

Measurement of In-Vehicle Channel – Feasibility of Ranging in UWB and MMW Band

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Abstract:

This paper provides results of radio channel measurement campaign carried out in the intra vehicle environment for ultra-wide band (UWB) and millimeter wave (MMW) frequency bands, namely 3–11 GHz and 55–65 GHz. In discussed frequency bands, we present and compare channel impulse responses (CIRs) for various antenna locations while considering the effect of passengers presence. On the basis of performed statistical evaluation of time of arrival (TOA) based ranging system deployed in mentioned bands, we discuss feasibility and precision of local positioning systems for intra vehicle ambiance.