

Opportunities and challenges for mm-waves in 5G networks

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Abstract:

During the past couple of years the 5th generation of mobile networks have gained unprecedented interest among all stakeholders. Large variety of dispersed use cases of connected society, some of them not even anticipated when 3GPP 3G- and LTE-releases were under specification drive the development. Targeted >10x user capacity increase and similar increase in user densities have turned interest to very high frequencies and bandwidth they can provide. This however provides challenges for all players in value chain, from research institutes to component and equipment vendors as well as from standardization and regulation bodies to network operators. New enabling technologies are needed for mm-wave semiconductors and antennas. Not only the components but also the radio system functionality will be different compared to decimeter-wave macro-cellular system. We need to master the radio channel properties and latency challenges of ultra-dense networks globally. It will be shown that some technologies are already verified but the final proof of the feasibility and successful standardization still requires our work.

Biograph:

Jyri Putkonen made his M.Sc Tech degree at the Helsinki University of Technology (later known as Aalto University) in Space Technology in 1991. After working as a researcher and teacher he moved to Nokia Telecommunications microwave radio R&D in 1994. There his tasks ranged from system design engineer to project manager and to R&D manager of wireless equipment and cellular backhaul systems. In 2008 he moved to then NSN corporate Research, nowadays called Nokia Bell Labs, as a Senior Specialist. His speciality is wireless backhaul systems, especially in mm-wave bands, and tasks range from technology follow-up and collaborative research project management to standardization.

