In-vehicle mm-Wave Channel Model and Measurement

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Abstract:

This contribution documents and discusses recent wideband radio channel measurements carried out in the intra–vehicle environment. Channels in the millimeter-wave (MMW) frequency band have been measured in 55–65GHz using openended rectangular waveguides. We present a channel modeling approach based on a decomposition of spatially specific Channel Impulse Responses (CIRs) into large and small scale fading. The decomposition is done by the Hodrick-Prescott filter. We parametrize the small scale fading utilizing Maximum-likelihood estimates for the parameters of a generalized extreme value (GEV) distribution. The large scale fading is described by a two dimensional polynomial curve. We also compare simulated results with our measurement exploiting the two- sample Kolmogorov-Smirnov test.