

Satellite Communications : AEROPVS027

vsTASKER features a comprehensive **Satellite Communications module** engineered for modeling, predicting, and assessing space-based network coverage and performance. It allows developers to build real-time or fast-time simulations without requiring separate external software.

Key Simulation Capabilities

- **Orbit Definition & Propagation:** Users can import real-time Two-Line Element (TLE) orbital data directly from sources like NORAD. The software features integrated **SGP4, J2, and Two-Body propagators** to track satellite positions precisely using Julian time. Custom or proprietary orbits can also be defined via standard Keplerian elements.
- **Link & Reception Assessment:** The system calculates ground reception coverage and link quality. It dynamically factorizes physical variables like earth curvature, atmospheric disturbances, and solar or lunar interference.
- **Multi-Domain Connectivity:** Users can design and test cross-network configurations. This includes site-to-satellite, cross-link (satellite-to-satellite), and dynamic multi-hop communications.
- **Scalability:** The toolkit is capable of processing scenarios involving **thousands of satellites simultaneously** in real-time without experiencing computational accuracy degradation.
- **Software Ecosystem Integration:** For complex logic, decision-making, and branching, vsTASKER integrates natively with Analytical Graphics' Satellite Toolkit (STK) via LAN, COM, or ActiveX. It also works with C++ compatible 3D visual engines through the CIGI protocol.

Are you using vsTASKER to build a **specific simulation scenario** (e.g., LEO constellation, military, or civil aviation link)? If you share your goal, I can outline the steps to configure the transmitters and orbits.

Satellite Communications

by VirtualSim

With the Satellite module of vsTASKER, doing satellite communications assessment in real or fast time is simple.

Import any satellite from TLE data or define the orbit using the six Keplerian elements than use our SGP4 or Two-Body propagator to accurately predict the position of the satellite in space for any Julian time.

Add to the satellite emitting antennas, payloads, signals forces and you can estimate the ground reception coverage according to several criteria including earth curvature, atmosphere disturbance and sun interference.

Communication links between satellites or with ground stations can be simulated for any kind of studies (ground coverage, time window for data transfer, quality assessment, etc.)

Features:

- Any TLE or user define orbit using Kepler elements
- SGP4 or Two-Body propagators
- OpenGL 3D globe or OsgEarth for visualization



OS & HARDWARE SUPPORT	INDUSTRY APPLICATION

Note: ** Specifications are copied from manufacturer data. Please contact before buying.