

# Who we are:

OptiPulse is an Albuquerque-based designer and manufacturer of semiconductor laser products. OptiPulse was founded in 2015 by John Joseph, inventor of the *Light Grid—a* revolutionary innovation in optical lasers that enables 10 gigabit speed wireless communications and applications in sensing and directed energy. With an experienced technical and management team in place, OptiPulse is rapidly commercializing the Light Grid for deployment in multiple markets.

# Light Grid Technology

The Light Grid is a novel reconfiguration of vertical cavity surface emitting lasers (VCSELs) that combines extremely high pulse speed with high amounts of power to enable transmission of data over unprecedented distances. It puts hundreds of VCSELs on a chip the size of a pin head, uniquely configured to provide high amounts of power at high pulse speeds to enable optical wireless links at 10 Gbps at distances up to 13 km. The Light Grid is significantly more affordable and easier to install than

fiber, and is multiple times faster than other wireless broadband technologies.

3x3 array of .6mm chips

# Technical Performance

The core technology has been demonstrated over 100 meters at 10Gbps with a bit error rate of 10-12, or virtually no errors, and excellent beam quality (M2 <1.2). Modeling indicates that similar performance is possible over multiple kilometers. Light Grid chips use only a few watts of power, enabling them to be powered by small solar cells. Additionally, millions of Light

Grid chips can be produced on a single GaAs wafer, dramatically increasing manufacturability and reducing production costs.

# Enabling Broadband and 5G

The next generation of information technology applications—such as advanced virtual reality, streaming 4K video, and telemedicine to remote communities—all depend on gigabit-speed bandwidth. Widespread deployment of fiber is extremely expensive and labor intensive.

Known alternatives to fiber, such as RF, achieve only a fraction of the necessary speed to keep pace with current bandwidth demand. The Light Grid enables long distance communications at gigabit speeds for an estimated quarter of the price of fiber per foot, opening new frontiers for 5G cellular networks, broadband backhaul, and curb-to-home internet. The Light Grid is the ideal technology to enable rapid, low cost deployment of wireless broadband in Albuquerque and New Mexico, including long distance links between cities and rural communities and curb-to-home ISP services.

# Other Applications

The Light Grid also enables high speed data solutions for applications where lower cost, weight, and size are critical, including data centers, satellites, and UAVs. The Light Grid also opens new frontiers in sensing for autonomous vehicles, virtual reality, 3D printing, and medical applications; and directed energy applications such as materials processing, weaponry, and missile defense.

# Contact Us

Direct Line: 505.224.5115

Toll Free: 888.978.4943

or

Email: [info@optipulse.com](mailto:info@optipulse.com)

[www.optipulse.com](http://www.optipulse.com)