

# Technical Identification Trainings 2012



## CAS Customer Application Support

### Customer Trainings

### Business Unit Identification



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## General information

### General

Technical Identification Trainings are held in Europe, USA and Asia. All are in English language. We provide a good mixture of theoretical basics and practical exercises for system-design and application engineers in the identification business.

Personal Notebook Computers with administration rights are recommended but not absolutely required.

### Registration

A **REGISTRATION FORM** (available on page 26) should be sent to your local NXP Sales Contact at least two weeks in advance. Registration is done by incoming order.

The registration becomes valid after written confirmation by NXP Semiconductors Austria GmbH and requires a signed **NDA – NON DISCLOSURE AGREEMENT**.

### Fee & Payment

NXP charges a regionally fixed fee per training day and person. Refreshments, lunch, full documentation and SW / libraries are included. Payment is expected in Euro (€) or US-Dollar (\$).

Please contact the appropriate contact person for seminar fees, payment procedures and location details.

### Local contacts

#### EUROPE

Mrs. Martina Hofstadler  
NXP Semiconductors Austria GmbH  
Mikron-Weg 1, 8101 Gratkorn, Austria

Phone: (+43) 3124 299 660  
CAS.trainings@nxp.com

#### US

Mr. Mike Zercher  
NXP Semiconductors San Jose  
1109 McKay Drive, CA 95131 San Jose

Phone: (+1) 717 431 9283  
mike.zercher@nxp.com

#### ASIA (Singapore)

Ms. Daphne Leong  
NXP Semiconductors Singapore  
Lorong 1 Toa Payoh  
Singapore 319762

Phone: (+65) 6882 3471  
daphne.leong@nxp.com

#### ASIA (China)

Steven CJ Chang  
NXP Semiconductors Shanghai  
19F, BM InterContinental Business Center  
100 Yu Tong Ro  
Shanghai P.R.C.

Phone: (+86) 21 2205 2617  
steven.cj.chang@nxp.com



# I1- Contactless Proximity Reader Training

The I1 Contactless Proximity Reader training introduces the technical basics of an ISO/IEC 14443 reader design. It introduces the CL RC 663 and includes a workshop session. A basic electrical engineering knowledge is required.

<b>Audience</b>	Contactless reader designer Technical engineers Hardware and Software designer
<b>Prerequisites</b>	Electrical engineering know how Laptop WIN 2000, XP or WIN7 for the workshop session (administration rights required!)
<b>Introduction</b>	Welcome Positioning of contactless reader products
<b>Overview NXP Contactless reader products</b>	Introduction into contactless reader products MF RC 522; MF RC523, PN512, PR533 CL RC663 MIFARE SAM AV 2 Comparison
<b>Details of CL RC663</b>	Features and Functionality Basic reader design with CLRC663 Relevant register settings
<b>Use of CLRC663 evaluation tool</b> (workshop)	Installation of SW and drivers Use of the SW to evaluate different Contactless cards
<b>Introduction into ISO/IEC 14443 &amp; NFC</b>	ISO/IEC 14443 parts 1, 2, 3 and 4 NFC-IP1 (analog layer) RF interface and Card Activation Sequence
<b>Introduction of Magnetic Antenna Systems</b>	Theory and 13.56MHz communication principle Antenna principle & Transformer Principle Optimum antenna size

**Duration: 09:00 – 17:00**

# I2- Contactless Proximity Reader Antenna Training

This Training introduces into the basics of 13.56MHz contactless reader antennas. It shows the theoretical background and its practical use of antenna measurement and tuning. It includes an antenna tuning and measurement workshop session. Basic electro technical knowledge and knowledge about the ISO/IEC 14443 and reader system (i.e. the contents of I1) is required.

<b>Audience</b>	Contactless reader designer Technical engineers Hardware designer
<b>Prerequisites</b>	Knowledge of the contents of I1 Electrical engineering (analog) know how Laptop with WIN 2000, XP or WIN7 for the workshop session (administration rights required!)
<b>Introduction</b>	Welcome
<b>Proximity Antenna Systems</b>	Practical impact of the proximity communication principle
<b>Q-Factor analysis</b>	Bandwidth requirements of ISO/IEC 14443 & ISO/IEC 15693 Relevant parameters for Q-Factor
<b>Environmental Influences</b>	Metal environment and impact Ferrite shielding EMC-related design
<b>Reader Antenna Matching</b>	EMC-Filter, Directly Matched Antenna Design RF-Amplifier for NFC and MF RC52x, NFC Antenna Topologies Directly matched antenna design for CL RC663
<b>Workshop (&gt; 3h)</b> (Building up an antenna)	Antenna Coil Measurement Matching calculation & simulation Tuning Field strength & Pulse shape measurement Analog optimization

There is also the possibility for participants to bring an own reader antenna for tuning, measurements and further discussions.

Duration: 09:00 – 17:00

# R-1 RFID in Electronics

**Audience** RFID development engineers, technical oriented managers, Business developers, Sales person, RFID project managers

**Prerequisites** RF basics, basic technical knowledge

**Introduction** NXP facts  
Product overview tag & label

## RFID in Electronics

**Electronics** Application overview  
Benefits of RFID in electronics  
System overview  
Performance requirements  
Possible NXP products  
Usable features and their benefits

Environmental Influences and useable tags/ labels

**UHF PCB antenna** UHF antenna design basics  
PCB antennas

**NFC Field detection** Function of the NTAG field detection pin  
What is needed?  
Impact on the antenna design

**All features will be explained in hands-on sessions!**

**Duration: 09:00 – 17:00**



# R-2 RFID in New Segments/ Applications

## Technical Introduction in the World of RFID Application's

**Audience** RFID development engineers, technical oriented managers, Business developers, Sale person, RFID project manager

**Prerequisites** RF basics, basic technical knowledge

**Application Overview** Successful applications  
New RFID applications

### New Applications/ Segments

**FMCG – Fast Moving Consumer Goods** Application overview  
Benefits of RFID in FMCG  
System overview  
Performance requirements  
Possible NXP products  
Usable features and their benefits  
Environmental Influences and useable tags/ labels

**Smart Advertising with NFC** Application overview  
Benefits of NFC  
System overview  
Performance requirements  
Possible NXP products  
Features and their benefits

**Document tracking / Gaming** Application overview  
Benefits of RFID  
System overview  
Performance requirements  
Possible NXP products  
Features and their benefits  
Environmental Influences and useable tags/ labels

**All features will be explained in hands-on session!**

**Duration: 09:00 – 17:00**

# R-3 RFID technical Training

## Technical part of the World of RFID Application

**Audience** RFID development engineers, technical oriented managers, Business developers, Antenna designers

**Prerequisites** RF basics, basic technical knowledge

### Standard & Protocols

**EPC G2**

- Overview
- Air interface protocol states & anticollision
- Memory structure
- Commands
- Differences HF & UHF

**ISO18000-3**

- Overview
- Air interface protocol states & anticollision
- Memory structure
- Commands
- Differences ISO18000-3.1 vs. 18000-3.3

### Delivery types & antenna design

**Delivery types** Overview on the NXP RFID delivery types

**Assembly guidelines** Tips & hints for using NXP IC's

**UHF antenna** UHF antenna design basics

**HF antenna** PCB antennas

HF antenna design basics

Antenna design's for document tracking and gaming applications

**NFC Field detection** Function of the NTAG field detection pin

What is needed?

Impact on the antenna design

**Duration: 09:00 – 17:00**

# M-1 MIFARE Introduction Training

The M1 MIFARE introduction training introduces the *technical basics of the complete MIFARE product family with a focus on MIFARE Ultralight, MIFARE Ultralight C and MIFARE Classic*. It introduces the basics of symmetrical crypto and a secure contactless system design. Basic technical knowledge is required.

<b>Audience</b>	New technical engineers, Technical oriented managers Business Development people, Disti FAE
<b>Prerequisites</b>	Basic technical knowledge Laptop WIN 2000, XP or WIN7 for the workshop session (administration rights required!)
<b>Overview and positioning of all MIFARE products</b>	Welcome Introduction into contactless systems Positioning of all MIFARE products
<b>Details of MIFARE Classic</b>	Features and Functionality Memory mapping
<b>Introduction and use of MIFARE evaluation tools (workshop)</b>	Installation of SW and drivers Use of the SW to evaluate different MIFARE cards
<b>Details of MIFARE Ultralight and UltralightC</b>	Features and Functionality Memory mapping 3DES Crypto Authentication, Lock bits, and Counter
<b>Use of MIFARE Ultralight C (workshop)</b>	Use of the SW to evaluate MIFARE Ultralight C Create an example application on the MIFARE Ultralight C
<b>Introduction into</b>	MIFARE Plus and MIFARE DESFire EV1 MIFARE Reader ICs and MIFARE SAMs
<b>Introduction into ISO/IEC 14443</b>	ISO/IEC 14443 parts 1, 2, 3 and 4 RF interface and Card Activation Sequence Type Identification procedure and PICC Selection
<b>Introduction into security</b>	Basic principles Confidentiality and Authenticity Cryptography, algorithms and secrets Threats and attacks
<b>Introduction into basics of symmetrical crypto (DES &amp; AES)</b>	DES and Triple DES 2KTDES, 3KTDES, and AES Chaining modes: CBC

**Duration: 09:00 – 17:00**

The MIFARE [Workshop Package](#) will be distributed to the participants.



## M-2 MIFARE Plus System Training

The MIFARE System Training shows *the technical details of MIFARE Plus*.

It includes a practical workshop session. A basic electrical engineering knowledge and knowledge about the ISO/IEC 14443, and about basics of symmetrical crypto (DES & AES) is required (i.e. the contents of M1).

<b>Audience</b>	MIFARE System designer Technical engineers Software designer
<b>Prerequisites</b>	Knowledge of the contents of M1 Electrical engineering know how Laptop WIN 2000, XP or WIN7 for the workshop session (administration rights required!)
<b>Positioning of MIFARE Plus</b>	Welcome Positioning of all MIFARE products How do MIFARE products fit into ISO/IEC 14443
<b>Details of MIFARE Plus (part1)</b>	Features and Functionality Memory mapping Security Levels 0, 1, 2 and 3 Level 0: Personalization
<b>Use of MIFARE Plus (workshop part1)</b>	Install SW and drivers Personalize a MIFARE Plus
<b>Details of MIFARE Plus (part2)</b>	Level 1: Compatibility to MIFARE 1K/4K Level 2: AES and secure use of MIFARE Crypto Level 3: Use of AES and T=CL protocol
<b>Use of MIFARE Plus (workshop part2)</b>	Switch the MIFARE Plus into SL3 Create an example application on the MIFARE Plus
<b>Details of MIFARE Plus (part3)</b>	Virtual Card Architecture Proximity Check Migration concept MIFARE Classic to MIFARE Plus
<b>Security features and hints</b>	Transaction performance of MIFARE Plus Security features of the MIFARE Plus Authentication and Session Key generation Encryption and MAC Introduction into MIFARE SAM AV2

**Duration: 09:00 – 17:00**

The MIFARE [Workshop Package](#) will be distributed to the participants.



# M-3 MIFARE DESFire EV1 System Training

***This one day training presents the features of MIFARE DESFire EV1 with the hints for optimum usages. It includes practical workshop sessions and application specific hands-on.***

<b>Audience</b>	MIFARE DESFire EV1 System developers Technical managers and engineers
<b>Prerequisites</b>	Laptop with Windows (2000/ XP/7), Administration rights required Knowing the glossary (will be sent with the confirmation of the registration)
<b>Recommendations</b>	Knowledge of M-1 Preliminary knowledge on crypto basic: DES, AES, MAC, CMAC, CRC <u>At least a 'quick going through' of the product data sheet</u>
<b>MIFARE DESFire EV1 Positioning</b>	Welcome and Introduction Positioning of all MIFARE products with important features Compliance of MIFARE DESFire EV1 to ISO/IEC 14443
<b>Installation of Software/demo</b>	HW/SW installation Introduction to the tools
<b>MIFARE DESFire EV1 Architecture</b>	Features and Functionalities Memory organizations Application and File structures Communication and Access Rights Brainstorming on multi-vendor/multi-application scenario
<b>MIFARE DESFire EV1 Commands</b>	All supported commands Different types of APDU (Native, Wrapped and Standard ISO/IEC 7816-4) Transaction summary and time estimation Practicing commands
<b>MIFARE DESFire EV1 Crypto</b>	Refreshing required crypto basic Detail crypto know how for MIFARE DESFire EV1 Authentication, Confidentiality and data Integrity Key Management Low level transaction workshop
<b>MIFARE DESFire EV1 Workshop</b>	Different applications (specially Access control and AFC) Personalization and validation with MIFARE DESFire EV1
<b>Security Measures and Design Hints</b>	Different possible attacks and built-in protection in MIFARE DESFire EV1 Hardware Security Features Hints for enhancing the security of the application
<b>Support and ordering Information</b>	Summary and Discussion MIFARE DESFire EV1 Support Package

**Duration: 09:00 – 17:00**

The MIFARE [Workshop Package](#) will be distributed to the participants.



## M-4 MIFARE SAM AV2 System Training

***This one day training presents the features of MIFARE SAM AV2 with the hints for optimum usages. It includes practical workshop sessions and application specific hands-on.***

<b>Audience</b>	MIFARE System designer, Technical engineers, Software designer
<b>Prerequisites</b>	M-3 MIFARE DESFire EV1 and/or M-2 MIFARE Plus system Training Laptop with WIN (2000/XP/ 7). Administration rights required Knowing the glossary (will be sent with the confirmation of the registration)
<b>Recommendations</b>	Preliminary knowledge on DES, AES, MAC, CMAC, HASH, RSA. <u>At least a 'quick going through' of the product data sheet.</u>
<b>SAMs Positioning</b>	Welcome and Introduction, SAM why and how? Positioning of all NXP SAMs with features SAM communication interfaces (ISO/IEC 7816 and I <sup>2</sup> C)
<b>Installation of Software/demo</b>	HW/SW installation Introduction to the tools
<b>MIFARE SAM AV2 Architecture</b>	Features and Functionalities, 4-logical channels Secure Key storage, key types and configuration Key usages counters, Key versioning and diversification
<b>MIFARE SAM AV2 Host communication</b>	Secure host communication, SAM personalization.
<b>MIFARE SAM AV2 Commands</b>	Hands-on workshop on commands, Personalization of MIFARE SAM AV2, Key Management, usages of PKI from MIFARE SAM AV2.
<b>MIFARE SAM AV2 for MIFARE DESFire EV1</b>	Principles and hands-on workshop on use of MIFARE SAM AV2 for MIFARE DESFire EV1.
<b>MIFARE SAM AV2 for MIFARE Plus and MIFARE Ultralight C</b>	Configuration and usages of keys for MIFARE plus and MIFARE Ultralight C.
<b>X –functionalities</b>	Detail of X-functionalities, Advantages of using X functionalities Introduction to CL RX852 (SAM integrated Contactless reader IC)
<b>Security Measures and Design Hints</b>	Hints and recommendations Higher level of Security
<b>Supports and ordering Information</b>	Summary and discussion MIFARE SAM AV2 support package

**Duration: 09:00 – 17:00 (may be adapted to 08:00 – 16:00)**

The MIFARE SAM [Workshop Package](#) will be distributed to the participants.



## MIFARE Workshop Package



### Content of MIFARE Workshop Package:

#### **Pegoda Evaluation Kit MF EV710**

RD710 (Pegoda), NXP's contactless evaluation reader.

- 1 pc MIFARE 4KB
- 1 pc MIFARE Ultralight C
- 1 pc MIFARE Plus S
- CD Technical documentation and software

#### **Additional ID-1 size sample cards (related to the training module)**

e.g. MIFARE DESFire EV1 and / or MIFARE SAM AV2

**1 license of iNSSC Crypto Studio (evaluation tool for all type of MIFARE cryptography)**

**The evaluation tools and software in CD or USB stick.**

#### **Documents:**

Public and confidential datasheets and application notes  
Secured documents must be requested separately



## JCOP module overview

### **J-1: JCOP Introduction (1 day)**

- Products portfolio
- GlobalPlatform
- Roadmap
- Java Card
- JCOP specific features
- Smart card security

### **J2: JCOP Administration (1 day)**

- JCShell Standalone
- Card and content management
- Pre-personalisation
- GlobalPlatform

### **J3: JCOP Applet Development (1 day)**

- JCOP Tools
- Java Card applet development
- Java Card crypto
- Applet optimization and performance
- JCOP features and limitations
- GlobalPlatform API

### **J4: JCOP eGovernment Solutions (0,5 day)**

- ICAO introduction
- JCOP pre-personalisation
- Applet personalisation
- Product portfolio

### **J5: JCOP Banking Smart Card Solutions (0,5 day)**

- EMV introduction
- VSDC and PayPass M/Chip
- NXP's M/Chip management
- Product portfolio

### **J6: JCOP Embedded Secure Elements (1 day)**

- PN65x overview
- Certification process
- Personalisation
- Mifare for Mobile
- Trust Provisioning
- Applet Architecture
- MasterCard Mobile PayPass
- Product portfolio

# J-1 JCOP Introduction

## Module 1 (Introduction)

<b>Abstract:</b>	This module deals as JCOP product introduction. It includes important concepts about Java Card and GlobalPlatform, as well as basics about card management, applet development, smart card I/O and security. The training concludes with a JCOP Tools introduction.
<b>Audience</b>	System architect Technical oriented manager Business development manager
<b>Prerequisite</b>	Smart card basics
<b>JCOP concepts</b>	Java Card GlobalPlatform JCOP specific features Pre-Personalization
<b>Java Card development</b>	Object oriented programming Java Card applet structure Smart card communication
<b>GlobalPlatform</b>	CardManager, Security Domain Secure channel Content management Life cycles
<b>JCOP specific features</b>	Mifare emulation SecureBox NFC support Industry specific extensions
<b>JCOP security concept</b>	HW/SW countermeasures Java Card security concept Evaluation
<b>JCOP Tools introduction</b>	JCOP Tools for development & administration
<b>Roadmap</b>	JCOP platform Standard Java Card Applications

**Duration: 8 hrs**



# J-2 JCOP Administration

## Module J-2 (Administration)

<b>Abstract:</b>	This module is about the administration of JCOP. It starts with the JCShell Standalone introduction and installation. Following JCOP proprietary pre-personalization is explained in detail. The emphasis will be on the open standard GlobalPlatform, covering CardManager functionality, loading & installation of Java Card applets and privileges.
<b>Audience</b>	Card manufacturer & Issuer System / Security architect Software engineer
<b>Prerequisite</b>	Knowledge of J-1 contents Notebook with Windows XP or 7 (admin rights)
<b>JCShell Standalone</b>	Introduction & installation Command set Plugin architecture Scripting
<b>Pre-personalization</b>	Scope and principles Commands
<b>GlobalPlatform</b>	Smart Card infrastructure Requirements for card architecture APDU & API interface
<b>Card and content management</b>	CardManager Secure channel Life cycle Loading and installation Cardholder Verification Method
<b>JCOP specific GlobalPlatform features</b>	Supported options & limitations
<b>GlobalPlatform advanced</b>	Supplementary Security Domain Extradition Data Authentication Pattern Delegated Management

**Duration: 8 hrs**

# J-3 JCOP Development

## Module J-3 (Development)

<b>Abstract:</b>	The third module of JCOP training is all about Java Card applet development using the JCOP Tools. To meet customer requests for more practical content, most of the will be spent on hands-on examples and discussion.
<b>Audience</b>	Software engineer System / Security Architect
<b>Prerequisite</b>	Global Platform Basics Java programming skills at Intermediate level Notebook with Windows XP or 7 (admin rights)
<b>JCP Tools</b>	Introduction & installation
<b>Java Card Introduction</b>	Package, class, applet Development flow Java Card Specifications
<b>Java Card essentials</b>	Applet structure APDU processing Memory handling Atomicity & transaction mechanism
<b>Java Card crypto</b>	Crypto and Security package Message Digest Symmetric cryptography Asymmetric cryptography
<b>JCOP specific Java Card features</b>	Industry specific extensions Supported options & limitations CPLC Elliptic Curve (EAC support) Protected Array
<b>Java Card advanced</b>	Library and Shareable Interface Object Extended length APDU Applet security and performance recommendations ISO7816 file system GlobalPlatform API
<b>Duration: 8 hrs</b>	



# J-4 JCOP eGovernment Solutions

## Module J-4 (eGovernment Solutions)

<b>Abstract:</b>	Module J-4 is dedicated to e-government applications available in NXP portfolio. The ICAO application training is focused on specific pre-personalization, instantiation and personalization of the applet.
<b>Audience</b>	Software Engineer System / Security Architect
<b>Prerequisite</b>	Module J-1 (required) Module J-2 (recommended) Knowledge on ICAO (recommended)
<b>Introduction</b>	ICAO specification Security features LDS file structure
<b>E-government application</b>	Introduction Applet presentation
<b>Preparation</b>	JCOP Pre-personalization Configuration for ICAO compliance Applet instantiation cryptovision ICAO applet
<b>Personalization</b>	Mutual authentication APDU commands Personalization cryptovision applets tools demo session
<b>Contactless performance</b>	
<b>Demonstration</b>	

**Duration: 4 hrs**



## J-5 JCOP Banking Smart Card Solutions

### Module J-5 (Banking Smart Card Solutions)

**Abstract:**

JCOP banking solutions for smart cards module covers introduction into EMV, Visa's VSDC and in detail NXP's MasterCard PayPass M/Chip management.

**Prerequisite**

Basic knowledge on J-1  
Basic knowledge on EMV

**Introduction**

EMV specifications  
Introduction on M/Chip and (q)VSDC

**JCOP banking solutions**

IC & module  
JCOP platform  
Applets

**Preparation**

JCOP Pre-Personalisation - EMV requirements  
Applet instantiation

**Personalization**

Mutual authentication  
APDU commands

**Contactless Performance**

Visa & Mastercard requirements

**Demonstration**

**Duration: 4 hrs**



# J-6 JCOP Embedded Secure Elements

## Module J-6 (Embedded Secure Elements)

<b>Abstract</b>	Module J-5 is dedicated to NXP's portfolio of JCOP for mobile application use cases. Starting with an introduction into the PN65x solution, participants will gain details about NXP's applet architecture, required steps for pre-personalization, and how to instantiate and personalize applets. The training finishes with an overview on important steps for certification of mobile devices.
<b>Audience</b>	System Architects System Engineers
<b>Prerequisite</b>	Module J-1 (required) Module J-2 (recommended) Module N2 (recommended)
<b>Introduction</b>	Product portfolio presentation PN65x architecture
<b>Applets for Mobile Devices</b>	Applet architecture Mobile MasterCard PayPass M/Chip Applet Mifare4Mobile
<b>Trust Provisioning</b>	Introduction to Trust Provisioning NXP Trust Provisioning Services JCOP pre-personalization Custom JCOP configuration
<b>Certification</b>	Overview of certification process Required activities and contacts payment providers
<b>Demonstration</b>	

**Duration: 8 hrs**



# N1 - NFC RF Training

<b>Overview</b>	Block diagram: RF part of the NFC chip
<b>Audience</b>	Technical engineers System designer Field Application Engineer
<b>Prerequisites</b>	Basic knowledge of electronics
<b>Antenna design</b>	Principle Environmental influences Ferrite shielding Quality factor Equivalent circuits
<b>Transmitter network</b>	Driver Matching resistance EMC filter design Tuning procedure
<b>Receiver network</b>	Design procedure
<b>Tuning the PN544</b>	Block diagram Card mode Reader mode Modulation index
<b>Antenna characterization</b>	
<b>Performance testing w.r.t. the standards</b>	ISO, EMVCo and NFC Forum test benches

Duration: 09:00 – 16:00



## N2 – NFC basics & NFC Android

**This training introduces the NFC technology, NFC product offering and NFC Android Open Source.**

<b>Audience</b>	Technical engineers Software engineers Software designer
<b>Prerequisites</b>	Basic technical knowledge Laptop with Windows XP and Admin rights for the workshop session
<b>NFC technology</b>	NFC background, applications, key points NFC compatible technologies (MIFARE, FeliCa, ISO14443A/B, NFC Forum, ...) NFC products overview
<b>Android NFC API</b>	Android architecture Android components How to get the Android source code NFC integration in Android Description of the NFC API
<b>Practical session</b>	How to setup an Android development environment, (eclipse, plugin Android,...) How to use the android emulator Development of an application How to debug in Android

**Duration 09:00 – 17:00**



## N3 – NFC Tags, NFC P2P and Applications

**This training introduces the NFC Tags, the P2P communication mode and the related Applications.**

<b>Audience</b>	Technical engineers Software designer
<b>Prerequisites</b>	NFC basic knowledge (N2) Laptop with Windows XP and Admin rights for the workshop session
<b>Theoretical session</b>	NFC tags NDEF RTD development guideline RTDs: SmartPoster, vCard, SMS, Call request, Static Handover, field detection pin NXP tag products overview NFC P2P and LLCP SNEP: SNEP default server and Android Beam Android NPP Negotiated Handover
<b>Practical session</b>	NFC Android Tools introduction: TagInfo, TagWriter, ScriptWriter NFC Windows Tools introduction: MIFARE Discovery, ICode Universal

**Duration: 09:00 – 17:00**

# HITAG RFID Smart Label System Training

**Technical introduction into the HITAG system requirements**

**Audience** RFID development engineers, technical oriented managers, Business developers

**Prerequisites** RF basics

**HITAG**

**Animal ID** Technical system requirements  
 Animal ID standard:  
 ISO 11784/85  
 ISO 14223

Tag:  
 IC types:  
     HITAG  $\mu$   
     HITAG S  
     HITAG 2

Delivery Types

Reader:  
     Reader IC HTRC110  
 Hands-on Workshop – Practical Session with the demo kit

**Industrial** Technical system requirements  
 Item Management ISO 18000-2  
 ISO 14223

Tag:  
 IC Types:  
     HITAG  $\mu$  advanced  
     HITAG  $\mu$  advanced+  
     HITAG  $\mu$  ISO 18000  
     HITAG S

Reader  
 Hands-on Workshop – Practical Session with the demo kit

**Duration: 09:00 – 13:00**





## Webinar - upcoming topics and dates

Please find below the first webinars plan for 2012. More will follow, to stay updated please have a look at <http://www.nxp.com/news/webinars/index.html>

Date	Topic - RFID	Time
22. February	ICODE ILT Document Tracking	9:00 - 10:00 AM CET 5:00 - 6:00 PM CET
20. March	NXP T&L Portfolio	9:00 - 10:00 AM CET 5:00 - 6:00 PM CET
21. March	UCODE I <sup>2</sup> C for Electronics	9:00 - 10:00 AM CET 5:00 - 6:00 PM CET
17. Apr	NFC Tags for Media Management, Smart Advertisements, Retail and Electronics	9:00 - 10:00 AM CET 5:00 - 6:00 PM CET

Date	Topic – MIFARE <sup>1</sup>	Time
14. February	Introduction to MIFARE card ICs (MIFARE product family, feature comparison, applications )	09:00 - 10:00 AM CET 05:00 - 06:00 PM CET
21. February	Introduction to MIFARE DESFire EV1 (Features and usability, security overview, applications, PSP)	09:00 - 10:00 AM CET 05:00 - 06:00 PM CET
28. February	Introduction to MIFARE SAM AV2 (Features overview, usages, applications, PSP)	09:00 - 10:00 AM CET 05:00 - 06:00 PM CET
01. March	MIFARE for Access Management (Access control application overview, Industry art, NXP technical support)	09:00 - 10:00 AM CET 05:00 - 06:00 PM CET

<sup>1</sup> These MIFARE webinars will be repeated once in each quarter. Dates will be announced at [www.mifare.net](http://www.mifare.net) as well.



## Trainings on demand

Following trainings are on demand; please contact your local training coordinator for more information:

J-1 – J-6 JCOP

S-1 SMARTMX/2 Introduction & Basics

S-2 SMARTMX/2 MMU & Peripherals I

S-3 SMARTMX/2 Peripherals I & contactless technology

S-4 SMARTMX MIFARE Classic / DESFire EV1 OS / EVALOS

S-5 SMARTMX2 Softmasking device, Firmware, EvalOS

S-6 SMARTMX2 MIFARE Classic / MIFARE Plus / DESFire EV1 OS

T-1 TCOS Passport V2

R-1 Contact Reader IC Training - TDA

### Contacts:

#### EUROPE

Mrs. Martina Hofstadler  
NXP Semiconductors Austria GmbH  
Mikron-Weg 1, 8101 Gratkorn, Austria

Phone: (+43) 3124 299 660  
Fax: (+43) 3124 299 270

CAS.trainings@nxp.com

#### ASIA (Singapore)

Ms. Daphne Leong  
NXP Semiconductors Singapore  
Lorong 1 Toa Payoh  
Singapore 319762

Phone: (+65) 6882 3471  
Fax: (+65) 6250 6010

Daphne.leong@nxp.com

#### ASIA (China)

Steven CJ Chang  
NXP Semiconductors Shanghai  
19F, BM InterContinental Business Center  
Shanghai P.R.C.

Phone: (+86) 21 2205 2617  
Fax: (+86) 21 2205 2804

Steven.cj.chang@nxp.com

#### US

Mr. Mike Zercher  
NXP Semiconductors San Jose  
411 East Plumeria Drive  
CA 95134 San Jose

Phone: (+1) 717 431 9283  
Fax: (+1) 717 618 0216

mike.zercher@nxp.com



# Training Schedule EUROPE 2012

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dez
1		1		1		1		1		1	
2	CW 1	2		2	CW 14	2		2		2	
3		3		3		3		3	CW 36		
4		4		4		4	CW 23	4		4	
5		5	CW 10	5		5		5		5	CW 45
6		6	CW 6	6		6		6	CW 32	6	
7		7		7	CW 19	7		7		7	
8		8		8		8		8		8	
9	CW 2	9		9	CW 15			9		9	
10		10		10		10		10	CW 37	10	
11		11		11		11	CW 24	11		11	
12		12	CW 11	12		12		12		12	CW 46
13		13		13		13		13	CW 33	13	
14		14		14	CW 20			14		14	
15		15		15		15		15		15	
16	CW 3	16		16	CW 16			16	CW 29	16	
17		17		17		17		17		17	CW 51
18		18		18		18	CW 25	18		18	
19		19		19		19		19		19	
20		20	CW 12	20		20		20	CW 34	20	
21		21		21	CW 21	21		21		21	
22		22	Paris	Hamburg		22		22		22	CW 43
23	CW 4	23	HAM		23		23	CW 30	23	23	
24		24		24		24		24	CW 39	24	
25		25		25		25	CW 26	25		25	
26		26		26		26		26		26	CW 48
27		27	CW 9	27		27		27	CW 35	27	
28		28		28	CW 22	28		28		28	
29		29		29		29		29		29	
30	CW 5		30		30		30	CW 31	30	30	
31			31				31		31		

Reader

RFID

MIFARE

NFC

\* conducted by a partner of NXP



# Training Schedule AMERICA 2012

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dez
1		1 San José	1	1	1	1	1	1	1	1	1
2	CW 1	2	2	2 CW 14	2	2	2 CW 27	2	2	2 San José	2
3		3	3	3	3	3	3	3 CW 36	3	3	3 CW 49
4		4	4	4	4	4 CW 23	4	4	4	4	4
5		5	5 CW 10	5	5	5	5	5	5	5	5 CW 45
6		6 CW 6	6	6	6	6	6 CW 32	6	6	6	6
7		7	7	7	7 CW 19	7	7	7	7	7	7
8		8	8	8	8	8	8	8	8 CW 41	8	8
9	CW 2	9	9	9 CW 15	9	9	9 CW 28	9	9	9	9
10		10	10	10	10	10	10	10 CW 37	10	10	10 CW 50
11		11	11	11	11	11 CW 24	11	11	11	11	11
12		12	12	12	12	12	12	12	12	12 CW 46	12
13		13 CW 7	13	13	13	13	13 CW 33	13	13	13	13
14		14	14	14	14 CW 20	14	14	14	14	14	14
15		15	15	15	15	15	15	15	15	15	15
16	CW 3	16	16	16	16 CW 16	16	16	16	16	16	16
17		17	17	17	17	17	17	17	17	17	17 CW 51
18		18	18	18	18	18	18	18	18	18	18
19		19	19	19	19	19	19	19	19	19	19
20		20 CW 8	20	20	20	20	20	20	20	20	20
21		21	21	21	21	21	21	21	21	21	21
22		22	22	22	22	22	22	22	22	22	22
23	CW 4	23	23	23	23	23	23	23	23	23	23
24		24	24	24	24	24	24	24	24	24	24
25		25	25	25	25	25	25	25	25	25	25
26		26	26	26	26	26	26	26	26	26	26
27		27	27	27	27	27	27	27	27	27	27
28		28	28	28	28	28	28	28	28	28	28
29		29	29	29	29	29	29	29	29	29	29
30	CW 5		30	30	30	30	30	30	30	30	30
31			31								

Reader
RFID
MIFARE
NFC
JCOP



# Training Schedule ASIA 2012

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dez
1	1	1	1	1	1 PVG	1	1	1	1 CW 40	1	1
2 CW 1	2	2	2 CW 14	2	2	2 Taiwan	2	2	2	2	2
3	3	3	3	3	3	3	3	3 CW 36	3	3	3 CW 49
4	4	4	4	4	4 CW 23	4	4	4	4	4	4
5	5	5 CW 10	5	5	5	5	5	5	5	5 CW 45	5
6	6 CW 6	6	6	6	6	6	6	6 CW 32	6	6	6
7	7	7	7	7 CW 19	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8 CW 41	8	8
9 CW 2	9	9	9 CW 15	9 Delhi	9	9 CW 28	9	9	9	9	9
10	10	10	10	10	10	10	10	10 CW 37	10	10	10 CW 50
11	11	11	11	11	11 CW 24	11	11	11	11	11	11
12	12	12 CW 11	12	12	12	12	12	12	12	12 CW 46	12
13	13 CW 7	13	13	13	13	13	13 CW 33	13	13	13	13
14	14	14	14	14 CW 20	14	14 SIN	14	14	14	14	14
15	15	15	15	15	15	15	15	15	15 CW 42	15	15
16 CW 3	16	16	16 CW 16	16	16	16	16	16	16	16	16
17	17	17	17	17	17	17	17	17	17 CW 38	17	17 CW 51
18	18	18	18	18	18	18	18	18	18	18	18
19	19	19 CW 12	19	19	19	19	19	19	19	19	19 CW 47
20	20 CW 8	20	20	20	20	20	20	20 CW 34	20	20	20
21	21	21	21	21	21	21	21	21	21	21	21
22	22	22	22	22	22	22	22	22	22 CW 43	22	22
23 CW 4	23	23	23 CW 17	23	23	23	23	23	23	23	23
24	24	24	24	24	24	24	24	24 CW 39	24	24	24 CW 52
25	25	25	25	25	25	25	25	25	25	25	25
26	26	26 CW 13	26	26	26	26	26	26	26	26	26
27	27 CW 9	27	27	27	27	27	27	27	27	27	27
28	28	28	28	28	28	28	28	28	28	28	28
29	29	29	29	29	29	29	29	29	29 CW 44	29	29
30 CW 5		30	30 CW 18	30	30	30	30	30	30	30	30
31		31		31	31 PVG		31		31		31

Reader
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# Registration form

Please fill out and send to your local NXP Semiconductors contact (see page 3)

First name:	Last name:
Company:	
Street:	
City / ZIP Code / Country:	
Telephone number:	Fax number:
E-mail:	
VAT No (for EU customers only):	
Your professional background (Technical, Marketing, Sales, Business Development etc):	
<b>Official company stamp</b>	

Training module and date: .....

**\* For JCOP registrations:**

Please specify what applications you are interested  
in: .....

**Please note:**

For information on training fees please contact your local training officer (see page 3).  
Your invoice will be sent **after** completion of the training.  
Payment is accepted via Bank Transfer.  
For trainings 'on demand' please ask your local NXP Semiconductors training officer (see page 3).  
Refreshments, lunch and full documentation are included in the fees.  
Your registration will be confirmed via e-mail to the address provided above.