

Abstract:

In this paper, two scenarios have been considered for millimetre wave base station configuration. In the first scenario, the approach of Distributed Base Station (DBS) with remote radio units (RRU) is chosen as the envisioned architecture for future 5G network. This approach is compatible with cloud radio access network (C-RAN), as it has easier scalability and compatibility with future network expansions and upgrades. RRU has been used in this work as a way to sidestep the limited coverage and poor channel condition, which characterise millimetre wave band. This will minimise the number of required sites installation for the same quality of service (QoS). The results of this approach have shown significant improvements in terms of User Equipment (UE) throughput, average cell throughput, and spectral efficiency. In the second scenario, optimising antenna element spacing is considered in the base station array. The results show significant improvement in the network performance and provide better performance for cell-edge users in terms of data throughput.