Mastercard Card Quality Management

Overview

April 2023

Agenda

CQM Scope

Involved products:

- Mastercard EMV cards (ID-1 format)

Involved companies:

- Suppliers of the card vendors (chip, modules, inlays, sensors, plastic card bodies)
- Card manufacturers
- Personalization bureaus

Requirements:

- Quality management
- Product conformity
- Product quality

Methodology:

- Self-assessment controlled by on-site audits
- Corrective actions plan
- Actions completion check

CQM = Mastercard Card Quality Management

CQM Requirements

Interoperability
Conformity to physical, mechanical, magnetic, electrical, contactless requirements to meet interoperability with ATM and POS terminals.

Reliability
Resistance to mechanical, chemical, magnetic, electrostatic, aging stress.

Security
UV print, opacity, hologram, signature panel conformity.

Brand
Mastercard design rules conformity.

Environment
No toxicity.

CQM Benefits

For the manufacturer

✓ Cost reduction (less rework, less defects)

✓ Suppliers modular approach

✓ Bank tenders compliance

✓ External independent view

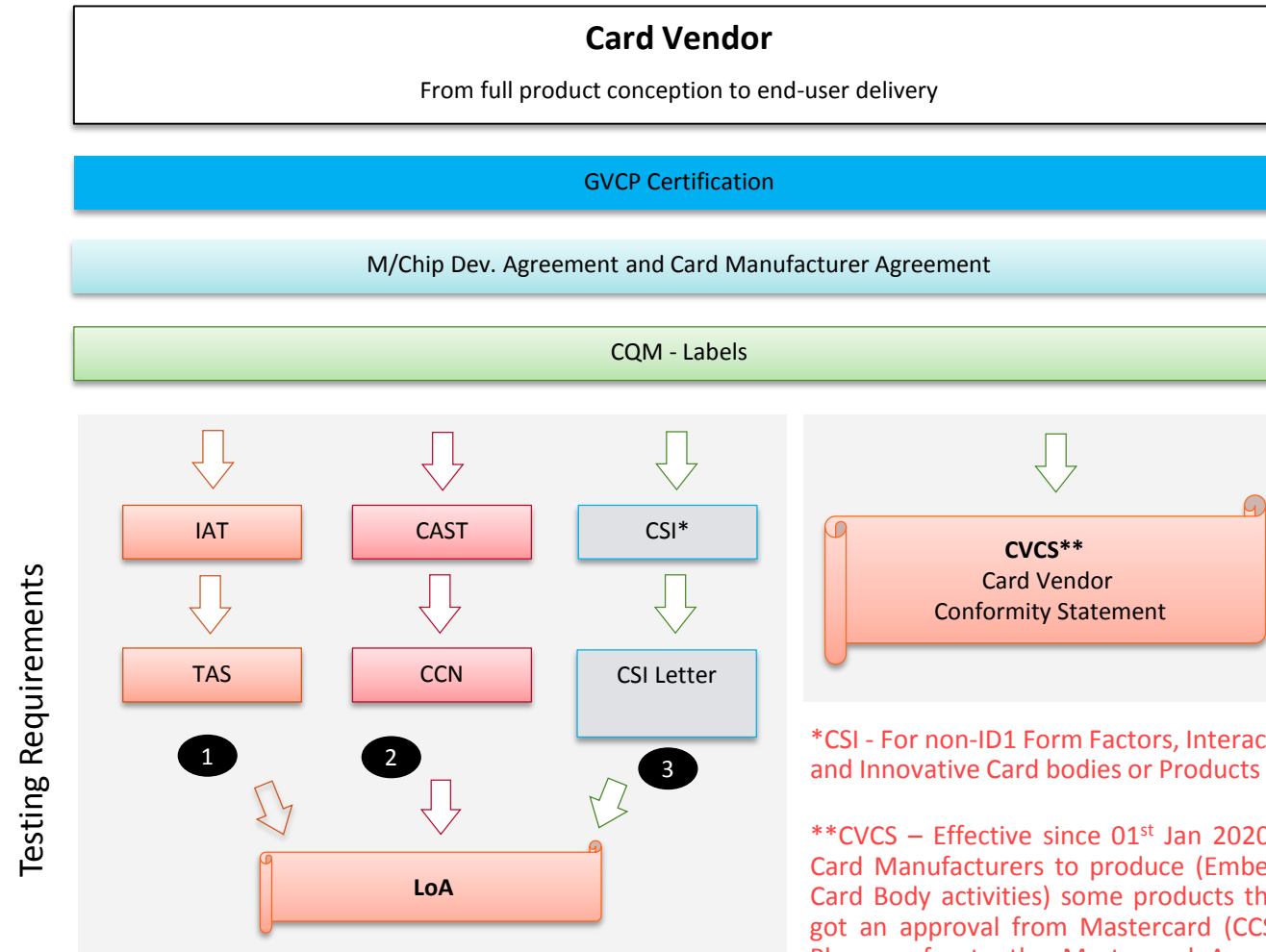✓ Corporate quality tool to support and control the remote sites

For the bank

✓ POS and ATM compliance

✓ EMV compliance

✓ Mastercard compliance

✓ Less card replacement

✓ Card-holder satisfaction

CQM Documents

- Overview (this presentation)

- Process

- Registration Form

- List of accredited auditors

- Assessment Plan (quality questionnaire)

- Requirements specification

- Non Disclosure Agreement (NDA) template

These documents are publicly available on: https://cqm.smart-consulting.com
Your documentation system shall point this CQM webpage to check last release of the documents.

Mastercard Approval Overview

	Company Program	Product Program
Global Vendor Certification Program "Physical and Logical Security"	**GVCP** GVCP-helpdesk@mastercard.com	
Brand and Card Design Rules		**Card Design** card_design@mastercard.com
Card Structure Integrity and security "Innovative form factors or card bodies"		**CSI** CSI_Security@mastercard.com
Card Quality Management	**CQM** cqm@smart-consulting.com	
Compliance And Security Testing		**CAST** cast@mastercard.com
Interface Security Testing "Functional and RF testing"		**IAT** chip_certification_chd@mastercard.com

Card Approval 1/2

Card Vendor

From full product conception to end-user delivery

GVCP Certification

M/Chip Dev. Agreement and Card Manufacturer Agreement

CQM - Labels

Testing Requirements

IAT	CAST	CSI*
TAS	CCN	CSI Letter

1   2   3

LoA

CVCS**
Card Vendor
Conformity Statement

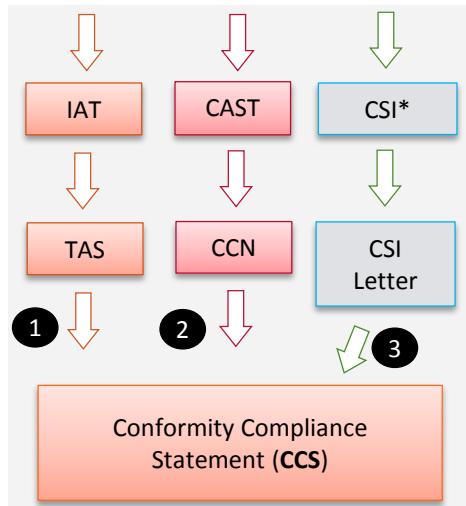*CSI - For non-ID1 Form Factors, Interactive and Innovative Card bodies or Products

**CVCS – Effective since 01st Jan 2020, it allows Card Manufacturers to produce (Embedding and Card Body activities) some products that already got an approval from Mastercard (CCS or LOA). Please refer to the Mastercard Announcement AN_3253

Card Approval 2/2

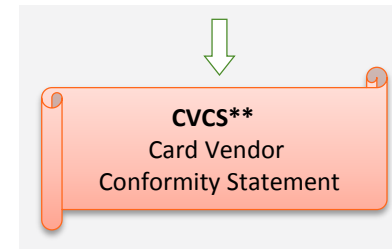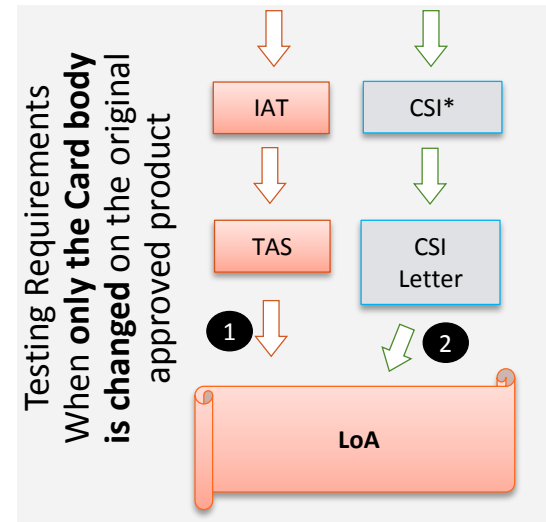**Module Supplier**

Chip + Operating System + Payment App

Card Supplier

End-user product manufacturing and delivery based on an approved 'Module + Inlay'

GVCP

M/Chip Dev. Agreement

Card Manufacturer and OEM Agreement

CQM - Labels

CQM - Labels

IAT | CAST | CSI*

TAS | CCN | CSI Letter

① ② ③

Conformity Compliance Statement (**CCS**)

Testing Requirements
When **only the Card body is changed** on the original approved product

IAT | CSI*

TAS | CSI Letter

① ②

LoA

CVCS**
Card Vendor
Conformity Statement

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Accredited Auditors

List is available to ***https://cqm.smart-consulting.com***

Audit Findings

✓ **Major non-conformity**
Product functionality might be compromised leading to potential field rejects.

✓ **Minor non-conformity**
Others

✓ **Recommendation**
Identified issue that should be resolved to reduce the risk of NC. Auditor leaves the decision to the vendor if the vendor wants to resolve/implement it

Audit Outcome

Quality Grade	Explanation	Due Action Plan Completion	Next audit
A	**Pass** with limited number of minor NC*	< 4 months	< 3 years
B	**Pass** with limited number of major NC*	< 4 months	< 2 years
C	**Interim Pass**	< 4 months	< 1 year
D	**Fail**	ASAP	ASAP after action plan completion

Starting from the 3rd audit per site, a C grade will lead to a FAIL (decertification)

* NC stands for Non-Conformity

Remote Audits

On-site audits might be replaced by remote audits upon Smart Consulting authorization in case of:

- ➢ Travel restrictions (pandemics…)
- ➢ Danger to the auditor (war, …)
- ➢ Auditor's visa rejection

A specific remote audit process is defined.

- ➢ Available from the auditor on request

Initial remote audit grade cannot be higher than C.

Audit Timeline

Owner	Recipients	Deadline
	Registration	
Auditee	to Smart Consulting	
	Audit Agreement	
Auditee + Auditor	Auditee + Auditor	
	Audit Preparation	
Auditee	to Auditor	2 weeks before the Audit (*)
	Audit	
Auditor		
	Action Plan	
Auditee	to Auditor	2 weeks after the Audit (*)
	Final Audit Report	
Auditor	to Smart Consulting and Auditee	4 weeks after Audit End
	Audit Report Assessment	
Smart Consulting	to Auditee and Auditor	5 weeks after Final Audit Report
	Action Plan Completion	
Auditee	to Auditor	17 weeks after Audit End (*)
	Action Plan Completion Report	
Auditor	to Smart Consulting and Auditee	19 weeks after Audit End
	Action Plan Completion Report Assessment	
Smart Consulting	to Auditee and Auditor	2 weeks after Action Plan Completion Report

Agenda

|	
1	**Introduction**
2	**Audits**
3	**Labels**
4	**Process**
5	**Others**

Label = CQM Identifier

Labels are granted to a CQM certified company, to identify their certified activity, in a given site.
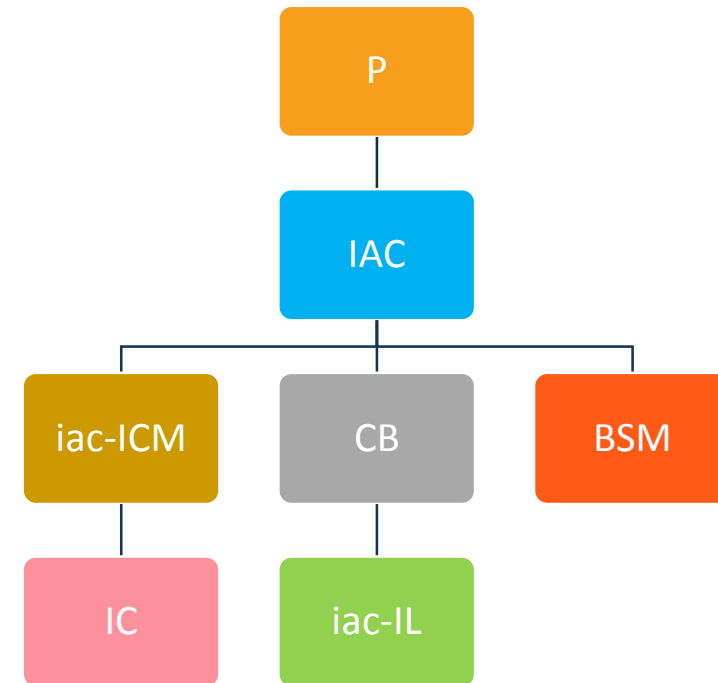
CQM label structure is "ACCLLRRPTS" where:

- ➤ A = Activity of manufacturing

- ➤ CC = Company

- ➤ LL = Location of the manufacturing site

- ➤ RR = Reserved for future use

- ➤ P = Chip Packaging (0 = with Module (Legacy), 1 = without, 2 = both)

- ➤ T = Interface Technology (Contact, Dual, Contactless)

- ➤ S = Status (R:interim label for Recognition, A:label for Approval)

Manufacturing activities

Accronym	First label digit	Definition
IC	1	Integrated Circuit (EMV Chip).
ICM	2	Integrated Circuit Module (IC module with contacts).
CB	3	Card Body.
ICC	4	Integrated Circuit Card (Card with an IC).
BSM	5	Bio Sensor Module (i.e. fingerprint).
IL	6	Inlay with antenna, it is inserted in the Card Body.
iac-ICM	7	Inter-Active Card specific Integrated Circuit Module.
iac-IL	8	Inter-Active Card specific Inlay
IAC	9	Inter-Active Card, ICC with connection to fingerprint sensor or display card.
P	P	Card personalization.

Manufacturing activities
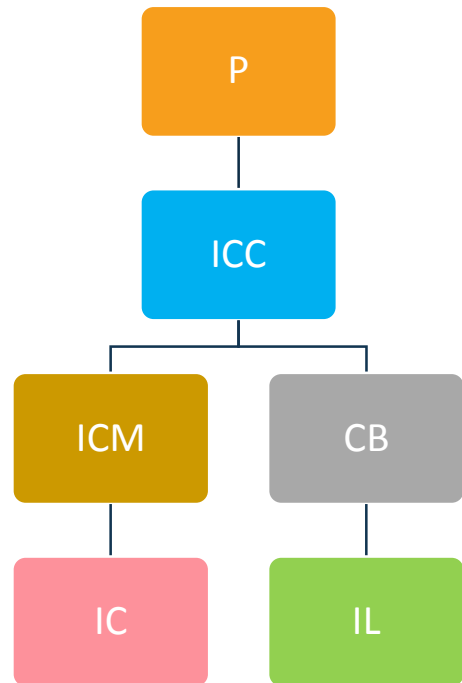
Classic card

InterActive Card

```
Classic card:
      P
      |
     ICC
    /    \
  ICM     CB
   |       |
   IC      IL
```

```
InterActive Card:
        P
        |
       IAC
     /   |   \
iac-ICM  CB   BSM
   |      |
   IC   iac-IL
```

Classic card manufacturing is made with a modular approach
InterActive cards manufacturing might differ from classic card modular approach, there are subject to specific labels: iacIL, iacICM, IAC and BSM (for fingerprint cards)

Recognition Vs Approval (Label last digit)

Recognition

CQM Recognition is a 6 months max interim period aimed
- for companies starting the CQM process
- for a new activity started by a CQM certified company

The interim labels are granted to start production until the CQM audit. The audit date and the assessment plan shall be communicated to both the auditor and Smart Consulting.

Approval

CQM Approval is the step achieved when the audit pass recommendation is confirmed by Smart Consulting.

Certificate

Card Quality Management
Statement of Quality
Dummy Card Company

Having its principal place of business at

Shanghai Avenue, 1929
012345 Shenzhen, CHINA

has submitted for approval by Mastercard a number of Smart Cards Products and Services in conformity with the Mastercard Card Quality Management (CQM) Requirements. The following CQM labels have been granted.

Country Code	City (+ subcontractor name if any)	Integrated Circuit	Integrated Circuit Module	IAC Integrated Circuit Module	Bio Sensor Module (fingerprint)	Inlay	IAC Inlay	Card Body	IC Card	Inter Active Card	Perso
CN	SHENZHEN							39902000DA	49902000DA		P9902000DA
PT	PORTO					69901000DA					
US	BOSTON, MA									99903000DA	

Mastercard
Cyber and Intelligence Solutions

This letter is valid until May 5th 2024

Bruno Parfum
Product Approvals Director

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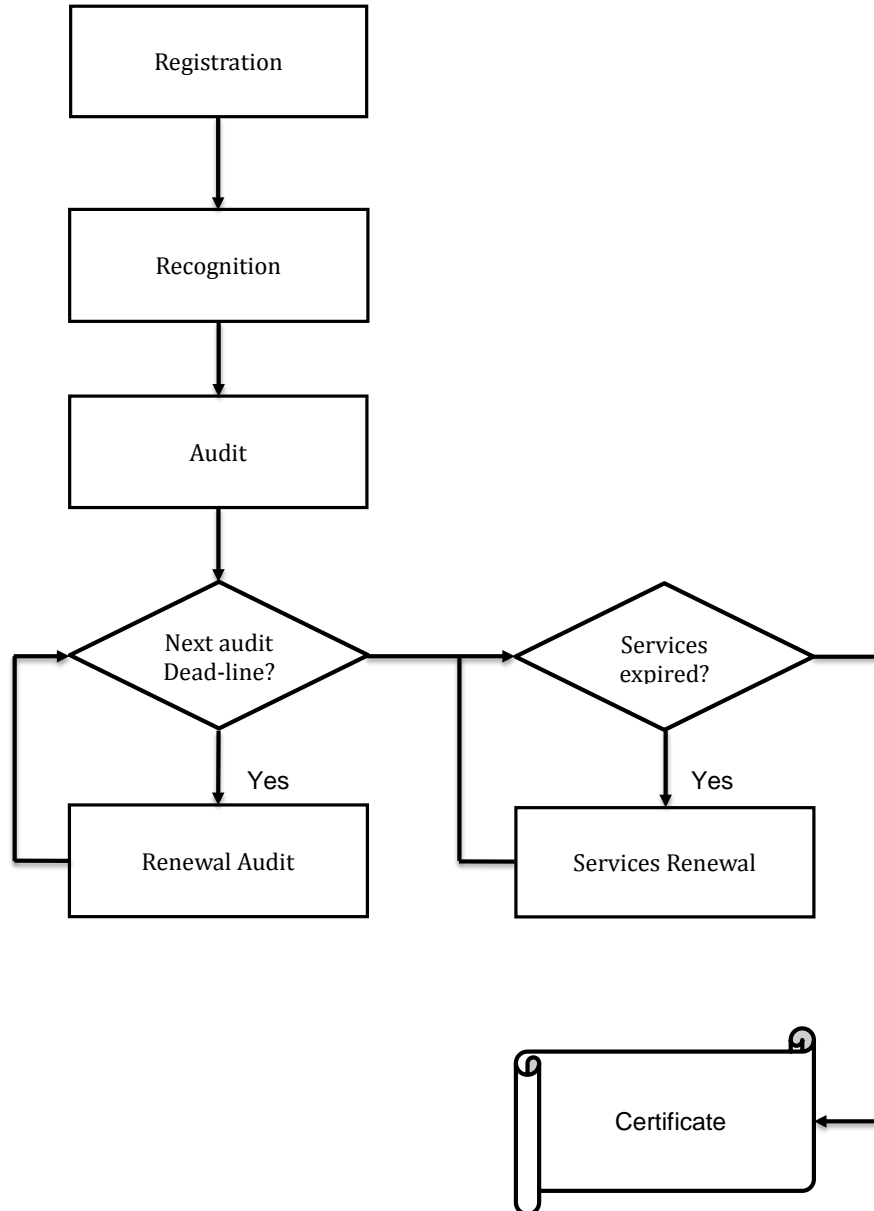*The certificate is listing the labels granted to all the sites of a company.*

Agenda

Process

Registration → Recognition → Audit → Next audit Dead-line? — Yes → Renewal Audit

Services expired? — Yes → Services Renewal

Certificate

Refer to Process document available to
www.smart-consulting.com/card-quality-management/

Newcomer Vs. Already Certified

Newcomer

To register immediately for CQM recognition together with Mastercard GVCP registration in order to gain time.

- CQM labels require the related GVCP certification for card manufacturers or perso bureaus

Already Certified

The audit date shall be initiated by the auditee directly with the auditor taken into account

- The audit deadline issued by Smart Consulting while acknowledging the previous audit report.
- The auditor availability in the region

Pay the CQM yearly fees 60 days before the certificate expiration date.

Notify changes in real time:

- new primary contact
- new manufacturing activities
- new manufacturing location

Contact the soonest cqm@smart-consulting.com

Certificate is granted after

➢ All due audit(s) report(s) are received

➢ All due corrective actions for audits older than 4 months are completed and assessed by the auditor

➢ Next 12 months audit(s) schedule is agreed by Smart Consulting

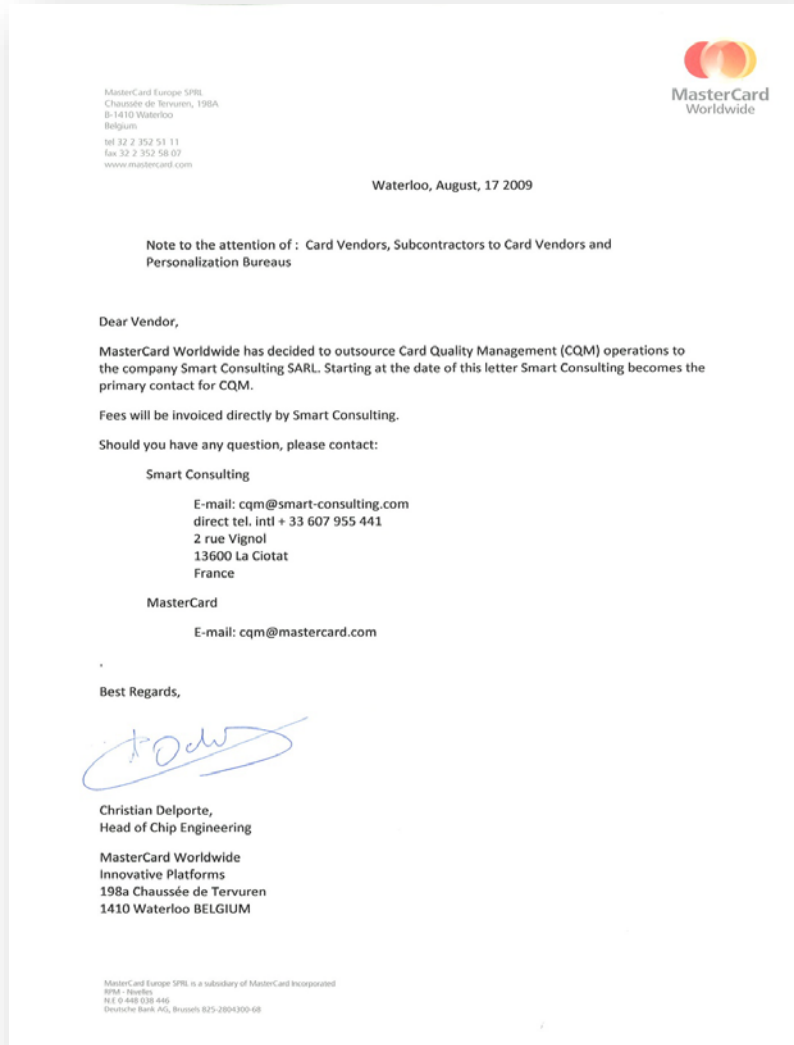➢ Annual fees are paid to Smart Consulting

Agenda

CQM Operations

The CQM scheme is owned by Mastercard

The CQM operations are performed by Smart Consulting

CQM fees

	Auditor	Smart Consulting
Prices	~ 1500 € per day + Travel & Expenses	1100 € annual fees (*) + 625 € per activity (*)
Payment term (new candidates)	Defined by the auditor	60 days after CQM offer date
Payment term (already certified)	Defined by the auditor	60 days before certificate birthday

(*) = tariff for year 2023
Subject to yearly inflation rate adjustment
Non negotiable

Conclusion

Mastercard mandates CQM

➢ worldwide

➢ for all Mastercard EMV cards with ID1 format (including Interactive cards)

➢ for all Mastercard EMV cards manufacturing steps

➢ for every GVCP certified site belonging to the same group of companies

Increasing numbers of bank tenders are mandating CQM

CQM certified companies list is public

➢ refer to Mastercard GVCP Vendors list

➢ updated by Mastercard GVCP every month

➢ available to Mastercard web site https://www.mastercardconnect.com

Over 300 manufacturing sites have been CQM approved across 65+ countries

Contact

Eric BERLIN

cqm@smart-consulting.com

https://cqm.smart-consulting.com

smart-consulting.com

https://www.linkedin.com/company/smart-consulting/

Thank you!