

Trials & Pilots

**5G-ACIA endorsed testbeds
device overview and demo wall 2.0
Industrial 5G User Guide**

Working Group 5 “Industrial 5G in Practice”

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May 19th, 2025

15 5G-ACIA endorsed testbeds since 2021!



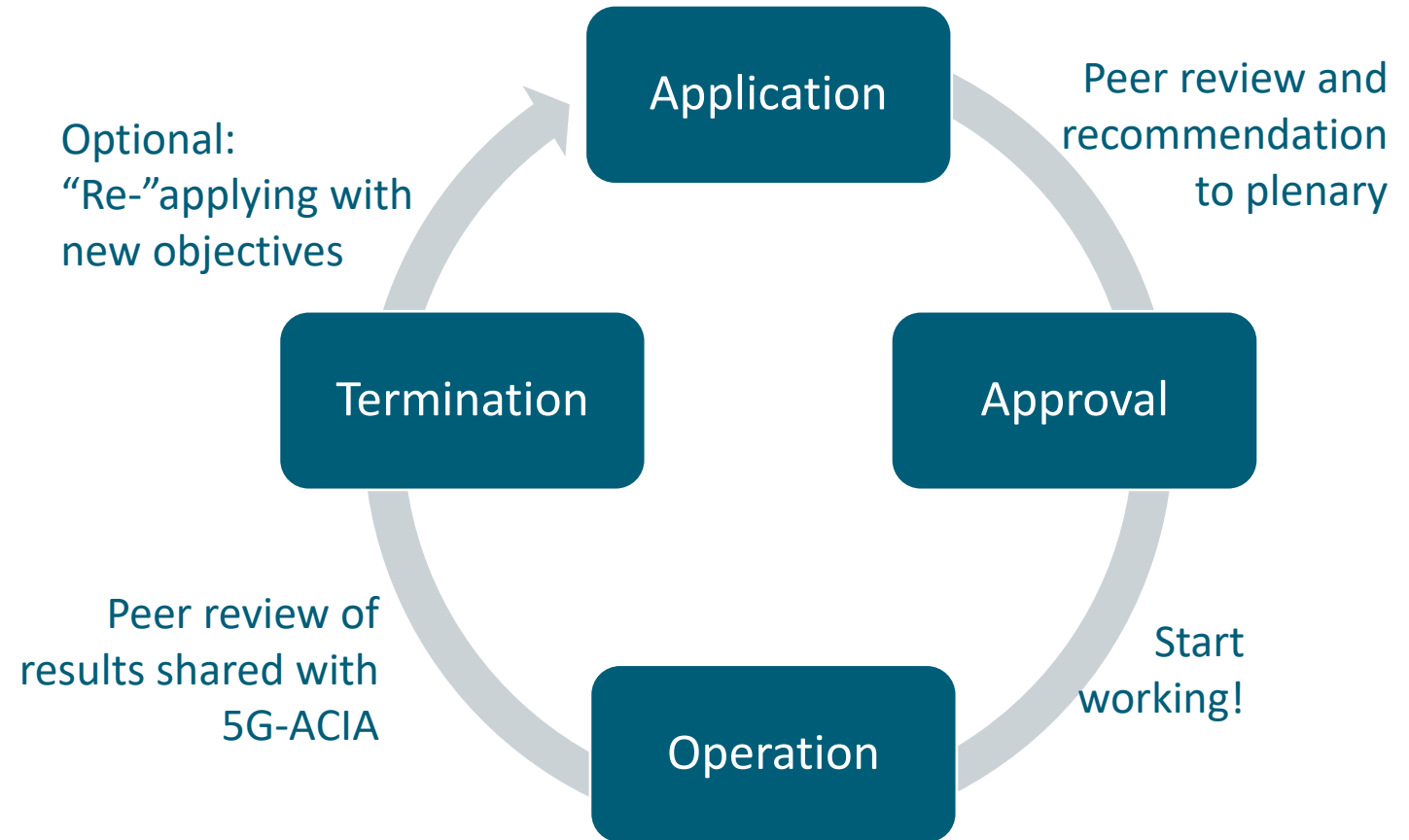
➤ Diverse use cases:
Robotics, intralogistics, material handling, smart manufacturing, zero touch production, centralized PLC, ...

➤ Diverse functionalities:
n78 + mmWave, positioning, ambient IoT, interoperability, OpenRAN

5G-ACIA testbed endorsement: Ensuring quality contributions



- At least two testbed members
 - Of which at least 66 % are also 5G-ACIA members
- Testbed scope and testing type(s)
 - Making sure the outcomes will be relevant for 5G-ACIA members
 - Factory automation, process automation, intralogistics, ...
 - Validation, Performance, Interoperability, Conformance
- Testbed purpose
 - e.g. demonstration, ...
- Detailed technical 5G information
- Testbed lifetime, testbed activities, expected testbed deliverables, milestone planning
 - Interim results are shared within 5G-ACIA



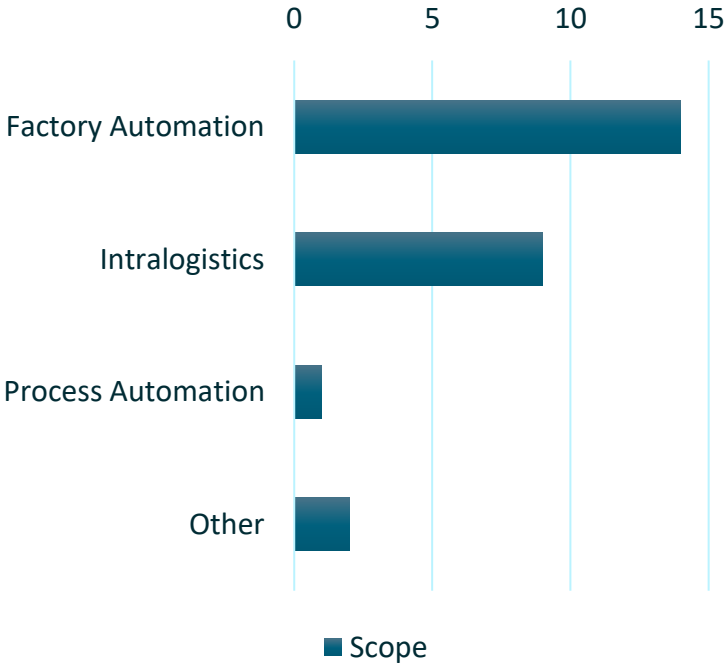
5G-ACIA Testbed Initiative



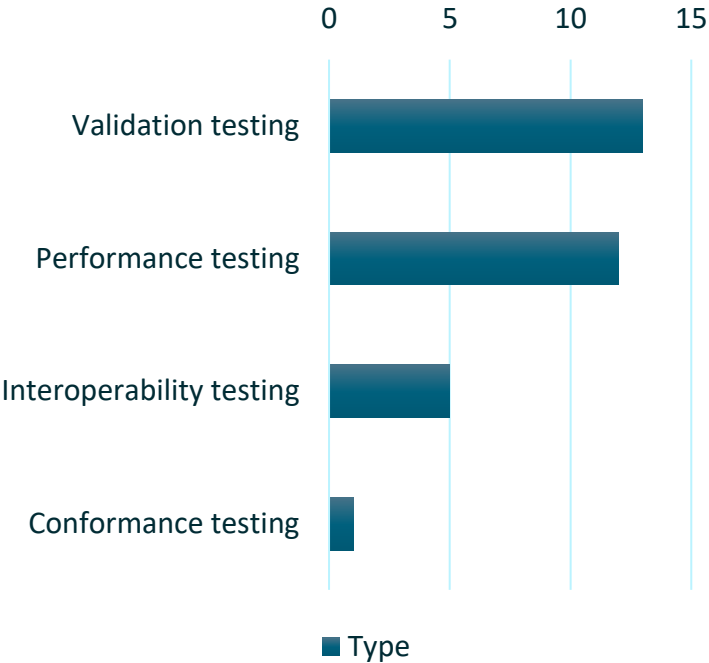
Testbed Goals

- **Evaluating** key 5G capabilities
- **Validation** of new 5G features
- Industrial applications in **realistic scenarios**
- Insights and feedback to all stakeholders in industrial 5G
- First testbeds started in 2021
- **15 testbeds** have been endorsed by 5G-ACIA

Testbed Scope



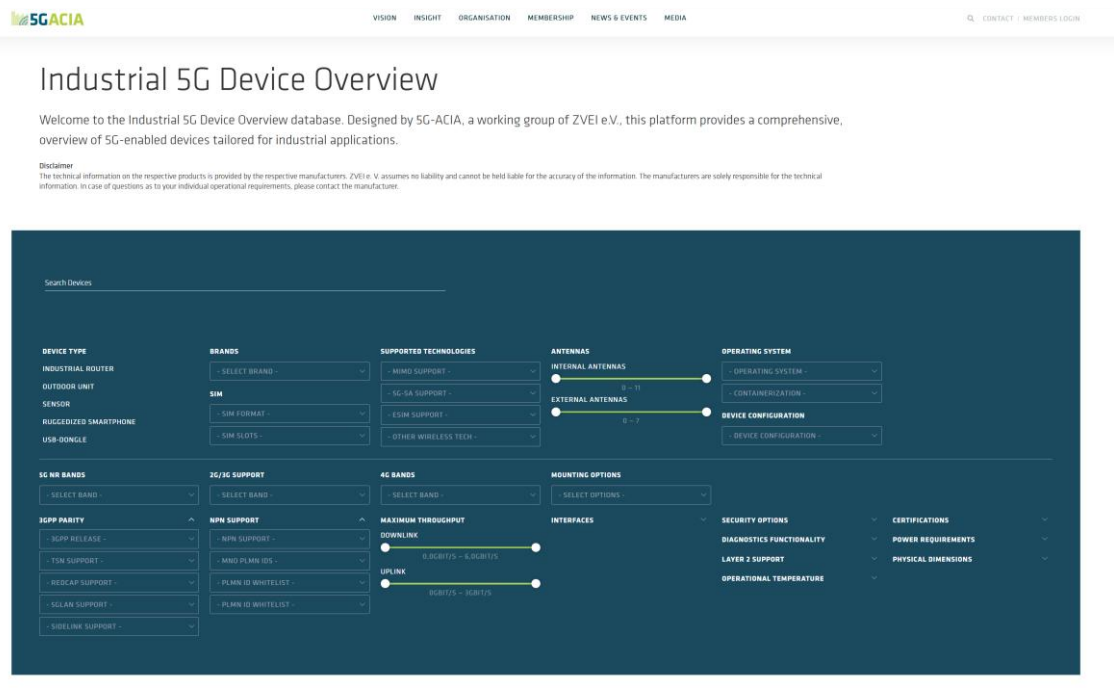
Testbed type





















Industrial 5G Device Overview

Current Status

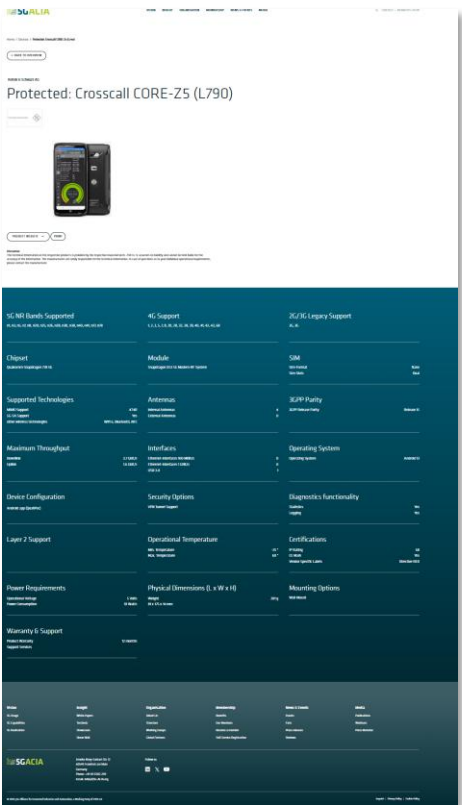
- Web version of Device Overview ready internal testing via <https://5g-acia.org/5g-devices/>



Search form

| Image | Brand | Title | Device Type | 3GPP Release Party | IP Rating | Max. Download | Max. Upload | 5G Bands | 4G Bands | FCC Mark |
|---|-----------------|--------------------------------|-------------------|--------------------|-----------|---------------|-------------|----------|----------|----------|
|  | Nortek Networks | NR5000 5G LTE | Industrial Router | Release 15 | 4G | 5.1 Gbps | 2.7 Gbps | Sub6 | Yes | Yes |
|  | T-Mobile | Android Wireless 5G LTE 4G LTE | Industrial Router | Release 15 | 4G | 5.1 Gbps | 2.7 Gbps | Sub6 | Yes | Yes |
|  | T-Mobile | Android Wireless 5G LTE 4G LTE | Industrial Router | Release 15 | 4G | 5.1 Gbps | 2.7 Gbps | Sub6 | Yes | Yes |
|  | Huawei | CloudCore 5G LTE 4G LTE | Industrial Router | Release 15 | 4G | 5.1 Gbps | 2.7 Gbps | Sub6 | Yes | Yes |
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Results list



Device details

Device Demo Wall



Digital twin of Demo Wall: <https://5g-acia.org/insight/demo-walls/>

INDUSTRIAL 5G-ROUTERS

INDUSTRIAL 5G ROUTERS/MODULES/ DONGLES

FIELD BUS COMMUNICATION OVER 5G

SAFETY OVER 5G

5G DEVICES

INDUSTRIAL 5G RADIO ACCESS NETWORKS

INDUSTRIAL 5G CORE NETWORKS

Fieldbus Communication over 5G

USERS

- 5GPP Release 16 (NR) with 4G bridge compatibility
- 4G LTE, 5G NR, Industrial LAN & Industrial protocols
- Scalable, flexible, secure and easy to integrate by dual connectivity
- Scalable network over public 5G

SCALANCE M1

Can be deployed as industrial edge router or mobile components

- 5G NR, 4G LTE, 5G NR
- PoE support
- Support of 4G/LTE, industrial LAN, CAN available
- 5G NR support for wireless 5G/LAN connectivity

SCALANCE M1

- Industrial 5G router for cellular LAN
- 5G NR, 4G LTE, 5G NR
- Support of 4G/LTE, industrial LAN, CAN available
- Suitable in public and private 5G networks
- 5G/LAN support for wireless 5G/LAN connectivity

kontron

General Purpose Industrial IT with Integrated 5G over 4G/LTE Support

5G over 4G/LTE Support

- 5GPP Release 16 (NR) with 4G bridge compatibility
- 4G LTE, 5G NR, Industrial LAN & Industrial protocols
- Scalable, flexible, secure and easy to integrate by dual connectivity
- Scalable network over public 5G

Belden

Industrial 5G over 4G/LTE Support

- 5G NR, 4G LTE, 5G NR
- PoE support
- Support of 4G/LTE, industrial LAN, CAN available
- 5G NR support for wireless 5G/LAN connectivity

ABB

Connectivity Edge Gateway CGW-02

- Flexible software architecture, enabling 5G/LAN connectivity

SIEMENS

5G over 4G/LTE Support

- 5GPP Release 16 (NR) with 4G bridge compatibility
- 4G LTE, 5G NR, Industrial LAN & Industrial protocols
- Scalable, flexible, secure and easy to integrate by dual connectivity
- Scalable network over public 5G

Siemens

5G over 4G/LTE Support

- 5GPP Release 16 (NR) with 4G bridge compatibility
- 4G LTE, 5G NR, Industrial LAN & Industrial protocols
- Scalable, flexible, secure and easy to integrate by dual connectivity
- Scalable network over public 5G



Industrial 5G User Guide

Link: <https://5g-acia.org/insight/5g-user-guide/>

For those interested in the basics, what is new in 5G, and how it benefits users:

5G NPN Deployment Options

Practical Guide to NPN Deployment Options

Four NPN Deployment Options Derived from 3GPP Standards for Enterprises

Attributes of the NPN Deployment Options

Comparison of NPN Deployment Options

5G Architecture (coming soon)

5G Use Cases (coming soon)

For those interested in actually deploying and using 5G:

5G Frequency Ranges

Spectrum Availability for 5G

National and Regional Regulations (coming soon)

Important subtopics for operating one's own network (coming soon)

Key Highlights for 2025

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What's up for 2025



5G-ACIA endorsed testbeds

- **Testbed Brochures**
 - Concise Information on testbeds
 - Uniform format --> easily compared
- **Web seminar series 2025**
 - Overview on new White Papers
 - Status reports from 5G-ACIA endorsed testbeds

Towards „Industrial 5G in practice“

- **White Paper**
„Business value calculation“
 - Publishing planned for 07/2025
- Extension of
„Industrial 5G user guide“
 - Publishing planned for 07/2025 and 09/2025

Showcasing what's possible *today*

- **5G-ACIA Demo Wall**
 - Continuous extension with new products & demos
 - June: Helsinki
 - December: Tokyo
 - April 2026: Hannover
- **Industrial 5G Device Overview**
 - Extending the Industrial 5G Device Overview also to non-member devices

Thank you.

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