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

**REPUBLIC OF SOUTH AFRICA**

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**REQUEST FOR BID/TENDER: ATNS/RFP043/22/23/VHF COASTAL COVERAGE**

**VHF COASTAL COVERAGE PROJECT**

**Replacement of VHF Infrastructure and equipment shelters**

**VOLUME 0**

**INFORMATION SHEET**

**Version 1**

**September 2022**

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| ABBREVIATIONS |

AC Alternating Current

ACC Area Control

APP Approach Control

ATC Air Traffic Controller

ATCC Air Traffic Controller Centre

ATIS Automatic Terminal Information Service

ATM Air Traffic Management

ATNS Air Traffic and Navigation Services SOC Ltd

ATS Air Traffic Service

COTS Commercially off the Shelf

DB Distribution Board

DC Direct Current

DSB Double Side Band

EIA Environmental Impact Assessment

EMC Electromagnetic compatibility

FAT Factory Acceptance Test

FIR Flight Information Region

FIS Flight Information Service

FRS Forward Relay Station

ICAO International Civil Aviation Organization

LRU Line Replaceable Units

OEM Original Equipment Manufacturer

PBU Period of Beneficial Use

P, H, S & T Packaging, Handling, Storage and Transportation

RF Radio Frequency

RCMMS Remote Control Monitoring and Maintenance System

RSE Remote Switching Equipment

RX Receiver

SACAA South African Civil Aviation Authority

SAT Site Acceptance Test

SLA Service Level Agreement

TCP/IP Transmission Control Protocol/Internet Protocol

TWR Tower

TX Transmitter

URS User Requirement Statement

VHF Very High Frequency

V-SAT Very Small Aperture Terminal

VoIP Voice over Internet Protocol

# PRELIMINARY

## Background

ATNS is currently busy with the upgrading of the VHF transmitters and receivers’ sites in the inland part of the country. This project has been initiated to address the requirement for the end-of-life replacement of the VHF transmitters and receivers at existing sites, and the enhancement of the VHF services to ensure sufficient coverage along the coastal route between King Shaka and George.

The existing sites were analyzed to confirm the requirement for replacement as well as identifying shortcomings in delivering the required VHF communication services.

The VHF costal coverage project is intended for:

* Replacement of aging VHF equipment.
* Maintenance and refurbishment of supporting infrastructure.
* Improving service delivery, by improving VHF coverage.
* Supporting new technology (VoIP)

The current VHF system configuration can be divided into:

* Transmitter Sites: Installed at local sites and consisting of all transmitters for the day-to-day operations, Forward Relay Operations and ATIS Operations with a Main/Standby System.
* Receiver Sites: Installed at terminal facilities and consisting of all receivers for the day-to-day operations and Forward Relay Operations with a Main/Standby System.
* Emergency Site: Installed at the terminal facility and consisting of all the transmitters and receivers for the Emergency Operations.

Table 1 below provides a list of the existing VHF coastal sites, associated equipment and their geographical locations.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Site Name** | **Type**  **(TX, RX)** | **Building/Shelter (Brick/Container)** | **Geographical Coordinates** | |
| King Shaka Int’l Airport | TX | Radar Site Brick building | 29 35 56 S | 31 07 14 E |
| King Shaka Int’l Airport | RX | ATC Tower | 29 36 27 S | 31 06 43 E |
| King Shaka Int’l Airport Emergency | TX/RX | ATC Tower | 29 36 27 S | 31 06 43 E |
| Pietermaritzburg Airport | TX/RX | ATC Tower | 29 38 36 S | 30 23 48 E |
| Virginia Airport | TX/RX | ATC Tower | 29 46 24 S | 31 03 21 E |
| Louwsburg FRS | TX/RX | Brick building | 27 33 43 S | 31 16 22 E |
| Mount Ayliffe FRS | TX/RX | Brick building | 30 50 11 S | 29 23 41 E |
| Port Elizabeth Transmitter site | TX | Radar Site Brick building | 33 59 36 S | 25 36 40 E |
| Port Elizabeth Receiver site | RX | Brick building | 33 59 01 S | 25 36 25 E |
| Port Elizabeth Emergency | TX/RX | ATC Tower | 33 59 01 S | 25 36 45 E |
| Humansdorp FRS | TX/RX | Brick building | 34 57 95 S | 24 46 44 E |
| East London Transmitter Site | TX | Old container | 3301 41 S | 274756 E |
| East London Receiver Site | RX | Old container | 3301 41 S | 274756 E |
| East London Emergency | TX/RX | ATC Tower | 33 01 58 S | 27 49 26 E |
| Bisho FRS | TX/RX | Brick building | 32 53 43 S | 27 1716 E |
| Umthatha FRS | TX/RX | Brick building | 31 32 47 S | 28 40 31 E |
| Queenstown Mount Madeira FRS | TX/RX | Rented Brick building | 31 52 23 S | 26 49 45 E |
| George Transmitter site | TX | Brick building | 34 00 08 S | 22 22 26 E |
| George Receiver site | RX | Brick building | 34 00 37 S | 22 22 33 E |
| George Emergency | TX/RX | ATC Tower | 34 00 06 S | 22 22 56 E |
| Potjiesberg FRS | TX/RX | Old Container (1997) | 33 43 25 S | 23 03 03 E |

Table 1: VHF Coastal Facilities

The following new site, as tabulated in Table 2, will be established as a FRS to cater for short comings and to provide coverage improvement for the King Shaka control centre.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Site Name** | **Type**  **(TX, RX)** | **Building/Shelter (Brick/Container)** | **Geographical Coordinates** | |
| Richards Bay Airport | TX/RX | Shelter | 28 44 11 S | 32 05 39 E |

Table 2: New VHF site to be established

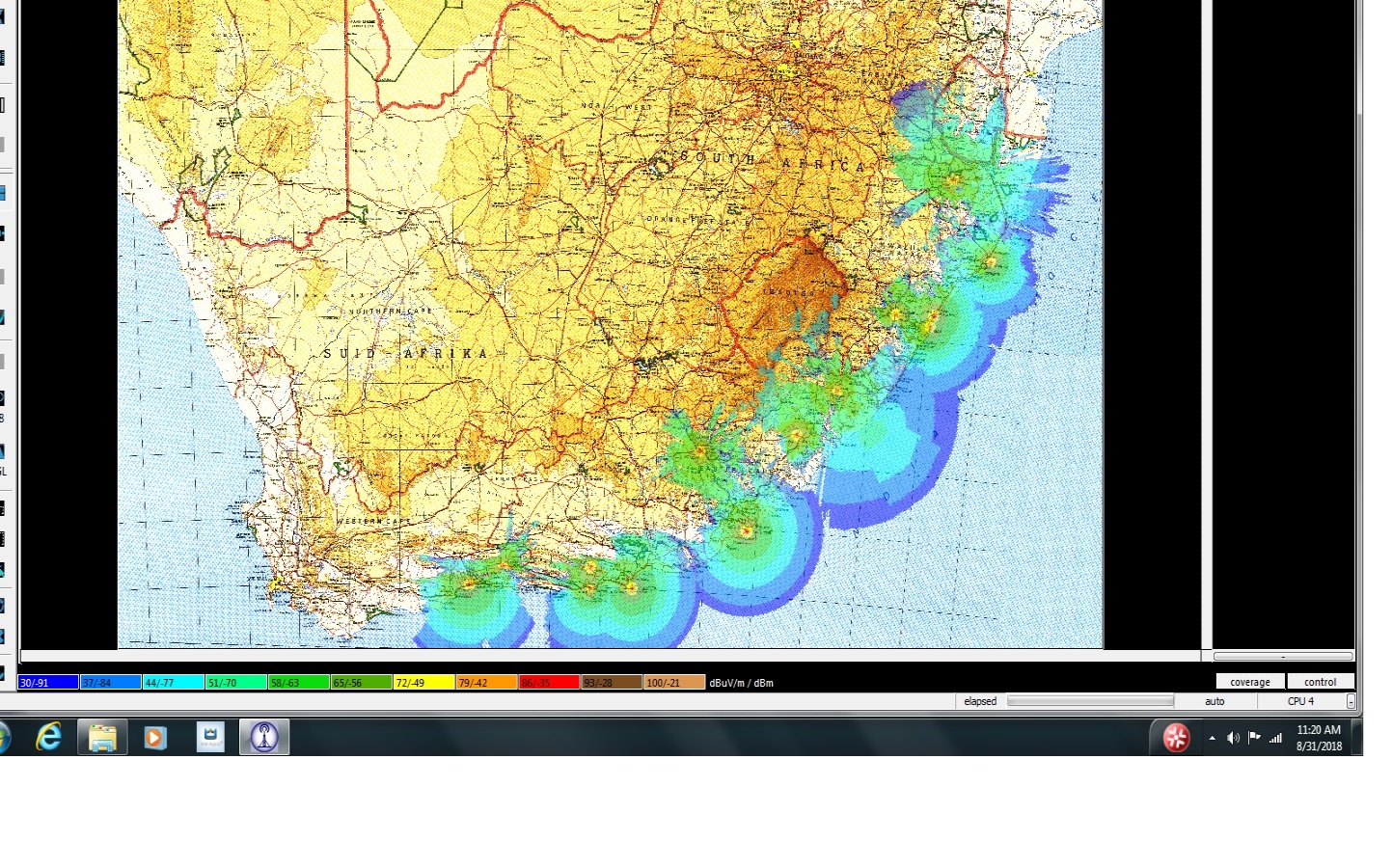
The ATNS Aviation Training Academy will be equipped with a training system as indicated in Table 3 below, in order to provide training for technical staff and to be used as a test facility.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Site Name** | **Type (TX, RX)** | **Building/Shelter** | **Geographical Coordinates** | |
| **Aviation Training Academy (ATA)** | | | | |
| ATA Transmitter | TX | Brick building | 26 08 13 S | 28 14 59 E |
| ATA Receiver | RX | Brick building | 26 08 13 S | 28 14 59 E |

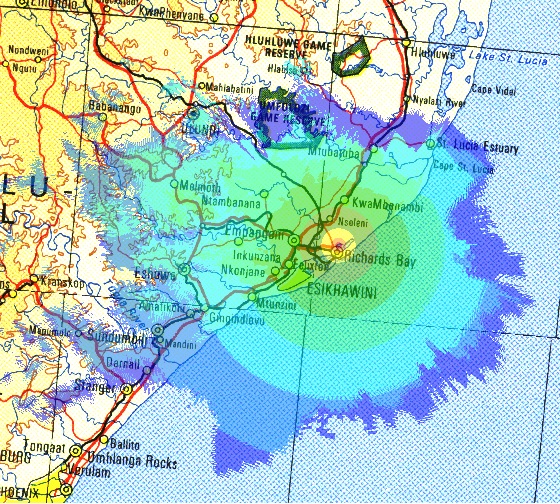
Table 3: Training Facility

## Coverage

The current VHF coastal coverage for the forward relay stations (FRS) and on-airport transmitters and receivers are presented in Figure 1 below. At some stations the transmitters and receivers are co-located, hence will be depicted as one coverage.

Figure 1 : VHF Coverage at 1500 feet

The anticipated coverage for the proposed location of the new FRS at Richards Bay airport is provided in Figure 2 below. The height of the antenna was assumed to be 5 metres above ground level to cater for the restrictions of the nearby VOR facility.

Figure 2 : Richard Bay (FARB) FRS Coverage at 1500 feet

## Existing Communication infrastructure

An integral part of the VHF system is the RCMS (Remote Control and Monitoring System) communication infrastructure, that enables maintenance personnel to perform maintenance activities on the VHF system from a remote maintenance position.

A fixed line fibre optic communications network (OTN – Open Transport Network) is used to connect the local on airport VHF system to the operational center.

The Forward Relay Stations (FRS) are remotely controlled radio stations housing transmitter/receiver combinations which are controlled by the ATC at the main centres. They are linked to the appropriate ATCC using leased terrestrial circuits.

Figure 3 below, provides a pictorial view of the current configuration of the communication layout for a terminal facility (on-airport) and Forward Relay Stations (remote site).

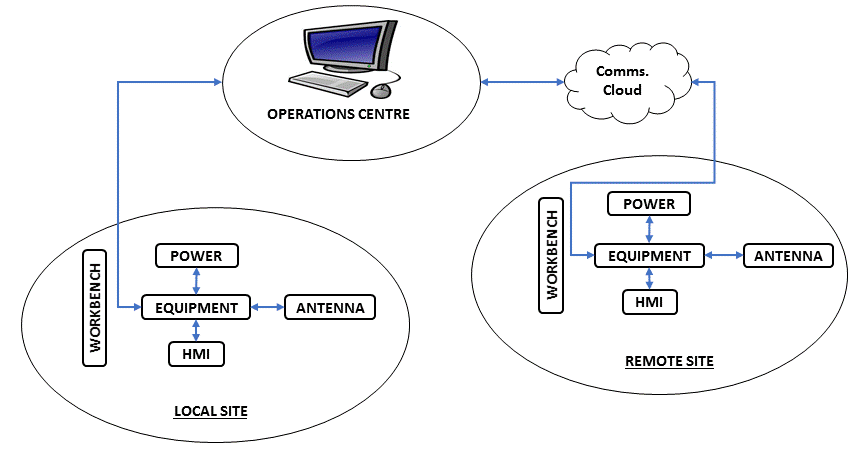


Figure 3 : VHF System Overview

# SCOPE OF WORK

## Programme Goal

The goal of the project is to replace the existing VHF system in the coastal areas, as identified herein, including the supporting infrastructure to address the end of life problems and enhance the coverage to ensure seamless communication between the ATCs and the pilots.

## Scope of work overview

The scope of the project can be defined as the replacement of the existing VHF network within the coastal area between George Airport and King Shaka International Airport and expanding the network to support the required coverage, while at the same time ensuring that the supporting infrastructure is upgraded to support the VHF system for the next 15 years.

The project will also include:

1. Civil works, where required;
2. Decommissioning of existing equipment;
3. Installation of backup power, where required
4. Communication links interfacing;
5. Initial environmental screenings for identifying any environmental authorizations that may be required;
6. Replacement of shelter or refurbishment of building (where applicable);
7. Establishment of new sites (if operationally required and motivated);
8. Lease agreement review/renewal and new lease agreements (where applicable);
9. Replacement or enhancement of site security, where required;
10. Replacement of the existing Remote-Control Monitoring and Maintenance System (RCMMS);
11. Provision of basic and advanced training to maintenance personnel; and
12. Maintenance and support of the VHF systems.

# REQUIREMENTS PER SITE

## King Shaka International Airport (FALE) Sites

### FALE Transmitter site (King Shaka International Airport)

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Transmitter site |
| Location: | FALE Radar Building |
| Maintenance Centre: | FALE |
| VHF Equipment and Services: | **18 Transmitters (TX)**  118.450 MHz Aerodrome Tower (Main & Standby)  121.650 MHz Ground Movement Control (Main & Standby)  125.750 MHz Approach (Main & Standby)  129.100 MHz FAOR ACC-East (Main & Standby)  127.000 MHz DATIS (Main & Standby)  131.000 MHz Alternative (Main & Standby)  124.200 MHz TIBA (Main & Standby)  121.500 MHz Emergency (Main & Standby)  123.400 MHz Spare (Main & Standby) |
| Antennas: | 4 |
| Communication Medium: | OTN Fiber for RCMS (MARC) and OTN for 4 Wire E&M |
| Mast: | Antennas mounted around the railing of the walkway on the Radar balcony |
| **Supporting Infrastructure** |  |
| Backup Power Supply | Not required.  (Fed via the building UPS which is backed by generator. No need to include in this project as there is currently another project working on the UPS replacement for FALE building) |
| Air Conditioner: | Replace air conditioner (dual operation) |
| **OTHER** |  |
| Refurbishment: | None required. |
| Electrical: | All lights to be replaced with LED lighting, connection of mains, lightning protection, DB board, earthing, ECC |
| Access: | Permit required |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### FALE Receiver Site

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Receiver site |
| Location: | FALE Control Tower Building |
| Maintenance Centre: | FALE |
| VHF Equipment and Services: | **16 Receivers (RX)**  118.450 MHz Aerodrome Tower (Main & Standby)  121.650 MHz Ground Movement Control (Main & Standby)  125.750 MHz Approach (Main & Standby)  129.100 MHz FAOR ACC-EAST (Main &Standby)  131.000 MHz Alternative (Main &Standby)  124.200 MHz TIBA (Main &Standby)  121.500 MHz Emergency (Main &Standby)  123.400 MHz Spare (Main &Standby) |
| Antennas: | 2 |
| Communication Medium: | OTN Fiber for RCMS (MARC) and OTN for 4 Wire E&M |
| Mast: | Antennas mounted on roof of FALE Control Tower |
| **Supporting Infrastructure** |  |
| Backup Power Supply | Not required.  (Fed via the building UPS which is backed by generator. No need to include in this project as there is currently another project working on the UPS replacement for FALE building) |
| Air Conditioner: | None require as they use the building HV/AC |
| **OTHER** |  |
| Refurbishment: | None required. |
| Electrical: | All lights to be replaced with LED lighting, connection of mains, lightning protection, DB board, earthing, ECC |
| Access: | Permit required |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### FALE Emergency Radios

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Transmitter/Receiver site |
| Location: | FALE Control Tower Building |
| Maintenance Centre: | FALE |
| VHF Equipment and Services: | **7 Transmitters (TX) + 7 Receivers (RX)**  118.450 MHz Aerodrome Tower (TX & RX)  121.650 MHz Ground Movement Control (TX & RX)  125.750 MHz Approach (TX & RX)  131.000 MHz Alternative (TX & RX)  124.200 MHz TIBA (TX & RX)  121.500 MHz Emergency (TX & RX)  123.400 MHz Spare (TX & RX) |
| Antennas: | 2 |
| Communication Medium: | Fiber Multiplexer for 4 Wire E&M and OTN (fiber) for RCMS (MARC) |
| Mast: | Antennas mounted on roof of FALE Control Tower |
| **Supporting Infrastructure** |  |
| Backup Power Supply | Not required.  (Fed via the building UPS which is backed by generator. No need to include in this project as there is currently another project working on the UPS replacement for FALE building) |
| Air Conditioner: | None required as they use the building HV/AC |
| **OTHER** |  |
| Refurbishment: | Painting of walls, lighting required, site evaluation required |
| Electrical: | All lights to be replaced with LED lighting, connection of mains, lightning protection, DB board upgrade, earthing, ECC |
| Access: | Permit required |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### Pietermaritzburg (FAPM) FRS

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Forward Relay Station |
| Location: | FAPM Control Tower Building |
| Maintenance Centre: | FALE |
| VHF Equipment and Services: | **7 Transmitters (TX) + 7 Receivers (RX)**  122.000 MHz Aerodrome Tower (Main & Standby)  125.750 MHz FALE APP (Main & Standby)  124.200 MHz TIBA  124.400 MHz GFA  121.500 MHz Emergency |
| Antennas: | 4 |
| Communication Medium: | Local frequency is connected via copper cable (4Wire E&M) to the VCS onsite. The RCMS (MARC) is copper cable via the Telkom MARTIS node to the Telkom MARTIS node at FALE and copper to the VCCS. FRS also uses 4Wire E&M on MARTIS to FALE. |
| Mast: | Antennas mounted on roof of FAPM Control Tower |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS must be replaced. |
| Air Conditioner: | Dual system.  (Evaluation would need to be done on site to determine replacement need) |
| **OTHER** |  |
| Refurbishment: | Needs to be evaluated and if antenna is to be placed on the roof, safe access to the roof must be provided for maintenance in future.  (Site evaluation required) |
| Electrical: | Building owned by municipality. |
| Access: | No permit required |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### Virginia (FAVG) FRS

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Forward Relay Station |
| Location: | FAVG Control Tower Building |
| Maintenance Centre: | FALE |
| VHF Equipment and Services: | **5 TRANSMITTERS (TX) + 5 RECEIVERS (RX)**  120.600 MHz Aerodrome Tower (Main & Standby)  124.200 MHz TIBA  124.400 MHz GFA  121.500 MHz Emergency |
| Antennas: | 2 |
| Communication Medium: | 4 wire E&M to local VCS and RCMS via MARTIS link to FALE tower |
| Mast: | Antennas mounted on roof of FAVG Control Tower |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS must be replaced. |
| Air Conditioner: | Dual air-conditioning required. |
| **OTHER** |  |
| Refurbishment: | Hatch and ladder to the roof needs to be made for access to the roof where the antennas are located. |
| Electrical: | All lights to be replaced with LED lighting, connection of mains, lightning protection, testing and certification of DB for the equipment room, earthing (FALE has experienced many earth leakages problems at this site), ECC |
| Access: | No permit required |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### Richards Bay (FARB) FRS

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Forward Relay Station |
| Location: | FARB CVOR site (New Location) |
| Maintenance Centre: | FALE |
| VHF Equipment and Services: | **7 TRANSMITTERS (TX) + 7 RECEIVERS (RX)**  125.750 MHz FALE APP (Main & Standby)  120.600 MHz Aerodrome Tower (Main & Standby)  124.200 MHz TIBA  124.400 MHz GFA  121.500 MHz Emergency |
| Antennas: | TBC |
| Communication Medium: | TBC |
| Mast: | TBC (Swivel Treated Pole with Antenna) |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS must be replaced. |
| Air Conditioner: | Dual air conditioner (inverter type units) |
| **OTHER** |  |
| Refurbishment: | Container to be replaced, security, access door, equipment cabinets, skirting and cable routing trays/ducts, lighting |
| Electrical: | All lights to be replaced with LED lighting, connection of mains, lightning protection, DB board, earthing, ECC |
| Access: | No permit required |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### Louwsburg FRS

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Forward Relay Station |
| Location: | Sentech site (Brick building) |
| Maintenance Centre: | FALE |
| VHF Equipment and Services: | **4 TRANSMITTERS (TX) + 4 RECEIVERS (RX)**  129.100 MHz FAOR ACC-EAST (Main & Standby)  132.150 MHz FAOR ACC-S/E (Main & Standby |
| Antennas: | 2 |
| Communication Medium: | MARTIS link for 4Wire E&M and RCMS |
| Mast: | Sentech mast |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS replacement required. |
| Air Conditioner: | Dual air conditioner (inverter type units) |
| **OTHER** |  |
| Refurbishment: | None required site owned by Sentech |
| Electrical: | All lights to be replaced with LED lighting, Connection of mains, Lightning protection, DB board, Earthing, ECC |
| Access: | Security gate with locks |
| Access Road | Road in good condition (maintained by Sentech) |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### Mount Ayliffe FRS

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Forward Relay Station |
| Location: | Sentech site  (ATNS Container) |
| Maintenance Centre: | FALE |
| VHF Equipment and Services: | **2 TRANSMITTERS (TX) + 2 RECEIVERS (RX)**  121.900 MHz FAOR ACC-EAST (Main & Standby) |
| Antennas: | 2 |
| Communication Medium: | MARTIS link for 4Wire E&M and RCMS |
| Mast: | Sentech mast |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS replacement required. |
| Air Conditioner: | Dual A/C needed (inverter type 12000BTU or greater) |
| **OTHER** |  |
| Refurbishment: | New container required |
| Electrical: | All lights to be replaced with LED lighting, connection of mains, lightning protection, DB board, earthing, ECC |
| Access: | Security gate with locks |
| Access Road | Road in good condition (Road maintained by Sentech) |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

## Port Elizabeth International Airport (FAPE)

### FAPE Transmitter Site

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Transmitter Site |
| Location: | FAPE Terminal Radar Site  (Brick Building) |
| Maintenance Centre: | FAPE |
| VHF Equipment and Services: | **16 TRANSMITTERS (TX)**  118.100 MHz Aerodrome Tower (Main & Standby)  120.400 MHz Approach (Main & Standby)  122.100 MHz Clearance Delivery (Main & Standby)  124.700 MHz FACT ACC-EAST (Main & Standby)  127.575 MHz FACT FIS-EAST (Main & Standby)  126.800 MHz DATIS (Main & Standby)  121.500 MHz Emergency (Main & Standby)  123.400 MHz Spare (Main & Standby) |
| Antennas: | 18 |
| Communication Medium: | Fibre Optic via OTN |
| Mast: | 2X TX Mast (Good condition) |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS replacement not required  (UPS recently installed, only batteries need replacement). |
| Air Conditioner: | Second Air Conditioner required for redundancy |
| **OTHER** |  |
| Refurbishment: | Repair roof leaks, painting of walls, replace floor tiles, replace doors and windows, repair vents, clean cable ducts, replace cable skirting, replace lights |
| Electrical: | All lights to be replaced with LED lighting, connection of mains, lightning protection, DB board, earthing, ECC  (All electrical tubing, DB Boards and lightning protection needs to be done) |
| Access: | Permit required |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### FAPE Receiver Site

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Receiver Site |
| Location: | FAPE Terminal  (Brick Building) |
| Maintenance Centre: | FAPE |
| VHF Equipment and Services: | **14 Receivers (RX)**  118.100 MHz Aerodrome Tower (Main & Standby)  120.400 MHz Approach (Main & Standby)  122.100 MHz Clearance Delivery (Main & Standby)  124.700 MHz FACT ACC-EAST (Main & Standby)  127.575 MHz FACT FIS-EAST (Main & Standby)  121.500 MHz Emergency (Main & Standby)  123.400 MHz Spare (Main & Standby) |
| Antennas: | 18 |
| Communication Medium: | Fibre Optic via OTN |
| Mast: | 2X RX Mast (Good condition) |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS replacement not required  (UPS recently installed, only batteries need replacement). |
| Air Conditioner: | Air Conditioner replacement not required  (Will be replaced as the need arises) |
| **OTHER** |  |
| Refurbishment: | Security, painting of walls, replace lights |
| Electrical: | All lights to be replaced with LED lighting, connection of mains, lightning protection, DB board, earthing, ECC |
| Access: | Permit required |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### FAPE Emergency Radios

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Transmitter/Receiver Site |
| Location: | FAPE Control Tower Building |
| Maintenance Centre: | FAPE |
| VHF Equipment and Services: | **5 TRANSMITTERS (TX) + 5 RECEIVERS (RX)**  118.100 MHz Aerodrome Tower  120.400 MHz Approach  122.100 MHz Clearance Delivery  121.500 MHz Emergency  123.400 MHz Spare |
| Antennas: | Using the same antennas as RX site. |
| Communication Medium: | Direct to Cape Town via Telkom Martis |
| Mast: | FAPE Control Tower Building |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS replacement required |
| Air Conditioner: | Air Conditioner replacement required |
| **OTHER** |  |
| Refurbishment: | No refurbishment required for FAPE Tower building |
| Electrical: | None required |
| Access: | Permit required |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### Humansdorp FRS

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Forward Relay Station |
| Location: | Brick Building |
| Maintenance Centre: | FAPE |
| VHF Equipment and Services: | **6 TRANSMITTERS (TX) + 6 RECEIVERS (RX)**  120.400 MHz FAPE Approach (Main & Standby)  124.700 MHz FACT ACC-EAST (Main & Standby)  125.575 MHz FACT FIS-EAST (Main & Standby) |
| Antennas: | 4 |
| Communication Medium: | Comms via Eskom Links |
| Mast: | Good condition |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS replacement not required  (New UPS recently installed at the site) |
| Air Conditioner: | Dual Air Conditioner system required |
| **OTHER** |  |
| Refurbishment: | Repair roof leaks, painting of walls, replace floor tiles, replace doors and windows, repair vents, clean cable ducts, replace cable skirting, replace lights |
| Electrical: | None required |
| Access: | Security fence, gates and barbed wire need replacement |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

## East London Airport (FAEL)

### FAEL Transmitter Site

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Transmitter Site |
| Location: | FAEL Terminal Radar site  (Equipment container) |
| Maintenance Centre: | FAEL |
| VHF Equipment and Services: | **14 TRANSMITTERS (TX)**  118.300 MHz Aerodrome Tower (Main & Standby)  120.100 MHz Approach (Main & Standby)  124.700 MHz FACT ACC-EAST (Main & Standby)  127.575 MHz FACT FIS (Main & Standby)  126..650 MHz ATIS (Main & Standby)  121.500 MHz Emergency (Main & Standby)  123.400 MHz Spare (Main & Standby) (currently not in use) |
| Antennas: | 10 antennae (excluding the spare) |
| Communication Medium: | TX – Telkom Martis (microwave link) |
| Mast: | Mast in good condition (needs inspection and painting) |
| **Supporting Infrastructure** |  |
| Backup Power Supply | Not required  (New UPS currently procured) |
| Air Conditioner: | One A/C due for replacement |
| **OTHER** |  |
| Refurbishment: | Container to be replaced (A bigger container needed or old radar building used alternatively)  Security, access door (through old radar building door), equipment cabinets, skirting and cable routing trays/ducts. lighting |
| Electrical: | Connection of mains, lightning protection, isolators, breakers, DB board(refurbishment or new installation), earthing, ECC |
| Access: | Lock pads are in place, and the building is secured for intrusion detection installed in the old Radar building |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### FAEL Receiver Site

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Receiver Site |
| Location: | FAEL Terminal  (Equipment container) |
| Maintenance Centre: | FAEL |
| VHF Equipment and Services: | **12 RECEIVERS (RX)**  118.300 MHz Aerodrome Tower (Main & Standby)  120.100 MHz Approach (Main & Standby)  124.700 MHz FACT ACC-EAST (Main & Standby)  121.500 MHz Emergency (Main & Standby)  127.575 MHz FACT FIS (Main & Standby)  123.400 MHz Spare (Main & Standby) |
| Antennas: | 12 antennae |
| Communication Medium: | OTN |
| Mast: | Mast in good condition (needs inspection and painting) |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS replacement required |
| Air Conditioner: | Not required |
| **OTHER** |  |
| Refurbishment: | Container to be replaced |
| Electrical: | Connection of mains, lightning protection, DB board, earthing, ECC |
| Access: | Container padlock |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### FAEL Emergency Radios

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Transmitter/Receiver Site |
| Location: | FAEL Control Tower Building |
| Maintenance Centre: | FAEL |
| VHF Equipment and Services: | **6 TRANSMITTERS (TX) + 6 RECEIVERS (RX)**  118.300 MHz Aerodrome  120.100 MHz Approach  121.500 MHz Emergency  124.700 MHz FACT area East  127.575 MHz FACT FIS  123.400 MHz Spare |
| Antennas: | 12 antennae (one antenna for TX and RX, so 2 antennae per frequency) |
| Communication Medium: | No interface needed/direct connection via RF cable |
| Mast: | Antennas installed on rails (new mast needed ) |
| **Supporting Infrastructure** |  |
| Backup Power Supply | Not required |
| Air Conditioner: | Installation of an extra A/C unit required |
| **OTHER** |  |
| Refurbishment: | Replace doors and windows (door leading to equipment room due for replacement), clean cable ducts, new skirting lights for Tower |
| Electrical: | Connection of mains, lightning protection, isolator, breakers, earthing, ECC |
| Access: | No permit required |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Equipment cabinets |

### Mthatha FRS

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Forward Relay Station |
| Location: | FAUT Terminal |
| Maintenance Centre: | FAEL |
| VHF Equipment and Services: | **4 TRANSMITTERS (TX) + 4 RECEIVERS (RX)**  121.300 MHz Aerodrome (Main & Standby)  121.500 MHz Emergency (Main & Standby) |
| Antennas: | 6 Antennae |
| Communication Medium: | Currently the communication medium is direct to VCS |
| Mast: | Mast in good condition (cable skirting for mast) |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS upgrade required |
| Air Conditioner: | A/C replacement required |
| **OTHER** |  |
| Refurbishment: | None required |
| Electrical: | Connection of mains, lightning protection, DB to be upgraded to accommodate new capacity, earthing to be reviewed (whole building not earthed), ECC required |
| Access: | Permit not required |
| Access Road | Road in good condition (Radios at the airport premises inside the terminal building) |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### Queenstown FRS

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Forward Relay Station |
| Location: | Transnet Site (Brick Building) |
| Maintenance Centre: | FAEL |
| VHF Equipment and Services: | **4 TRANSMITTERS (TX) + 4 RECEIVERS (RX)**  127.575 MHz FACT FIS-E (Main & Standby)  124.700 MHz FACT Area East (Main & Standby) |
| Antennas: | 4 |
| Communication Medium: | Telkom Martis to Cape Town (Marc system needed for FAEL) |
| Mast: | Mast in good condition |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS replacement required |
| Air Conditioner: | Non-required |
| **OTHER** |  |
| Refurbishment: | Painting of walls (needed through permission of the Landlord), cable route on the wall needs to be sealed, repair vents, replace lights with energy efficient lights |
| Electrical: | Connection of mains, lightning protection, DB board needs upgrade, earthing, ECC |
| Access: | Site access and security controlled by the farmer |
| Access Road | Site at the mountain and road in a bad condition/ road full of rocks and there’s risk of rocks falling (road maintained by Transnet) |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

## George Airport (FAGG)

### FAGG Transmitter Site

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| --- | --- |
| **GENERAL** |  |
| Classification: | Transmitter Site |
| Location: | FAGG Airfield (Brick building) |
| Maintenance Centre: | FAGG |
| VHF Equipment and Services: | **12 TRANSMITTERS (TX)**  118.900 MHz Tower (Main & Standby)  128.200 MHz Approach (Main & Standby)  126.225 MHz ATIS (Main& Standby)  125.100 MHz FACT FRS (Main &Standby)  121.500 MHz Emergency (Main & Standby)  123.400 MHz Spare (Main & Standby) |
| Antennas: | 4 |
| Communication Medium: | OTN |
| Mast: | Mast in good condition |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS replacement required  (Current UPS installed in 2014. Lifespan 7-10 years) |
| Air Conditioner: | (Currently using extractor fan) |
| **OTHER** |  |
| Refurbishment: | Repair roof leaks, painting of walls, replace floor tiles, replace doors and windows, repair vents, clean cable ducts, replace cable skirting, replace lights |
| Electrical: | All lights to be replaced with LED lighting, connection of mains, lightning protection, DB board, earthing, ECC |
| Access: | Permit required |
| Access Road | Road is in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### FAGG Receiver Site

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Receiver Site |
| Location: | FAGG Airfield (Brick building) |
| Maintenance Centre: | FAGG |
| VHF Equipment and Services: | **10 Receivers (RX)**  118.900 MHz Tower (Main & Standby)  128.200 MHz Approach (Main & Standby)  125.100 MHz FACT FRS (Main & Standby)  121.500 MHz Emergency (Main & Standby)  123.400 MHz Spare (Main & Standby) |
| Antennas: | 4 |
| Communication Medium: | OTN |
| Mast: | Mast in good condition |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS replacement required  (Current UPS installed in 2014. Lifespan 7-10 years) |
| Air Conditioner: | (Currently using extractor fan) |
| **OTHER** |  |
| Refurbishment: | Repair roof leaks, painting of walls, replace floor tiles, replace doors and windows, repair vents, clean cable ducts, replace cable skirting, replace lights |
| Electrical: | All lights to be replaced with LED lighting, connection of mains, lightning protection, DB board, earthing, ECC |
| Access: | Permit required |
| Access Road | Road is in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### FAGG Emergency Radios

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| --- | --- |
| **GENERAL** |  |
| Classification: | Transmitter/Receiver Site |
| Location: | FAGG Airfield (Brick building) Control Tower Building |
| Maintenance Centre: | FAGG |
| VHF Equipment and Services: | **4 TRANSMITTERS (TX) + 4 RECEIVERS (RX)**  118.900 MHz Tower  128.200 MHz Approach  121.500 MHz EMR  123.400 MHz Spare |
| Antennas: | 4 |
| Communication Medium: | OTN |
| Mast: | (RX emergency, same mast as the receivers) |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS replacement required  (Current UPS installed in 2014. Lifespan 7-10 years) |
| Air Conditioner: | (Currently using extractor fan) |
| **OTHER** |  |
| Refurbishment: | Repair roof leaks, painting of walls, replace floor tiles, replace doors and windows, repair vents, clean cable ducts, replace cable skirting, replace lights |
| Electrical: | All lights to be replaced with LED lighting, connection of mains, lightning protection, DB board, earthing, ECC |
| Access: | Permit required |
| Access Road | Road is in good condition |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

### Potjiesburg FRS

|  |  |
| --- | --- |
| **GENERAL** |  |
| Classification: | Forward Relay Station |
| Location: | Sentech Site  Equipment container |
| Maintenance Centre: | FAGG |
| VHF Equipment and Services: | **2 TRANSMITTERS (TX) + 2 RECEIVERS (RX)**  128.200 MHz FAGG Approach (Main & Standby)  128.200 MHz FAGG Approach (Main & Standby) |
| Antennas: | 2 |
| Communication Medium: | Telkom |
| Mast: | Poor needs replacement |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS Replacement not required  (Current UPS installed in 2019) |
| Air Conditioner: | (Currently using extractor fan) |
| **OTHER** |  |
| Refurbishment: | Repair roof leaks, painting of walls, replace floor tiles, replace doors and windows, repair vents, clean cable ducts, replace cable skirting, replace lights |
| Electrical: | All lights to be replaced with LED lighting, connection of mains, lightning protection, DB board, earthing, ECC |
| Access: | Site is on a farm with locked gate, Container also uses a lock pad |
| Access Road | (Road is drivable, maintained by Sentech because the site belongs to Sentech. ATNS have the container as a building) |
| Furniture and Fire Protection: | Workbench, storage compartment and portable fire extinguisher |

## Aviation Training Academy

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| --- | --- |
| **GENERAL** |  |
| Classification: | Training |
| Location: | Aviation Training Academy OR Tambo International Airport |
| Maintenance Centre: | FAOR |
| VHF Equipment and Services: | **6 TRANSMITTERS (TX)**  Varied (118.000 – 136.975 MHz)  **6 RECEIVERS (RX)**  Varied (118.000 – 136.975 MHz) |
| Antennas: | 2 |
| Communication Medium: | N/A |
| Mast: | No Mast required |
| **Supporting Infrastructure** |  |
| Backup Power Supply | UPS Replacement not required |
| Air Conditioner: | Air Conditioner not required |
| **OTHER** |  |
| Refurbishment: | Non-required |
| Electrical: | All lights to be replaced with LED lighting, Connection of mains, Lightning protection, DB board, Earthing, ECC |
| Access: | None |
| Access Road | Road in good condition |
| Furniture and Fire Protection: | Non-required |

**--- END OF VOLUME 0 ---**