

SmartWave Box

Contactless Challenge

Contactless technology is rapidly coming into use globally. Card Issuing Authorities are issuing millions of contactless credit and debit cards to consumers. e-Passports, with contactless electronic chips, are being issued world wide and Travel Cards are rapidly coming into the market issued by public transport companies.

There are several challenges for smooth contactless implementation. First and foremost, interoperability is crucial for global usage. Contactless cards, passports and systems must conform to ISO 14443, NFC and application specific requirements.

Whilst very exciting, this is a relatively new and complex technology. There are many factors and parameters to consider to ensure smooth implementation.

Smart Solution

Testing is crucial to ensure contactless cards, passports and terminals work correctly. To ensure functionality and interoperability testing tools are extremely useful. Thorough, in-depth testing is the key to successful contactless migration.

The SmartWave Box, a hardware device, is the perfect solution for testing contactless cards. It reads & simulates contactless smart cards.

The SmartWave Box also analyses the communication between a contactless card and terminal. With its various modes of operation, the SmartWave Box is the most versatile tool available today for contactless testing.

SmartWave Box - Key Benefits

- Checks full ISO/NFC compliance
- Ensure interoperability
- Perfect for Contactless card (PayPass, Visa Contactless) a
- Ideal for e-Passport (ICAO) testing
- Perfect for Contactless terminal testing
- Shorten time-to-market
- Significant resource & expense reduction by error-detection during development

Product Features



Tracer / Analyser configuration

Features

The SmartWave Box consists of a:

- Contactless reader (antenna) in the box
- Contactless card probe connected to the box
- Contactless probes in card and passport size
- LED's for status and communication
- Connectors for an oscilloscope
- Host interface uses 12 Mbps USB2.0

The SmartWave Box is **the** testing tool to:

- Test a CL Card (ISO 14443-2/3/4/application)
- Test a CL Terminal (ISO 14443-2/3/4/application)
- Test the NFC CL card and NFC terminal (ISO 22536 Level 2)
- Test the NFC CL card and NFC terminal (ISO 23917 Levels 3 & 4)
- Analyse & spy on card-terminal communication

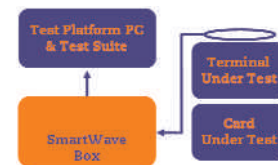


Front Panel of SmartWave Box

Modes of Operation

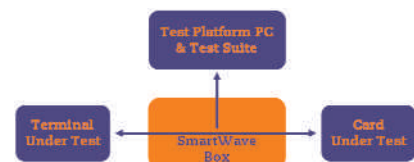
Spying Mode (Passive)

During the Spying Mode, you can capture data between a terminal and a contactless card with a special antenna in the contactless probe to minimise Radio Frequency (RF) power load. There is no disturbance to the existing communication between the terminal and the contactless card. All the frames are shown with a timestamp.



Analyse Mode (Active)

The Analyse Mode can be used to view transfers between a contactless terminal and a contactless card in detail. Use Collis' Conclusion Test Platform to view these transfers. In the Active Mode, each transferred frame has a timestamp. The Analyse Mode does not modify the terminal / card session from the application data perspective.



Modes of Operation

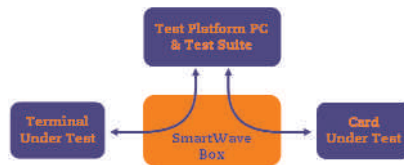
Modes of Operation



Test Environment: Card Simulator

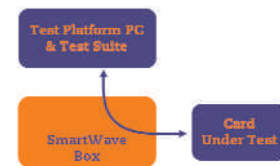
Intercept Mode

In the Intercept Mode, the frames between a contactless terminal and a contactless card are routed via the host PC, allowing the modification of data. All frames in this mode have individual timestamps. Due to timing restrictions, the Level 3 anti-collision part is followed in the Analyse mode and cannot be modified.



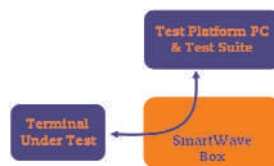
Terminal Emulation

The SmartWave Box is used as a reader to check contactless cards under test. You can use Collis' Conclusion Test Platform to perform any level 3, level 4 tests and application tests with a contactless card. All frames have individual timestamps.



Contactless Card Simulator

The Contactless Card Emulator sees the probe being used as a configurable contactless card to exercise a terminal under test. Using Collis' Conclusion Test Platform, level 3 and level 4 behavior of a contactless card can be fully simulated. The transferred frames are shown with timestamps.



Supported Cards

The SmartWave Box supports:

- ISO 14443 Type A
- ISO 14443 Type B
- ISO 18092 NFCIP-1

Optional support for:

- Mifare (Philips) = Type A with proprietary access & security protocol
- FeliCa (Sony) = NFCIP-1 212 kbps with proprietary access and security protocol

SmartWave Box is ideal for:

- ICAO e-Passport
- MasterCard PayPass
- Visa Contactless
- JCB J/Speedy

Test Suites

	Card	Terminal
	Application	Application specific document
ISO 14443-4	High level protocol	ISO 10373-6 Amd.1 ISO 23917 (NFC)
ISO 14443-3	Polling, ATR and anti-collision	ISO 10373-6 Amd.3 ISO 23917 (NFC)
ISO 14443-2	RF power, modulation and bit-coding	ISO 10373-6 ISO 22536 (NFC)
ISO 14443-1	Physical card size and characteristics	Mechanical and physical measurement

Supported ISO Parts

Benefits of the SmartWave Box

Benefits

Analyse & spy on communication between card and terminal.

Terminal Vendors

Terminal Vendors can use the SmartWave Box to test specific parts of the Terminal/ Contactless Reader. Perfect for Card/ e-Passport emulation testing.

Card Issuers

The well defined communication between the probe and the terminal in the SmartWave Box allows Issuing Authorities to view card/ e-Passport behaviour.

Product Range

SmartWave Box

The SmartWave Box reads & simulates contactless smart cards. The SmartWave Box also analyses the communication between a contactless card and terminal.

This tool is very useful in a test environment where consistent or multiple card data is required for testing.

(Reference code: SWB-P1)

About Collis

Collis is the leading global competence centre in the design and testing of card transaction systems.

Collis has delivered significant contributions to the EMV and e-Identification markets for over a decade.

Unparalleled Consulting Services, best available, high quality Testing Tools and expert Training Courses from Collis' e-Business, Quality Assurance and Testing Business Units are at your service.

ISO 9001:2000 certified

Conclusion Test Platform

The Conclusion Test Platform is today's high-end development tool for protocol simulation and interface testing. For years now, the Conclusion Test Platform has found its way into the test environment of satisfied customers all over the world.

(Reference code: CP-P1)

Test Suites

- Contactless card level 3 and 4 tests, according to ISO 10373-6 Amd. 1 for ISO 14443 type A and type B cards (Ref code: SWB-TS-1)
- Contactless terminal level 3 and 4 tests, according to ISO 10373-6 Amd. 3 handling ISO 14443 type A and B cards (Ref code: SWB-TS-2)
- Contactless NFC card level 3 and 4 tests, according to ISO 23917 for ISO 18092 NFC cards (Ref code: SWB-TS-3)
- Contactless NFC terminal level 3 and 4 tests, according to ISO 23917 handling ISO 18092 NFC cards (Ref code: SWB-TS-4)
- Contactless ePassports level 3, 4 and 5 tests, according to the ICAO RF protocol and application for ePassports standard (Ref code: SWB-TS-5)
- Contactless ePassport terminal level 3, 4 and 5 tests, according to the ICAO RF protocol and application for ePassports standard (Ref code: SWB-TS-6)
- EMV type of tests generic for both contact cards and contactless cards (Ref code: SWB-TS-7)

Contact

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