terraferma

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Category: Wireless Data Communications, Cyber Security-Government, Military and Industrial Communications Products and targeted commercial applications.

Unique Entity ID: FA4GTJDDFVX7

CAGE: 6A2G6

EIN: 36-4805333

NAICS: 334419, 541512

Year Founded: 2009

LiFi Certifications: ITU G.9991, IEEE 802.3, MilStd-810H, MilStd-461G, IP67
UL-cUL Only - E516068, CE Mark

Commercial Solutions for Classified (CSfC): LiFi in progress - expected May 2025

Opportunity: Terra Ferma has reimagined wireless connectivity! Our Light Fidelity (LiFi) technology eliminates the risks and limitations of WiFi, enabling a **secure, faster, and cheaper connection in locations and for missions where wireless was never a possibility**.

Terra Ferma designs, manufactures and markets Light Fidelity (LiFi) products for Government, Military and Industrial uses and specific Commercial Markets. Our LiFi products leverage **33 patents** and continued R&D efforts. Terra Ferma has established relationships with Value Added Resellers and Integrators who incorporate LiFi with our patented PoE switches and injectors directly into Programs of Record.

Our LiFi products are ideal in locations where WiFi RF connectivity is difficult or denied, and where data security is valued. LiFi uses InfraRed (IR) LEDs to communicate much like multimode fiber optic cables. LiFi has near **zero** **RF footprint,** thus it is nearly impossible to detect, intercept or jam. LiFi does not compete for RF spectrum, instead using IR spectrum 10,000x the size of the entire WiFi frequency range. Communicating at the speed of light provides Gigabit connections with nanoseconds of delay supporting multiple 4k video streams simultaneously or transferring terabytes of data in seconds.

Terra Ferma sets the standard for LiFi communications technology. Working with US Government Agencies and our NATO Allies, our products adhere to IEEE & ITU standards ensuring inter-compatibility today and in the future for secure communications. Our LiFi products are currently undergoing CSfC (Commercial Solutions for Classified) assessment.

"*Light Fidelity*"
LiFi uses the Infrared light spectrum, rather than radio waves.

"*Wireless Fiber Optics*"
LiFi is similar to Fiber Optic transmission; yet **no** transport medium (cables) required.

Cloud

LiFi Manager

Router, Switch & LiFi Manager

RADIUS & DNS Server

PoE

Controller AP
• Access control
• Integrated Access Point
• Encryption management
• Roaming

LiFi dongle

PC

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Challenge: WiFi and RF signals introduce vulnerabilities to many Military and Government missions. Forward Operating Bases and remote operations are susceptible to signals detection, jamming, brute force hacking, and kinetic attack adding significant risk to sensitive and mission critical communications. Use of WiFi in Operations Centers is cost prohibitive due to SIGINT and RF-based risks, requiring cumbersome and resource intensive wired connections.

Solution: LiFi communications can be operational within minutes using minimal logistics support, providing secure C5ISR connectivity impervious to RF hacking and jamming techniques and with low detectability (i.e. LPI/LPD). In fixed and deployed Operations Centers, LiFi eliminates wires that require red/black separation. In deployed locations, RF-generating communications systems backhaul can be remoted to a "signals hill," and connected to camp RF-free via Point-to-MultiPoint LiFi.
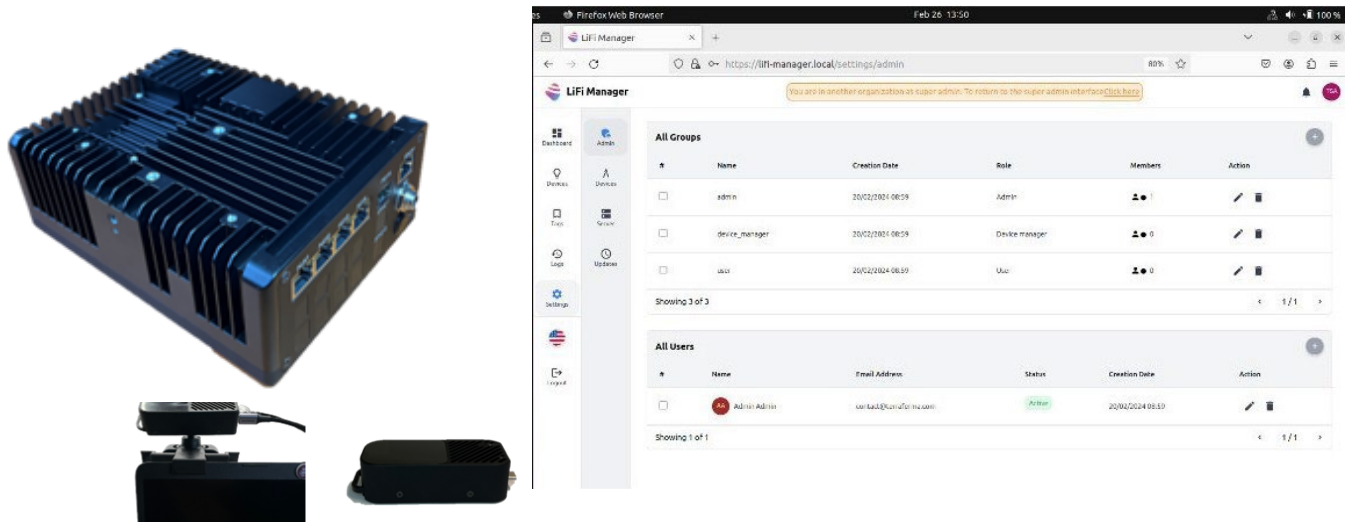
For user access control, our LiFi Controller implements IEEE 802.1x authentication integrating with TACACS+, Microsoft RADIUS, and other open RADIUS deployments. Our next generation MILSPEC platform adds the ability to use 28VDC power via multimode fiber network connections. Our LiFi dongles use Gigabit Ethernet ports seamlessly connecting the end devices you select to the network.

Operational Value

- Proven capability supporting commercial global operations in Space, Aerospace, Medical, Manufacturing and vehicle mounted applications.
- Standards based design enables rapid conversion to existing communications programs.
- All-in-one proven product installs in minutes with years of uninterrupted operations.
- Evolved from proven Mil-Spec design using COTS hardware.
- Reduces installation time and complexity by 75% while costing less than WiFi + Type 1 encryption solutions.
- Multiple wavelengths available.
- Using a Gigabit fiber or ethernet port, users will experience up to 300Mbps connections, depending on encryption.
- Infrared Light is contained in the operational space allowing wavelengths to be re-used in adjacent tents, vehicles or SCIFs.
- Unauthorized users are blocked at the LiFi Controller preventing access to any devices on the network.

Technology

- Based on EU ITU G.9991 LiFi Standards.
- Rugged – lightweight – deployable; operating on PoE injector/switch in nearly any tactical or mobile environment.
- Multiple Controllers can be connected to support "roaming" of authenticated users from one operational area to another.
- UL & CE Mark Certified with wide temperature and power range allowing Global Operations.
- Implements both MACsec and AES-256 encryption with rotating key.
- System on Module design using EU and USA components.
- Helios AP Controller submitted for CSfC certification.
- Indoor / Outdoor & Aerospace products available.

Company Background

- Product Design Engineers Specializing on Mil-Std 810H, 461G, IP/NEMA, UL & CE.
- Manufacturing Government/Military secure networking equipment since 2015.
- Products used on US and NATO deployments.
- The only USA manufactured, Mil-Std Certified, mass produced LiFi Solution.
- Service-disabled, veteran led small business.
- Designed and manufactured in USA of EU and US sourced components.
- 33 patented designs and features.

780nm   1mm

Infrared

Terra Ferma LiFi

Operates at 940nm