Technische Universität München
Lehrstuhl für Kommunikationsnetze
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Master's Thesis

Title of the Thesis

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With my signature below, I assert that the work in this thesis has been composed by myself independently and no source materials or aids other than those mentioned in the thesis have been used.

München, 11.06.2014
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Place, Date   Signature

München, 11.06.2014
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Kurzfassung

A short abstract of the thesis in German.

Abstract

A short abstract of the thesis in English.

Contents

Chapter 1

Introduction

This chapter should give a short overview over the whole thesis. It should provide background information on the thesis topic, introduce the task definition and give a short outlook on the rest of the thesis.

Chapter 2

Background

2.1 Content

In this chapter, all background necessary to understand the thesis are introduced. The level of detail is such that a colleague with similar background (no specialist!) is capable of understanding the contribution and impact of the thesis. A discussion of state-of-the-art solutions (e.g. literature research) is often helpful. Problems of the state-of-the-art are typically discussed and the contribution of the thesis is introduced in detail.

Chapter 3

Implementation/Results

3.1 Implementation

Details regarding implementation and/or simulation are given in this chapter. The considered setup and the parameters used are introduced and discussed. Also, the general evaluation methods can be presented. (Note: Code should not be part of this chapter. If it makes sense to introduce it into the thesis, it should be placed in the appendix.)

3.2 Results

Results of the performed investigations are presented here. Interpretations for the observed effects are given and the impact of investigations is discussed.

Chapter 4

Conclusions and Outlook

The thesis is concluded here. The considered problem is repeated. The contribution of this work is highlighted and the results are recapitulated. Remaining questions are stated and ideas for future work are expressed.

Chapter 5

Formatting

5.1 Figures and Tables

Figures and tables need to include a caption. This can be done with the LaTeX-command `\caption{}`. To be able to reference figures and tables, a `\label{}` must follow the caption.

Figure 5.1: Ein PHD Comic

The labelled figures and tables can be referenced via `\ref`, e.g. Figure 5.1.

Parameter	Value
Transmission Power	23 dBm
Center Frequency	2.6 GHz
Channel Bandwidth	15 kHz
Shadowing Correlation Distance	40 m
Noise Density	-174 dBm/Hz
Antenna Heights	1.5 m

Table 5.1: Simulation Parameters and Values

5.2   Referencing

Literature references are included e.g. like this:
"..., as shown in [EV97],, ..." or "... there are several approaches [Arn99, GLL90] ..."

Appendix A

The appendix may contain some listings of source code that has been used for simulations, extensive proofs or any other things that are strongly related to the thesis but not of immediate interest to the reader.

Appendix B

Notation und Abkürzungen

This chapter contains tables where all abbreviations and other notations like mathematical placeholders used in the thesis are listed.

AP	Access Point
CQI	Channel Quality Indicator
DCI	Downlink Control Information
D-SR	Dedicated Scheduling Request
D2D	device to device
eNodeB	evolved Node B or E-UTRAN Node B
FDD	Frequency Division Duplexing
H-ARQ	Hybrid-Automatic Repeat Request
IoT	Internet of Things
LTE	Long Term Evolution
MCS	Modulation and Coding Scheme
OFDM	Orthogonal Frequency Division Multiplexing
PDCCH	Physical Downlink Control Channel
PDSCH	Physical Downlink Shared Channel
PRB	Physical Resource Block
PUCCH	Physical Uplink Control Channel
PUSCH	Physical Uplink Shared Channel
RACH	Random Access Channel
SC-FDMA	Single Carrier Frequency Division Multiple Access
SR	Scheduling Request
SRS	Sounding Reference Signal
TDD	Time Division Duplexing
UE	User Equipment

Bibliography

[Arn99] B. St. Arnaud. Gigabit Internet to every Canadian Home by 2005. `http://www.canet2.net/archeng/home.html`, 1999.

[EV97] J. Ebersp"acher and H.-J. V"ogel. *GSM - Global System for Mobile Communication. Vermittlung, Dienste und Protokolle in digitalen Mobilfunknetzen.* Teubner, Stuttgart, 1997.

[GLL90] J. S. Griswold, T. L. Lightle, and J. G. Lovelady. Hurricane Hugo: Effect On State Government Communications. *IEEE Communications Magazine*, 28(6):12–17, 1990.