

The Latest Update on 5G from IEEE Communications Society



By Elena Neira, *Director of Online Content - ComSoc Board of Governors & Editor-in-Chief of IEEE CTN (ComSoc Technology News)*

5G continues to generate buzz and grab the efforts and the attention of many of us in the Communications Technology Industry. The interest of IEEE ComSoc members is such that, for example, 7 out of the top-10 most downloaded papers in May are 5G related. The May 2014 special issue of the IEEE CTN on 5G brought our readers up to date on the current state of 5G technology. Just a few weeks later, with the rapid research progress and industry interest in the topic, an update is due. News of preliminary 5G wireless channel models, reports of 5G live network test results, renewed focus in emerging architectures, and evaluation and plans for the impact of 5G are the key topics in this update. Let's get to the details.

[The first 5G wireless channel models have been published.](#) A group of eight partners of the METIS Task Force completed work, and published the first 'interim' 5G channel models officially accepted by the METIS community. METIS, an Integrated Project under the European Union Seventh Framework Programme (FP7) for research and development, counts as members 29 key mobile industry players and it is a major large-scale global research activity on 5G. These interim channel models were presented for the first time to the 5G technical community at the [Brooklyn 5G Summit](#) which IEEE ComSoc partnered with Ted Rappaport from NYU WIRELESS and Amitabha Ghosh from Nokia Solutions and Networks. [2-Day video recording available](#). Actual documentation of the models is available at [METIS website](#) and they appear to cover channel models for 2.3 GHz, 2.6 GHz, 5.25 GHz, 26.4 GHz, and 58.68 GHz.

[Reported 5 Gbps speed in a 5G live test network.](#) The benchmark came from Ericsson that reported in its website achieving 5 Gbps speed in live test of pre standard 5G, using an innovative new radio interface concept in combination with advanced Multiple-Input Multiple-Output (MIMO) technology with wider bandwidths, higher frequencies and shorter transmission time intervals. As far as frequency, the 5G test network used a 15 GHz frequency band, which is higher and shorter range than current 3G/4G cellular frequencies that top out at around 2.6 GHz, i.e. 2600 MHz LTE Band 7. The choice of short-range would make deployments of this technology suitable for densely populated urban areas, where many base stations could be deployed to offer super-fast speeds over a small area.

[Device-to-Device \(D2D\) is recognized as one of the technology components of the evolving 5G architecture.](#) There has been much interest in applying D2D principles to public safety and proximity based services. Because of the high profile of this topic, IEEE ComSoc Communications Magazine July 2014 issue and Wireless Communications Magazine June 2014 issue feature several articles where IEEE ComSoc experts and industry leaders exciting area of D2D and has summarized its recent findings in use cases, design approaches and performance aspects. The common thread in these D2D articles is an ongoing need/interest in expanding the definition of heterogeneous cellular networks to include D2D capabilities with location, performance and capacity gains.

We are still in the early stages of defining 5G. There are different visions and a range of proposed solutions. How do we know if those visions and solutions meet the needs of millions of people and billions of connected devices? The European Commission's Directorate-General for Communications Networks, Content, and Technology wants to learn about these unknowns issuing a [5G introduction in Europe—SMART 2014/0008](#) call for tenders to gather data for the Strategic Planning of 5G Introduction in Europe aim to help plan the critical phases for 5G mobile wireless systems deployment, from the research and innovation activities to infrastructure investments and prospects for early commercial developments.

Want to know more about 5G? Want to be part of ComSoc Community making 5G happen?

- [The 5G Brooklyn Summit was recorded, and all the sessions are available here.](#)
- [Our May 2014 of Communications Technology News \(#IEEECTN\) is dedicated to 5G](#)
- [IEEE Communications Magazine, 5G Special Issue](#)
- [A list of Wireless Communications Training \(some of it 5G specific\) can be found here.](#)
- [The list of top-10 5G papers](#)
- [5G Europe Summit](#) earlier this year featured several top industry leaders. Among them Sergio Benedetto, IEEE ComSoc President and Director of CERCOR Research Center. Recorded videos are available at their website.
- [ComSoc Best Readings on Multi-Tier](#)
- [Our Community Store 5G gear](#)

Contact Elena Neira at elenaneira@comsoc.org

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