

Ultrawideband Multichannel Sounding for mm-Wave

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Abstract:

Owing to the increasing data rates, future 5G mobile networks will need to operate at higher frequencies and bandwidths. To investigate new techniques for those networks, channel sounding is essential for measuring and analysing the multipath propagation in single and multi-user situations under time-variant shadowing environments. This requires a challenging design of the millimeter-wave (mm-wave) channel sounder (CS) - it must provide ultra-wideband (UWB) real-time operation with multiple antennas and a high dynamic range. In addition, polarimetric information is needed to fully characterise the wireless channel, e.g. for cases of polarisation misalignment at the mobile device. This paper presents a novel UWB dual-polarised mm-wave channel sounder architecture for real time measurements in 5G mobile networks and motivates the need for polarimetric measurements with experimental data collected at 60 GHz.