

Ocracoke Project

The community of Ocracoke could serve as the problem definition of “Last Mile” for internet service. The 500-acre unincorporated community, located on the southwestern end of Ocracoke Island in the Outer Banks of North Carolina, is the most remote community on the Outer Banks, accessible by 1 hour ferry ride from Hatteras Island. Atlantic storms and hurricanes frequently damage the singular fiber cable that provides backhaul service to the local cell tower and is the only link from the community to the rest of the Outer Banks and the Mainland. To minimize the sole reliance on this fiber infrastructure, the Ocracoke community looked for new ideas and technologies.

On July 7, 2022, Tekniam began design and installation of the Remote Universal Communication System, or RUCS™, providing select Ocracoke businesses with controlled access to the Internet, while also serving as back-up for emergency communications.

Phase 1 implementation was completed on July 29, 2022. After installation was completed, access to the secure WiFi system is planned to be expanded throughout the community to improve internet access for many small businesses.



During Phase 1 of the Project, Tekniam installed three PCLs and five DMs, providing Internet access to select businesses operating along Irvin Garrison Highway, extending from the Ocracoke Community Center to Lake Drive. Each of the PCL’s is dedicated to connecting to the Cell tower, the existing fiber modem located at the Community Center, and to a commercial satellite system planned to be installed at the Community Fire Station, providing multiple and redundant connections to the internet and outside world.

The RUCS™ DMs are BYOD ready with access points delivering a range of 1000’ or greater, using 2.4GHz 3x3 MIMO technology. This is a “one-of-a-kind” feature for commercially available industrial hardened access points, each supporting up to 250 clients. Any WiFi device using 2.4GHz can be given access to the secure network, allowing the RUCS™ Solution to support WiFi cellular calls or backup emergency communications. RUCS™ DMs employ proven high-power, high-capacity WiFi radio’s and modern routing protocols to ensure low latency and low signal loss, allowing the DMs to effectively extend any network. Each DM automatically connects to the TekMESH™ network via DHCP and will automatically mesh with other RUCS™ DMs within line of sight and up to 3 miles away.

The Phase 1 Project is funded by the Township of Ocracoke, Occupancy Tax and Tourism Boards, and was unanimously approved by the Hyde County Commissioners. Ocracoke leaders are continuing to work in concert with Hyde County to identify other funding streams to secure the needed backup satellite system which is planned to be implemented during Phase 2 of the Project. This will ensure the Ocracoke community can continue essential business functions while providing a redundant system for emergency communications.

To learn more about Tekniam, or the RUCS™ product, visit www.tekniam.com.



The RUCS™ Solution

Tekniam, LLC (Tekniam) is offering a complete turn-key solution to provide broadband internet coverage to virtually any location or area in the world. This solution consists of our patent pending **Remote Universal Communications System (RUCS™)** communication components strategically placed within the coverage area, distribution modules disbursed as needed to serve the users, utility interface for power, mounting devices, internet interface through either existing service providers in the area or satellite solutions for remote areas, **TekMESH™** remote management software, and installation/support services as needed.



PCL.B

Internet access is enabled for remote locations through the **RUCS™ Portable Communication Link (PCL™)** coupled with the **RUCS Distribution Modules (DMs™)**. Multiple versions of the PCL are available depending upon location and network connection needs. The **PCL.B** is designed to manage multiple available internet sources, including cellular, satellite, or terrestrial wired sources, prioritizing which connection to use (i.e., cellular before satellite). The PCL.B can be set to “fail-over” between sources as needed. The

PCL.B can also be configured to share traffic across multiple connections to split the load amongst sources for optimal service. The **PCL.C (Cellular)** and **PCL.N (Network)** versions are smaller and are designed to connect and manage internet access via a single input source. The network switch in all versions of the PCL is gigabit capable and extreme temperature rated. To ensure Internet connectivity to even the most remote locations, Tekniam has strategic relationships with satellite providers to provide Internet service.



PCL.C or N

The **RUCS Distribution Modules™** incorporate high-capacity, high-power network routers enabling wifi access with a range of 1000’ or greater; a “one-of-a-kind” feature for any commercially available access point. All settings are remotely manageable via the **TekMESH™** software, allowing Tekniam engineers to optimize operation of the system to changing connection status and availability. Multiple DMs can be linked together into a self-meshing network via included 5 GHz radios / antennas, extending the RUCS network coverage area to meet each users unique requirements. The DM’s are constructed in IP67 rated ABS enclosures that are corrosion-proof, lightweight, durable, and waterproof.

The RUCS™ solution requires use of the TekMESH™ management software, which is included in the device cost for the first 3 years. Continued use of the TEKMesh™ software past these initial 3 years of deployment requires an extension of the software license, which allows Tekniam and its Network Operations Center (NOC) to monitor, service, and respond to issues affecting overall system performance.



Distribution Module

The RUCS™ system and components are not commercially available except by purchase through Tekniam and has been validated by an independent Department of Defense (DoD) contract Liaison Officer (LNO) and a team of expert Evaluators. The RUCS™ has conducted multiple formal Testing and Evaluations (T&E) under the direction of an independent DoD contract LNO. Each T&E was meticulously documented and validated the RUCS™ delivers, “advanced telecommunications and information services” as defined in section 254(h) of the Communications Act. The results of the T&E are held solely by the LNO and are available to those with a U.S. Government email address.

Tekniam has identified the following applicable North American Industry Codes (NAICs) for the RUCS™ as 334290; 334210; 517919; 517311; 517410; 561439; 5416; 334220; with Product and Service Code 4813.

This information provided herein is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material. Any review, retransmission, dissemination, or other use of, or taking of any action in reliance upon this information by person or entities other than the intended recipient is prohibited.