Tropos Drive
Drive Test Tool

TROPOS ®
networks
GREENER, SAFER, SMARTER
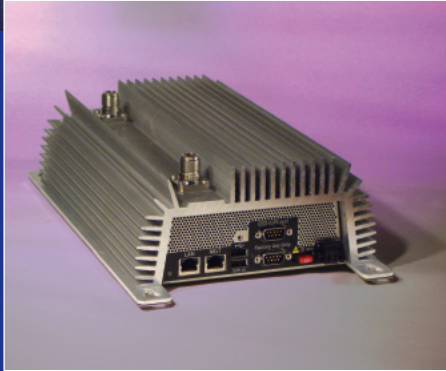

FEATURES

Coverage Testing

- Performs first-hop throughput tests to determine coverage
- TX power, RX sensitivity, antenna gain configurable to emulate popular Wi-Fi clients
- Tests coverage from client to mesh router, the limiting coverage factor
- Correlates coverage and throughput data with latitude and longitude information in real time
- Plots coverage information onto widely available mapping tools
- Script-based calculations for fraction of linear street miles that exceed a desired single-hop throughput target

Performance Testing

- Performs end-to-end throughput test from client device to an intranet server
- Conducts true upstream and downstream TCP throughput tests
- Plots throughput data onto widely available mapping tools

Complete Kit

- Easy to use and transport kit
- Contains all required components
- Tropos Drive appliance and power supply
- Antennas, GPS receiver, attenuators and cables
- Hard-sided rolling travel case

The patented Tropos® System Architecture delivers the maximum scalability, high capacity at low cost and great user experience demanded by customers. The Tropos System Architecture combines the innovative and patented Tropos Mesh OS, the industry's most sophisticated metro-scale mesh routing intelligence, with the Tropos operation and optimization tools, which provide centralized visibility, analysis and control, and purpose-built Tropos routers with peerless 802.11 radio performance. Tropos complete solution enables carriers, municipalities and public safety agencies to deliver city-wide fixed and mobile multi-megabit connectivity for IP-based voice, video and data applications.

Tropos Drive is a drive-test appliance for determining coverage and throughput in Tropos mesh networks and is one of Tropos operation and optimization tools. Other tools include Tropos Control, a purpose-built element management system, Tropos Insight, an advanced analyzer and optimizer, and SignalMX, a powerful coverage planning tool from EDX Wireless.

Tropos Drive performs single-hop throughput tests from the Tropos Drive appliance to the closest Tropos router in the mesh. The effective transmit power, receive sensitivity and antenna gain of the Tropos Drive appliance can be configured so that results are comparable to those of the target client device. Coverage tests are performed on the uplink (client device to mesh router) as the upstream link budget is typically the limiting factor in coverage.

Tropos Drive correlates coverage and throughput measurements with latitude and longitude information in real time. It automatically plots that information onto widely available mapping tools. The real-time mapping capability helps the tester see what areas have and have not been tested so that the complete coverage area may be driven with no wasted time.

Mapping information also enables network operators to pinpoint coverage gaps and areas of suboptimal performance in their Mesh networks. Tropos Drive results can also be plotted on a number of widely available mapping tools including Microsoft Streets and Trips. The result is quick and easy assessment of the user experience across the network.

End-to-end throughput to verify network performance can also be tested using Tropos Drive. Simply stop the vehicle periodically along its route to run an end-to-end throughput test to verify network performance from a wired server all the way down to the client. During these spot checks, true TCP throughput tests are performed, both upstream and downstream. Tropos Drive plots the throughput data on a map in real time. Tropos Drive test results can be analyzed to extract the fraction of linear street miles that exceed a desired performance target.

Tropos Drive ships as a kit containing the Tropos Drive appliance and all necessary accessories. It is optimized for mounting in vehicles.

Tropos Drive graphically plots coverage and throughput results on widely-available mapping tools

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TECHNICAL SPECIFICATIONS

Wireless
- IEEE 802.11b/g
- Frequency band: 2.4-2.483 GHz
- Modulation: 802.11g - OFDM (64-QAM, 16-QAM, QPSK, BPSK)
  802.11b - DSSS (DBPSK, DQPSK, CCK)
- TX Power: Programmable to emulate any number of client devices
- RX Sensitivity: Programmable to emulate any number of client devices
- Transmit and receive diversity

Networking
- TCP and VPN session persistent roaming
- Full 802.11b/g client compatibility
- NAT support
- Layer 2 and Layer 3 support
- DHCP Server and Relay
- Sub-interface support
- Two (2) 10/100 Base-T Ethernet ports (Management and CPE connection)
- Two (2) Type-A USB ports
- Console port (for factory use) and Serial port

Management
- HTTPS to on-board configuration management tools
- Secure local and remote configuration via HTTPS
- SNMP V2c
- Tropos MIB
- Browser-based management tool
- Simple configuration save and restore
- Network & client monitoring and statistical capture features

Security
- Authentication: 802.11i, 802.1x (including EAP-TLS/TTLS/SIM/PEAP
- Encryption: WEP, TKIP, AES
- AES encryption of mesh and control traffic
- Full VPN compatibility (VPN filtering—rejects non-VPN traffic)
- MAC address access control lists
- HTTPS only to on-board management tools
- Packet filtering

Environmental Specifications
- Operating temperature range: -40°C to 70°C
- Storage temperature range: -40°C to 85°C
- Shock & vibration: MIL-STD-202E, Method 204C
- Humidity range: 10-95% non-condensing
- Watershed against casual rain - IP Level 1 (water)
- Hardware Installation and Quick Start Guides

Mounting Options
- Vehicle mounted in protected area such as trunk or cargo space:
  - Vertical or horizontal mounting orientation

Approvals
- FCC CFR 47 Part 15, Class B
- Industry Canada RSS 210
- UL 60950-1
- CSA 22.1 No. 950
- EN 60950
- IEC 950

Hardware Specifications
- Autosensing 10/100 BaseT Ethernet
- Power input: 10.0 to 32.0VDC
- Power consumption: 8W typical
- Polarity protection
- Low voltage disconnect protection
- Automotive over-voltage protection, SAE J1211
- Automotive mini-blade fuse and socket, externally accessible
- Network status lamp
- Remote network status indicator
- Dimensions:
  13.1 in (33.3 cm) wide x 7.91 in (20.1 cm) deep x 3.85 in (9.8 cm) high
- Weight: 9 lbs (6.35 kg) max., with mounting brackets,

Protection Circuits
- Antenna Protection: ≤ 0.5µJ for 3kA @ 8/20µS Waveform
- Electrical Protection:
  - EN61000-4-5 Level 4 AC Surge Immunity
- Data Protection:
  - EN61000-4-2 Level 4 ESD Immunity

Warranty
- One (1) year on parts and labor; return to point of purchase
- *Optional* standard and premium support packages available

Package Contents
- Tropos Drive appliance
- 5dBi omni-directional, magnetic mount antenna (qty. 2)
- Waterproof GPS with USB connector
- RJ-45 cross-over cable
- Automotive lighter power adapter and cable
- N-connector attenuators (2 x 1dB, 2 x 2dB, 2 x 3dB, 2 x 5dB, 2 x 10dB)
- Hard-sided travel case with wheels (13.81" wide x 9" deep x 22" high)
- Documentation CD

Ordering Information:
Part Number: TD042100
Tropos Drive Test Tool Kit

Hard-sided travel case

Tropos Drive appliance

GPS unit

Power supply, attenuators, antennas, cables, documentation

TROPOS networks

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