

## TETRA Network Backhaul over E1 - for Angola Police

“SAF Tehnika representatives had visited us at the early stage of the project and later, when the need arose, we contacted SAF and got prompt response and service.”

**Yuri Sarkisov**  
System Engineer  
Altech Alcom Matomo (Pty) Ltd.

**SAF links provide the following services for Altech Alcom Matomo:**

- E1 for TETRA system backhaul

### Advantages:

- 1+1 IDU in a single 2U rack;
- Low power consumption;
- Cost effective solution.

**Partner:** Altech Alcom Matomo Ltd.  
**Customer:** Angola Police  
**Location:** South Africa  
**Challenge:** To build a backhaul for TETRA digital radio system for Angola Police  
**Solution:** SAF 15GHz CFM 16Mbps (1+1) microwave radio systems

### About Altech Alcom Matomo

Altech Alcom Matomo is a member of the Altron group, is a leading South African multi-billion rand high-technology group involved in the design, development, convergence, manufacture, installation and distribution of telecommunications equipment, multi-media systems, IT solutions, electronic components, cellular telephony and industrial electronic products.

### Challenge

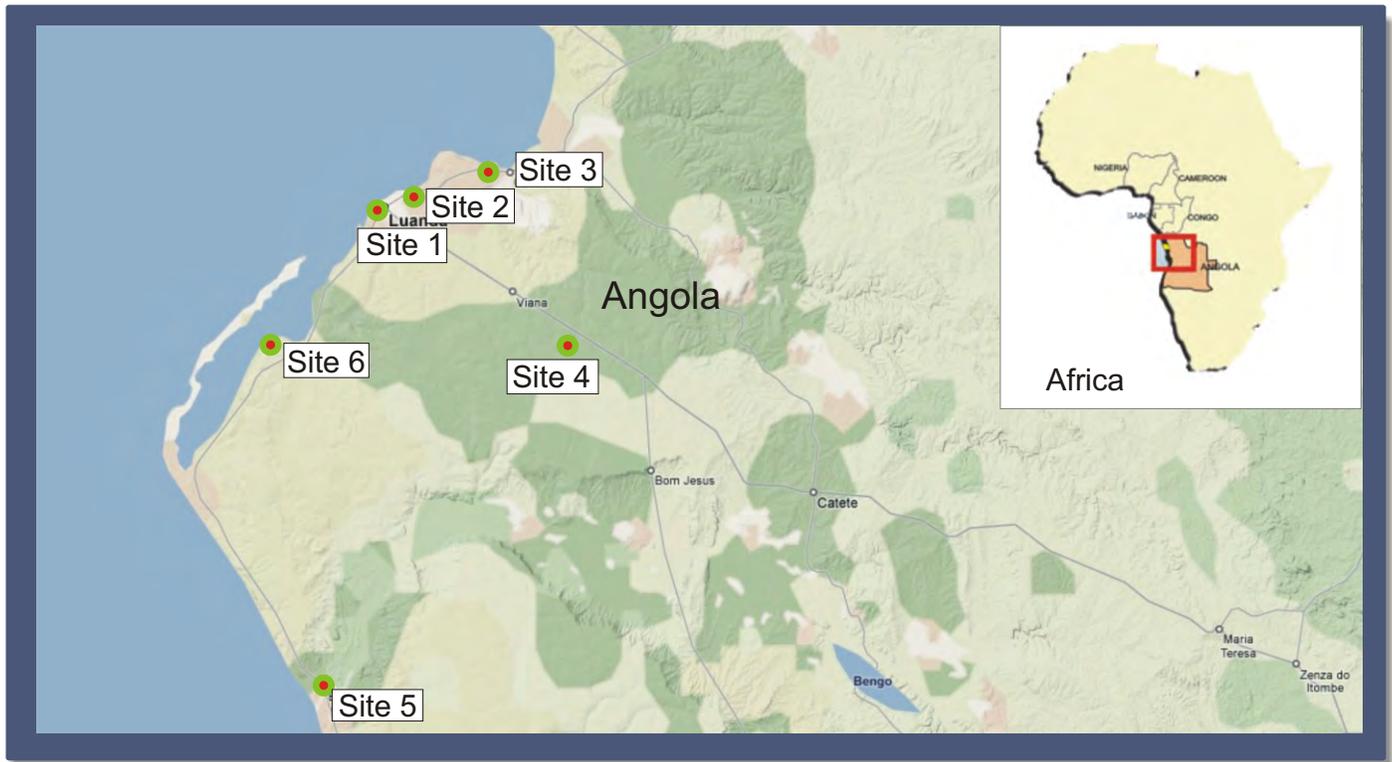
The challenge was to build the Terrestrial Trunked Radio digital system (TETRA) backhaul with further system expansion possibility for Angola Police in Luanda area.

The main advantages of TETRA over other technologies (such as GSM) are: much lower frequency used gives longer range, which in turn permits very high levels of geographic coverage with a smaller number of transmitters; high spectral efficiency - 4 channels in 25 kHz and no guard bands, compared to GSM with 8 channels in 200 kHz and guard bands.

### Solution

Altech Alcom Matomo deployed the radio system consisting of 5 remote radio sites and dispatch centre which was connected using 5 SAF Tehnika's CFM protected (1+1) microwave links in 15GHz band. The distances between the sites were between 10-45km. Later expansion of network is planned up to 15 sites in Luanda area as well as connection to conventional radio system in other areas of Angola that could be easily achieved using SAF Tehnika's modular equipment. The low power consumption of CFM system allowed to use one power supply unit at a site for both microwave and TETRA equipment.

## TETRA Backhaul with SAF PDH Microwave



### Facts about Angola

- Area: 1,246,700 sq km
- Population: 12 million
- Climate: semi-arid
- Temperature: +20 / +30 C°
- Precipitation rate: 1250-1750 mm per year

### Facts on SAF equipment used by “Angola Police”

- Total quantity of SAF Links: 5 CFM
- System capacity: 8E1
- Distance between sites: up to 45 km
- Services provided by SAF equipment: TDM only

### CFM Power Consumption:

- Indoor Unit (IDU) - from 7 to 15W (Depending on capacity and modules installed)
- Outdoor Unit (ODU) - from 8 to 19W
- Full Outdoor Unit (FODU) - from 13 to 23W

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