DriveMAX

*a fast, inexpensive and accurate measurement tool for network coverage
leading to efficient optimization of WiMAX networks*

DriveMAX is a specialized "drive test" solution allowing Operators, System Integrators and Equipment Vendors the ability to execute standard, efficient and accurate process of essential data collection for WiMAX and IP based Broadband Wireless Access network deployments.

A vital ingredient in the successful deployment of WiMAX networks is the ability to efficiently "drive test" the intended coverage area thus assuring proper installation, commissioning and performance of newly installed infrastructure elements. The DriveMAX offering addresses this need with a combination of hardware and software, based on AlphiMAX's extensive experience in wireless networking.
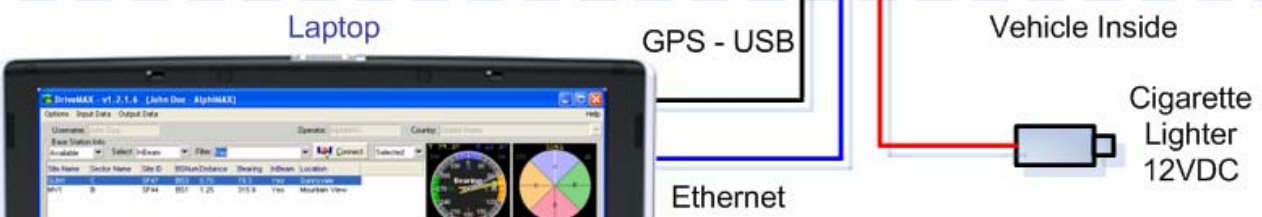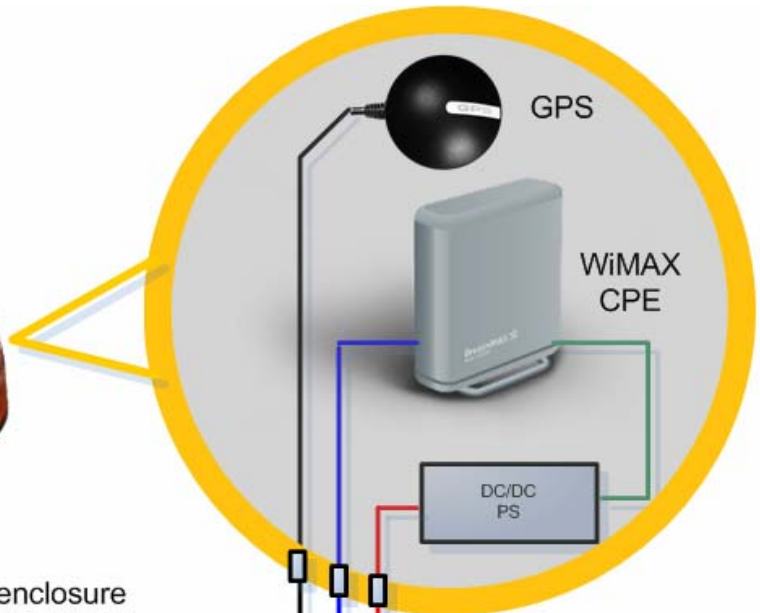
DriveMAX is based on the actual deployed CPE equipment that customers will utilize, thus removing a source of inconsistent and inaccurate data collection. Data is collected during a coverage area "drive test" that can be conducted by a non-technical person trained in the use of the DriveMAX system.   DriveMAX organizes and stores data in a standardized format which can then be displayed in a variety of different visual formats that provide immediate value and application. The same data is available for import into other OSS, Radio Network Planning and analysis tools for additional insights.

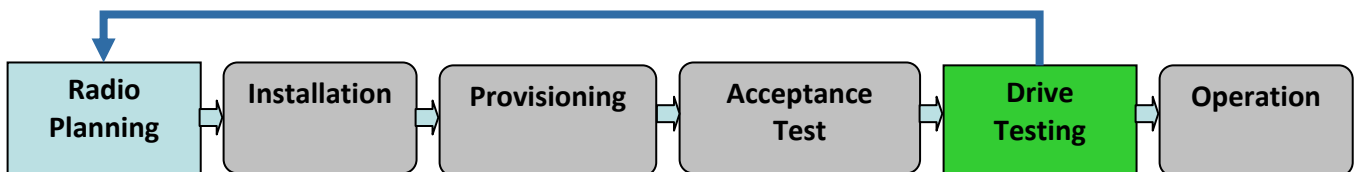| Enables	Key Values
- Radio Network Planning simulation verification, calibration and evaluation. - Radio Network Optimization. - Radio Network Troubleshooting. - Base Station deployment acceptance testing and sign-off. - Base Station equipment coverage evaluation, vendor selection and comparison assistance. - End-user installation qualification from outside the customer premises (done from inside the vehicle). - Wireless Link, Capacity and Performance availability verification without actual installation.	- Creates a standard method for performing drive tests and accurate data collection. - Minimizes the time, effort and skill level of the technician performing the test, thus reducing the overall cost. - Sophisticated drive test software for collection of major radio link parameters and Key Performance Indicators (KPI). - Utilizes the actual CPE radio device, thus maintaining receive sensitivity, transmit power and antenna characteristics. - Easy to set-up, watertight, magnetic, vehicle roof top mount enclosure. - Easily transportable with watertight, crushproof and dustproof airline approved travel case holder for a containing the application laptop, radio assembly, GPS and additional accessories. - Open file format (CSV) data output for easy integration with 3rd party post-processing software. - All in one integrated solution.

Solution Overview

Vehicle roof top magnetic mount enclosure

GPS

WiMAX CPE

DC/DC PS

Laptop

GPS - USB

Vehicle Inside

Cigarette Lighter 12VDC

Ethernet

Hard carry case with dolly

DriveMAX Software

Uplink   CPE→BST
-73   25   QAM64 3/4   2307.500

Downlink CPE←BST
-76   26   QAM16 3/4   2307.500

Radio Planning	Installation	Provisioning	Acceptance Test	Drive Testing	Operation

DriveMAX Components

Name	Description
Travel Case	Watertight Hard Case with built-in dolly and foam insert set. Unbreakable, watertight, airtight, dustproof, chemical resistant and corrosion made of Ultra High Impact structural copolymer. Built-in purge valve for changes in altitude or temperature. NATO codified and tested to MIL C-4150J (Military Standard). Includes the DriveMAX Dome Enclosure and attached cables. Space for laptop and laptop power supply. Extra space for additional accessories.
Dome Enclosure	Vehicle roof-top magnetic mount enclosure includes: WiMAX radio and antennas, USB based GPS unit, DC to DC power converter/inverter. Ethernet, USB and Power cables.
DriveMAX Software	"Drive Testing" Software, enabling data retrieval and collection from GPS and Radio unit.
GPS Software Driver	GPS USB drivers for serial port emulation under the OS.

DriveMAX Hardware Specification

Mechanical and Electrical	
Travel Case Dimensions	24.81" L x 19.37" W x 13.87" D (63 x 49.2 x 35.2 cm)
Travel Case Weight (with Dome Enclosure)	29.1 lb (13.21 kg)
Dome Enclosure Dimensions	8" H x 9.5" D (203.2 mm x 241.3 mm)
Dome Enclosure Weight	3 lbs (1.37kg)
Power Consumption	15W maximum
DC Vehicle Power Input	12VDC nominal , 9-16 VDC
Built-In GPS	SiRF Start III, 20 channel with WAAS and EGNOS support
	Sensitivity -159dBm , 5m 2D accuracy with WAAS , 10m without WAAS
Cables and Connectors	
Ethernet (Radio Ethernet)	RJ-45 Connector CAT5 with 15 ft (4.5m) cable
DC Input (Radio Power)	Vehicle cigarette lighter power plug with built-in replaceable fuse , power On/Off switch, power LED Indicator with 15 ft (4.5m) coil power cord
USB (GPS)	USB Type A connector with 15 ft (4.5m) cable
Environmental	
Operating temperature	32°F to 104°F (0°C to 40°C)
Operating humidity	5%-95% non condensing , rain proof
Maximum vehicle speed	Not to exceed 38 miles/hr (60km/hr)
RoHS Compliant	RoHS

Radio Vendor	Configuration Options	Part Number
Alvarion	BreezeMAX SU-SI 2300 – 2.305 to 2.360 GHz	ALVR16d-2.3
WiMAX (802.16-2004)	BreezeMAX SU-SI 2300US – 2.305-2.315 & 2.350-2.360 GHz	ALVR16d-2.3US
(see vendor web page for radio specification per option)	BreezeMAX SU-SI 2500 – 2.495 to 2.690 GHz	ALVR16d-2.5
	BreezeMAX SU-SI 3500 – 3.399 to 3.600 GHz	ALVR16d-3.5
	BreezeMAX SU-SI 3650 – 3.650 to 3.700 GHz	ALVR16d-3.65

DriveMAX Software Features

SNR, RSS and modulation level per direction (uplink - Transmit and downlink – receive)
Specific Radio parameters collection and configurable polling interval
GPS Interface and GPS coordinates retrieval
Text-to-speech functionality for simple status and current data values audible information
Read/Import of entire deployment base station Information
List of all available base stations/sectors and their physical/configuration parameters, with selectable options of "All available," "Neighbors available," and "Current BSTs." On-the fly calculation of "Neighbors available." Base station sectors that are pointing and in coverage of the current client position
Filtering based on distance from current position
Single or Continuous data saving mode for mobility
Plotting of true and magnetic north bearing of current and available base stations
Color-coded plotting of the currently-connected base station sector arrangement
Ability to associate data with specific operator and country
Input of the user name performing the drive test
Ability to connect to any sector/base station "at the click of a button"

DriveMAX Software Requirements

Operating System	Microsoft Windows 2000 or XP and latest service pack **MS Vista NOT SUPPORTED!**
RAM	1GB minimum
CPU	X86 Pentium 4 800MHz min
Hard Drive free space	2 GB minimum
Ports	1x free USB port and free virtual COM port below COM10Ethernet 10/100 Mbps