



CTC | advanced  
member of RWTÜV group

The logo features the text 'CTC' in a bold, white, sans-serif font. To its right are three vertical bars of varying heights and widths, colored in a light blue. Further right is the word 'advanced' in a lowercase, white, sans-serif font. Below 'advanced' is the text 'member of RWTÜV group' in a smaller, white, sans-serif font. The background is dark with a subtle pattern of light blue dots and lines.

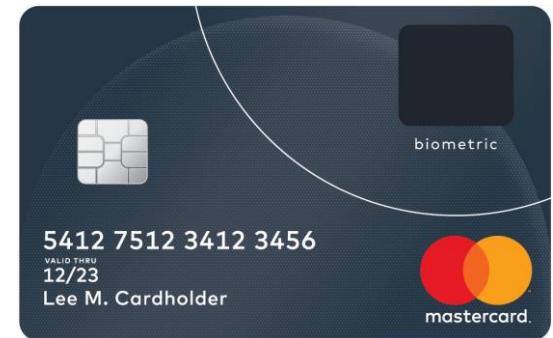
The background features a dark, textured surface with a grid of small, light-colored dots. Overlaid on this are several faint, glowing fingerprint patterns, showing the characteristic ridges and valleys of a human finger.

# Mastercard Biometric Card Fingerprint Functional



# What is this biometric card?

- Mastercard announced the next generation of the biometric card which combines chip technology with fingerprints - a piece of who you are - to identify cardholders conveniently and safely for in-store purchases.

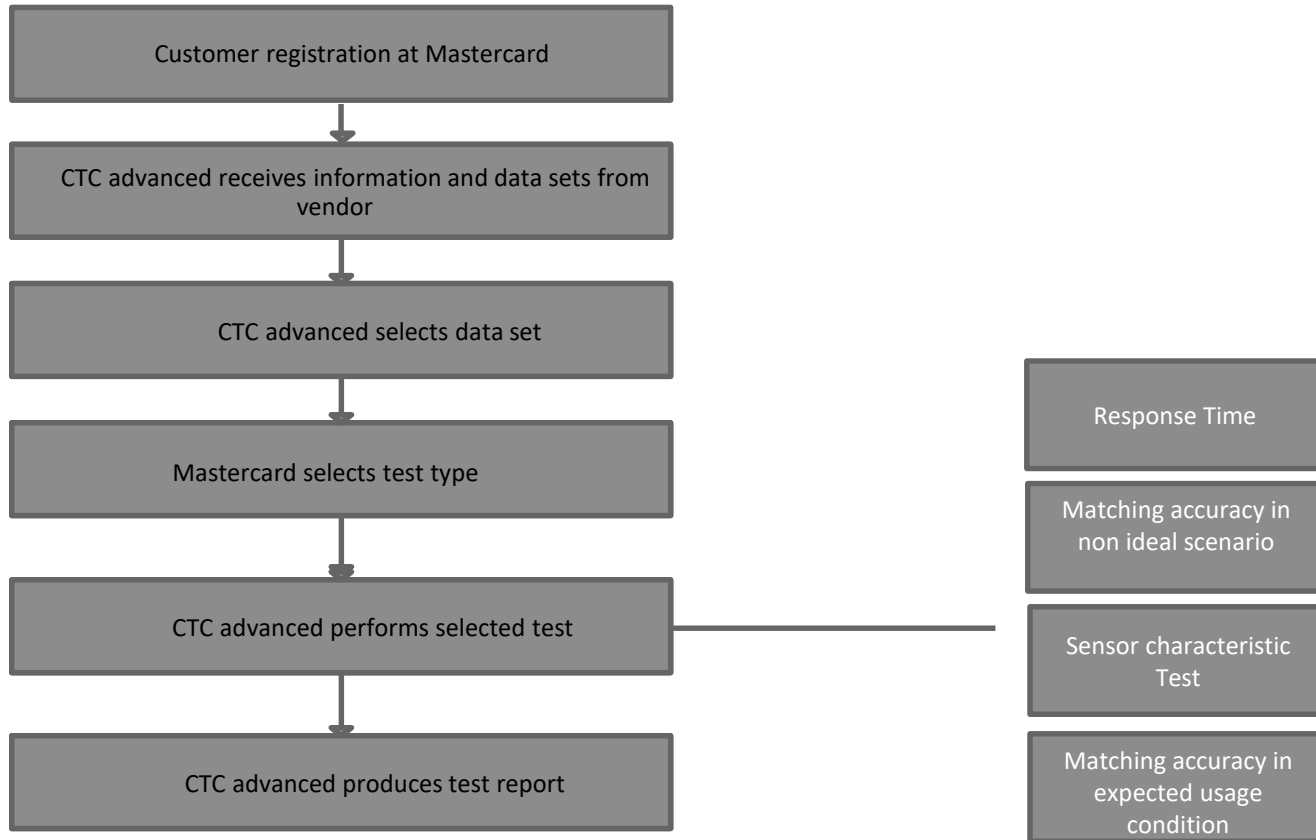


Sources: <https://newsroom.mastercard.com>



# Approval Flow

- High level view of a sensor approval process flow



Source: mastercard – approval process



# Biometric Forms

## Vendor Forms

- Biometric Card Submission Form
- Enrolment Sensor Submission Form

The purpose of this form is to give vendors the ability to provide Mastercard with information about the fingerprint sensor supported in their device. Thus, Mastercard is able to define the correct test scope for the device.

- Biometric Card Self-Test Guide
- Self-Test Report

(see explanation on the next slides)

## Mastercard issued Forms

Biometric Evaluation Plan Summary (BEPS)



# Requirements & process description

Vendor has to provide / Test requirements:

- Sensor under test
- Tools:
  - *Fingerprint capture*
  - *Template extraction*
  - *Matching tool*
- MasterCard Submission Forms
- Self-Test report & fingerprint dataset
- Non-fingerprint pattern



# Fingerprint Sensor Accuracy Self-Test 1/2

- **About Mastercard Fingerprint Sensor Accuracy Self-Test**
- The objective of the self-test of fingerprint sensor accuracy, is to enable a biometric card vendor or a sensor vendor to confirm that the fingerprint sensor implementation meets Mastercard's requirements such as minimum accuracy level before submitting the sensor or biometric card for the formal approval.



# Fingerprint Sensor Accuracy Self-Test 2/2

- Who uses the Mastercard Fingerprint Sensor Accuracy Self-Test guideline?

It is the responsibility of the sensor vendor or biometric card vendor (or any other entity submitting the sensor or device for evaluation on their behalf) to perform the self-test and submit the results to their chosen **accredited functional test laboratory**.

- This document will guide the vendor through the process by defining formal sub-processes and steps:

## Biometric Card Self-Test Guide

Source: mastercard – approval process





# Critical factors of testing

## **False Match Rate (FMR)**

measures the percentage of invalid matches that have been accepted erroneously

---

## **False Non Match Rate (FNMR)**

measures the percentage of valid matches that have been rejected erroneously

---

## **Scenario Response Time**

is the average response time for a successful verification operation which includes the time to acquire a fingerprint image and perform the verification on the biometric enabled device

Source: mastercard – approval process



# What will be tested?

- sensors matching accuracy under non-ideal conditions
- sensors matching accuracy under ideal conditions
- matching performance
- image analysis
- quality assessment

Source: mastercard – approval process



Michael Törnau | Mobile: +49 173 8780-332 | [Michael.Tuernau@ctcadvanced.com](mailto:Michael.Tuernau@ctcadvanced.com)  
Bernhard Mommenthal | Mobile: +49 173 8780-355 | [Bernhard.Mommenthal@ctcadvanced.com](mailto:Bernhard.Mommenthal@ctcadvanced.com)  
[www.ctcadvanced.com](http://www.ctcadvanced.com)