SATELLITE COMMUNICATIONS FOR AIR TRAFFIC MANAGEMENT

Satellite communications, earth observation, navigation and positioning and control stations

indracompany.com
Satellite Communications for Air Traffic Management

Air Traffic Management Systems and activities require a high degree of safety.

Introduction

Radars, air traffic control centers, VHF radiocommunications stations, are some of the means needed for an accurate, efficient, reliable and safe management of air traffic operations.

Satellites and its associated ground communications stations are today the most reliable, secure and efficient way of transmitting data and voice between the different components of an air traffic management infrastructure at national or continental level.

Indra provides a variety of satellite based networks through IP or FRAME RELAY technologies to satisfy the most demanding requirements of air traffic authorities worldwide.

A central network management system allows the user to have a full control of its network and a comprehensive monitoring tool to supervise all events taking place during full-time operations.

Technical characteristics

- **Topology**: Meshed, star or hybrid network
- **Antenna aperture**: 1.8 m, 2.4 m and 3.7 m (other diameters are available for special cases)
- **Polarization**: Linear (H/V) or circular (LHCP or RHCP)
- **Frequency**: Ku band and C band
- **Access method**: FDMA, TDMA, MF-TDMA
- **Modulation**: QPSK, BPSK, QAM
- **FEC**: 1/2, 3/4 and 7/8
- **Digital voice/data**: E1/T1, RDSI (BRI), QSIG (PSS1),…
- **Analog voice**: FXS, FXO, E&M,…
- **Legacy data**: HDLC, Frame relay, X.25, BSC, COP, X.21,…
- **IP based networks**: TCP accelerations, VoIP (Voice over IP), VLAN (Virtual LAN)
- **Redundancy**: Optional redundancy for all interfaces and equipments
- **Power supply**: 110 or 220 VAC, 50 or 60 Hz
- **M&C system**: GENIOS NMS (Indra’s local and remote M&C)
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Radars, air traffic control centers, VHF radio communications stations, are some of the means needed for an accurate, efficient, reliable and safe management of air traffic operations.

Communications backbone infrastructure is probably one of the most critical elements to support all above mentioned means. Satellites and its associated ground communications stations are today the most reliable, secure and efficient way of transmitting data and voice between the different components of an air traffic management infrastructure at national or continental level.

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- **FEC**: 1/2, 3/4 and 7/8
- **Digital voice/data**: E1/T1, RDSI (BRI), QSIG (PS11),…
- **Analog voice**: FXS, FXO, E&M,…
- **Legacy data**: HDSL, Frame relay, X21, X.25, IPX, asynchronous protocols over V.35, TIA-232/V.24, TIA-449/V.36, X21,…
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