

Oceus Networks

Justification for Nationwide

Experimental License

April 23, 2026,

Submitted with File: 0465-EX-CN-2026

Overview

Oceus seeks authority under an FCC experimental license to conduct structured research, development, and user-training activities in support of various Government's programs to evaluate and mature 5G Private Network architecture. All experimentation covered under this application will occur within the United States, utilizing test-range sites and controlled locations to characterize performance of 5G and LTE cellular systems, validate deployment procedures, refine operational concepts, and train personnel prior to eventual full-scale operational use by the US Government.

The proposed experimentation will employ fixed and deployable commercial 5G/LTE Radio Access Network (RAN) equipment..

The theory of operation to be validated includes:

- establishing secure, private 5G cellular coverage using fixed and deployable nodes;
- demonstrating seamless integration private 5G core elements;
- validating SIM and eSIM provisioning workflows
- evaluating automatic configuration and orchestration of deployable cellular systems;
- testing open, standards-based interfaces enabling third-party application integration;
- demonstrating network monitoring, fault detection, alarm management, and analytics
- assessing network functionality and resiliency under Denied, Degraded, Intermittent, and Limited (DDIL) conditions using multiple backhaul paths,

The specific objectives of the experimentation program are to:

- (a) validate 5G private cellular deployment and configuration procedures in representative U.S. test environments;
- (b) evaluate operational concepts for fixed, mobile, and rapidly deployable network nodes;
- (c) assess performance, interference behavior, mobility, and reliability in varied U.S. terrain and RF conditions;
- (d) train government and contractor personnel in installation, operation, monitoring, and

troubleshooting of 5G systems;

(e) validate interoperability with industry-standard interfaces and device types; and

(f) support iterative development of applications, orchestration tools, and network management capabilities using open system interfaces. These objectives reflect the program's requirement for long-term testbed capabilities, rapid technology insertion, and integration of new applications.

The program has a clear and reasonable promise of contributing to the development and expansion of the radio art. The experimentation will:

- advance understanding of private 5G architectures using integrated RAN, core, and orchestration components not yet widely deployed in U.S. test environments;
- evaluate novel deployment, auto-configuration, and distributed orchestration techniques;
- assess multi-path survivability and performance in real-world conditions;
- test open interfaces for integrating applications, algorithms, and new technologies;
- explore operational models for secure, resilient wireless broadband systems; and
- produce data and lessons learned that will inform future deployments and refine system capabilities.

As part of this broader effort, Oceus will conduct U.S.-based field deployments to train users, validate operational concepts, and support the development of procedures that will eventually guide employment of future 5G Private Network systems. The results of this experimentation will provide meaningful contributions to modern wireless communications research and the practical utilization of advanced 5G technologies.