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LINK BUDGET CALCULATOR

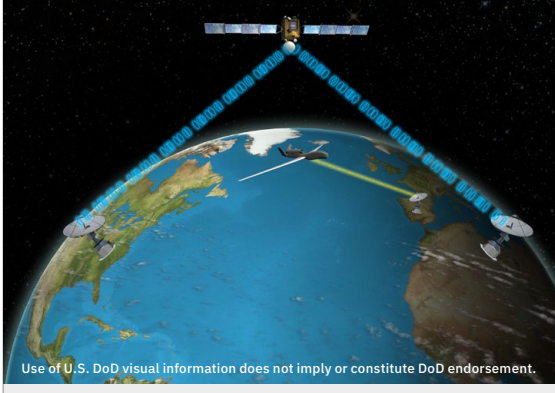
Versatile Propagation Analysis Enhances Network Design

L3Harris' Link Budget Calculator provides systems engineers and other RF data link stakeholders a way to estimate communication systems wireless connectivity performance across various scenarios, hardware configurations, link topologies and atmospheric conditions. It assists the data link engineer in preliminary planning and evaluation of line-of-sight and satellite microwave data links performance.

PRODUCT DESCRIPTION

Link Budget Calculator provides a signal loss and gain budget based on the user-defined link availability required given as a percentage of time due to path fade statistics. The Link Budget Calculator provides an opportunity to make initial assessments of various link parameters to successfully close intended links.

- Link budget feasibility to establish demonstration/mission link success expectations
- Comprehensive link budget calculation based on 20+ years of refinement using industry standard models plus our extensive, unique experience with high-bandwidth RF data links
- Frequencies covered from UHF to V-Band (path loss model dependent)
- Equipment performance variations used as part of assessment analysis



Flexible data link parameter optimization to minimize potential operational risk

KEY FEATURES

- Realistic modeling
- Updated industry-standard models (Crane and ITU)
- Rain region maps
- Link closure analysis
- Importing of actual antenna patterns
- Scintillation
- Graphing parameters against each other
- Establishes basis for frequency coordination
- Calculates available margin for desired Satellite Communications (SATCOM) links
- Link balancing function to scale selected parameter(s) to reach 0.0 dB link margin
- Export link budget results
- Four different views to enhance the user interface—Notes View, Concise View, Graphical View and Summary View

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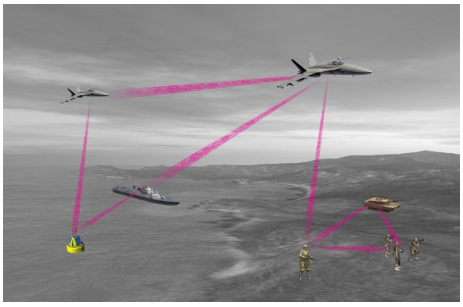
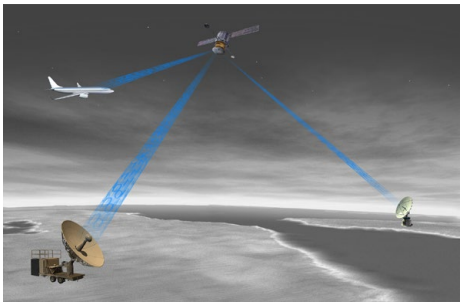


Digital Data Links

- Surface-to-airborne, multi-tier links
- Extensive forward error correction and modulation options
- Communications, ISR, and enhancement of EW-based calculations
- LOS and BLOS reachback
- Eb/No based
- UHF to V-Band (path loss model dependent)

Analog Data Links

- FM/AM radios
- VHF/HF systems
- Calculates SNR available
- Extensive transmission path variation options
- Allows for either Noise Figure or G/T models



SATCOM Links

- Surface/airborne-to-satellite
- GSO, MEO and LEO constellations
- Simultaneous assessment of uplink and downlink paths
- Three satellite models available
- L-band through lower Q-band

ASSUMPTIONS AND FEATURES

A rudimentary understanding of the basis for link budget calculations is assumed.

The tool provides estimates due to the potential variability of the environment and RF equipment.

The Link Budget Calculator integrated models are evaluated periodically for relevant utility and to keep them current, which results in reliable predictability for most link propagation environments.

The Calculator comes with an integrated Operator's Manual to provide activation instructions and selected details of parameters and their intended use. The tool is capable of importing and exporting data.

SPECIFICATIONS

SOFTWARE

- Windows XP, 7, 10

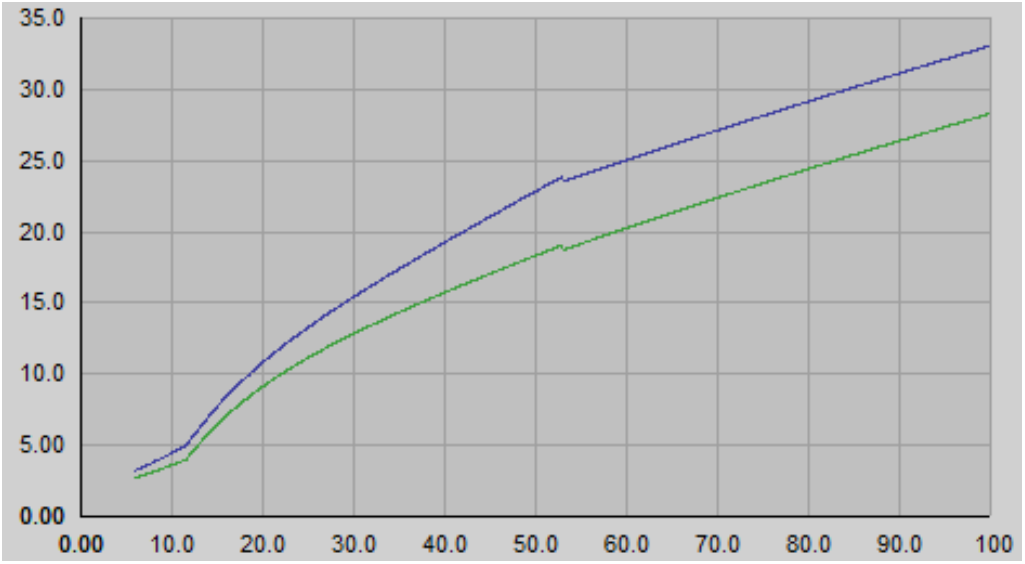
HARDWARE

- Laptops and desktops

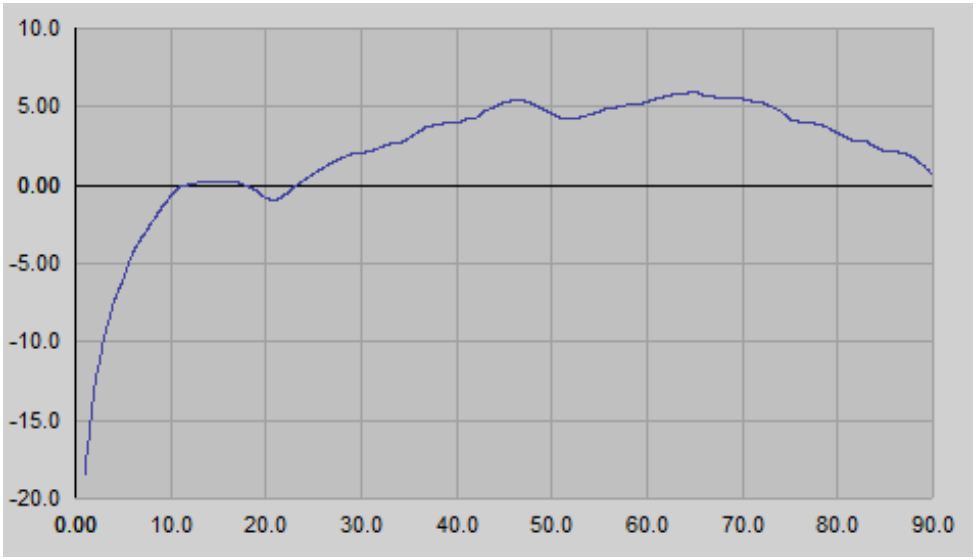
The Link Budget Calculator comes with a software license, providing a yearly seat and maintenance.

- Built-in activation key function
- L3Harris offers link budget analysis as a service. Call for details.
- Technical assistance on a time and materials basis

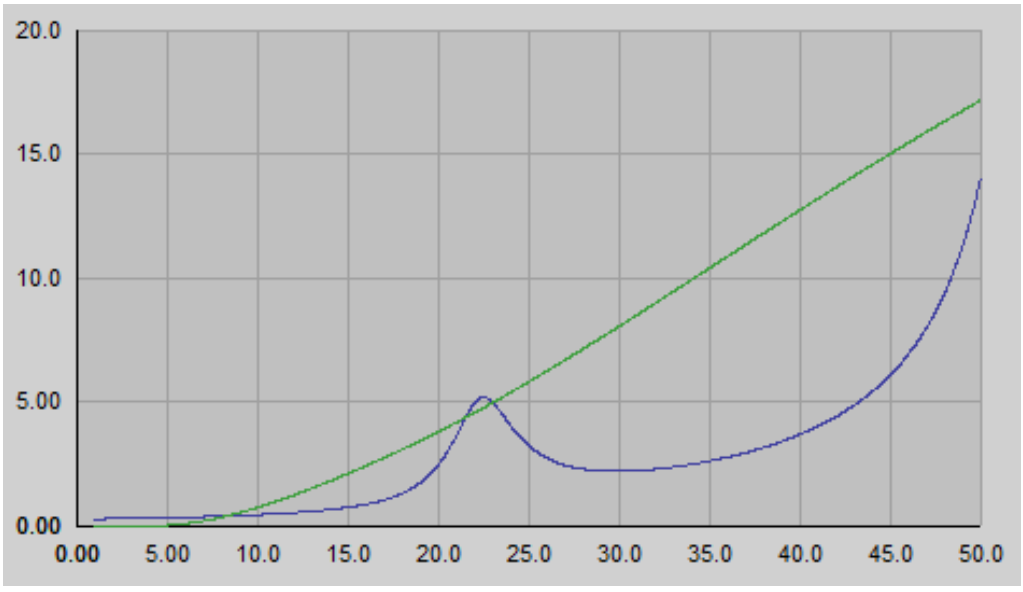
OPERATOR DEFINED PLOTS



Rain RF Attenuation (green line) and Total Atmospheric RF Attenuation (blue line) in dB as a function of Range

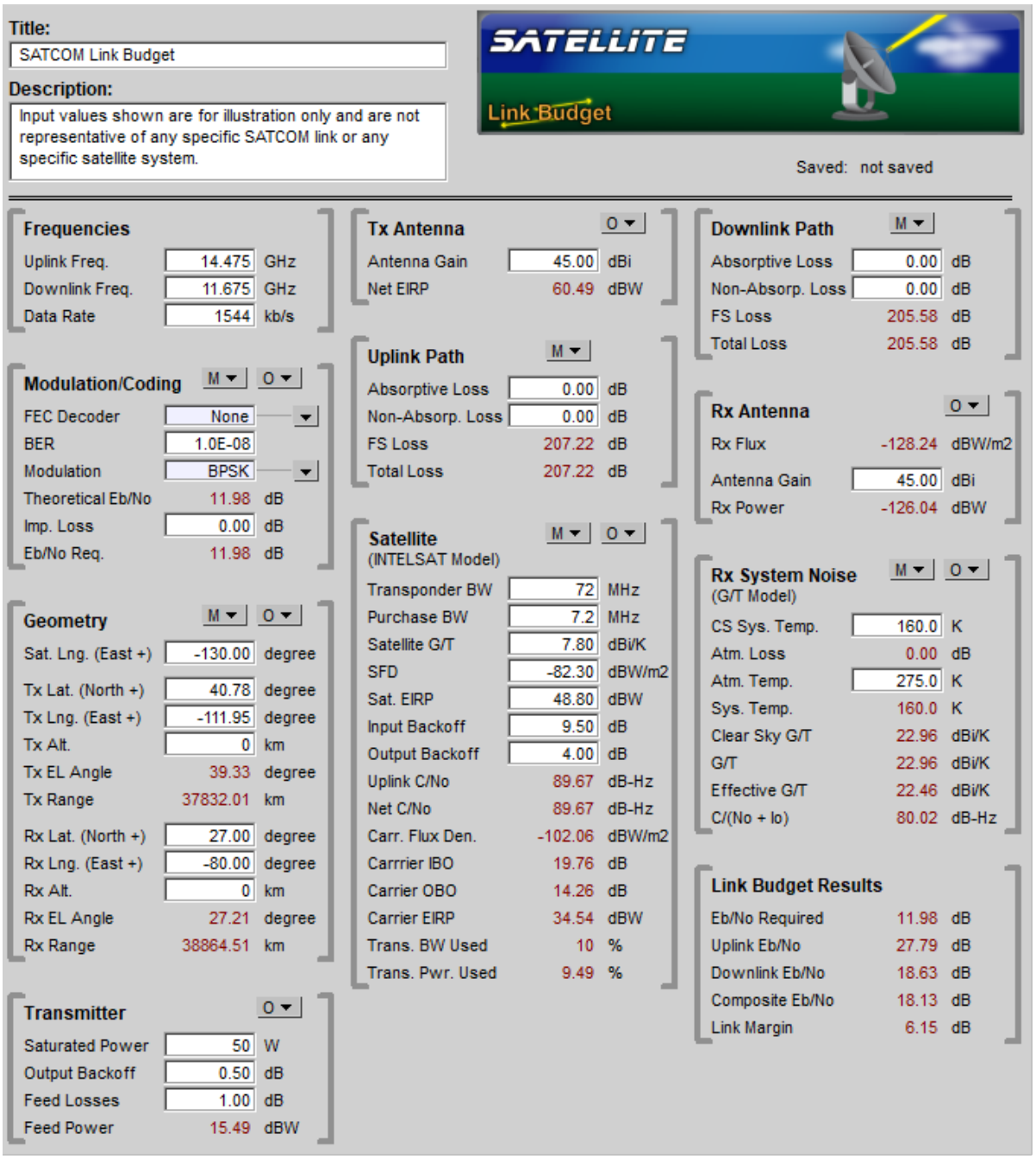


Antenna Gain vs. Elevation Angle



Rain (green) and Gaseous (blue) Attenuation vs. Frequency

SAMPLE OF FULL SATCOM LINK BUDGET



Example of the details provided by Link Budget Calculator

Link Budget Calculator

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