



Limitations of Experimental Channel Characterisation

By Markus Landmann

GRIN Verlag Jan 2009, 2009. Taschenbuch. Book Condition: Neu. 210x148x19 mm. This item is printed on demand - Print on Demand Neuware - Doctoral Thesis / Dissertation from the year 2008 in the subject Electrotechnology, grade: summa cum laude, Technical University of Ilmenau, 152 entries in the bibliography, language: English, abstract: This thesis deals with Experimental Channel Characterisation and its performance limits in real propagation environments. This includes recording of the multidimensional wideband channel matrix by using a MIMO channel sounder and antenna arrays at both sides of the link. High-resolution parameter estimation is finally applied to characterise the channel in terms of DoD, DoA, TDoA, and complex polarimetric path weights. The quality of these estimates in 'real world' scenarios is degraded by several impairments of the practical antenna arrays and the measurement system used. The resulting estimation quality limits are investigated in detail by simulations and measurements. The entire processing chain is analysed in terms of possible error sources. To this end, measurement system impairments, antenna array calibration errors as well as limitations of the radio channel model comprising two parts: specular like reflections (SC) and distributed diffuse scattering (DMC) applied by the high-resolution parameter estimation procedure are investigated....



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