



etherstack

# DMR Mobile Station Protocol Stack

Etherstack is pleased to now offer DMR alongside our field-proven range of APCO 25, TETRA and MPT1327 mobile and base station protocol stacks.

- ETSI DMR Tier 3 Trunking
- ETSI DMR Tier 2 Repeater
- ETSI DMR Tier 2 Direct Mode
- Voice plus Data
- Layers 1-3 plus Application
- Upgrade path between all options.

## Protocol Stack Features

- ETSI DMR Tier 3 Trunking
- ETSI DMR Tier 2 Direct Mode
- ETSI DMR Tier 2 Repeater Mode
- Advanced FEC for Wide Coverage
- Packet Data (TS 102 361 4)
- Short Data Service
- Analog FM (CTCSS and DCS)
- Tier 3 Pre-emption (Option)
- Tier 3 Power Save (Option)
- Tier 3 Authentication (Option)
- Full Duplex (Option)
- Simulcast (Option – Not Standardized)
- Encryption (Option – Not Standardized)

## Protocol Stack Package

- Source or Binary License
- Software Requirements Specifications
- Interface Requirements Specifications
- High Level Design
- Software Test Plan
- Software Test Procedures
- DMR Test Scripts
- Automated Test Environment
- Integration Services
- Warranty

## DMR Mobile Station Protocol Stack

Wireless standards are simple to read yet complex to implement in code. Etherstack's core capability is successful PMR protocol stack development. Etherstack protocol stacks are widely used on fielded radio equipment around the world.

Our DMR Mobile Station Protocol Stack is based on the DMR standards ETSI TS 102 361-1 to 361-4. It is constructed as a series of functional sub-modules within layered components, and can be split across multiple processors if necessary.

- Modular ANSI C Source Code
- Layer 1 (PHY, LMAC, FEC, Crypto Function)
- Layer 2 (UMAC, LLC)
- Layer 3 (Scanning and Mode Control, Call Control, Registration and Affiliation, Supplementary Services, Packet Data)
- Application (Channel Selection, Channel Scanning, Call Services, Message and Feature Services, Data Services and Database)
- 96ksample/s I/Q P-HAL interface
- Interfaces to selected vocoder (DVSI or other)

Processor optimized code is also available – please enquire.

## Working with Etherstack

We act as an extension of your engineering team. You have full visibility of our engineering products and processes.

We also provide the support required to ensure delivered software meets your requirements as you go to market.

While you concentrate on platform, package and service differentiation in an ever more complex market, we take care of the standards-based software.

## Software Reuse

Protocol software represents a key investment. It is important you can reuse it on future platforms and in derivative products to save money, reduce risk, speed time-to-market and respond quickly to changing market requirements.

Modular, testable code for reuse is our priority.

## Evolving Standards, Evolving Software

We use Etherstack's Lightweight Integrated Test Environment (ELITE), an advanced embedded software test and analysis system, with all our protocol stacks. ELITE ensures our software can be maintained across different radio platforms as the ETSI standards and DMR radio features evolve. It allows automated software testing and debug analysis during development, integration, field trials and as new features are introduced over time.

## Working With Etherstack

Etherstack engineers specialize in radio communications software.

With over fifteen years of experience and an international client base, Etherstack combines wireless protocol software design with all-IP soft switching expertise derived across professional mobile radio, military and cellular communications.

We work closely with our customers to achieve technical excellence, successful delivery at fixed price, ongoing support and software that can be reused.

## Other Products

- DMR Base Station Protocol Stack
- DMR All-IP Network and Test Systems
- DMR Transceiver Solutions
- FIPS 140-2 Crypto Modules
- P25 and TETRA Protocol Stacks



European Inquiries  
Phone: +44 (0) 207 734 0200  
Email: info.eu@etherstack.com

North American Inquiries  
Phone: 917 661 4110  
Email: info.na@etherstack.com

Asia Pacific Inquiries  
Phone: +61 (0) 283 997 500  
Email: info.au@etherstack.com