controller “B” will hear the conversation between controller “A” and controller “B”, with the ability to

partake in the conversation. Bidders shall provide supporting information as part of the tender response. (D)

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

E. The system shall cater for the transfer or redirection of selected pending incoming ground/ground (G/G) calls to another VCS CWP. Bidders shall provide supporting information as part of the tender response. (D)

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

**10.7 Call Diversion**

A. The System shall cater for call diversion, whereby any call (incoming from inside/outside the system) can be diverted to any phone. Bidders shall provide supporting information as part of the tender response. (D)

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

B. The System shall enable all telephone and intercom calls to be diverted to any operational CWP within the same operational centre. Bidders shall provide supporting information as part of the tender response. (D)

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

C. The System shall, when the call diversion function has been activated on a position, allow outgoing calls to be made; however, all incoming calls shall be diverted to the relevant

(identified) controller position. Bidders shall provide supporting information as part of the tender response. (D)

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

D. The System shall cater for the ATC to terminate active calls as well as end calls that have been initiated but have not yet been answered. Bidders shall provide supporting information as part of the tender response. (D)

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

**10.8 Redial**

A. The System shall have a redial function. Bidders shall provide supporting information as part of the tender response. (D)

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

B. The redial function shall present the ATC with a list of all dialled numbers, whether they are internal or external. Bidders shall provide supporting information as part of the tender response. (D)

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

C. The redial function shall allow the ATC to select the number to redial. Bidders shall provide supporting information as part of the tender response. (D)

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

- D. The System shall cater for a last connected number redial function. The function will enable ATC to quickly reconnect to the last number (dialled or received) even if the ATC does not remember where the call originated from. Bidders shall provide supporting information as part of the tender response. (D)

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

**11 RADIO FUNCTIONS/ SERVICES**

- A. The System shall have the required interface and connectivity that will enable the ATC to control and deliver effective radio communication between air traffic controllers and the pilot (Ground to Air and Air to Ground). Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The system shall cater for all CWP's to have access to and be able to select radio transmitter and receiver channels in either traffic mode or monitor mode. Bidders shall provide supporting information as part of the tender response. (D)

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

- C. The System shall support the switchover between main and standby radio equipment for both the transmitters and receivers. Bidders shall provide supporting information as part of the tender response. (D)

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

- D. The System shall cater for the switchover between the main and standby radio to be configurable as either automatic or manually. Bidders shall provide supporting information as part of the tender response. (D)

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

- E. The VCS shall incorporate PTT devices to activate the radio transmitter. Bidders shall provide supporting information as part of the tender response. (D)

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

- F. The System shall cater for simultaneous transmission via several selected frequencies if those channels are in traffic mode and PTT is activated. Bidders shall provide supporting information as part of the tender response. (D)

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

- G. The System shall automatically, when traffic mode is activated, cause the parallel monitor mode to be activated. Bidders shall provide supporting information as part of the tender response. (D)

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

- H. The System shall have the emergency channel permanently configured in monitoring mode at all CWP's that have this frequency. Bidders shall provide supporting information as part of the tender response. (D)

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

- I. The System shall present an "Out of Service" indication, on the HMI of the CWP, on the appropriate radio channel for both receivers and transmitters, when the radio channel becomes unavailable. Bidders shall provide supporting information as part of the tender response. (D)

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

- J. The System shall support the following standard radio functionalities: Bidders shall provide supporting information as part of the tender response. (D)

- a. Radio frequency coupling. The System shall have the capability to couple at least five (5) channels, i.e., five (5) different VHF facilities with different frequencies. This will enable the controller to broadcast on five (5) different frequencies simultaneously, whilst the aircraft under control can hear each other even if they are only tuned to one (1) of the five (5) frequencies.
- b.
- c.
- d. Best Signal Selection (BSS),  
CLIMAX operation, and  
Simultaneous Call Transmission (SCT) detection.

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

- K. The system shall minimize any distortion and interferences due to frequency coupling. Bidders shall provide supporting information as part of the tender response. (D)

<b>COMPLIANCE (C/PC/NC/Noted)</b> <i>Responding with C/PC/NC only without proof will not be accepted.</i>	
--	--

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

- L. The System shall have the functionality for the controller to listen via a headset to their own transmission. This will also enable the controller to hear if a pilot(s) is also transmitting at the same time. Bidders shall provide supporting information as part of the tender response. (D)

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

## 12 INTERCOM SERVICES

- A. The System shall cater for an intercom functionality to facilitate communication between the various controller positions. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The System shall distinguish and clearly indicate if an incoming or intercom call has been made from an ATNS ATC Operational position. Bidders shall provide supporting information as part of the tender response. (D)

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

## 13 OTHER FUNCTIONS

### 13.1 Recording And Playback Function

- A. The System shall cater for short-term recording of active telephone, intercom and radio calls to be performed at each CWP. Bidders shall provide supporting information as part of the tender response. (D)



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

B. The short-term recording shall be stored at the relevant CWP. Bidders shall provide supporting information as part of the tender response. (D)

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

C. The short-term storage capacity shall cater for at least one hour and 30 minutes of recording. That is 30 minutes for telephone, 30 minutes for radio and 30 minutes for intercom. Bidders shall provide supporting information as part of the tender response. (D)

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

D. The System shall automatically manage the memory at each CWP by deleting the oldest recording if the memory is full. Bidders shall provide supporting information as part of the tender response. (D)

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

E. Each recording shall be time-stamped. Bidders shall provide supporting information as part of the tender response. (D)

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

F. The system shall cater for the ATC to individually select any of the recordings for playback at the CWP. Bidders shall provide supporting information as part of the tender response. (D)

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

G. The System shall cater for a function on the CWP's HMI that shall provide the ATC with fast and easy access (single press of a button) to the last radio recording and playback without having to activate the short-term recording menu. Bidders shall provide supporting information as part of the tender response. (D)

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

H. The System shall pause playback in the event of an incoming call. Bidders shall provide supporting information as part of the tender response. (D)

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

I. The System shall record both radio and telephone calls at the CWP in the event that there is an active radio and telephone call at the same time. Bidders shall provide supporting information as part of the tender response. (D)

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

**13.2 Monitor Function**

A. The System shall cater for a CWP to monitor the radio and telephone voice conversations of another CWPs. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The System shall allow for the received audio, from the frequency in monitoring mode, to be presented to the ATC upon detection of squelch or voice detection. Bidders shall provide supporting information as part of the tender response. (D)

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

### 13.3 Audio split

- A. The System shall cater for the radio and telephone audio to be split between the left and right side of the headset. (e.g. left side of headset receives only radio calls while the right side of the headset receives only telephone audio). Bidders shall provide supporting information as part of the tender response. (D)

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

## 14 SOFTWARE

- A. The System shall be provided, delivered and installed with all the operating and application software on all the relevant machines. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. All the operating system (OS) and application software (AS) shall be provided on a suitable medium for re-installation on relevant machines. Bidders shall provide supporting information as part of the tender response. (D)

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

- C. The operating and application software shall be installed on a Commercial off-the-shelf (COTS) PC. Bidders shall provide supporting information as part of the tender response. (D)

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

- D. The System shall make provision for virus and malware protection software to be installed on all relevant machines. Bidders shall provide supporting information as part of the tender response. (D)

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

- E. There shall be no limitations on the number of software deployments required to monitor the system. Bidders shall provide supporting information as part of the tender response. (D)

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

- F. The system software shall support the air traffic control environment by enhancing safety and providing a stable platform with error detection and fault recovery. Bidders shall provide supporting information as part of the tender response. (D)

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

- G. The System shall cater for software updates or upgrades to be performed seamless, without resulting in system downtime. Bidders shall provide supporting information as part of the tender response. (D)

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

**15 TRAINING SYSTEM**

- A. The training system for the ATA shall be independent but identical to the operational system described herein. Bidders shall provide supporting information as part of the tender response. (D)

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

## **CHAPTER 3: TECHNICAL HARDWARE SPECIFICATIONS**

## 16 TECHNICAL HARDWARE SPECIFICATIONS

### 16.1 System Hardware Components

- A. The System hardware shall be based on COTS components as far as possible. Bidders shall provide supporting information as part of the tender response. (D)

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

### 16.2 CWP Devices

- A. Each of the CWP shall be delivered with the following compatible devices: Bidders shall provide supporting information as part of the tender response. (D)

One handset for each position

a. One footswitch

b. Three headset sockets

c.

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

- B. The headset sockets shall be compatible with the ATNS standard Sennheiser headset model HMD 46-3-6-PTT-L and model HME 46-3-6-PTT-L. The compatibility testing of the sockets to the headsets shall be pre-requisite at the factory acceptance testing prior to delivery to ATNS. Bidders shall provide supporting information as part of the tender response. (D)

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

- C. The footswitch shall be approximately 75 cm in length. Bidders shall provide supporting information as part of the tender response. (D)

<b>COMPLIANCE (C/PC/NC/Noted)</b> <i>Responding with C/PC/NC only without proof will not be accepted.</i>	
--	--

<p><i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i></p>
<p><i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i></p>

**16.3 HMI Display**

- A. The HMI touchscreen shall have an adjustable high-brightness display. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. Light reflection from the HMI screen shall be minimized. Bidders shall provide supporting information as part of the tender response. (D)

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

- C. It shall be possible to switch the touch screen “off and on” for cleaning of the screen. Bidders shall provide supporting information as part of the tender response. (D)

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

**16.4 VCS Interface Subsystem**

- A. The interface subsystem shall interface the VCS to all the external equipment including radios, telephones and recorders. Bidders shall provide supporting information as part of the tender response. (D)

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



[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

- B. The subsystem shall be composed of multiple line replacement unit (LRU) modules providing different interface functions. Bidders shall provide supporting information as part of the tender response. (D)

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

## **CHAPTER 4: SYSTEM INTERFACE REQUIREMENTS**

## 17 SYSTEM INTERFACE REQUIREMENTS

### 17.1 Interfaces

- A. The VCS shall be IP-based; however the system shall support an interface with both IP-based and analogue-based VHF radios, telephones and recording systems. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The system shall cater for interfacing with the following systems: Bidders shall provide supporting information as part of the tender response. (D)

Telephone

- a. Voice recording recorders,
- b. VHF Radios, and
- c. Local NTP server
- d.

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

- C. The VCS system shall cater for the following protocol interfaces: Bidders shall provide supporting information as part of the tender response. (D)

- c. 4 Wire Ear and Mouth (E&M);
- d. E0
- e. E1;
- VoIP; and
- ISDN

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

- D. The CWP sub systems as defined under paragraph 8.2 shall be compatible with the CWP sockets. Bidders shall provide supporting information as part of the tender response. (D)

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

- E. The CWP headset sockets shall be compatible with the ATNS standard headsets (Sennheiser headset model HMD 46-3-6-PTT-L and model HME 46-3-6-PTT-L). The user shall be able to connect the headsets to the VCS controller position by plugging into the socket on the VCS controller position when in use and unplugging when not in use. Bidders shall provide supporting information as part of the tender response. (D)

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

**17.2 Telephone**

- A. The VCS shall cater for a telephone interface that shall support: Bidders shall provide supporting information as part of the tender response. (D)
  - a. PABX,
  - b. Private Closed User Group (PCUG) lines,
  - c. Public Switched Telephone Network (PSTN) lines,

Note: At FAUP and ATA the telephones are connected at the Main distribution frame (MDF),

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

- B. The System shall support both IP-based and analogue-based telephone interface. Bidders shall provide supporting information as part of the tender response. (D)

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

- C. The System shall be delivered, installed and configured according to the requirements per station as stipulated in Table 2: VCS Quantities of this document. Bidders shall provide supporting information as part of the tender response. (D)

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

**17.3 Voice Recorders**

- A. The VCS shall cater for a voice recorder interface that shall support: Bidders shall provide supporting information as part of the tender response. (D)

The recording of line interface (radio and telephone) at each CWP position,

The recording of on-position audio from each CWP position. Bidders shall provide supporting information as part of the tender response.

- a.
- b.

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

- B. The System shall ensure that transmission and reception audio signal levels feeding into the recorders shall have the same amplitude. Bidders shall provide supporting information as part of the tender response. (D)

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

- C. The System shall support both IP-based and analogue-based recorder interface. Bidders shall provide supporting information as part of the tender response. (D)

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

D. The system shall make provision for a compatible interface to the recording system. Bidders shall provide supporting information as part of the tender response. (D)

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

**17.4 VHF Radios**

A. The VCS shall cater for a VHF radio interface that shall support at least the following: Bidders shall provide supporting information as part of the tender response. (D)

- IP-based VHF radios
- Analogue-based VHF radios

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

b. *[INSERT FULL RESPONSE FOR EVALUATION HERE]*

*[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]*

B. The System make provision for the expansion of the radio channels to cater for future radio expansions. Bidders shall provide supporting information as part of the tender response. (D)

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

C. The System shall be delivered, installed and configured according to the requirements per station as stipulated in Table 2: VCS Quantities of this document. Bidders shall provide supporting information as part of the tender response. (D)

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

D. The VCS shall cater for fibre optic connections at FAKM and FAUP. Bidders shall provide supporting information as part of the tender response. (D)

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

**17.5 Time Synchronization**

- A. The VCCS shall interface with the existing local NTP server. Bidders shall provide supporting information as part of the tender response. (D)

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

## **CHAPTER 5: SUPPORTING INFRASTRUCTURE REQUIREMENTS**



**18 CABLING MANAGEMENT**

- A. The System shall be provided, delivered and installed with the required communication cables and device between the equipment room and the tower cab at each station. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The System shall make provision for cabling as long as 15 m and two (2) stories high between the VCS cabinet equipment and the CWP. Bidders shall provide supporting information as part of the tender response. (D)

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

- C. All installation work shall be neat, cables shall be tied and labelled appropriately during the transitioning and after the new VCS is installed at its permanent position. Bidders shall provide supporting information as part of the tender response. (D)

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

- D. All cabling shall be documented in the as-built document (As stipulated in Volume 4). Bidders shall provide supporting information as part of the tender response. (D)

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

- E. Note: The cable route at FAUT is congested and a new cabling route or enlargement of the current hole from the equipment room to the tower cab or other intervention will be required. Bidders shall provide supporting information as part of the tender response. (D)

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

**19 EQUIPMENT CABINET**

- A. The VCS main system shall be supplied, delivered and installed in a 19-inch 42U equipment cabinet at each of the identified stations. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The equipment cabinet shall cater for a reserved space of at least 6U for the installation or re-location of the main and standby recorder equipment, except for ATA, FAWB and FAUP. Bidders shall provide supporting information as part of the tender response. (D)

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

- C. The equipment cabinets shall be accessible from the front and rear sides. Bidders shall provide supporting information as part of the tender response. (D)

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

- D. The equipment cabinets must be floor-standing and have good ventilation. Bidders shall provide supporting information as part of the tender response. (D)

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

[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]

- E. The equipment cabinet shall have a lockable front and normal back door. Bidders shall provide supporting information as part of the tender response. (D)

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

**20 UPS**

- A. The VCS system shall connect to an existing Uninterrupted Power Supply (UPS). (I)

Station	Current UPS Capacity and load
FAPM	Current UPS at 45% loading. New 10kVA planned.
FAVG	Current 10kVA UPS at 9 % loading.
FAWB	Current 10kVA UPS at 15% loading.
FAPP	Current 10kVA UPS at 10 % loading.
FAGM	Current 10KVA UPS at 15 % loading.
FAUP	Current 6 kVA UPS at 22% loading.
FAKM	Current 6 kVA UPS at 33% loading.
FAPN	Current 3 kVA UPS at 70 % loading.
FAMM	Current 20 kVA, UPS at 11 % loading.
FAKN	Current 8 kVA UPS at 50 % loading. (Not owned by ATNS)
FAUT	Current 6KVA UPS at 22% loading.
FARB	Current 3.6 kVA UPS at 60 % loading. New 2 x 3 kVA UPS planned.
ATA	Connected to the building generator.

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

**21 VCS MANAGEMENT AND CONTROL SYSTEM**

- A. The System shall cater for a management and control system. Bidders shall provide supporting information as part of the tender response. (D)

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

<p><i>[INSERT FULL RESPONSE FOR EVALUATION HERE]</i></p>
<p><i>[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]</i></p>

B. The management and control system shall enable the technical personnel to perform the following tasks: Bidders shall provide supporting information as part of the tender response.

(D)

- VCS Configuration (offline and online)
- VCS operating software update or upgrade
- Uploading of configuration files.

- a. Monitoring of the VCS health status
- b. Monitoring of ongoing telephone and radio communications
- c.
- d. Backup the configuration file of the VCS.

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

C. The management and control system shall provide the following information: Bidders shall provide supporting information as part of the tender response. (D)

- a. Management of configuration data
- b. Software and configuration data download
- c. Collection and display of system fault data
- d. Failures of any CWP equipment are presented at the management and control system, as well as at the affected position.
- e.
- f. Collection of system activity statistical data
- g. Synchronisation to an external time reference
- Maintaining the event log.

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

D. The VCS Management and Control System shall consist of a workstation/ Personal Computer (PC), with associated monitor, keyboard and mouse running the appropriate operating system and application software to perform functions stated above. Bidders shall provide supporting information as part of the tender response. (D)

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

- E. The System shall be delivered with the Management and Control System software in order for ATNS to be able to install it on any PC, meeting the requirements of the application software and fulfilling all requirements of the management and control required. Thus, ATNS shall be able to carry out the management and control of the system from any client PC. Bidders shall provide supporting information as part of the tender response. (D)

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

- F. All client PCs (as defined in E above) shall have direct access to the VCS Management and Control server, without having to connect to the fixed VCS Management and Control System PC (as defined in D above). Bidders shall provide supporting information as part of the tender response. (D)

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

- G. The Management and Control System shall cater for different user classifications, with at least two classifications, namely super or administrative user and normal user with different access rights. Bidders shall provide supporting information as part of the tender response. (D)

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

- H. The Management and Control System shall be password-protected against unauthorised access. Bidders shall provide supporting information as part of the tender response. (D)

<b>COMPLIANCE (C/PC/NC/Noted)</b> <i>Responding with C/PC/NC only without proof will not be accepted.</i>	
--	--

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

- I. Only one user (local or remote) shall be able to interact with the Management and Control System at a time and a second user must request control from the first user. Bidders shall provide supporting information as part of the tender response. (D)

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

- J. The Management and Control System user shall configure the CWPs separately before loading the configuration onto the CWPs. Bidders shall provide supporting information as part of the tender response. (D)

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

- K. The Management and Control System user shall be able to schedule configuration uploads for minor updates. Bidders shall provide supporting information as part of the tender response. (D)

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

- L. The Management and Control System user shall configure the frequencies and telephone contacts that are required at each CWP. Bidders shall provide supporting information as part of the tender response. (D)

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

**22 REMOTE CONTROL AND MONITORING**

- A. The System shall cater for the remote control and monitoring of the system from a remote location. Bidders shall provide supporting information as part of the tender response. (D)

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

- B. The Remote Control and Monitoring (RCM) tool shall enable the technical personnel to manage, monitor and control the VCS remotely. Bidders shall provide supporting information as part of the tender response. (D)

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

- C. The RCM tool shall be deployed at FAOR, FALE, FABL and FAEL to allow for the remote monitoring and control of stations to which they provided technical service as stated in Table 4: RCM tool locations below. Bidders shall provide supporting information as part of the tender response. (D)

Main stations	Regional airports Technical services provided for:
FAOR	FAPP, FAKN, FAMM, FAPN, FAWB and FAGM
FALE	FAVG, FARB and FAPM
FABL	FAKM and FAUP
FAEL	FAUT

**Table 4: RCM tool locations**

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

- D. The Remote Control and Monitoring tool shall connect to the remote sites via the existing ATNS secure and private MPLS network. The MPLS network is a secure and private network allowing for secure end to end connection between devices. Bidders shall provide supporting information as part of the tender response. (D)

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



## **CHAPTER 5: ENVIRONMENTAL AND SUSTAINABILITY Requirements**

## 23 ENVIRONMENTAL AND SUSTAINABILITY REQUIREMENTS

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

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

### 23.1 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. Bidders shall provide supporting information as part of the tender response. (D)

<b>COMPLIANCE (C/PC/NC/Noted)</b> <i>Responding with C/PC/NC only without proof will not be accepted.</i>	
[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. Bidders shall provide supporting information as part of the tender response. (D)

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

### 23.2 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. Certificates of disposal shall be submitted to ATNS. Bidders shall provide supporting information as part of the tender response. (D)

<b>COMPLIANCE (C/PC/NC/Noted)</b> <i>Responding with C/PC/NC only without proof will not be accepted.</i>	
--	--

[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 shall be adhered to. Bidders shall provide supporting information as part of the tender response. (D)

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

**23.3 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. Bidders shall provide supporting information as part of the tender response. (D)

<b>COMPLIANCE (C/PC/NC/Noted)</b> <i>Responding with C/PC/NC only without proof will not be accepted.</i>	
[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. Bidders shall provide supporting information as part of the tender response. (D)

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

**Appendix A: Transitioning Information****New VCS CWP - Space availability for transitioning.**

	<b>STATION</b>	<b>SPACE AVAILABILITY</b>
1.	FAVG	Limited space. New VCS can be positioned in one of the old VCS positions, as we have two on the northern side of the tower cab.
2.	FAPM	Standby position
3.	FAWB	On the step-down platform of the console below and behind the ATC working surface on the console
4.	FAPP	Enough space on the consoles to accommodate the new units during the transition.
5.	FAGM	Limited space. The unit is very busy. The installation will have to be conducted outside the tower's operating hours
6.	FAUP	Enough space on the consoles to accommodate the new units during the transition.
7.	FAKM	On the right-hand side or left-hand side of the console when facing the manoeuvring area or the table in the middle.
8.	FAPN	Enough space on the consoles to accommodate the new units during the transition.
9.	FAMM	Enough space on the consoles to accommodate the new units during the transition.
10.	FAKN	Enough space on the console to accommodate another controller position.
11.	FAUT	There is space on the console. FAUT will make arrangements to accommodate the new CWP.
12.	FARB	Enough space on the console. Currently no VCS

**VCS Cabinet - Space availability for transitioning**

	<b>STATION</b>	<b>SPACE AVAILABILITY</b>	<b>COMMENT</b>
1.	ATA	On the desk in the Electronics lab	The current equipment shall not be removed before or after the installation of the new system as it is used for training other nations.
2.	FAUP	Equipment room Two stories below the tower	Empty cabinet located in the equipment
3.	FAKM	No space for an additional rack	Transition plan to address space limitation in the equipment room.
4.	FAGM	In the boardroom	Not enough space in the equipment room for both current and new VCS.
5.	FAWB	At the space between the radio and the current VCS cabinet.	There are currently two VCSs (Schmid Rev-C and Schmid Rev-B). One is not operational.
6.	FARB	The new rack will be installed in the equipment shelter.	This is a new VCS installation at this station
7.	FAVG	Equipment room	There is enough space in the equipment room
8.	FAPM	There is space of 1 m x 1 m available in the equipment room next to the NDB cabinet.	Radio and VCS are currently in different rooms. Radios on floor 1 and VCS on floor 2.
9.	FAPN	Outside equipment room next stairs.	There is limited space. A better solution to be investigated as the project progresses.
10.	FAUT	There is space for the new VCS rack	N/A
11.	FAKN	No space for an additional rack	Transition plan to address space limitation in the equipment room.
12.	FAPP	No space for an additional rack	Transition plan to address space limitation in the equipment room.
13.	FAMM	There is enough space in the equipment room for an additional rack	

**THE END**