Fixed satellite ground station system for Ku band – Anchor Station.

The system is a fixed ground station acting like a HUB and provides simultaneous multiple Full Duplex Communication satellite streams with 2 Mbps bandwidth per stream (2Mbps Up/ 2Mbps Down), with Ku frequency band (Rx – 10.95 ÷ 12.75 GHz şi Tx – 13.75 ÷ 14.5 GHz). Enables simultaneous video, voice (digital and analog) and data communication with a variable capacity, depending on the satellite services needs.

- Stream bandwidth (channel) is configurable by 64 kbps multipliers (128, 256, 512, 1024 şi 2048 kbps Full Duplex, Up/Down).
- 3.8-meter antenna delivers exceptional performance for transmit/ receive and receive only applications in L through Ka-band frequencies.
- The rugged feed boom can support up to 136 kgs of integration equipment, like redundant power amplifiers.
- The reflector is supported by a galvanized steel fixed or motorizable pedestal that provides the required stiffness for pointing and tracking accuracy.
- Antena operational wind loading 72 km/h, gusting to 100 km/h.
- Antena Survival Wind Loading 200 km/h any position.

- The system can be delivered with totally redundant configuration, for both active and passive components.
- Some of the active components, those that require redundancy to ensure continuous availability of the system are:
  - 400W high power amplifier (HPA);
  - Low Noise Amplifier (LNA);
  - Data Modems protection switc hintegrated in 1:10.

A robust, scalable platform, AxxSys™ Orion monitors and controls all of the terrestrial elements of a satellite communications network and provides local or remote management and control of those elements. The AxxSys™ Orion System provides many key features that make management of network elements simple and cost effective. These include: Centralized SQL Database / High Scalability / Low Bandwidth Demands / Open Architecture with Standards Based Interfaces / Multiple Security Options / Full Set of Integration and Diagnostic Tools.
The satellite system transmission / reception interconnect modems capable of data transmission from 36 kbps up to 155 Mbps. Modems are integrated into the Vipersat Management System (VMS) that provides network management and fully automated bandwidth allocation. By the AES-256 TRANSEC module, FIPS-140-2 NIST compliant, is achieved the encrypting of all transmitted satellite data, including VMS control data. Other features provided by the modems: MIL-STD-188-165A (Type I, II, IV, V, VI) compatibility / bandwidth compression by DoubleTalk Carrier-in-Carrier / Ethernet interfaces, EIA-485, EIA-232 for remote control.

Satellite solution can integrate one or more switches that provide redundancy for data modems. Protection system consists of a total of 10 modems used for traffic and a spare modem connected to the switch that automatically or manually replace the unavailable/failure modem. The configuration of each traffic modem is stored in the CRS-300 controller. This information is used to program the redundant modem if the traffic modem fails.

Satellite system center operates in Ku band and for traffic modems to be able to operate, the Ku band is switched to L band through band converters that provides the required performance, stability and quality.

The satellite communications system is also equipped with traffic modems that provide jamming and interference protection. Satellite communications face the growing threat of jamming and eavesdropping, easily accessible through low-cost technologies; but also of interferences from other satellite systems. The only response to these threats is the use of an EPM (Electronic Protected Modem) waveform. This type of modem is characterized by:

- Data Rates:
  - up to 16 Mbps (EPM mode)
  - up to 130 Mbps (DVB-S2 mode)

- Ethernet Interfaces and RS-422 traffic according to STANAG 4606 Ed.1.
- Bandwidth Optimization protocols.
- Adaptive Coding & Modulation (ACM).
- Orthogonal Frequency Hopping.
- Embedded COMSEC Bulk Encryption, Embedded TRANSEC, Architecture open to National crypto algorithms.