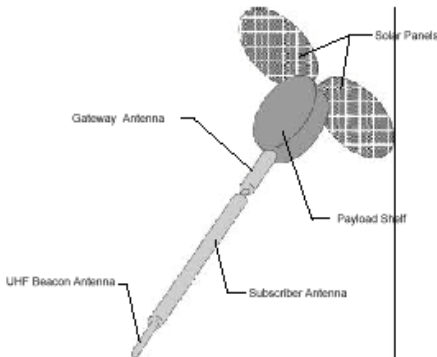


ORBCOMM Global, L.P.
 21700 Atlantic Boulevard
 Dulles, Virginia 20166, U.S.A.



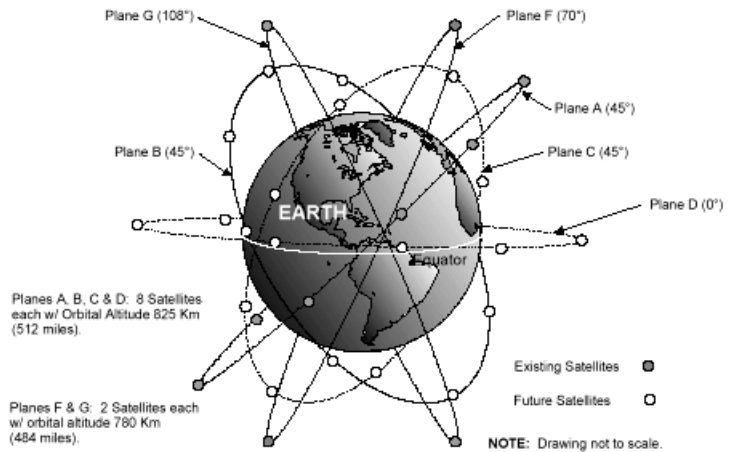
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The ORBCOMM System is a network of terrestrial and space-based assets designed to provide wireless packet data communication services optimised for message transfer. The ORBCOMM System operates principally in the very high frequency (VHF) portion of the frequency spectrum, between 137 and 150 MHz. By using this spectrum, ORBCOMM has been able to take advantage of mature VHF communications technology, allowing for the use of radio frequency (RF) equipment in both the Subscriber Communicators (SC) and the satellite payload, which is less expensive than that required for systems operating at frequencies above 1 GHz. Use of these frequencies also permits more robust link budgets for a given level of transmit power when compared with systems operating at higher frequencies.

Main Parts of a Microstar Satellite

The ORBCOMM System constellation is planned to consist of up to 36 Satellites. The downlink channel from the Satellites to both the SCs and Gateway Earth Stations (GES) are in the 137-138 MHz band. Each Satellite uses two downlink channels, one carrying data to the GESs and the other to the SCs. All Satellites use the same downlink channel to transmit data to the GESs. This channel is used in a Time Division Multiple Access (TDMA) format and has a channel bandwidth of 50 kHz. The Satellite uplink channels from the SCs and the GESs are in the 148 - 150.05 MHz band, having 10 kHz and 50 kHz channel bandwidths, respectively. All Satellites use the same uplink channel to receive channel to receive data from the GESs. This channel is used in a TDMA format. The uplink channels from the SCs to the Satellites are dynamically assigned by the Satellite using a process called Dynamic Channel Activity Assignment System (DCAAS). DCAAS determines which of the 10 kHz channels are unoccupied. The Satellite then assigns those channels to the SCs for uplink data transmission.



ORBCOMM System 36 Satellite Constellation

Subscriber Communicator Specifications

Performance

- Transmission Power: 5 watts
- Receive Dynamic Range: -116 dBm to -80 dBm
- Sensitivity: BER of 10⁻⁵ @ -116 dBm input
- MTBF: 20,000 hours

Electrical

- Input Voltage (SC-dependent): 120 VAC ±10% or 12 VDC ±10% or 24 VDC ±10%
- Power Consumption (@ +12 VDC): Sleep: <1 mA, Receive: 100 mA, Transmit 2 A
- Antenna Type: ½ wave (1 meter) whip

Environmental

- Operating Temperature: -30 °C to +60 °C
- Relative Humidity: 0-100%, non-condensing

