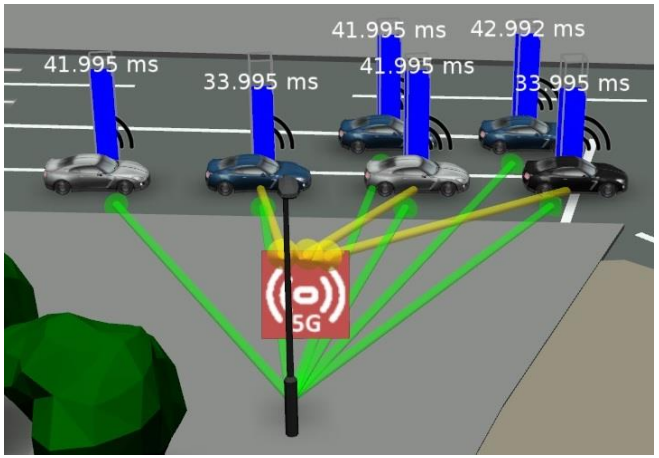
simulators

Nomor has developed a comprehensive 3G/4G/5G system level simulation environment in full compliance to 3GPP and NGMN simulation methodology. Simulation models include multi-cell/multi-user networks with detailed standard conform scheduler, link adaptation, HARQ, power control, MIMO transmission modes etc.

5G Low Latency Simulation/Demonstration for V2V (Source: H2020 Project 5GNORMA 2017)



- Example Access Technologies
  - HSPA, LTE, LTE-A, LTE-A Pro, IEEE 802.11
  - LTE Broadcast and Enhanced MBMS Service
  - D2D Communication and Proximity Services
  - 5G cm- and mm-wave air interface
- Example Simulation Scenarios
  - Homogenous and Heterogeneous Networks
  - Vehicular, Pedestrian and Indoor Environments
  - Rural, Urban and Suburban Channel Models

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demonstrators

For more than a decade, Nomor's demonstrators have been showcased in collaborations with its strategic partners at major exhibitions around the globe. They are used to show the outcome of research projects, to demonstrate latest features to customers and for system verification as well as prove of concept.

World First LTE Live Demonstration with HD-Video (Source: Siemens Networks 2006)

- Example Demonstrations
  - Licensed and Authorized Shared Access
  - 5G mm- and cm-Wave Demonstrations
  - LTE SON MRO, MLB, MDT and Multi-RAT Demo
  - LTE eNB Protocol Stack on various Platforms
- Example Exhibitions
  - Mobile World Congress every year since 2004
  - GSMA World Congress and ITU Telecom World
  - Brooklyn 5G Summit

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Nomor Research GmbH

Based in Munich, Germany, is a leading company in research, development and prototyping future communication systems.

Consultancy Services

- LTE-A, LTE-B, LTE-V and 5G Simulation Service
- Development Prototypes and Demonstrators
- Support by 3GPP Standardization Experts
- Technology Experts for Public Safety, V2X, MTC
- Patent Evaluation and Analysis

Technology Training

- 3GPP LTE, LTE-Advanced and LTE-A Pro
- LTE/EPC Architecture, Protocol and Signalling
- Massive MIMO Antenna Techniques
- Future LTE Public Safety Systems
- Status of 3GPP and Release Overview
- Future Wireless Systems and 5G

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training

Nomor's standardization experts provide you highly technical LTE training courses. For many years Nomor has been involved in the implementation of the UE, eNB, MME algorithms and protocols. Nomor's courses are available on ad hoc basis and can be fully customized to any LTE or 5G related topic.

Training facilities at Nomor in Munich, Germany

- Public Training Courses
  - LTE-A Pro Technology Training – 3 Days
  - LTE-A Pro Protocol and Architecture – 2 Days
  - 5G Radio Access Technology – 3 Days
  - 5G Protocol and Architecture – 2 Days
  - Future LTE Public Safety Systems – 3 Days
- Customized In-house Training
  - Future Massive MIMO Technologies
  - LTE/Wi-Fi Aggregation and Integration
  - Enhanced Multimedia Broadcast Multicast
  - Future Wi-Fi and 5G Technologies

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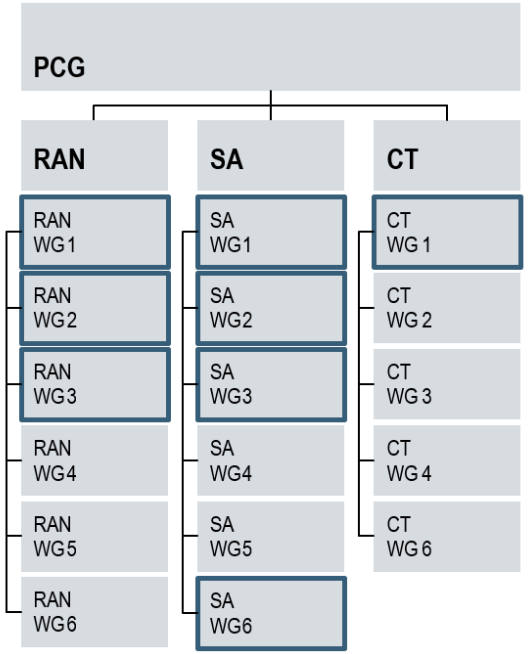
standardization

Standardization is essential to build up knowledge regarding market trends, customer and competitors, to acquire essential intellectual property and basically to lay ground for future business. Nomor Research's standardization services provide you with the resources and the knowledge needed to understand and influence standardization.

- Overview about Releases, Features and Trends
- Reports about Technical Areas / Working Groups
- Active Contribution to 3GPP Standards Activities
- Develop Roadmap and Define Requirements
- Evaluation of Own and Other's Contributions
- Answer Questions Concerning 3GPP Standards



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Eiko has been working in mobile communication R&D for more than 20 years. Since 3GPP was founded in 1998, Eiko has been contributing actively to 3G/4G/5G standardization. Besides numerous contributions to 3GPP, he published 20+ conference papers, submitted 100+ patent applications and contributed to various books. Eiko works as consultant, advisor, trainer and independent expert for different organizations.

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publications

Nomor regularly publishes its findings at conferences, in journals and books. For a list of publications see:

http://www.nomor.de/home/technology/publications

newsletter

Nomor provides information about standardization updates in its quarterly 3GPP newsletter:

http://newsletter.nomor.de//?p=subscribe

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