

Joint Position Paper on Interoperability of NFC Mobile Devices

By:



March 2016

Joint Position Paper on Interoperability of NFC Mobile Devices

Motivation

Over the last 10 years, the public transport market has been ready to embrace NFC-enabled mobile services but field introduction didn't take place as could have been expected.

In our view, the fragmentation of contactless specifications is the major reason why NFC isn't as successful as it could be. ISO/IEC14443, ISO/IEC18092, EMVCo L1 and NFC Forum analog are built on the same technical foundation but over time developed differences that may lead to interoperability issues. NFC's value proposition claims that it is easy to use, self-explanatory, secure and compatible with existing contactless infrastructures. This proposition is currently broken since service providers and users cannot rely on the interoperability of NFC mobile devices with their contactless application. They have to investigate per case if a certain NFC-enabled service will be supported by a dedicated type of NFC mobile device.

In order to make NFC a market success, NFC mobile devices have to come with guaranteed technical interoperability with the globally relevant contactless infrastructures and applications.

Relevant contactless standards

A study of the NFC Forum and the Smart ticketing Alliance on relevant use cases in the global public transport sector showed that NFC is the best-suited interface technology for mobile services. Only the NFC-interface can integrate all applications and services that need to be covered during the life cycle of a mobile Public Transport service. This includes not only the use of the NFC mobile device as a fare media but also secure authentication, contactless payment and utilizing the NFC mobile device as a terminal for contactless chipcards. In order to support all globally relevant implementations, the NFC mobile device has to be interoperable with the following standards: ISO/IEC14443, ISO/IEC18092, EMVCo L1 and NFC Forum's analog specification. With the exception of EMVCo L1, reader mode has to be supported.

Approach to interoperability

Interoperability would be guaranteed if there were one contactless standard for all types of devices and applications. However, this straight-forward approach is not practical. The relevant standardization groups can provide good reasons why their specific work has to be continued. No party will give up their specification in support of a common approach.

Instead, the approach for interoperability of NFC mobile devices has to respect and appreciate the relevance and the roles of the established working parties. A collaboration between these parties requires mutual consent of the individual roles and a defined division of work.

The NFC Forum and EMVCo were the first to agree upon a cooperation that targets a harmonization of analog/RF and digital layer specifications for NFC mobile devices. In the meantime, the NFC Forum extended the scope of the effort by establishing similar relationships with ISO and CEN. We see this as the foundation for the necessary harmonization work.

Implementation in consecutive phases

The market cannot wait until all details of harmonization are sorted out between the involved standards groups. Therefore, the implementation of interoperable NFC mobile devices should be conducted in two phases:

1. The first phase focuses on the short term market introduction of certified interoperable NFC mobile devices. It shall cover only those activities that are technically mandatory.
2. The fine-tuning of the harmonization work and the streamlining of redundancies in testing and certification shall be conducted in the second phase.

EMVCo-specific considerations

GSMA references EMVCo's level 1 Analog and Digital testing in order to support the introduction of mobile contactless payment. The NFC Forum's approach for interoperability of NFC mobile devices addresses additional functionality (reader mode) and application areas like Public Transport and secure authentication and is based on NFC Forum's test cases. The NFC Forum's analog test cases are also referenced within GSMA. These activities should be seen as an enhancement and not as competition to EMVCo's certification. For the time being we assume that both certification schemes should be conducted in order to support interoperability for all relevant contactless applications. We understand that this implies some redundancy in testing, until a streamlined approach will be developed in the second phase of the implementation.

We find a similar situation today in Public Transport infrastructures. We see an increasing market relevance of system implementations where fare management according to ISO/IEC14443 and contactless payment according to EMVCo co-exist. The most prominent example may be Transport for London. Also here, we need to find a way to optimize the certification process. On our request ISO TC204 recently proposed a new work item that may be useful to address this subject.