

Mastercard Card Quality Management Overview

March 2020

CQM Introduction

- ❑ Involved companies:
 - Personalization bureaus
 - Card manufacturers (card vendors)
 - Suppliers of the card vendors (chip, modules, inlays manufacturers)

- ❑ Involved products:
 - Mastercard EMV cards

- ❑ Requirements:
 - Quality Management
 - Product Quality (modular structure)

- ❑ Methodology:
 - Self-assessment controlled by on-site audits
 - Corrective actions plan.

CQM = Mastercard Card Quality Management

CQM Benefits

For the Bank (Card Issuer)

- ✓ Cardholder satisfaction
- ✓ Less card replacement
- ✓ Higher card life time

For the Supplier or Vendor

- ✓ Cost reduction (less rework, less defects)
- ✓ Bank tenders compliance
- ✓ Mastercard rules compliance
- ✓ Corporate quality tool to both support and control the remote sites
- ✓ External independent view
- ✓ Modular approach with suppliers

The Letter of Approval (LoA) or Card Vendor Conformity Statement (CVCS) requires CQM certification.

Mastercard Card 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 |

Chip Card Based Approval Process 1/2

Card Vendor

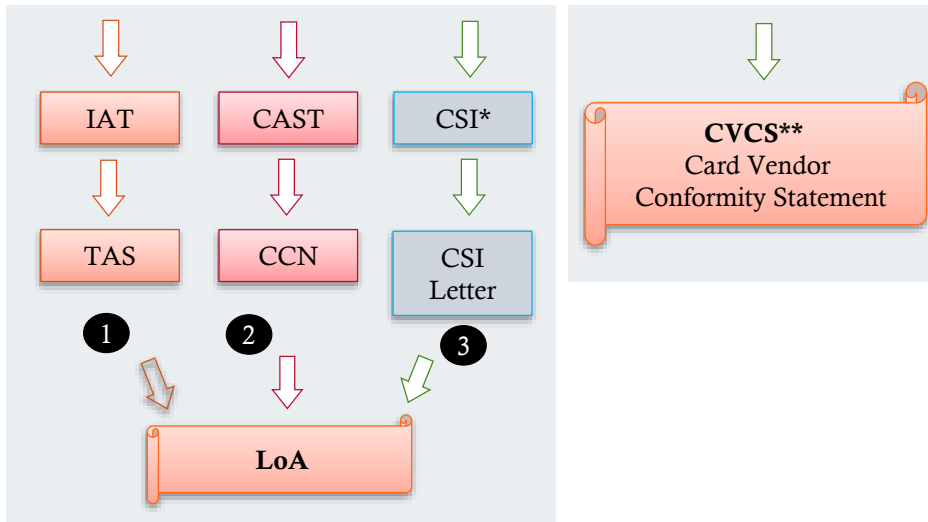
From full product conception to end-user delivery

GVCP Certification

M/Chip Dev. Agreement and Card Manufacturer Agreement

CQM - Labels

Testing Requirements



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

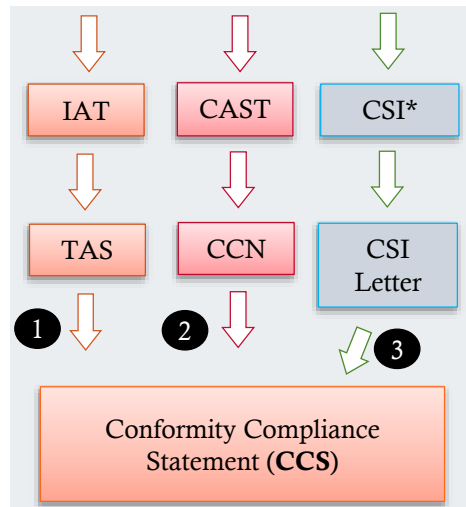
**CVCS – Effective since 01st Jan 2020, it allows Card Manufacturers to produce (Embedding and Card Body activities) some products that already got an approval from Mastercard (CCS or LOA). Please refer to the Mastercard Announcement AN_3253

Chip Card Based Approval Process 2/2

Module Supplier
Chip + Operating System
+ Payment App

M/Chip Dev. Agreement

CQM - Labels

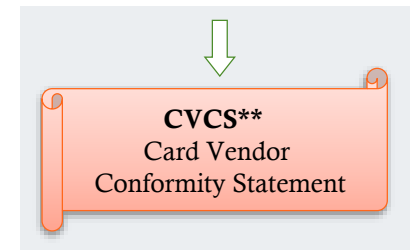
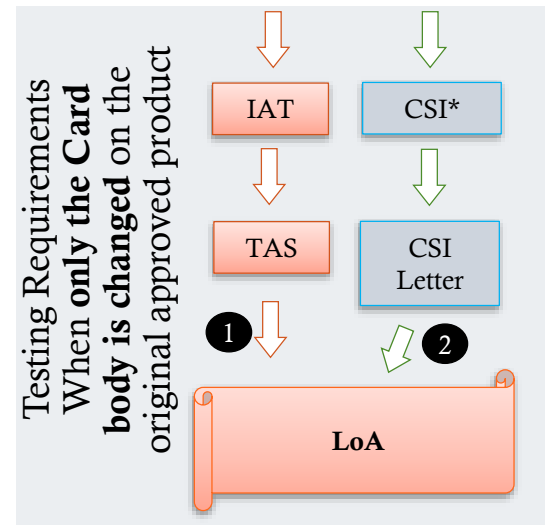


Card Supplier
End-user product manufacturing and delivery based on an approved 'Module + Inlay'

GVCP

Card Manufacturer and OEM Agreement

CQM - Labels



**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

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

Requirements

Categories

- Interoperability with ATMs and POS terminals:
Electrical, contactless, magnetic, physical characteristics
- Durability and Reliability:
Mechanical, Electro-Static Discharges, magnetic, ageing, resistance to chemicals...
- Mastercard Brand
Design, colors, layout.
- Visual Security Features
UV print, hologram, signature panel...
- Miscellaneous
No toxicity for health and environment
...

Examples

- ❑ Reading distance between the contactless card and a POS
- ❑ Resistance to:
 - ESD
 - Card bending or torsion
 - Abrasion
 - Chemicals: sweat, fuel...
 - Temperature and humidity

Labels 1/4

Manufacturing Flow

Classic Card



Interactive Card



Labels 2/4

unique CQM identifiers

- ✓ CQM labels are identifiers granted to a CQM certified company to cover their certified activities.
- ✓ CQM label structure is “ACCLTTTTS”.

| | |
|------|---|
| A | = Activity of manufacturing |
| CC | = Company |
| LL | = Location of the manufacturing site |
| TTTT | = Interface Technology (Contact, Dual, Contactless) |
| S | = Status (R :interim label for R ecognition, A :label for A pproval) |

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

CQM Approval is the step achieved when the audit pass recommendation is accepted.

Labels 3/4

Label first digit

❑ Classic Card

1 Chip

2 Chip Modules

6 Inlays

3 Card Body

4 Chip Embedding

P Chip Card Personalization

❑ Interactive Card

1 Chip

2 Chip Modules

8 Inlay for Interactive Card

3 Card Body

9 Interactive Card Manufacturing

P Chip Card Personalization

Labels 4/4

CQM Certificate Example



Card Quality Management Statement of Quality

Company

Having its principal place of business at

Address
ZIP CITY, COUNTRY

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.

| Location | Chip | | | Integrated Circuits Modules | | | Inlay | | Plastic Card Body | | Chip Embedding | | Card + Inlay Lamination | Personalization | | |
|----------|---------|------|--------|-----------------------------|------|--------|-------|--------|-------------------|------|----------------|------|-------------------------|-----------------|------|--------|
| | Contact | Dual | C-less | Contact | Dual | C-less | Dual | C-less | Contact | Dual | Contact | Dual | C-less | Contact | Dual | C-less |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Mastercard
Enterprise Security Solutions
EMV & Digital Devices

This letter is valid until January 1, 2017

Product Approvals Director

Page 1 of 2

template 2017-02

The labels for CQM recognition are no longer listed in the CQM certificate. Only Labels for CQM approval are listed.

Documents

- ❑ Documents available on line: smart-consulting.com
 - Overview presentation (this presentation)
 - Registration Form
 - CQM Yearly Services Offer
 - Assessment Plan (Quality questionnaire)
 - Requirements specification
 - Non Disclosure Agreement (NDA) template.

- ❑ Documents available on demand: cqm@smart-consulting.com

Always check online for the last release of the documents.
Your documentation system shall point smart-consulting.com

Audits 1/3

Accredited Auditors

| Name | First Name | | Company | Tel office | Email | Country |
|-------------|------------|-------|-------------------|----------------|----------------------------|-------------|
| Chen | Luke | 陳明乾 | TÜV SÜD | +886 228986818 | luke.chen@tuv-sud.tw | Taiwan |
| Ferreira | Luis | | Agora Consult | +32 470822142 | agoraconsultsprl@skynet.be | Belgium |
| Gase | Axel | | Kiwa Telefication | 31 316 583 114 | agase@telefication.com | Netherlands |
| Janczek | Thies | | Cocaso | +49 4347701433 | janczek@cocaso.com | Germany |
| Shinmoto | Tamon | 真本 多聞 | TÜV SÜD | +81 449801675 | tamon.shinmoto@tuv-sud.jp | Japan |
| Trüggelmann | Uwe | | TruCert | +1 2504349456 | uwe@trucert.com | Canada |
| Van Voorst | Ries | | Dekra | +31 263563419 | ries.vanvoorst@dekra.com | Netherlands |

The auditors are acting worldwide.

Audit 2/3 Findings

- ❑ Major non-conformity
Product functionality might be compromised

- ❑ Minor non-conformity
Product functionality is not compromised

- ❑ Observation
Identified issue that should be resolved to reduce the risk of NC

- ❑ Improvement opportunity
Auditor leaves the decision to the vendor if the vendor wants to resolve/implement it.

Audit 3/3

Quality Grade

| Grade | | Action plan Completion Check | Certificate Validity | Next audit |
|-------|--------------------------------------|------------------------------|----------------------|------------|
| A | Pass with limited number of minor NC | | 12 months | < 3 years |
| B | Pass with limited number of major NC | < 6 months | 12 months | < 2 years |
| C | Interim Pass | < 6 months | 6 months | < 1 year |
| D | Fail | | | |

Starting from the 3rd audit, C grade will lead to a fail

Audits 4/4 Timeline

Owner

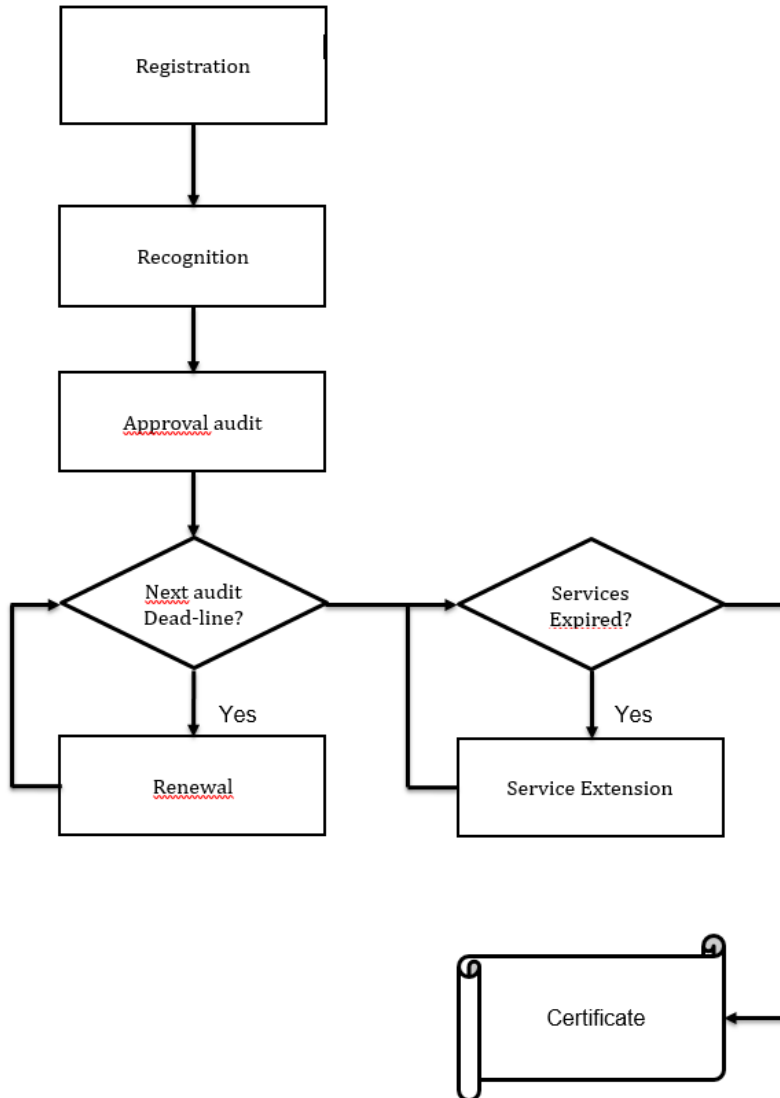
Recipients

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 |

(*) Typical values. They shall be defined inside the bilateral Audit Agreement binding on the Auditor and the Auditee

Process 1/3



Process 2/3

New Comer Vs. Already Certified

New Comer

- To register immediately for CQM recognition together with Mastercard GVCP registration in order to gain time.
- CQM labels require the related GVCP certification.

Already Certified

- ✓ The audit date shall be initiated by the auditee directly with the auditor taken into account
 - The last audit acknowledgement issued by Smart Consulting
 - The certificate birthday (max 60 days before)
 - The auditor availability in the region
- ✓ Pay the CQM yearly extension fees 60 days before the certificate expiration date.
- ✓ Notify changes in real time:
 - new primary contact
 - new location
 - new workshops

Process 3/3

Annual certificate is granted after

- ✓ All due corrective actions completed
- ✓ All due audit(s) report(s) received
- ✓ Next audit(s) plan agreed by Smart Consulting
- ✓ Annual fees payment notified

Note: All the sites of the Group that are
GVCP certified shall also be CQM certified

Pricing

| | Auditor | Smart Consulting |
|-------------------------------------|---|--|
| Price | approx 1500€ per day + travel & expenses | 1000€ annual fees + 560€ per activity |
| Payment term (new candidates) | to be defined | 60 days after CQM offer date |
| Payment term (already certified) | to be defined | 60 days before certificate birthday |
| Negotiable? | Yes | No |

Mastercard Outsourcing Letter

The CQM scheme
is owned by
Mastercard

The CQM operations
are performed by
Smart Consulting



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B-1410 Waterloo
Belgium
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Fax: 32 (0) 2 352 38 07
www.mastercard.com

Waterloo, August, 17 2009

Note to the attention of : Card Vendors, Subcontractors to Card Vendors and
Personalization Bureaus

Dear Vendor,

MasterCard Worldwide has decided to outsource Card Quality Management (CQM) operations to the company Smart Consulting SARL. Starting at the date of this letter Smart Consulting becomes the primary contact for CQM.

Fees will be invoiced directly by Smart Consulting.

Should you have any question, please contact:

Smart Consulting

E-mail: cqm@smart-consulting.com
direct tel. intl + 33 607 955 441
2 rue Vignol
13600 La Clotat
France

MasterCard

E-mail: cqm@mastercard.com

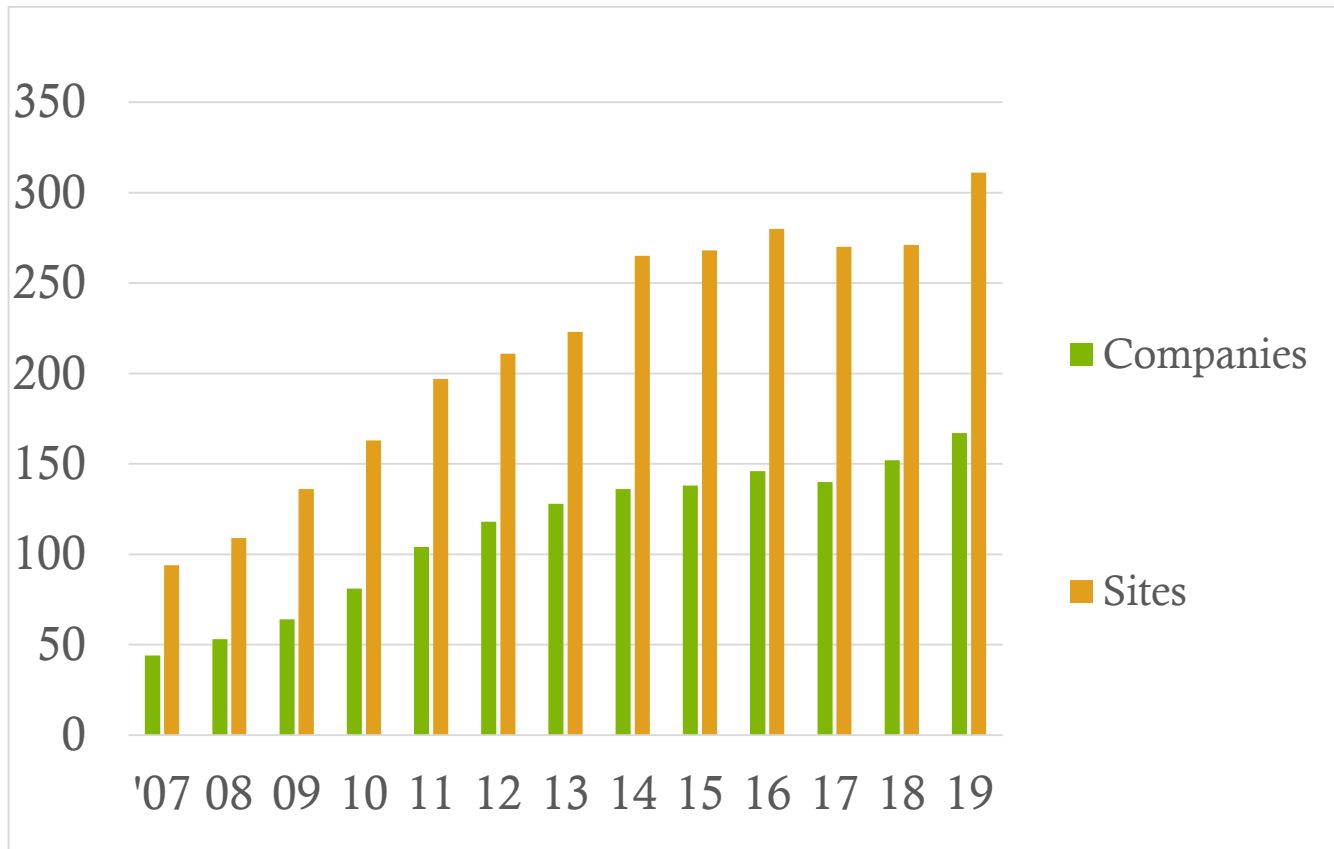
Best Regards,

Christian Delporte,
Head of Chip Engineering

MasterCard Worldwide
Innovative Platforms
198a Chaussée de Terwuren
1410 Waterloo BELGIUM

MasterCard Europe SPRL is a subsidiary of MasterCard International
2009 - August
Tel: 33 607 955 441
www.mastercard.com

CQM Certification Trend



Conclusion

1. Mastercard mandates CQM:

- ✓ for all Mastercard EMV chip based products
- ✓ for all countries worldwide
- ✓ for every GVCP certified site belonging to the same group of companies.

2. CQM certified companies list is public

CQM certified companies are tagged inside the Mastercard GVCP Vendors list

3. Increasing number of bank tenders are mandating CQM



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