



### About FIME

FIME is an independent global leader in consulting and integration testing services for smart devices and secure chip-based applications within the telecom, e-payment, transport, e-identity and logistic sectors. Its international team works with manufacturers, banks and authorities within these markets throughout the research and development lifecycle to provide expertise on sector requirements, functional and security features and industry regulation.

Since 1995, FIME has established global ISO 17025 accredited laboratories which provide official testing and certification services to validate a solution's compliance and security before launch. FIME's technical ability ensures a customer's solution is secure, interoperable and achieves the highest level of industry standardisation.

With over 200 employees and operating across America, Europe, the Middle East, Africa, India and Asia, FIME has worked with leading international schemes such as American Express, First Data, JCB, MasterCard and Visa to bring pioneering and convenient chip-based services to end users.

## FIME's NFC Solutions

A global offer



For more information, please contact FIME:

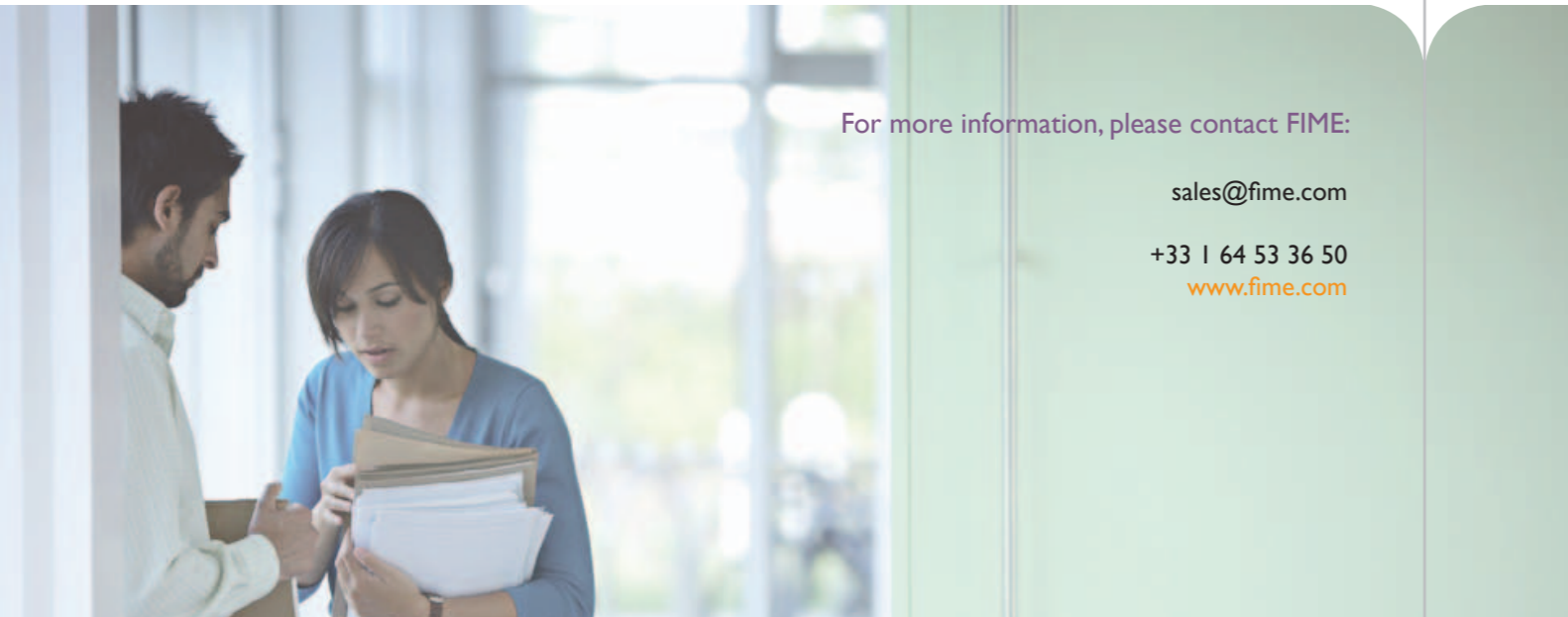
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Beyond short range wireless connectivity, NFC (Near Field Communication) hides a complex architecture which is needed to bring ease of use and interoperability to the end-user. FIME, a world leader in secure chip and contactless testing solutions, provides a variety of services that cover all technical solutions for both mobile architecture (SIM centric and secure elements) and network architecture (OTA, TSM, service providers). We also provide brief market analyses for the NFC ecosystem as well as functional & technical aspects of Global-Platform specifications.

This document details FIME's offer for a customized NFC qualification plan. This has been developed following our experiences with NFC pilots and test sessions performed for several reference contactless applications and handset manufacturers.





FIME has extensive knowledge in contactless technology along with expertise in multi-applicative platforms. This, applied to the banking, transportation and identity markets ensures a global qualification scheme for NFC solutions.



*"As a mobile network operator I need to check that the applications on my SIM card can co-exist without causing each other security problems"*

It is important that different applications found on the same SIM card do not cause a risk to one another, in addition to this the SIM card needs to provide a trusted platform. FIME will help you define the security requirements that must be met by the different application providers to make sure that the applications run smoothly on the SIM card.

FIME, as a qualified laboratory, will then accompany you in setting up the qualification process to be carried out on all basic applications as well as performing these application evaluations.



*"I'm launching my new mobile handset on the market and I need to carry out interoperability and RF testing"*

Upstream of the new NFC handset launch FIME can provide training and expertise in RF specifications and also accompany you during the design phase. FIME will ensure that the antenna design enables the handset to perform correctly. To help you prepare for different qualifications FIME can provide test benches that will ensure the certification process goes smoothly.

FIME's experts will guide you through the steps required by the authorities, such as MasterCard, Visa, GlobalPlatform, EMVCo and ISIS. Finally, to ensure a reliable end product you can use FIME's contactless terminal base for interoperability testing.



*"How should I go about putting TSM qualification tests in place?"*

As a Service Provider you need to be connected to a growing number of TSM and MNO to get the maximum client coverage. But since it is extremely time consuming to test all connections to TSM and MNO, FIME will help you put in place a TSM qualification process for a faster time to market for your NFC product.

The large number of TSM and MNO that exist results in a complex architecture and FIME accompanies you in putting in place the necessary test plans for all potential architectures, as well as carrying out qualification testing.

### EXPERT CONSULTANCY

FIME's consulting services present clients with an overall view of the technical aspects of NFC and GlobalPlatform technologies as well as their uses in various markets. The consulting services cover:

- Project management
- Coordination of your project
- Security audit
- Training
- Workshops

### TESTING SERVICES

Each communicating layer of an NFC device must be qualified to determine the quality of communication between each element of the device. FIME uses its extensive experience gained in the banking sector (EMV based standards) and the transportation and identity markets (ISO/IEC 14443, 18092 and 21481) to carry out a number of test cases. The NFC testing services cover:

- Analog: RF Interface testing on both Target and Initiator mode (ISO 14443, EMV contactless, ISO 18092, NFC Forum)
- Protocol: Protocol testing on both target and initiator mode (ISO 14443, EMV contactless, ISO 18092, NFC Forum)
- Dynamic combination
- Timing performance
- Security evaluation ( SE, cardlet, MIDlet)
- Interoperability
- SWP/HCI
- Reliability tests upon specific requirements (for example: transaction rejection rate, in static and dynamic mode)
- RF Mapping
- Combination Analysis
- USIM Conformance Test (3GPP)
- Certification: MasterCard, Visa, GlobalPlatform, EMVCo, ISIS, AFSCM

### ENGINEERING SERVICES

FIME's Innovation team provides strong support in testing and development on a project basis. The purpose of these services is to deliver a customized solution in order to improve the time-to-market during the development cycle of your project. The Outsourced R&D services cover:

- Technical expertise (RF specifications, multi-applicative platform, security)
- Test scheme definition (Specification and Test Plan Writing, Device Selection Process...)
- Hardware optimization
- Test tool development
- Development of applets or MIDlets

### TEST TOOLS

Above and beyond our lab services FIME offers a complete range of NFC test tools. FIME's tools cover a wide range of NFC standards such as GlobalPlatform, NFC Forum, EMV Contactless, ISO 14443 and ISO 18092. The NFC solution also includes the RF test bench. All of FIME's tools are designed and then qualified by independent teams:

- Test bench components for RF and protocol testing
- Spy tool (contactless, SWP/HCI)
- SWP/HCI test tool
- GlobalPlatform 2.2 test tool (UICC configuration)