

OPEN TESTBED FOR 5G AND BEYOND

From Research to Application



AT A GLANCE

The Open Testbed for 5G and Beyond provides a high performance test infrastructure including radio, access and metro network as well as SDN and network control.

Application-related tests can be performed in a dense urban environment.

Fraunhofer HHI is member of the 5G Berlin innovation cluster.

Features

- Testbed with macro and small cells located in Berlin in a dense urban environment
- Optical transmission technology for back- or fronthaul network
- Network control and monitoring (SDN, virtualization)

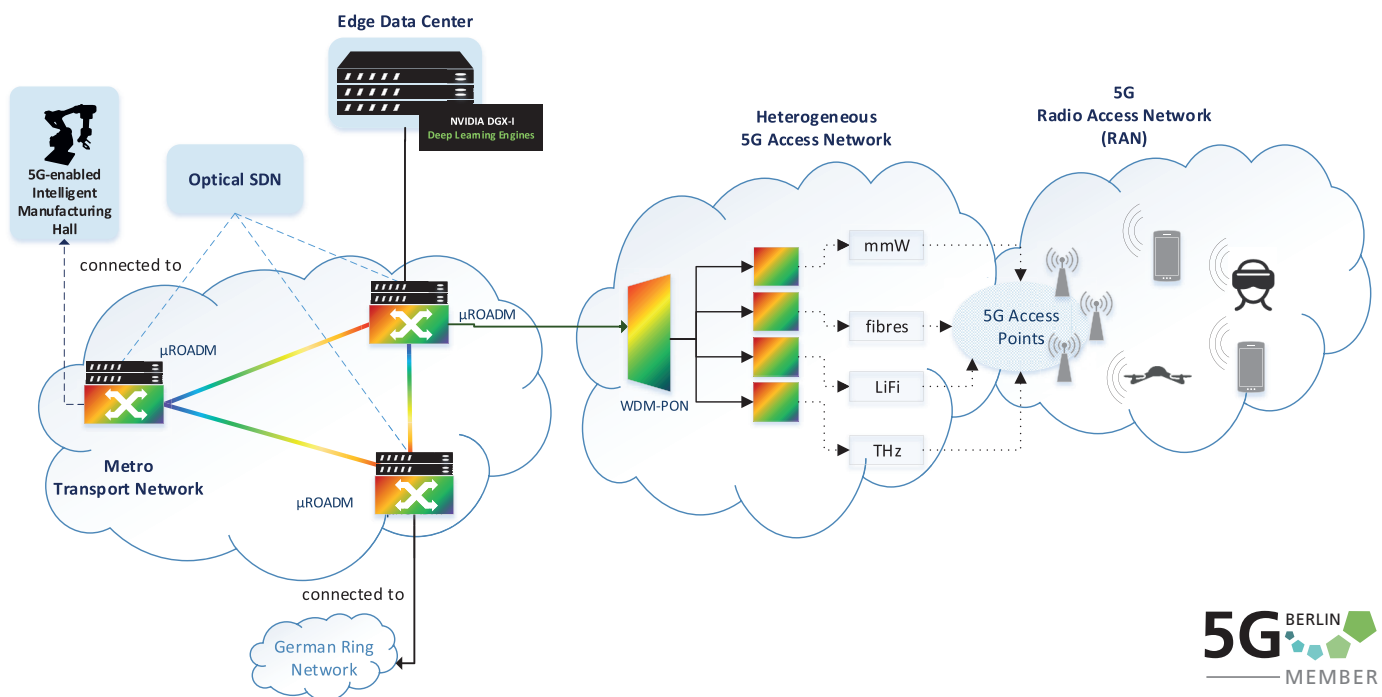
Applications

- Application-related tests including acquisition, wireless transmission and evaluation of sensor data
- Optical wireless techniques (LiFi) for the connection of small cells as well as for mobile scenarios in indoor areas
- Training and testing of machine learning algorithms

Technical Background

Today, 5G Testbeds are usually focused on specific vendors or do operate for a limited time only.

Fraunhofer HHI - together with our 5G Berlin partners - provides an open test network in order to investigate new technologies in the context of 5G and Beyond 5G. This evolutionary test network will be available on a long-term basis.



The 3-node microROADM metro network testbed hosted at Fraunhofer Heinrich Hertz Institute provides a great opportunity to perform field experiments including 5G-ready RAN infrastructure and edge compute capability for realizing low-latency end-to-end use-cases.

Photonic Networks and Systems

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Metro network characteristics

- 3 μROADM nodes
- Edge compute capability at each node
- 400G coherent transponders and beyond
- Filtered and filterless add/drop options

RAN characteristics

- 2.6 GHz TDD LTE macro-cell
- 2.6 GHz TDD indoor LTE small-cell
- 3.7 GHz 5G macro-cell upgrade
- Integration of LiFi planned

Edge cloud environment

- Multi-rack edge cloud connected to RAN
- Flexible container-based cloud environment
- AI-enabled by Nvidia DGX-1 deep learning platform