

All-Optical LiFi System

Make your light smarter

POF-based selection combiner



Distributed optical LiFi frontend



USB LiFi end user device

AT A GLANCE

All-optical LiFi system for extended coverage in challenging environments.

Benefits

- High data rates and large coverage
- Robust against electromagnetic interference
- Multi-user access possible

Background

Optical wireless communication, also called LiFi, is an interesting alternative for mobile communication using the light. LiFi is considered as a promising technology for mobile indoor connectivity where the unlicensed optical spectrum is used. It is well suited for the use in challenging environments like industrial or medical applications, due to the robustness regarding electromagnetic interferences.

Since the fixed links connecting the LiFi access points should not be interfered by electromagnetic radiation, Fraunhofer HHI now developed a modular LiFi system which is networked with polymer optical fibers.

As a second innovation, a selection combiner is introduced that picks the strongest received signals only. This reduces the noise in the combiner significantly and allows to deploy a theoretically unlimited number of distributed LiFi access points with negligible performance loss. This enables mobile Internet access via light in larger areas for multiple users at Gbit/s data rates.

The selection combiner improves particularly the uplink, which will be increasingly used in future IoT applications for connecting cameras, lidars and other imaging sensors wireless to the cloud infrastructure.



LiFi access point



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Features

- Modular all-optical LiFi system
- End user device with USB 3.1 interface
- LiFi based wireless link based on G.9991
- Transparent polymer optical fiber link
- Selection combiner with LiFi access point
- 1G Ethernet interface for network integration

Applications

- Mobile access in medical or industrial areas
- Robust communication in electromagnetic interference sensitive environments
- High-speed wireless access in residential areas