NFC Forum Public Transport Solutions Update

Information on NFC Forum's Public Transport Interoperability Solutions including: Specifications, Application and How to Procure Compliant Devices

Overview

In a joint approach with GSMA, CEN, ISO and global public transport stakeholders, the NFC Forum conducted analog harmonization efforts that are now being rolled out into the various specifications. Once deployed, those harmonized specifications will foster interoperability between NFC devices and global public transport infrastructures, and open up deployment opportunities for NFC-based mobile services throughout the world.

NFC Forum's next version of the Analog Specification and Analog Test Specification will establish full interoperability between the contactless interfaces of NFC mobile devices and public transport readers and cards in ISO and EMVCo-conformant infrastructures. By adhering to those harmonized specifications, manufacturers can make sure that the NFC interface of their devices is fit for purpose and interoperable with the major deployments of public transport infrastructure.

Details of this work can be found under http://nfc-forum.org/resources/joint-position-paper-interoperability-nfc-mobile-devices/.

Making NFC Forum's Specifications "Public Transport Ready"

Just two parameters[1] of NFC Forum's current analog specification have to be adapted to achieve wide interoperability between NFC mobile devices and the globally relevant specifications for contactless interfaces of readers and chip-cards in public transport.

The amendment includes increasing limit values for:

- Minimum Field strength in reader/writer mode (MIN V_{OV}) and
- Minimum Load Modulation Amplitude (LMA_{MIN})

Furthermore, the test method for LMA_{MIN} will be modified to consider not only amplitude but also phase information.

Specification Update and Impact on Test Specifications

All of these necessary adaptions will be included in the NFC Forum's upcoming Analog Specification 2.0.

Only 5 out of 33 current test cases of NFC Forum's Analog Test Specifications will have to be modified to achieve "Public Transport Ready" testing and certification. The test cases affected are related to minimum field strength (1 test case) and minimum load modulation (4 test cases in order to cover all technologies and bit rates).

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[1] The introduction of the EMD parameter will be conducted in a later version. It is relevant for future applications.

Application in ISO/IEC14443-Conformant Public Transport Infrastructures

Interoperability requires matching specifications on both sides of the contactless interface. As part of the joint efforts, CEN developed targeted implementation and test specifications for ISO/IEC 14443-conformant Public Transport readers and fare media that match NFC Forum's "Public Transport Ready" specifications.

As a special feature, this harmonized solution will also compensate for the fact that ISO/IEC 14443-conformant readers today are not required to support very small antennae. By applying NFC Forum's harmonized Analog Specification 2.0 for NFC mobile devices and CEN TS 16794 Edition 2 for public transport readers, interoperability is now also assured for NFC mobile devices using an antenna size as small as class 6.

Application in ISO/IEC18092-based Public Transport Infrastructures

Key stakeholders of ISO/IEC 18092-based systems have been involved in this harmonization project from the very beginning and confirmed that the chosen approach is also taking into account the requirements of ISO/IEC 18092-based deployments. NFC mobile devices conforming to the harmonized solution will work not only in ISO/IEC14443, but also in ISO/IEC18092-based infrastructures.

Availability of "Public Transport Ready" Specifications

NFC Forum's Analog Specification 2.0 will fully support the "Public Transport Ready" feature and is expected to be published during August 2016.

The introduction of related test cases and certification is planned for the end of 2016.

Procurement Information

For requesting NFC Forum's interoperability solutions from handset makers, Mobile Network Operators can simply refer to NFC Forum's upcoming "Public Transport Ready" specifications which encompass NFC Forum's Analog Specification 2.0 and the related Analog Test Specifications.

All leading handset manufacturers are members of the NFC Forum and already have access to draft versions of these specifications.

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