



**Mastercard Card Quality Management
CQM Certification Process**

Document Identification:

CQM Certification Process

Document reference:

Reference	18-097-CQM-Certification-Process
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Document history:

Release	Reason for change	Author	Date
1.7	IAC cards and components shall be CQM approved before end 2023. Only labels for dual technology are considered. New certificate template.	Eric BERLIN	2023-04-07
1.6	IAC labels update (Fingerprint cards or display cards)	Eric BERLIN	2023-02-24
1.5	Remote audit rules Consultancy services rules	Eric BERLIN	2022-10-12
1.4	Auditors list handled as a separate document. Minor editorial improvements	Eric BERLIN	2022-08-10
1.3	Minor editorial improvements	Eric BERLIN	2020-06-04
1.2	Introduction of Interactive cards. Overdue audit report or action completion will lead to decertification.	Eric BERLIN	2020-03-10
1.1	Editorial changes in audit findings and registration	Eric BERLIN	2018-12-18
1.0	Initial version	Eric BERLIN	2018-10-26

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1 Introduction

1.1 Audience

This process document is aimed at payment card industry actors seeking CQM certification.

1.2 CQM Introduction

Mastercard has developed a comprehensive Card Quality Management (CQM) program in order to ensure that reliable, interoperable and high quality Card products are issued to Mastercard's customers (banks) and used by the cardholders. Since 2009 Mastercard has been outsourced the CQM services and operations to Smart Consulting.

Mastercard mandates worldwide the CQM certification for all EMV cards regardless of the communication technology (contactless, contact and dual).

- ✓ CQM is owned by Mastercard.
- ✓ CQM services and operations are performed by Smart Consulting
- ✓ CQM audits are performed by CQM qualified auditors under the supervision and coordination of Smart Consulting.

The selection of the CQM qualified auditors is under CQM client's discretion and responsibility.

The CQM program is based on CQM requirements self-assessment made by card vendors, card components suppliers and personalization bureaus.

Those assessments are reviewed and checked during on-site audits.

Companies (named Vendors in the present document) involved in manufacturing or personalizing Chip Cards must apply to get some CQM labels for any of the following modular activities:

- ✓ IC Integrated Circuit (EMV Chip)
- ✓ ICM Integrated Circuit Module (Chip-module)
- ✓ iac-ICM InterActive Card Integrated Circuit Module
- ✓ BSM Bio Sensor Module (fingerprint)
- ✓ IL Antenna Inlays aimed for dual cards
- ✓ iac-IL InterActive Card Inlays manufacturing
- ✓ CB Card Body
- ✓ ICC Integrated Circuit Card, Embedding of the chip into the card body
- ✓ IAC InterActive Card manufacturing
- ✓ P Card Personalization

The CQM certificate and its related labels (per site and per activity) is a pre-requisite for any Vendor applying for product testing and approval to IAT program.

Mastercard Certified Vendors List is updated with CQM certified companies, related locations and activities.

1.3 Acronyms and Definitions

Acronym	Definition
Approval	Label status granted after successful CQM audit.
BSM	Bio Sensor Module (fingerprint sensor packaging).
CAP	Corrective Action Plan defined as remediation of CQMR Non-Conformities.
CAP Assesst	CAP Assessment by the auditor clarifying if the actions are pending or closed.
CAP Status	CAP provided by the auditee to auditor with related evidence.
CAST	Mastercard Compliance Assessment & Security Testing (EMV chip security).
CB	Card Body.
CED	CQM Certificate Expiration Date, it never exceeds the SED.
Certificate	Mastercard CQM letter listing the labels for all approved activities.
CID	Mastercard GVCP identifier for card manufacturing site or perso bureau.
Contact Card	Card supporting only the contact interface.
CQM	Mastercard Card Quality Management.
CQMAP	CQM Assessment Plan (quality questionnaire against CQM requirements)
CQMR	CQM Requirements
CSI	Mastercard certification program for innovative cards.
CVCS	Mastercard Card Vendor Conformity Statement.
Dual Card	Card supporting both the contact and contactless interfaces.
EMV	Standard defined by the EMVCo payment networks association.
Grade	CQM quality rank recommended during audit conclusion.
GVCP	Mastercard Global Vendor Certification Program against PCI requirements.
IAC	Inter-Active Card, ICC with connection to fingerprint sensor or display.
iac-ICM	Inter-Active Card specific Integrated Circuit Module.
iac-IL	Inter-Active Card specific Inlay
IAT	Mastercard Interface and Application Testing (required for a LoA).
IC	Integrated Circuit (EMV Chip).
ICC	Integrated Circuit Card (Card with an IC).
ICM	Integrated Circuit Module (IC module with contacts).
ID-1	Identification cards format for payment cards according to ISO/IEC 7810
IL	Inlay inserted in the Card Body.
Label	Identifier for a CQM certified activity in a given location for a given company.
LoA	Mastercard Letter of Approval.
NC	Non-Conformity against CQM requirements.
NC-	Minor NC.
NC+	Major NC (might lead to field reject).
NDA	CQM Non-Disclosure Agreement
P	Card personalization.
Recognition	Interim label granted before audit, based on CQM self-assessment.
SED	Smart Consulting yearly Services Expiration Date.
Vendor	Any company involved in producing/personalizing card or related component.

1.4 CQM Webpage

Process documents, requirements, forms and assessment plans are published on Smart Consulting website on the CQM page at:

www.smart-consulting.com/card-quality-management/

1.5 Contact at Smart-Consulting

Should you have any questions on the CQM process and requirements, please contact: cqm@smart-consulting.com

1.6 Contact at Mastercard

Mastercard values your feedback on CQM, should you have any comments please contact: cqm_support@mastercard.com

1.7 Communication between the Client and Smart-Consulting

Communication from the client shall be made preferably between the Client CQM primary contact and cqm@smart-consulting.com as defined in the CQM registration form.

The Client CQM primary contact is handled by Smart Consulting as project manager and responsible for both the audits management, audits reports on time availability, corrective action plan, follow-up and payment of the invoices.

It is recommended to appoint as CQM primary contact the corporate quality manager or the production manager.

Any communication, request or question from the client where the Client CQM primary contact isn't copied won't be processed.

Any change of the Client CQM primary contact shall be notified to cqm@smart-consulting.com.

English is the unique CQM working language between the Client and Smart-Consulting including audit reports.

1.8 Reference Documents

Document	Last release available at
CQM Overview	www.smart-consulting.com
CQM Process	
CQM Auditors List	
CQM Non-Disclosure Agreement (NDA)	
CQM Registration Form	
CQM Requirements	
CQM Assessment Plan Form (Quality Questionnaire)	
CQM Certification Services Offer	cqm@smart-consulting.com
Quality Management Systems Requirements ISO-9001	www.iso.org
General Requirements for the Competence of Testing and Calibration Laboratories ISO-17025	

Vendors (manufacturers and personalization bureaus) shall refer to www.smart-consulting.com to ensure they are using the last version of the documents.

1.9 Reminder about Mastercard Certification and Approval Programs

Program Name	Company Program	Product Program
Global Vendor Certification Program “Physical and Logical Security”	GVCP GVCP-helpdesk@mastercard.com	
Brand and Card Design Rules		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 and Application Testing “Functional testing”		IAT chip_certification_chd@mastercard.com

1.9.1 GVCP

GVCP is a program covering assessment of the physical security of the manufacturing site and logical security of the production data network environment, hardware, and software. This program is used to maintain and improve your security infrastructure and to prevent attacks against Mastercard products, components, and related network and company image.

GVCP is a prerequisite to obtain any CQM labels for plastic card manufacturing, chip cards manufacturing and chip card personalization and to get the final Letter of Approval (LoA) when completing successfully fully IAT.

Vendors' sites and CQM approved production activities are listed in the Mastercard List of Certified Vendors (updated monthly) and available for Mastercard's customers only on www.mastercardconnect.com

1.9.2 CSI

In addition of CQM program, any products considered by Mastercard as “innovative” such as non-ID1 form factors, non-ISO or non-PVC and Interactive cards shall go through CSI program.

Vendors have to demonstrate how their innovative product is reliable, interoperable and secured before to get a CSI Notification Letter. For such innovative products, the CSI Notification Letter is a prerequisite to get the Mastercard product's LoA.

1.9.3 IAT

The Interface and Application Testing program defines testing and requirements the Vendor's products shall go through.

CQM, CAST, IAT and CSI if applicable, are some pre-requisites before to get any Letter of Approval (LoA) or Card Vendor Conformity Statement (CVCS) for any EMV Card product.

Vendors intending to register their product for testing and approval are invited to contact chip_certification_chd@mastercard.com

All CQM labels shall be included in the CCF (Card Capabilities Form). Each manufacturing site must receive approval for each product produced there.

2 CQM Audit

2.1 Audit Steps

2.1.1 Consultancy Services

The Vendor may require Consultancy Services to prepare CQM requirements implementation and self-assessment before the audit. They can ask to one of the CQM auditors but the auditor selected for audits cannot be the same as the one choose for Consultancy Services.

2.1.2 Audit Agreement (Auditee-Auditor)

The selected audit offer must be signed by both the auditee and the auditor to make the Audit Agreement.

It shall refer to this process and clarify the respective duties and deadlines.

2.1.3 Audit Flow and Related Deadlines

Hereafter the different steps between the auditor, the auditee and Smart Consulting including related deadline.

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

2.2 Audit Results

During the audit, the Auditor may identify non-compliances to CQM Requirements, they are called 'findings'.

2.2.1 Major non-conformity (NC+)

The auditor considers the NC a risk that the vendor might produce non-conforming products, or that the vendor might be unable to prove product conformity. The NC+ might lead to a field reject.

Example: The vendor is unable to prove that embossing cannot affect the functionality of the antenna, and the vendor does not conduct functional verification of the contactless functionality after embossing at the required sampling frequency. The auditor requests the implementation of the functional test after embossing.

2.2.2 Minor non-conformity (NC-)

The auditor believes that the product is in conformity with CQM requirements, and that the vendor has the ability to demonstrate that the product conformity is not compromised.

Example: A work instruction providing relevant information to the operators on how a process shall be conducted, is not a controlled document. The auditor will request the vendor to add the related work instruction to the list of controlled documents.

2.2.3 Recommended Improvements (RI)

The auditor believes that an identified issue should be resolved to reduce the risk of NCs occurring, even if the issue identified by the auditor does not constitute a formal NC.

Example: An operator, in charge of conducting a CQM required quality control, is initially struggling to demonstrate how he/she performs the control during the audit assessment, but at the end, he/she manages to prove the product conformity. The auditor will request the vendor to improve the test instruction and/or provide additional training to the operators.

2.2.4 Quality Rank

The audit report includes a Quality Rank (grade) recommendation to define the next audit deadline.

Grade	Descriptions	Action plan Completion	Certificate Validity	Next audit
A	Pass without major NC with limited number of minor NC	< 4 months	12 months	< 3 years
B	Pass with very limited number of major NC	< 4 months	12 months	< 2 years
C	Interim Pass	< 4 months	12 months (*)	< 1 year
D	Fail	ASAP	No certificate is delivered	action are completed

Smart Consulting notifies the final grade after assessment of the audit report and considering the Audit Report recommendation.

Rank A

granted when no major non-conformity has been found and number of minor non-conformities remains limited.

Next audit shall be carried out within 3 years

Rank B

granted when number of major non-conformities remains very limited.

Corrective actions status with related evidences shall be communicated to the auditor.

Next audit shall be carried out within 2 years

Rank C

granted when a significant number of non-conformities are found.

Corrective actions status with related evidences must be communicated to the auditor.

The auditor shall control implementation of the corrective actions and provide Smart Consulting with a report to extend the labels after 6 months.

Next audit shall be carried out within 1 year.

Note: Starting to the 3rd audit, C will lead to a fail.

Rank D

granted when the vendor fails the audit. Smart Consulting reserves the right to call for a renewal audit earlier than 12 months after the audit. Smart Consulting reserves the right to extend the validity period of the certificate earlier than 12 months.

2.3 Audit Report

After the audit is completed, a corrective actions plan must be returned to the auditor regarding audit findings within 2 weeks.

The Audit Report shall comply with the Audit Report Template and related guidelines.

Note:

The auditor may supply a draft report to Smart Consulting for comments and validation at her/his discretion with auditee's prior approval.

The final audit report is due by the latest 1 month after the audit.

Smart Consulting will make the final assessment of the audit report and its annexes and will acknowledge it notifying both the auditee and the auditor with the final grade, labels upgrade, and deadline for the next audit report.

Mastercard reserves the right to ask the Vendor a copy of the audit report.

2.4 Corrective Actions

A Corrective Actions Status with related evidences must be communicated to the auditor.

The auditee shall ensure that the corrective actions are closed within 4 months.

The auditor shall control implementation of the corrective actions and send related assessment to Smart Consulting 5 months after the audit latest.

Corrective Actions Assessment shall be attached via email to Smart Consulting within 5 months including an column dedicated for Auditor's comment per action (Closed, Open,...)

Email shall recap remaining (open) NC+ and NC- actions.

An acknowledgement will be sent by Smart Consulting.

2.5 Remote Audit Rules

In specific cases on-site Audit can be replaced by audit performed a remote way, "Remote Audit". The rules are the following:

1/ Previous audit result rank C or D:

On-site audit is mandatory unless rule 3 or 4 applies.

2/ Previous audit result rank A or B:

Following an on-site audit resulting in rank A or B, the subsequent audit may be a remote audit, if both the auditor and the vendor agree.

3/ From now on until 2023-03-31:

Mastercard and Smart Consulting do recommend avoiding 2 consecutive Remote Audits. However, this is permitted until 2023-03-31 if both the auditor and the vendor agree.

4/ From 2023-04-01:

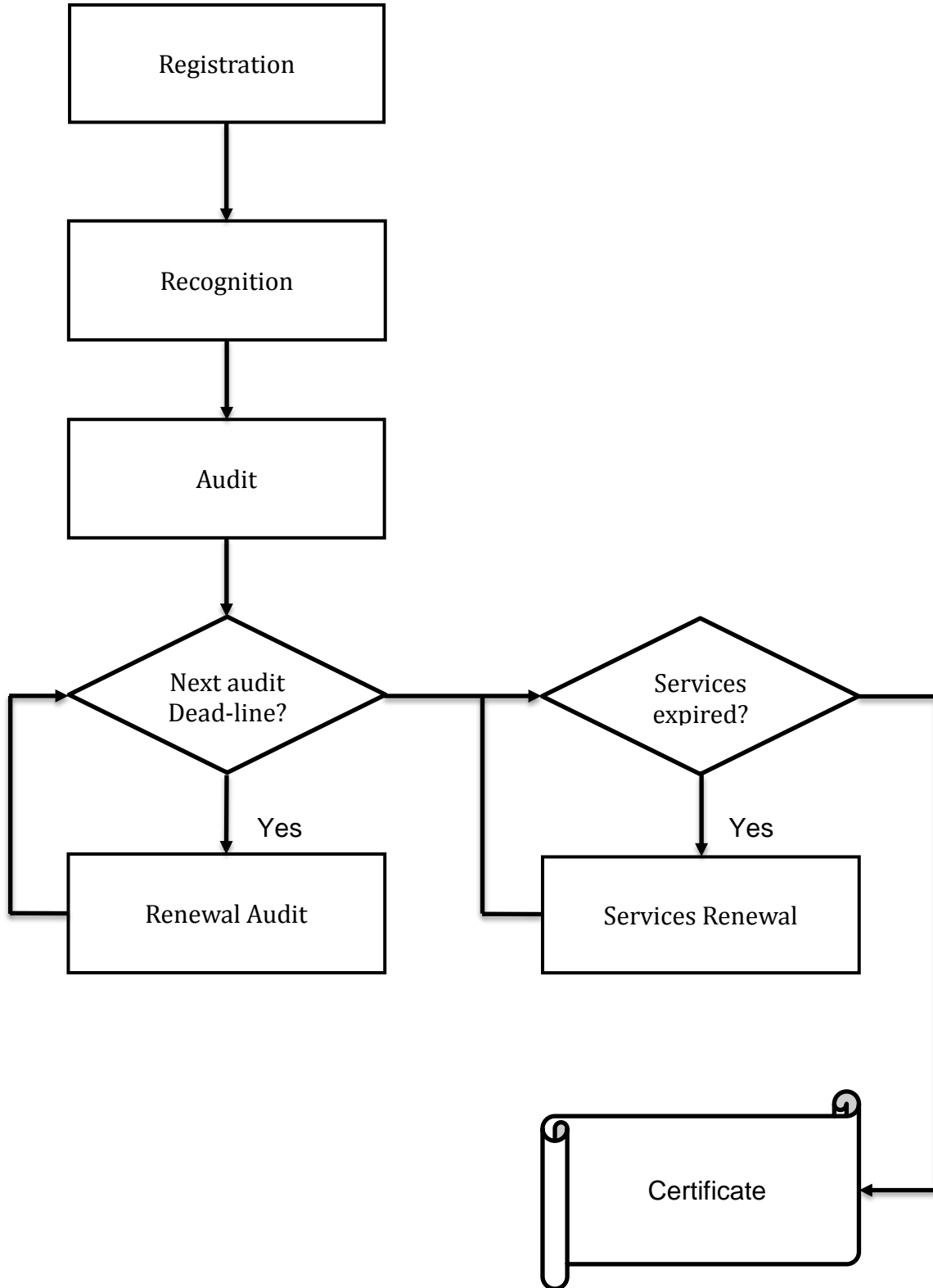
Remote Audits beyond those allowed by rule 2 shall be restricted to cases where travel restrictions between the auditor's and the vendor's country exist or can be reasonably anticipated, such as:

- Border closures;
- Quarantine requirements applicable to entering or leaving the Vendor's or Auditor's country, or in case an infection is being detected during the trip;
- Unusual physical, health, or commercial risks to the Auditor or the Vendor resulting from conducting the audit on-site, for example in case of war, civil unrest or natural disasters;
- Other issues on a case-by-case basis;
Smart Consulting and the auditor should agree on the exception to perform a remote audit.

5/ Initial audit:

It shall be performed on-site unless rule 4 applies. If rule 4 applies, rank cannot be higher as C.

3 CQM Process Flow



3.1 Registration

The vendor shall register to the CQM program by sending to cqm@smart-consulting.com.

The Excel file (2tabs) available for download at:
www.smart-consulting.com/card-quality-management/

The vendor shall send to Smart Consulting a scanned signed copy of the Non-Disclosure Agreement (NDA) to cqm@smart-consulting.com. A copy signed by Smart Consulting will be returned to the Vendor. The mandatory template is available:
www.smart-consulting.com/card-quality-management/

The vendor shall contact one or several CQM auditors. As soon as the audit date is agreed with the selected auditor by the vendor, it shall be notified to Smart Consulting via the registration form update. Smart Consulting will acknowledge the registration and send the first invoice with yearly fees.

3.2 Recognition

New sites or activities can benefit from CQM recognition labels before audit. This recognition phase cannot exceed 6 months.

Those recognition labels are granted as long as the following provisions are met:

- Site and activities have been Mastercard GVCP certified for Card Manufacturing and Perso Bureaus
- NDA is received
- Registration form is duly completed with committed audit date(s)
- Self-assessment plan (quality questionnaire against CQM requirements) is returned to both the auditor and Smart Consulting
- Yearly fees invoice is paid

Smart Consulting will then provide the vendor with related interim labels for CQM recognition to apply for a Mastercard Letter of Approval (LoA) or Card Vendor Conformity Statement (CVCS) with an expiry date limited to a maximum of 6 months.

3.3 Approval Audit

To get CQM Approval Labels the vendor's site(s) must be audited by a CQM qualified auditor.

The list of qualified auditors is available to www.smart-consulting.com

The auditor selection is at the full discretion of the auditee.

3.4 Renewal Audit

Depending on the previous audit report acknowledgment, a renewal audit must be planned with respect to the notified deadline.

3.5 Services Renewal

Given that fees are paid to Smart Consulting on yearly basis, the CQM certificate is limited to a maximum of 12 months.

To get it renewed, Smart Consulting will be issuing the related invoice 3 months before the Service Expiration Date (SED).

Certificate is extended for 12 months after Smart Consulting is notified of the following:

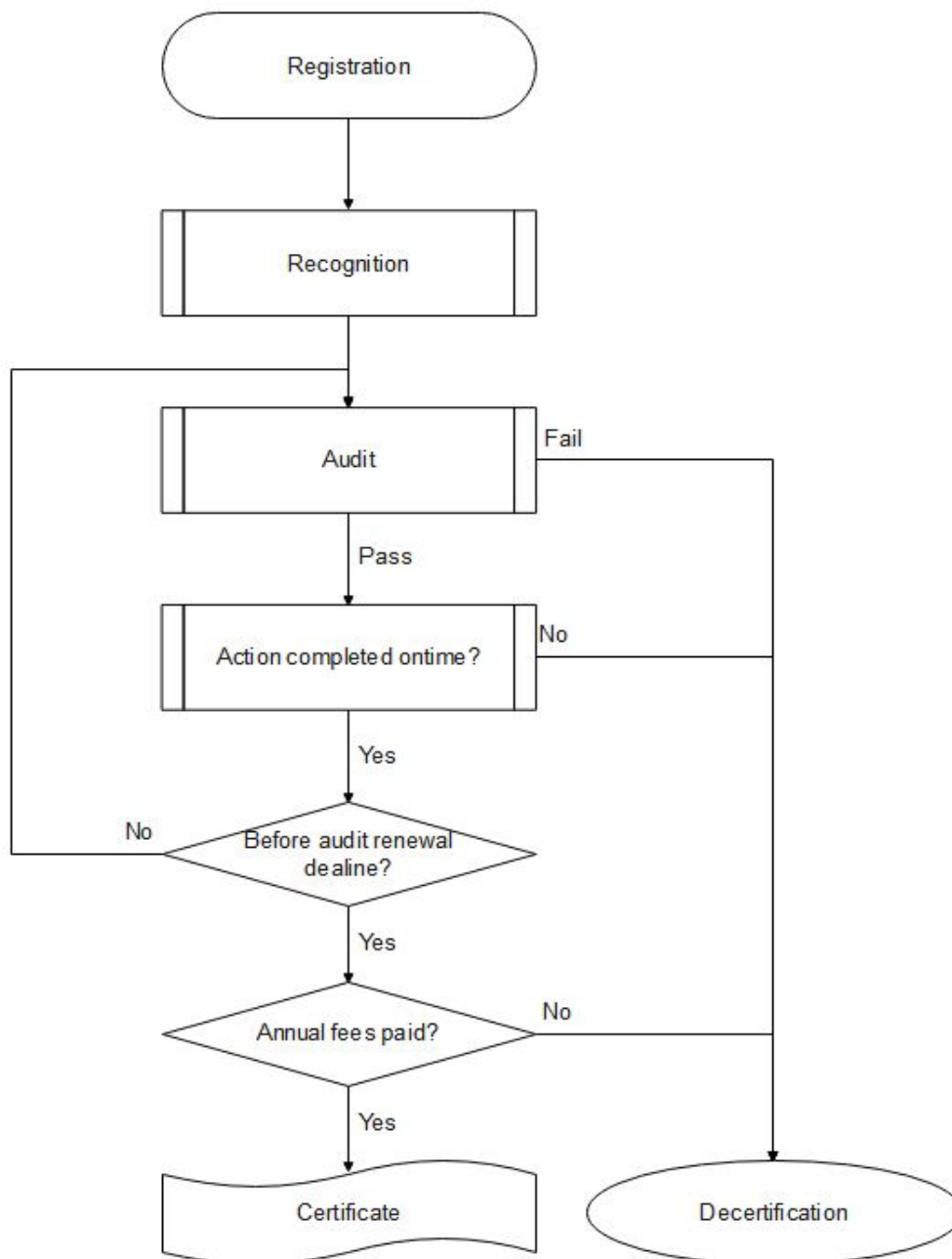
- All due audit(s) are completed and reported
- All due corrective actions are closed for audits older than 4 months.
- Next 12 months audit plan is committed
- Yearly audit fees due to Smart Consulting are paid

3.6 CQM Certification Termination

Here are some cases where the CQM Certificate can be either revoked or terminated:

1. Mastercard GVCP decertification leads automatically to CQM certification termination.
2. CQM certification termination may be initiated by Smart Consulting in case of overdue yearly payment fees.
3. CQM certification termination may be initiated by Smart Consulting in case of failed audit.
4. CQM certification termination may be initiated by Smart Consulting in case of 3 subsequent audits with C quality grade.

5. CQM certification termination may be initiated by Smart Consulting in case of overdue audit report.
6. CQM certification termination may be initiated by Smart Consulting in case of overdue corrective action.
7. CQM certification termination may be requested by the Vendor itself via the appropriate form and returned to Smart Consulting. This form can be requested to Smart Consulting by email.



4 CQM labels

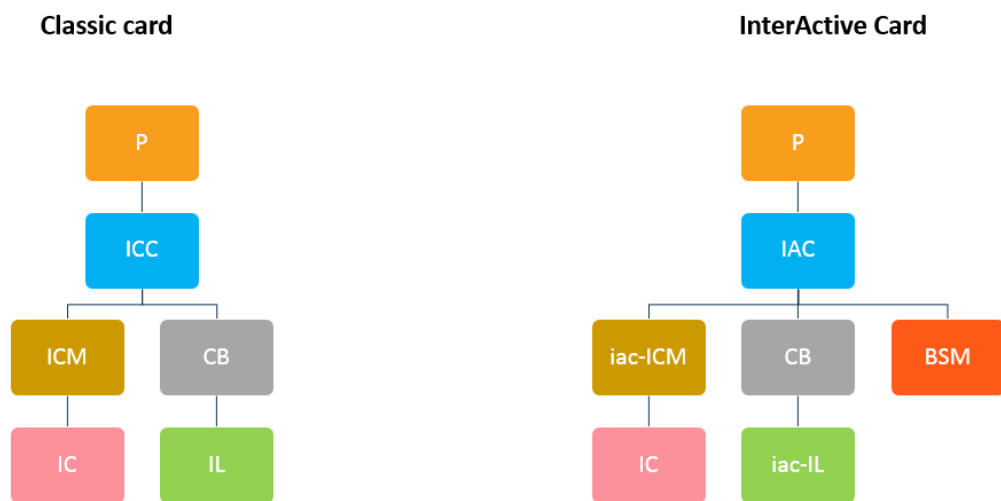
4.1 Activities (manufacturing steps)

Acronym	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 (fingerprint sensor packaging).
IL	6	Inlay 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.
P	P	Card personalization.

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.

InterActive cards manufacturing and their components shall be CQM recognized before June 30th 2023 and CQM approved before Dec.31st 2023.



4.2 Approval vs Recognition

CQM Recognition is a 6-month maximum interim period applied for:

- New Companies applying for CQM
- Any new production activity for a CQM certified company

CQM Approval is granted to the vendor when Smart Consulting assesses the audit as a PASS based on the audit report recommendations.

4.3 Label Structure

CQM label is an identifier; its structure is “ACCLLUPTS”.

- A Activity of manufacturing
- CC Company CQM registration number
- LL Manufacturing site location CQM registration number
- U 0 = Reserved for Future Use
- U 0 = Reserved for Future Use
- P Chip Packaging (0 = with Module (Legacy), 1 = without, 2 = both)
- T Interface Technology (C :Contact-Only, D: Dual)
- S Status (R=Recognition, A=Approval, S=Stopped)

From April 2023 on, for simplification purpose, only labels with Dual Interface Technology are considered. Dual labels are valid for Contact-only Interface Technology.

5 CQM Certificate

5.1 Certificate Prerequisites

Smart Consulting will issue the CQM Certificate to the Vendor assuming that:

- All due audit(s) are completed and reported
- All due corrective actions are closed for audits older than 4 months.
- Next 12 months audit plan is committed
- Yearly audit fees due to Smart Consulting are paid

5.2 Labels listed into the Certificate

The certificate lists all the labels for a company or a group of companies.

The certificate does not list any CQM recognition label.

All sites that are GVCP registered for a company, or a group of companies, are listed in the same CQM certificate regardless of the granted labels.

5.3 Certificate Validity


The CQM certificate is valid for a maximum of 12 months. Validity may be less to leverage corrective action completion.

5.4 Certificate Delivery

The certificate is an Acrobat “.pdf” file digitally signed by Mastercard and supplied by Smart Consulting to the Company corporate primary contact.

- It shall be forwarded within the Company
- It is printable locally.
- It is recommended to post it on the Company website and mentioned it in the Vendors presentations in the compliance chapter.
- It can be forwarded to Company customers.

5.5 Certificate Example


mastercard.

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

Bruno Parfum
Product Approvals Director

This letter is valid until May 5th 2024

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