TROPOSCATTER
(TRS)

Troposcatter Communications are used for beyond line of sight

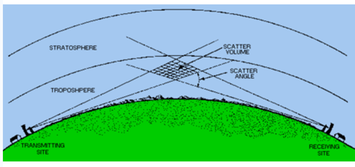
– over the horizon –

Objective

In 2021 following a public bidding process, we secured a contract with Romanian Ministry of National Defense for a TROPOSCATTER RADIO SYSTEM (TRS)

The troposcatter radio system – TRS represents a safe backup solution for fixed communications and IT infrastructure at a strategic level, with the possibility of independent installation and operation, network extension or restoration of affected sections.

The TRS is established as a stationary communications node capable of providing critical, alternative communications services for the existing CIS infrastructure, as well as the extension of TIC services from SCIAR to deployable communications nodes and base/reserve command points.



Implementation

The provided TRS solution was fully integrated, designed and realized, entirely in Romania, with the support of the main component suppliers, IRT Technologies, Inc. (Canada), Datum Systems, Inc. (US), ReQuTech, AB (Sweden).

Modular Tropo Modem

Compact Modular Design: the platform dramatically reduces the weight and footprint compared to traditional troposcatter modems. The single 1-RU Rack Space delivers significant savings in both rack space and weight.
The Dual Modulator, Quad Diversity Demod and the Dual-Diversity units all fit within a single 1/2 RU space, making it the world's most modular platform available.
A complete Quad-Diversity troposcatter modem fits within a single 1 RU Rack Space and weighs less than 12 pounds

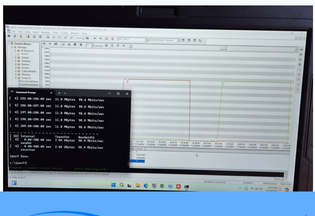
1000W TROPO BAND GAN POWERED BUC/SSPA

Smaller, lighter and more Powerful allows significant high power BUC / SSPA size and weight reduction and at the same time substantially improves thermal efficiency, which leads to higher reliability and longer MTBF.

1000W Troposcatter KiloBUC® series are very compact, light and extremely powerful. Weighing only 125lbs at 1000W output power, this new Tropo- KiloBUC® product family is the most powerful and feature rich for its size: up to 1000W output power.

FLYAWAY ANTENNA FOR TROPOSCATTER COMMUNICATION

This 2.4m fully automated motorized troposcatter and line-of-sight (LOS) flyaway terminal is made of state-of-the-art composite segmented light weight reflector and military grade pneumatic mast with a quadpod base for high stability. The system comes complete with hand pump for easy deployment of the mast and extension to 3m to clear obstacles. The center-fed architecture reduces antenna signal blockage leading to increased antenna efficiency. Its highly robust design allows it to operate safely in steady winds of 80kph and gusts of 108kph when properly deployed and guyed.
The antenna and RF components are packaged in rugged cases, the mast and its accessories are packaged in military grade bags



Results

Following tests carried out for the Romanian Ministry of National Defense , in quad diversity configuration, a throughput of almost 100 Mbps was obtained over a distance of 150 km.

ADISAM TELECOM

+40 21 316 6950
sales@adisam.com
1 Dimitrie Cantemir, bl. B2, sc. 2, et. 5, birouri 606-608, Bucharest, Romania, Sitraco Bilding, cp 040231

STARC4SYS

+40 31 425 0973
executiv@starc4sys.ro
9, Ion Cretescu Street, 6th District, 060139, Bucharest , Romania

RARTEL TELESPAZIO a LEONARDO and THALES company

+40 21 319 6804
rartel@rartel.ro
70, Dr. Iacob Felix Street, 011041, Bucharest , Romania

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Integrated communication node

TRS also includes an integrated communications node like the other components, in a climate-controlled transit case, capable of being used outdoors, outside buildings, with the covers closed.

The mechanical integration and air conditioning solution belongs to the consortium and was approved for use in the Romanian Ministry of Defense following a long testing process.
Including the trailer used, it went through testing stages in the most difficult conditions.

Fully autonomous deployable solution

All components related to a TRS, including the generator set, are transported in a single trailer.

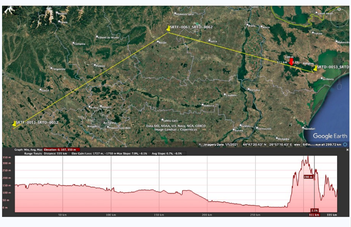
Fully protected connectivity

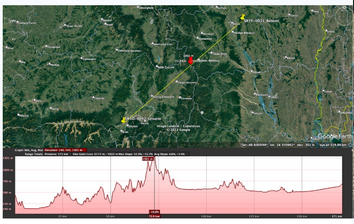
All connectors are protected during transport and intended for outdoor use

Redundant power supply solution with centralized management

The power supply solution for the TRS components is monitored by a software application. The concept allows the separate use of subsystems: a single antenna with the associated transmission/reception equipment, two antennas for diversity or four antennas.

Secure and stable connections over hundreds of kilometers





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RARTEL

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