LiFi SOFTWARE SUITE

Fraunhofer
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AT A GLANCE

Fraunhofer HHI provides a comprehensive software suite for LiFi systems, including complete physical layer implementations and channel models.

Features

Physical Layer (PHY) Implementations in MATLAB:

- ITU-T G.9991 G.vlc: PHY I based on OFDM
- ITU-T G.9960 G.hn: PHY based on OFDM
- IEEE 802.15.13: HB PHY based on OFDM
- IEEE 802.15.13: PM PHY based on OOK

LiFi Channel Models in MATLAB:

- Frequency-domain simulation along arbitrary trajectories of mobile users
- Includes analog frontend impairments, LOS, diffuse reflections, blockages

Applications

- LiFi system performance analysis
- LiFi network planning
- Simulations and experiments according to international LiFi communications standards
- Including adaptive bit- and power-loading
- Accurate modeling of LiFi channel impairments

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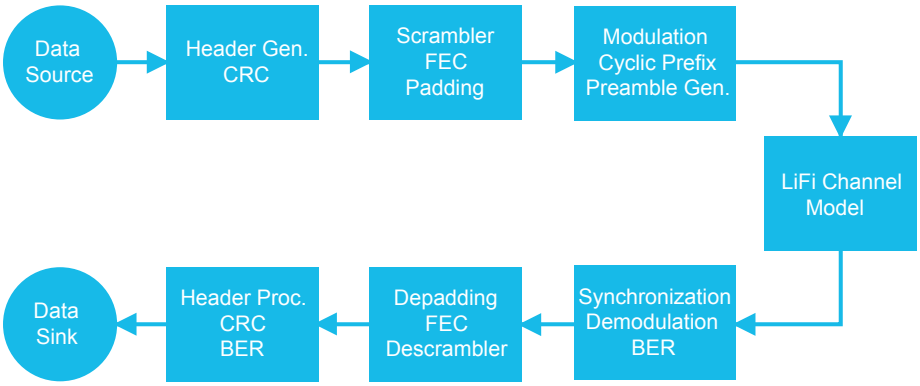
Physical Layer

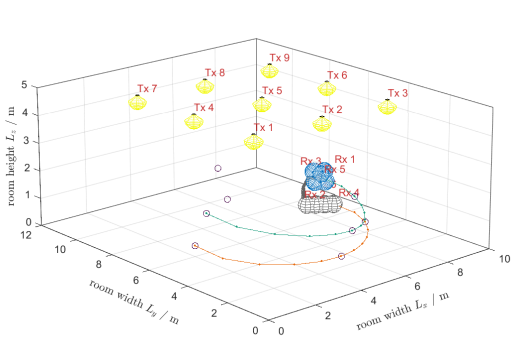
- Physical Coding Sublayer (PCS), Physical Medium Attachment Sub-layer (PMA) and Physical Medium Dependent Sublayer (PMD) are implemented
- Tx and Rx signal processing pipe-lines are separately available

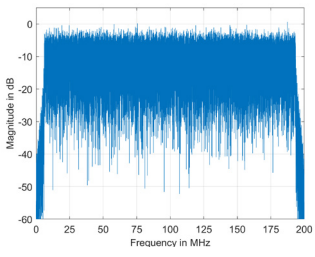
LiFi Software Suite

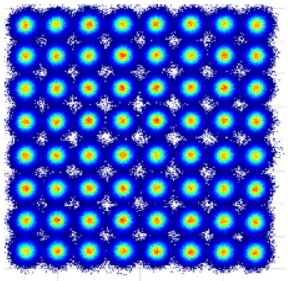
- Algorithms validated in lab and field trials
- Customizable software components
- Flexible licensing schemes available



PHY block diagram of the LiFi Software Suite components: Tx, Channel Model, and Rx







LiFi Software Suite: Channel Model Room Geometry Visualizer (left); OFDM PHY Tx Spectrum and received 64-QAM constellation after noisy channel (right)

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