



**WAVEFORMS** FOR PORTABILITY AND PERFORMANCE

**WiMAX**  
WIRELESS BROADBAND DATA GOES MOBILE

## BUILDING A WIMAX TERMINAL?

ETHERSTACK'S AIR INTERFACE PROTOCOL STACK PROVIDES THE FASTEST, LOWEST RISK AND MOST COST EFFECTIVE PATH TO MARKET. YOU PROVIDE THE HARDWARE - **WE PROVIDE THE SOFTWARE.**

### INTRODUCTION

As demand for mobile data applications matures, Etherstack is offering subscriber-side software for key prospective wideband and broadband data standards.

Etherstack's engineers specialize in embedded wireless protocol design, from application level down to next-generation Layer 1 digital modulation, channel access, MIMO and time-space diversity techniques.

Our WiMAX technology includes Mobile WiMAX (IEEE802.16e-2005) PHY and MAC components with Quality of Service (QoS) support, multiple and scalable OFDM/OFDMA based modulation formats and advanced Forward Error Correction (FEC) - including turbo decoding.

Authentication and Encryption are also offered for secure communication down to link level.

### LOWER YOUR TECHNICAL AND COMMERCIAL RISK

At the moment it is not certain which mobile communication technologies will win and which will lose.

Working with Etherstack will reduce your time to market and future-proof your radio software investment – allowing you to respond more quickly to changing market conditions.

Etherstack was the first company in the world to design, develop and supply wireless air interface protocol software (waveforms) as a specialist activity separate to the wireless manufacturing process.

Because our waveforms needed to be deployable on any commercial platform, we devised new methods to maximize modularity, portability and resource efficiency - the same concepts that motivate today's SDR and SCA initiatives.

Designed as native base waveforms written in ANSI C, Etherstack's air interface protocol stacks are easy to maintain, upgrade with new features, and port across to new platforms as your hardware evolves.

### SOFTWARE COMMUNICATIONS ARCHITECTURE (SCA)

Etherstack's design approach means that our base waveforms are easily ported to the SCA. All waveforms can be supplied in either native or SCA-ported form. Etherstack's native waveforms are ported to the SCA by integrating them to SCA wrappers – so complete consistency between native and SCA-deployed function is ensured.

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## WIMAX

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#### RADIO SOFTWARE DEVELOPMENT WITH ETHERSTACK

Etherstack has a field-proven track record in developing small footprint optimally portable real-world complex waveforms.

Each waveform consists of a series of layers and functional sub-modules that have well defined interfaces and can be deployed on the same or on separate processing nodes as required by the platform. These are supported by our "Core Services" harness, which provides efficient communication, state machine, test/debug and timing support to the protocol function - minimizing reliance on the underlying operating system.

Our design technology aims to minimize the work required to port a waveform to a new embedded platform without compromising on footprint, speed or power consumption.

#### ETHERSTACK CAN SEE YOU THROUGH FROM CONCEPT TO RELEASE

We assist customers throughout the radio development lifecycle from specification to development, feature customization (if necessary), integration and field trials. We also offer a comprehensive warranty and support package for ongoing support and maintenance.

#### TEST TOOLS

Etherstack has developed custom tools to allow comprehensive testing of our protocol software before and after integration.

All waveforms are delivered with test plans, a full-featured test script suite and a custom test execution and analysis framework. This allows automated testing of the base waveform in simulation on a PC and execution of the same tests against the software once it is ported to the target platform.

#### ALL-IP CORE NETWORK SOLUTIONS

Etherstack offers core network products based on current commercial Radio over IP (RoIP) technology and wireless communications standards. These network products can be deployed on COTS industrial computers to build flexible, powerful, future-proof end-to-end IP soft-switched radio networks that vary in scale from single site to nationwide.

#### ABOUT ETHERSTACK

Modern wireless communications are driven by a need for improved data throughput, interoperability, security and spectral efficiency. These requirements demand extensive, complex and well managed software. Etherstack has been a specialist licensor of such software to commercial, public safety and defense radio equipment manufacturers around the world for over ten years.

We license protocol stacks, IP-based communication network software and cryptographic solutions.

The company is also a leading Defense SDR waveform developer and has won multiple waveform contracts including a major development for the Swedish Defense Ministry related to the international program of the U.S. DoD JTRS program.

[www.etherstack.com](http://www.etherstack.com)