



## AT A GLANCE

Fraunhofer HHI has more than 20 years of experience on Optical Wireless systems and provides compact communication modules for immediate industrial prototyping and field tests.

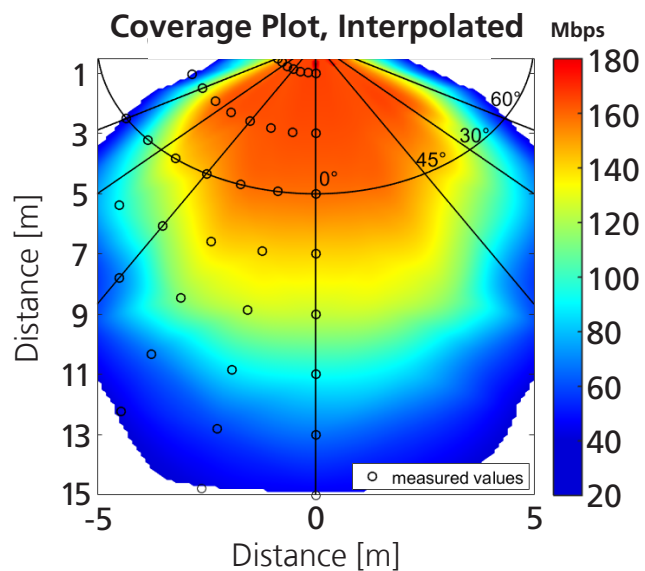
### Specifications

- Peak data rate up to 1 Gbps
- Low latency (< 1 ms)
- Up to 50 m<sup>2</sup> coverage
- Bidirectional, all-optical communication
- Dynamic rate adaptation
- Universal Ethernet Interface

### Background

Optical Wireless Communication (OWC) offers mobile high speed data transmission via light. The LED based systems use unregulated optical (visible or near infrared) spectrum. As light does not pass through walls, enhanced security is achieved. Dense user scenarios, easy small cell deployment and interference-free operation to existing radio wireless systems are possible.

OWC is well suited for numerous use cases like Industrial Wireless, Mobile Front- and Backhauling and Indoor Li-Fi.



Coverage plot of the HHI OWC-module showing  $>160$  Mbps @  $20\text{ m}^2$  and  $>120$  Mbps @  $50\text{ m}^2$ . Higher data rates are feasible with a different trade-off between rate and coverage.

#### Features

- Combination of lighting and data communication
- Improved privacy
- Use of standard illumination LEDs or IR-LEDs
- Multi-user access possible
- Robust against electromagnetic interference

#### Applications

- Femtocell deployment for network densification
- Wireless communication in industrial environments
- Optical wireless hotspot
- Data offloading from radio networks
- Spatial diversity solutions for Industry 4.0

Priv.-Doz.  
Dr. rer. nat. Volker Jungnickel  
**Photonic Networks and Systems**

Phone +49 30 31002-414  
products-pn@hhi.fraunhofer.de

Fraunhofer Heinrich Hertz Institute  
Einsteinufer 37, 10587 Berlin  
Germany

[www.hhi.fraunhofer.de/li-fi](http://www.hhi.fraunhofer.de/li-fi)

