Proteus
Modular Mesh Radio

TELEGRID

- Design your own MANET MIMO mesh radio that satisfies your specific needs using available <u>optional</u> modules including:
  - Dual Radio Module.
  - Power Supply/ Battery Module.
  - Sensors Interface Module.
  - Touch-Screen Display Module

- Optional Dual Radio Modules:
  - Two 2.4GHz Radios
  - Two 5.8GHz. Radios
  - One 2.4GHz/ 5.8GHz Radio and One 900MHz Radio.
  - Network Interface – Ethernet, USB.

- Optional Power Supply Modules:
  - 110 VAC Supply
  - 28 VDC Supply
  - Rechargeable Battery
  - Solar Panel Supply

- Optional Sensors Module:
  - GPS Receiver.
  - Environmental Sensors.
  - Position Sensors.

- Embedded Security Design Including:
  - FIPS 140-2 Encryption.
  - SSH and VNC for remote configuration.

- Built-in LINUX OS Container for user-customized code.

*Photo of Proteus radio operating at <u>optional</u> 900MHz and 2.4GHz with <u>optional</u> touch-screen display module and <u>optional</u> rechargeable battery module.

YOU DESIGN IT! YOU DEVELOP IT! YOU OWN IT!

LAYER 2 MESH TO SIMPLIFY INTEGRATION FOR LARGE NETWORKS

LINUX OS for Custom User Code

Embedded Security Framework (FIPS 140-2, PKI, etc.)

Container

Proteus Layer 2 Mesh

Hardware/ Radio

LIMITS MULTI-HOP DEGRADATION FOR BETTER IN-LINE COMMUNICATIONS

Proteus Networking Protocol

Proteus Radio employs the **Better Approach to Mobile Ad hoc Networking** (**B.A.T.M.A.N.**) routing protocol. This protocol is ideal for multi-hop mobile ad hoc mesh networks because it reduces the throughput degradation that typically occurs with other standard protocols.

Proteus radio interfaces
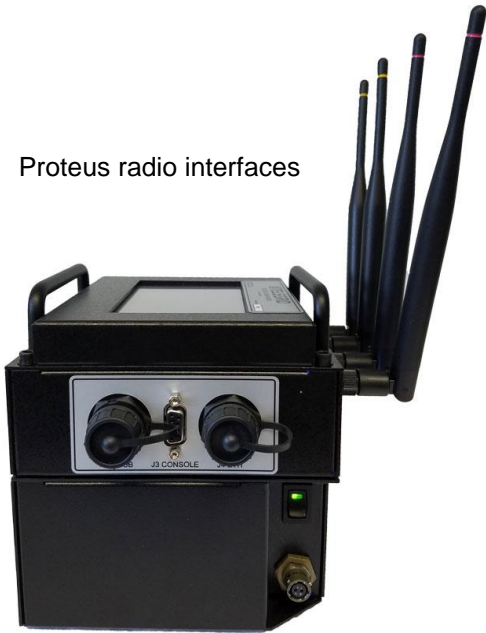
Proteus Routing Technique

Proteus Network, unlike typical mesh networks utilizes layer 2 (data-link layer) routing. This makes routing faster and, more importantly, simpler because it does not require large amount of configuration including assignment of IP addresses to all connected devices. This is ideal for large sensors networks.

Proteus v3 Flexibility for Custom Code

Proteus Radio design includes an embedded Linux OS Container which is separate from the router OS which runs all mesh functionality. This allows a user to load their own code without affecting the underlying mesh. Providing a full LINUX distribution, as opposed to a minimal Android OS, further increases flexibility.

Security

Proteus Radio design uses TELEGRID's award winning Embedded Security Framework (ESF) which is a collection of DISA STIG/ SRG compliant encryption and authentication modules. Combining the ESF with a LINUX OS Container means sensor network integrators no longer have to worry about integrating security at the edge. The ESF handles all encryption and authentication including FIPS 140-2 compliance.

Technical Specifications

Interfaces:
- Ethernet - GigE 10/100/1000 Mbps – Connector: RCP-5SPFFV-SCU7001
- USB 2.0A, Connector: UA-20PMFP-SC8001
- Console – RS-232 – Connector: DB-9

Proteus Radio:
- Two (2) 802.11a/b/g/n/ac Radios operating at 2.4/ 5.8 GHz and 900 MHz

Frequency	900 MHz	2.4 GHz	5.8 GHz
Configuration	2x2 MIMO	2x2 MIMO	2x2 MIMO
Tx Power	1000mW, 30 dBm	1000mW, 30 dBm	500mW, 27 dBm
Rx Sensitivity	-85 dBm	-96 dBm	-76 dBm

Antennas:
- 7.5 inch with 90 degree bend

Weight:
- 7 pounds (with batteries and touch screen)

Dimensions:
- 6.0" x 6.0" x 6.0" inches (without antennas)
- 2.4GHz antenna length: 7.5 inches

Power:
- 19 VDC Charger – Connector: MIL-DTL-26482 Series I, PT