5G OTA

5G Over-The-Air: test & measurement for industrial applications

What is 5G OTA?

5G is expecting to transform the industry by giving ubiquitous wireless access. Understanding the transmission properties of electromagnetic waves in real-world environments is fundamental to design 5G user and infrastructure equipments, and to optimize 5G deployment tailored to adhoc industrial scenarios.

The aim of this demonstration is to highlight CEA-Leti know-how on 5G NR technologies through an Over-The-Air (OTA) framework reproducing realistic radio propagation characteristics.

Applications

- 5G deployment in industrial environment
- Wireless sensor network
- Mission critical application
- Smart cities, smart areas
- Massive and critical IoT (traffic safety, smart grid, etc.)
- Coverage, reliability, longevity

What's new?

The CEA-Leti 5GNR platform provides a solution to assess physical layer performance. The platform is based on a Software Defined Radio (SDR) board composed of high-end converters, programmable logic as well as embedded processors. 5GNR signal can be generated and decoded covering up to 400MHz bandwidth for all numerologies through a proprietary software/ hardware 5GNR libraries. For some specific scenarios, evolution to the 5GNR physical layer can be implemented and performance assessed.

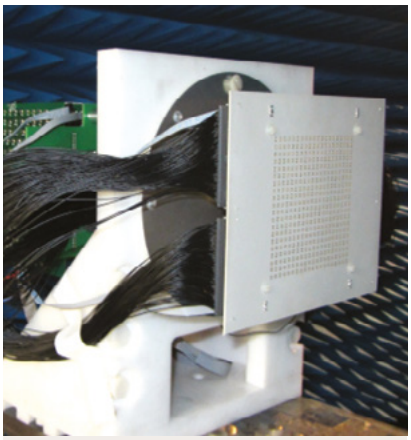
The radiated test has the advantage of benchmarking different 5G NR solutions, in realistic propagation scenario. The setup is able to reproduce the radio channel characteristics, including multipath angular and polarization distributions in the 3D space, for different use cases. In particular, specific industrial scenarios can be emulated based on channel measurement performed with Leti sounder.

CEA-Leti expertise

- 5G NR PHY layer performance assessment
- Rapid prototyping with programmable logic and embedded processors
- Channel propagation characterization based on measurements
- OTA test and measurement

What's next?

CEA-Leti is now working on future OTA test methodologies for 5G and beyond communications. This include OTA test for mmWave and large arrays as well as Ultra-reliable low-latency communication (URLLC). High performance SDR platforms will also evolve to address these new paradigms. Moreover, new channel sounding capabilities for very high-speed communications will allow the development of new channel models.



Interested in this technology?

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