
Contents

Part I Introduction

Embedded IT Security in Automotive Application – An Emerging Area

Christof Paar..... 3

Part II Security in the Automotive Domain

Aspects of Secure Vehicle Software Flashing

Winfried Stephan, Solveig Richter, Markus Müller..... 17

Secure Software Delivery and Installation in Embedded Systems

André Adelsbach, Ulrich Huber, Ahmad-Reza Sadeghi..... 27

Anti-theft Protection: Electronic Immobilizers

Kerstin Lemke, Ahmad-Reza Sadeghi, Christian Stübke..... 51

A Review of the Digital Tachograph System

Igor Furgel, Kerstin Lemke..... 69

Secure In-Vehicle Communication

Marko Wolf, André Weimerskirch, Christof Paar..... 95

A Survey of Research in Inter-Vehicle Communications

Jun Luo, Jean-Pierre Hubaux..... 111

Part III Embedded Security Technologies

Fundamentals of Symmetric Cryptography

Sandeep Kumar, Thomas Wollinger..... 125

Fundamentals of Asymmetric Cryptography <i>Thomas Wollinger, Sandeep Kumar</i>	145
Security Aspects of Mobile Communication Systems <i>Jan Pelzl, Thomas Wollinger</i>	167
Embedded Cryptography: Side Channel Attacks <i>Kai Schramm, Kerstin Lemke, Christof Paar</i>	187
Embedded Security: Physical Protection against Tampering Attacks <i>Kerstin Lemke</i>	207
<hr/>	
Part IV Business Aspects of IT Systems in Cars	
<hr/>	
Automotive Digital Rights Management Systems <i>Marko Wolf, André Weimerskirch, Christof Paar</i>	221
Security Risks and Business Opportunities in In-Car Entertainment <i>Marcus Heitmann</i>	233
In-Vehicle M-Commerce: Business Models for Navigation Systems and Location-based Services <i>Klaus Rüdiger, Martin Gersch</i>	247