

FRAUNHOFER HEINRICH HERTZ INSTITUTE

PRESS RELEASE

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Hannover Messe: Fraunhofer HHI shows an optical LiFi solution for reliable wireless communication

Reliable low latency wireless M2M communication is essential for the success of Industry 4.0. The Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, HHI offers an innovative optical wireless communication (LiFi) solution for secure data exchange and robust links. This technology can be seen in action at the Fraunhofer booth C16/22 in Hall 2 during the Hannover Messe.

Nowadays, high-tech products such as cars are tailor-made fabricated to specific customer demands. Satisfying the diverse demands requires flexible and quickly configurable manufacturing. To achieve this flexibility in future manufacturing processes, fixed (“wired”) links must be replaced with wireless communication systems.



Currently, most manufacturers use WiFi connectivity in their production lines. However, interference with WiFi transmissions is even possible through walls. This increases the risk of partial or complete production downtimes. Furthermore, the allotted radio frequencies are already crowded by diverse implementations requiring the transmission of large data volumes.

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The optical wireless communication (OWC) technology engineered by Fraunhofer HHI, also known as LiFi, serves as flexible connectivity solution for use in industrial environments. This innovative technology creates additional not yet exploited bandwidth in the visible spectrum, which is not subject to licensing. LiFi creates the basis for many attractive and useful implementations.

Dominic Schulz M. Eng., project manager at Fraunhofer HHI, points out: "Using light as communication medium is a fascinating solution because there is little interference with existing technologies. We are convinced that we can efficiently use LiFi to meet many wireless communication requirements in business environments."

Currently, the Institute of Electrical and Electronics Engineers (IEEE) creates new standards and protocols for LiFi as new mobile connectivity technology, which can be applied in industrial use-cases, as well. As part of the initiative 'Zuverlässige drahtlose Kommunikation in der Industrie (ZDKI) / Reliable Wireless Communication in Industry' the German Federal Ministry of Education and Research (BMBF) funds the project 'Optical Wireless Networks for Flexible Car Manufacturing Cells' (OWICELLS). In this project, Fraunhofer HHI, the BMW Group as well as the EVOPRO and OSRAM Companies jointly explore and test innovative concepts of fostering the deployment of optical wireless technologies for industry. The goal is to apply MIMO concepts (multiple input multiple output) for the creation of robust communication links even in cases of line-of-sight interruption.

The **Fraunhofer Heinrich Hertz Institute** is a world leader in the development of mobile and fixed broadband communication networks and multimedia systems. From photonic components and systems through fiber optic sensor systems to video coding and transmission, the Fraunhofer HHI works together with its international partners from research and industry. www.hhi.fraunhofer.de

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Press Contact: **Anne Rommel** | anne.rommel@hhi.fraunhofer.de | phone +49 30 31002 353

Department Contact: **Dominic Schulz** | dominic.schulz@hhi.fraunhofer.de | phone +49 30 31002 694