

5G



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5G Testbed Industry 4.0 – Equipment

Unlocking Testing Excellence

Welcome to the world of 5G testing, where wireless knowledge meets comprehensive measurement options. We offer various tests at our Industry 4.0 Testbed, which can be individually adapted to your application needs and requirements. For example, we offer functional, performance, interoperability, stability, drive and cell edge scenario tests. You can choose between a fixed 5G setup or building your own infrastructure. You can carry out the tests independently or use our full-service support. This service is supported by state-of-the-art test solutions for end devices and network components.

Pushing the Limits of 5G

In the world of testing, we recognize that your success is linked to unlocking the complete potential of testing solutions. This is where the 5G Testbed Industry 4.0 steps in as more than a 5G test environment. It transforms into a flexible and versatile hall that you can tailor to your specific requirement, enabling the construction of unique and realistic scenarios. Harness state-of-the-art solutions that combine multiple wireless technologies and measurement tools to test various scenarios. This capability enables us to create tailored testing environments that precisely meet your needs, optimizing outcomes within the testing environment. We prioritize your journey,

presenting not just an array of advanced technologies but a gateway to efficient testing experiences. The 5G Testbed Industry 4.0 offers cutting-edge test and measurement solutions. Featuring diverse tools, including 5G wireless protocol analyzers capturing over-the-air conversations in detail, mobile 5G network testing solutions, real-time spectrum analyzers, and precise PTP analyzers. However, our dedication extends beyond technology. Recognizing your demand for support and expertise throughout your testing, our experienced team is ready to offer expert guidance and knowledge drawn from two decades of experiences in wireless technologies, ensuring that your testing journey leads to success.

The range of our test and measurement equipment spans from extensive and versatile test environments to mobile and dynamic equipment for on-site use.



Testing with 5G UL-TDoA positioning, evaluated using an autonomous mobile robot.

Unleashing Testing Potential

The 5G Testbed Industry 4.0 is equipped with various test and measurement solutions to support measurements with and for our partners when testing end devices and network components.

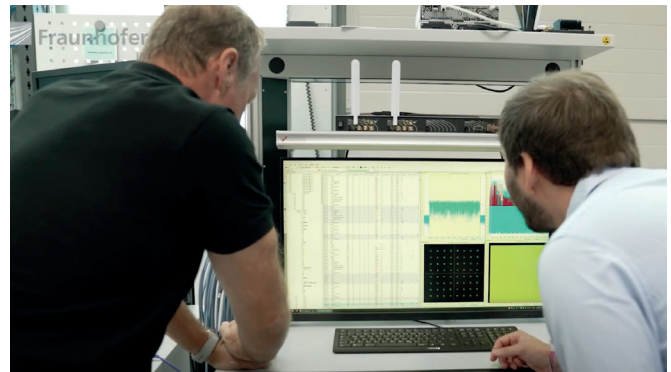
- **5G wireless protocol analyzer:** Captures the full over-the-air conversation of upper layer messages, but also includes RF signal characteristics.
- **5G network testing solution:** Mobile and portable solution for all area network testing and monitoring.
- **Portable Real time spectrum analyzers:** Checks own and neighbor spectrum.
- **PTP analyzer:** Validates system timing and synchronization end to end.
- **Additional equipment:** Signal and spectrum analyzers, vector signal generators and more.

Explore the diverse testing possibilities that our testbed provides:

- **Functional Testing:** Verify specific functionality end-to-end and against reference systems.
- **Development Testing:** Gain deep insights and root cause analysis with access to trace and debug information in our 5G networks.
- **Performance Testing:** Assess system component or complete solution performance in communication and positioning.
- **Interoperability Testing:** Test product/prototype functions in an Open RAN 5G network.
- **Stability or Long-Term Testing:** Automate scenario repetition in defined sequences and quantities.
- **Drive Testing:** Perform mobility tests indoors and in limited outdoor areas.
- **Cell Edge Scenario Testing:** Conduct tests at the edge of radio coverage.

You can choose our factory hall with a fixed 5G setup or establish your own infrastructure. Conduct the tests independently or use our full-service support, which includes collaborative test planning, system configuration, test execution and result evaluation by our IIS staff.

Venture further into the world of 5G testing with our additional testbeds - Automotive Testbed, Nomadic Positioning Testbed and Mobile Campus Network. These specialized testbeds promise unique insights and tailored solutions, expanding the horizons of your testing experience. Explore the next frontier in connectivity, positioning and testing with our diverse testbeds.



Our experts are ready with their expertise to fulfill your individual testing requests.

Since 2021, the 5G Testbed Industry 4.0 is an endorsed testbed for communication and positioning of the 5G ACIA (5G Alliance for Connected Industries and Automation):

- **Three stand-alone radio networks (2x 5G NR, 1x Wi-Fi 6 / 6E)**
- **5G NR: Eight gNBs spanning up 22 radio cells, with 30 Radio Units and two All-in-one gNBs**
- **Wi-Fi 6/6E: Four Wi-Fi 6E Access Points, five Wi-Fi 6 Access Points (indoor and outdoor)**

Contact

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