



SPECIAL CARTES & IDENTIFICATION

CETECOM: EMVCo Contactless and MasterCard PayPass Test Laboratory

With a pilot in Orlando, Florida, RFID technology was initially used for contactless payment with MasterCard PayPass in 2003. Payment schemes like VISA, American Express and JCB have meanwhile deployed their own contactless card products.

Contactless cards are designed to enhance speed and convenience for low value payment with Credit and Debit cards replacing cash. In recent years, we saw many pilot projects for contactless payment all over the world. In most countries, contactless payment will enhance the existing EMV payment infrastructure.

Contactless cards contain a tiny micro chip and antenna based on RFID radio frequency identification and smart card technology. The RFID technology is specified in the ISO 14443 Standard. EMVCo used this standard to develop and install an approval and certification scheme for contactless cards and card readers.

CETECOM has the expertise and necessary accreditations to ensure your contactless applications meet the high safety and reliability requirements.

CETECOM's SmartCard laboratories have newly been accredited for the testing of contactless payment terminals following the EMVCo Contactless Level 1 Terminal Type Approval procedure (EMVCo contactless).

For Contactless terminal Level 2 Type Approval, a vendor needs approval by the card schemes for its payment application. In addition to the MasterCard accreditation to perform PayPass Level 2 Type Approval Tests, the EMVCo contactless accreditation further strengthens CETECOM's leadership in testing contactless applications. An acceptance by VISA to issue payWave Level 2 test reports has been requested.

CETECOM establishes Smart Card Terminal Laboratory in Korea

The CETECOM Network, world leader in testing and certification of telecommunication terminals, has established a test laboratory for Smart Card Technology in South Korea. The Smart Card Terminal laboratory of CETECOM MOVON Ltd in Anyang-city achieved its accreditation by EMVCo for Contact Terminal Type Approval Tests, Level 1 and Level 2, in January 2009.

EMVCo is a joint cooperation of MasterCard, VISA, JCB and American Express and the owner and developer of the global EMV® standard for credit and debit payment cards based on chip card technology. This formal accreditation is the final step of a one-year development. The laboratory of CETECOM MOVON Ltd did benefit from the many years of EMV test experience for contact card terminals of the Germany-based test laboratory of CETECOM ICT Services.

An engaged team of five engineers will conduct terminal type approval tests according to EMV L1 and EMV L2 in the Korean affiliate of the global CETECOM group in Pyeongchon. The laboratory will extend its services in near future with testing capabilities for RFID, NFC and Contactless Payment Applications. With the installation of the laboratory for Smart Card Technology in Korea, the CETECOM group expands its global technology coverage and brings its test service for the promising Smart Card Technology to Asia.

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Payment

- SmartCard Terminals
- EMVCo Contactless
- EMVCo Level 1 + 2
- MasterCard PayPass
- Network Services
- ZKA

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**SPECIAL
CARTES & IDENTIFICATION****Consulting - Testing & Certification services
for SmartCard technologies****Level 1 - Testing of Smart Card Terminals**

EMV Level 1 according to the Integrated Circuit Card Specifications for Payment Systems is an essential requirement for the certification of payment terminals. The test procedure includes basic electrical tests, protocol tests and checking of the mechanical components.

There have been several incidents this year influencing the SmartCard business:

- ▶ change to the new card class B and C
- ▶ update of some Level 1 test cases in November 2009
- ▶ further development of contactless payment

The introduced Renewal Process by EMVCo causes consequences for the terminal manufacturers, too.



According to the Renewal Process Level 1/Level 2 certifications will henceforth be granted only for a limited period of time and already approved terminals will expire.

To still conform to all these requirements we are continuously optimizing our test setup, for instance with the new card simulator IT3 from COMPRION, which will replace the ORGA ACE Tester and makes it possible to test according to card class B and C.

In addition to the certification of terminals CETECOM ICT Services assists the terminal manufacturers with qualified consulting services and in-development testing, also according to EMVCo Level 1 Contactless.

Level 2 - Testing of Smart Card Terminals

Based on the EMV Level 1 certification EMV Level 2 concentrates on the Payment Application, as well as the external interface to the Acquiring System. Tests can be performed by using different test tools qualified by EMVCo.

CETECOM ICT Services GmbH offers a free choice of the test tool to the customer :

- ▶ the EVAL2008 (FIME) or
- ▶ the KaNest ICC (Galitt/ KaSYS)

In addition we have a selection of real test cards, which can also be used for TIP testing.

The special SmartCard support of CETECOM provides many advantage to its customers:

- ▶ Optional on-site testing (e.g. for ATMs)
- ▶ Support in filling out the EMVCo forms (ICS, RFA ...)

- ▶ Performance of Pretests/ Debug Sessions
- ▶ Status reports during the project (email, ad-hoc telephone support)
- ▶ Error analysis of test cases (preparing and provision of log files)
- ▶ Firmware updates or host simulator updates on customer request
- ▶ Prompt execution of the tests
- ▶ Reminder for expired certificates (Renewal)

In addition to our SmartCard lab in Saarbrücken it is also possible to contact our labs in France, Korea or any other CETECOM location.

Smart Card Technology is used in many sectors and activities of the economy and public life. We find TAGs and Chips in Payment Cards, ePassports, Transportation Tickets and Mobile Phones. These devices can be used with ATM's, POS terminals, PC USB readers and Public Transport Systems, more to come. To ensure the success of this global technology, the interoperability between the components is essential, and so focus our testing and certification activities.

As a leading provider of testing and certification solutions for Smart Card, RFID and NFC applications, CETECOM offers a wide range of services to implement the type approval process for electronic payment devices and terminals. The testing of electrical safety, electromagnetic compatibility, environmental impact assessment and the certification handling for the global market access complete our service package.

Test Schemes

- ▶ EMVCo
- ▶ MasterCards
- ▶ SESAM-Vitale
- ▶ ZKA Application
- ▶ VDV-KA

Services

- ▶ Type Approval Testing
- ▶ Pretest Service
- ▶ Debug Service
- ▶ Consultancy

Accreditations

- ▶ BSI TR-03105
- ▶ EMVCo Contactless
- ▶ EMVCo Contact Level 1 and Level 2
- ▶ ISO 17025, ISO 14443, ISO 10373
- ▶ MasterCard Worldwide
- ▶ SESAM-Vitale
- ▶ Zentraler Kreditausschuss ZKA

Standardisation Activities

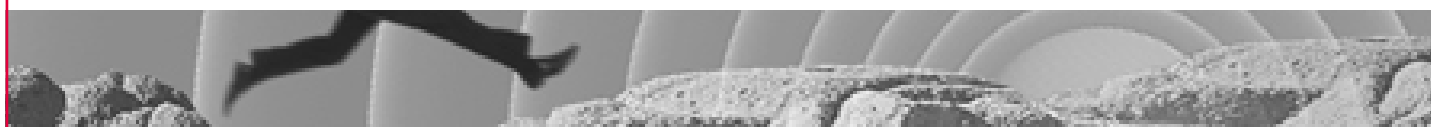
- ▶ Member of ETSI
- ▶ Member of the NFC Forum

Complementary Services

- ▶ EMC, Safety
- ▶ DECT, GSM, UMTS, Bluetooth®, Wi-Fi
- ▶ Analogue Network Access, ISDN, xDSL

CETECOM supports you in achieving a maximum of compliance and security for your Smart Card and e-payment devices! Contact us for more information!

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ePassport and RFID in general

Since more than 3 years CETECOM ICT Services offers conformity tests for ePassports (layers 1-4) and ePassport Readers (layers 2-4). For both services, we are the only test laboratory with approval by the German Federal Office for Information Security (BSI) and accreditation for ICAO.



In order to be able to perform these tests, we use in-house developed test solutions which we have - over the years - permanently adapted to new requirements (introduction of the EAC, updated test standards). A special advantage of this solution is the capability of flexible adaptation to varying customer's requirements - by this means we are able to offer test solutions aside of pure conformity testing. In addition, we are able to offer further services in the RFID area (aside of ePassports).

Customized testing services

In addition, products can also be tested during the development process - customised to the appropriate requirements of the customer.

NFC - Near Field Communication

NFC is one of the most sophisticated applications for communicating via small distances. Similar to RFID, which bases on the same principles as NFC, a great variety of devices (e.g. phone, laptop, headset, fridge, TV, etc) can establish a data exchange by using Near Field Communications. Ranging from a pairing support for wireless applications over personal identification procedures up to payment applications NFC opens the way to easily communicate.

NFC Services

From the very start of the development of NFC applications CETECOM has specialized in providing the respective testing services for the RF part including the basic protocols as well as the regulatory part (EMC, RF, Safety).

Within the last years we could successfully accompany multiple projects of our customers, especially in the ISO 14443 area. We have gained experiences with many different products - from (rather simple) access control systems via official documents (ePassport and eID) up to complex solutions with, e.g., multiple contactless chips placed on a single card.

Vicinity Cards

Test services in the ISO 15693 (Vicinity) area. Besides the development of a test software it was additionally required to define an adequate test specification (in coordination with the customer).

Summarised, our range of services in the area of ePassport and RFID now contains:

- ▶ Conformity tests of ePassports (layers 1-4)
- ▶ Conformity tests of ePassport readers (layers 2-4)
- ▶ Tests based on ISO 10373-6 of arbitrary ISO 14443 products
- ▶ Tests of ISO 15693 (Vicinity) cards
- ▶ Tests during the development process, adapted to customer's requirements
- ▶ Consulting and training in the RFID area

We plan to extend our services in this area to be always able to fulfil our customers' needs.

CETECOM plays an active role in the NFC Forum which is specifying both system requirements and testing methods for NFC solutions. In our Smart Card Laboratory we hold a specific test bench available to be used during the development of NCF applications: an early conformity check can be easily done, saving you time and money. Contact us for more information on our specialised testing and consulting services for NFC solutions:

- ▶ NFC conformity testing acc. to NFC specifications
- ▶ NFC conformity testing acc. to applicable ISO standards

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Identification

- ePassports
- ePassport Readers
- eID Products
- BSI
- ICAO
- Certification Handling

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NFC, RFID

- Payment Applications
- ISO 14443 Products
- NFC-Forum Member
- ISO 15693 Products
- Logistics

**SPECIAL
CARTES & IDENTIFICATION****eTicketing**

e-Ticketing allows cashless travelling around the country through different public transport companies, just by using a simple contactless smart card. e-ticketing is one of the most significant opportunities to reduce costs and improve passenger convenience. It reduces ticket processing charges and allows greater flexibility to the passenger to make changes to the itinerary.

VDV-KA

In Germany the VDV-Kernapplikations GmbH & Co.KG (Association of German Transport Companies) is responsible for the development of this nationwide project. To ensure interoperability, all e-Ticket applications must comply with the German e-Ticket Standard, which has been defined by the VDV-KA.

CETECOM has been designated by the VDV-KA as the official test lab for conducting the related certification tests to make sure that all e-Ticket applications are in compliance with the German e-Ticket Standard.

ZKA Approval Scheme

Since April 2008, the Smart Card Technology test laboratory of CETECOM ICT Services GmbH has been accredited for the approvals scheme of the German banking association „Zentralen Kreditausschuss“ (ZKA).

Today we can offer approval test services for the whole portfolio of domestic electronic payment applications, so also for the latest ZKA developments in ATM (GAA 2007 specification), electronic cash TA7.0 and Secoder 2.

Further test services are implemented for the following approval objects:

- ▶ EMV Debit/Credit POS-Terminal
- ▶ GeldKarte on ATM
- ▶ GeldKarte payment terminal
- ▶ Host Systems (EMV Debit/Credit)

The laboratory has already implemented the test environment for the recently published „Secoder 2“ specification.

To ensure the proper implementation of all involved systems at a maximum reliability and security level all terminal types, clearing systems, SAMs and user cards will be tested following the VDV-KA specifications. The referring test tools are provided by Collis, well-known for its expertise in the field of test tool development.

CETECOM's e-Ticket test spectrum following VDV Standards comprise:

- ▶ Qualification testing for user media
- ▶ Qualification testing for security modules
- ▶ Qualification testing for terminals
- ▶ Qualification testing on background system interfaces
- ▶ Qualification testing on 2D-barcode readers

**ONLINE Netzbetreiber
Test Week**

In May, CETECOM arranged the first interoperability test event for German payment network service providers (Netzbetreiber).

During one week, the CETECOM GICC reference host (an Integri test solution) and the TA7.0 reference host could be used by any Netzbetreiber for free interop testing. After registration at CETECOM, the necessary configuration data was exchanged. The suitable test cards have been provided by CETECOM.

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eTicketing

- Qualification Testing
- Security Modules
- Terminals
- System interfaces
- 2D Barcode Readers

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