

Device to Device Millimeter Communication in 5G Wireless Cellular Networks Wave

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ABSTRACT:

With the explosive growth of mobile data demand, the fifth generation (5G) mobile network would exploit the enormous amount of spectrum in the millimetre wave (mm Wave) bands to greatly increase communication capacity. There are fundamental differences between mm Wave communications and existing other communication systems, in terms of high propagation loss, directivity, and sensitivity to blockage. These characteristics of mm Wave communications pose several challenges to fully exploit the potential of mm Wave communications, including integrated circuits and system design, interference management, spatial reuse, anti-blockage, and dynamics control. To address these challenges, we carry out a survey of existing solutions and standards, and propose design guidelines in architectures and protocols for mm Wave communications. We also discuss the potential applications of mm Wave communications in the 5G network, including the small cell access, the cellular access, and the wireless backhaul. Finally, we discuss relevant open research issues including the new physical layer technology, software-defined network architecture, measurements of network state information, efficient control mechanisms, and heterogeneous networking, which should be further

investigated to facilitate the deployment of mm Wave communication systems in the future 5G networks.