Chip Acceptance Device Testing and Approval Requirements

Visa Approval Services

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Introduction

The process and requirements described in this document applies to Contactless Chip Acceptance Device products – Readers and/or Terminals (hereafter referred to as "Chip Acceptance Device(s)") supporting Visa Contactless Payment Specification (VCPS) and/or Visa Contactless Transit Kernel Specification (VCTKS), also referred to as "Level 2 testing".

It provides a standardized process for testing chip acceptance device that support Visa's contactless payment applications.

Audience

This document is for Vendors submitting kernels for Contactless Level 2 testing seeking Visa's certification and approval.

Contact Information

Visa Approval Services (hereafter referred to as "Approval Services") is responsible for managing the accreditation and processes described in this guide. They are the single point of contact within Visa for Vendors seeking testing and Laboratories seeking accreditation. The Vendor or the testing Laboratory may contact Visa Approval Services at any time.

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Singapore Postal Address: • **For shipping devices for interoperability and performance testing**	**Visa Worldwide Pte Ltd** **Approval Services** **Mailstop SP08-A2** **10 Eunos Road 8 #10-01** **Singapore Post Centre** **408600 Singapore** **Mailroom Contact +65 6579 3712**

Acronyms and Glossary

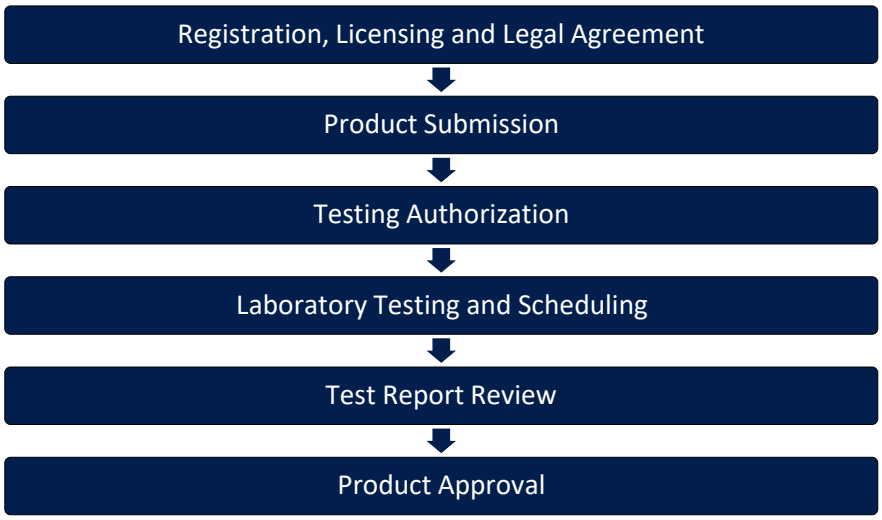
Term	Definition
Analog Testing	For contactless chip acceptance devices: Ensures that the magnetic field characteristics can carry the communication.
Application Testing	The testing process of a Visa kernel application in a chip acceptance device for compliance with the Visa contactless specification(s) that it is implemented with.
ASTA	Approval Services Testing Agreement. A legal agreement that is executed by a chip product manufacturer or Vendor with Visa to submit its products and comply with Visa's testing and approval requirements and process. It also includes Visa technology licensing and non-disclosure agreements between both parties.
CDQ	Chip Acceptance Device Questionnaire. A form that is submitted by Vendors to Visa for testing and approval.
Connector Change	In this document, refers to data connector change such as USB to RS232, TCPIP
Digital Testing	For devices supporting contactless cards: Ensures that the timing, anti-collision, and protocol characteristics can carry the communication.
EMVCo	EMVCo, LLC is an association of payment systems that manage, maintain, and enhance the EMV® specifications
Exhibit A Request for Testing Services	A form signed by the Vendor and by Visa, that establishes Visa's right to review results submitted by the Vendor, following testing at a Laboratory; must be submitted before testing begins.
fDDA	Fast Dynamic Data Authentication. fDDA is the only form of ODA supported for Visa contactless transactions
ICS	Implementation Conformance Statement. A form that is submitted by Vendor to indicate features from an evaluated Visa Specifications that a product supports.
LoA	Letter of Approval. An acknowledgement by Approval Services that a specific chip card product has successfully completed and passed testing.
MSD	Magnetic Stripe Data. A Visa payment application for contactless chip cards.
qVSDC	Quick Visa Smart Debit/Credit. A Visa application for payment transactions over a contactless interface.

Robot Controller	A software that controls the robot system used by a Visa-recognized Laboratory for automated interoperability testing (cross testing). It interfaces with the SDK of a chip acceptance device via VCAS.
SDK	Software Development Kit A set of development tools used to develop applications for a specific platform or operating system in an installable package.
VCAS	Visa Cross Testing Automation Specification. Defines the requirements for building the communication between the Robot Controller and the SDK
VCPS	Visa Contactless Payment Specification. A specification that defines Visa's requirements for conducting contactless transactions at point-of-sale (POS) devices. Includes requirements for cards. This specification is necessary to comply with globally interoperable Visa contactless programs.
VCTKS	Visa Contactless Transit Kernel Specification. Defines technical differences between the contactless kernel defined in VCPS and EMV Contactless Specifications for Payment Systems and the contactless kernel used in transit acceptance environments
VDPS	Visa Digital Partner Services. A portal to access documents such as testing materials and licensed documents, and to check product status.
Visa Payment Application	Any of: Visa Smart Debit/Credit (VSDC) qVSDC - contactless only Magnetic Stripe Data (MSD) - contactless only
Visa Recognized Laboratory	A testing Laboratory that is accredited by Visa to test Visa chip products, including chip acceptance devices in preparation for approval by Visa. Can also be referred to as "Laboratory" within this document.
VTF#	Visa Reference Number. Official identification unique to each product model
VTP	Visa Technology Partner. A portal to sign up with Technology Partner to obtain Visa Technology license agreement for Visa specifications and requirements

Process Overview

This section provides an overview of Visa's testing and approval process for chip acceptance devices that are implemented with Visa's contactless payment specifications.

Figure 1–1: Overview of Visa Testing and Approval Process



The process ensures that a chip acceptance device implementation passes all Visa's testing requirements and is fully compliant with its evaluated specifications.

The applicability and scope of functional testing is dependent of the configuration of product being submitted and the circumstance of the submission, i.e. whether it is a new product or a derivative.

Visa's evaluation concludes with the issuance of a Letter of Approval (LoA) for a successful evaluation, or a failure notification via email if product does not meet Visa's requirements.

The approval is valid globally unless restrictions are specified in the LoA.

Note: Approval is not transferrable from one product to another, or from one Vendor to another.

1 Registration, Licensing and Legal Agreements

All Vendors must

- Register with Technology Partner
- License Visa Specifications
- Execute Approval Services Testing Agreement (ASTA) and Visa Sub-License Agreement for Visa Cross Testing Automation Specification (VCAS) Verifier before they can submit a product for testing

1.1 Vendor Registration and Licensing Specifications

To gain access to Visa chip specifications and requirements needed to develop products according to Visa's chip technology, vendors must register and obtain licenses on the Visa Technology Partner website.

Registration details can be found at https://technologypartner.visa.com/Registration.

1.2 Legal Agreements

Vendors intending to submit a product to Approval Services for testing must execute an ASTA and Visa Sub-License Agreement for VCAS Verifier with Visa after completing the license agreements with VTP.

ASTA is a standard agreement that defines the terms and conditions governing the testing and approval process for a chip product. It also allows access to Visa's confidential and proprietary testing materials.

Visa Sub-License Agreement for VCAS Verifier defines the terms and conditions for use of the VCAS verifier tool. Vendors who have signed the agreement can obtain the VCAS Verifier tool and testing materials.

Please contact Approval Services to initiate the signing of the legal agreements.

1.3 Test Plans and Commercial Test Tools

Visa's test plans and commercial test tools with associated test scripts are available to assist Vendors in conducting quality assurance (QA) testing prior to submitting the product for official testing.

1.3.1 Test Plans

Visa grants Vendors who have signed the licensed agreements permission to use the test plans solely for purposes of testing products for a Visa application, subjected to the terms and the continued effectiveness of the applicable licensed agreements between the Vendor and Visa.

Visa reserves the right to develop and implement additional tests that are not part of the current test plan. Testing at the Laboratory may subject the chip acceptance device to additional physical and situation specific tests as required.

Test plans and all intellectual property subsisting therein are the property of Visa. These materials are provided on an "as is" basis "with all faults." Visa disclaims all warranties pertaining to these materials, expressed or implied, including the implied warranties of merchantability, fitness for purposes, or non-infringement.

1.3.2 Commercial Test Tools and Test Scripts

Commercial test tools and test scripts are available from Visa test tool providers or test tool Vendors. Test tool Vendor contact information is published on VDPS.

Test plans and test scripts are subject to enhancements and modifications at any time. Test plan revisions will be accumulated and made available to Vendors with new releases as determined by Visa. It is the Vendor's responsibility to ensure that they have the most current test plan available. Vendors should contact their test tool supplier to obtain any test script updates. Test plans are accessible online on VDPS website for licensed Vendors.

1.3.3 Quality Assurance (QA) Testing

Laboratories performing Visa functional testing may perform QA testing that should be completed prior to submitting a chip acceptance device for official testing. However, QA test results are not accepted as part of Visa's official testing and approval process.

1.3.4 CDQ Submission for Product Changes During QA Testing

The Vendor can opt to put their product through a debug or QA session with its selected Laboratory.

Official Visa testing authorization is not required for the session. The Vendor will make direct arrangements with the Laboratory to determine the scope and number of QA sessions for its product. Approval Services does not participate in a QA session, including determining testing requirements or product review, and does not recognize the QA test outcome as official test results.

Once the Vendor is confident and the product is in its final or release version, it can initiate the official product submission process with Approval Services, starting with the CDQ, Changes to a form or product under test after an official testing authorization must be submitted to Approval Services for review and testing authorization for a new test cycle.

A new test cycle will replace the last test cycle, including any completed tests on the product.

2 Product Submissions

Submission forms can be found on VDPS library under Chip Testing and Approval Services.

This section discusses the form and scheduling requirements to initiate testing for a chip acceptance device.

2.1 Required Documents for Testing

An official test cycle cannot start until the Laboratory receives the VTF# and official testing authorization from Approval Services with required documents described in **Table 2–1**.

All documents are exclusive to each test cycle, Vendor is required to rectify any discrepancies and resubmit an updated form to Approval Services for review and new testing authorization.

The current test cycle will be replaced by the new test cycle once the Laboratory receives the latest testing authorization.

Table 2–1: Documents Required for Testing

Documents	Description
CDQ	Captures the details of the chip acceptance device submitted for testing, including Visa application information, Level 1 approved PCD, and functional options supported for Visa Contactless Payment Specification (VCPS) and/or Visa Contactless Transit Kernel Specification (VCTKS). . The submitted product will be evaluated for compliance with the Visa specification that is identified in the form. Any optional functions or requirements related to the specification that is implemented in, or supported by the product, in the Implementation Conformance Statement (ICS) section of the form must be identified. **Vendor checks an attestation in the CDQ to confirm that all product details in the form are accurate, and all ICS options that are developed in, or supported by the product, have been identified.**
Product Image(s)	• Actual image of the product, drawings or blueprints are not acceptable.

	• File types should be an image file format • Save the image file name as #VTF_ProductImage_ProductName • Contact and Magstripe Physical interfaces must be clearly labeled.
EMVCo Level 1 LoA	Provides details of Contactless Level 1 approval.

Approval Services will review the CDQ and advises the Vendor if product is not eligible for testing.

If submission is eligible and accepted, provides the Vendor a Visa Reference Number (VTF#). This will be the official identification of the product through the current cycle of testing and approval process.

Once testing requirements are determined, Approval Services will send a testing authorization to the selected Laboratory(s) and notify the Vendor.

IMPORTANT NOTE

If the chip acceptance device has issues or failures during testing that would not allow for testing to be successful, or the Vendor would like to withdraw product from the current test cycle:

- The Vendor and/or Laboratory must notify Approval Services immediately via email. Official testing for current test cycle shall stop.
- The Vendor may resubmit the chip acceptance device with fixes/rectification/changes for testing and approval. Resubmission process shall be as documented in the previous sections.
- Approval Services will authorize a new test cycle based on the eligibility of the resubmission.
- Test results from the previous test cycle cannot be used.

2.2 Laboratory Testing and Scheduling

The Vendor and the Laboratory(s) are responsible to schedule a testing once the Vendor has received confirmation of the testing requirements from Approval Services and testing is authorized.

The Laboratory will verify details in the form and product image(s) that is authorized by Approval Services against the submitted product sample units. They will inform the Device Vendor on any discrepancies between the two.

The Vendor has six months from the testing authorization date to complete all testing and submit all test results to Approval Services. Visa will not accept the results as official testing after six months.

Please contact the Laboratory for current pricing and contractual agreements, and to obtain information on scheduling testing. Visa does not participate in and is not responsible for scheduling between the Laboratories and the Vendors.

Information on what testing is available at Visa-recognized Laboratories and how to contact them can be found on VDPS website under Accredited Test Laboratories

Note: The Laboratory establishes the pricing for testing.

Table 2–2: Overview of Scheduling

Vendor	Contacts the Laboratory to find out the cost involved and schedule functional testing
Laboratory	Provides a testing date and estimated time to complete testing.
Vendor	Notifies the Laboratory directly of any delay in submitting a product for testing.

2.3 Testing Materials Requirements

This section lists the requirements for submission of a chip acceptance device, in addition to the documents discussed in **Product Submissions**.

2.3.1 Chip Acceptance Device Sample Units

The Vendor must submit **four** complete identical sample units of the product to the laboratory. Samples must include all components required to complete approval testing.

The laboratory will choose and submit **two** sample units to Approval Services for review and evaluation.

Sample units must comply with the requirements below.

2.3.2 Visa Specification and Requirements

The chip acceptance device must fully comply with the Visa Specification(s) that it is evaluated with, including any associated specifications and documents referenced in the specification. The specification must be valid and not sunset at the time of submission.

2.3.3 Application Versions

The product's Visa kernel applications, and its related kernel application components including pre-processing and application selection, or non-Visa applications that interact with the kernel, must be in their respective final or release versions.

Changes to any application versions after testing authorization, at testing, or after approval will invalidate a test cycle.

Under such circumstances, the product must be resubmitted with the changes to start over in a new test cycle. The last approval, if any, will no longer be valid.

2.3.4 Device Test Environment

All submitted chip acceptance device must be accompanied by a Terminal or Acquirer Host simulator or Software Development Kit (SDK).

The simulator must be able to (depending on the physical architecture of the product):

- Show, in a readable format, the data being sent from the contactless Reader to the Terminal or from the Terminal to the Acquirer Host:
- Perform online approvals or declines for qVSDC functionality.
- Allows the user to review and confirm that the data elements captured from the Reader and/or Terminal are in accordance to Visa specifications.

2.3.5 Operating Manual

A softcopy of the operating manual that describes the set-up requirements and operating procedures for the chip acceptance device must accompany the sample units submitted at for each test cycle.

2.3.6 Retention of Sample Units After Testing

Visa will keep samples, reports and logs used for official testing duration of 12 years starting the completion of the test cycle for a chip acceptance device.

After the duration period, Visa will provide an option to send back or securely dispose of the sample devices. If vendors do not respond to the request within 30 days, then Visa will securely dispose of the devices.

Note: Visa reserves the right to retain chip acceptance devices on Visa premises and conduct additional testing on any chip acceptance devices that have gone through the testing approval process..

3 Functional Testing Overview

Visa's testing encompasses requirements defined in VCPS and/or VCTKS including all update lists to the specification and any associated documents referenced within the specification.

The chip acceptance device will be tested to ensure that the Visa payment application complies with the requirements in Visa's specification. The level 1 analog and digital processing will be tested to ensure that it complies with the associated contactless specification referenced within Visa's specification.

3.1 Test Scope

Our product approval scope includes the following:

- This includes the PCD hardware and Level 1 analog/digital firmware/software embedded in the reader or terminal.
- The Visa kernel application and its related kernel component, including pre-processing and application selection, if implemented separately from the kernel.
- The contactless reader and/or terminal combination (PCDA, PCDI, or M-ICR) that the kernel resides in.
- Any non-Visa kernel application that interacts with the Visa kernel.
- The requirements of the evaluated specifications (VCPS and/or VCTKS) that are implemented in or supported by the product in its testing submission.

3.1.1 EMV® Contact Level 1 and Level 2 Testing

For Contact Visa Smart Debit/Credit (VSDC):

- Visa does not require these devices to be submitted to Visa for testing and approval for contact level 1 or VSDC testing. Visa recognizes EMVCo testing and type approval for Level 1 Interface Module (IFM) and Contact Terminal Level 2 for Contact Devices.

Visa requires Contact Devices accepting VSDC chip card products to be approved by EMVCo for both Level 1 and Level 2.

EMV® Contact Terminal Level 1 and Level 2 Type Approvals administrative process, specifications, and test requirements are available on EMVCo's website.

Please contact EMVCo directly for more information.

3.1.2 EMV® Contactless Level 1 Testing – Analog and Digital

Visa requires chip acceptance devices to have obtained EMV® Contactless Terminal Level 1 approval prior to Visa's approval. Visa recognizes EMVCo testing and approval for products developed to EMV® Contactless Interface Specification.

The following conditions must be met when performing Visa functional testing in parallel with EMVCo's Contactless Level 1 testing.

- The Visa functional testing will be null and voided if EMVCo does not approve the Level 1 testing.
- Visa will not issue a decision on the application testing until EMVCo has issued an approval.
- If an issue is found during EMVCo Level 1 testing, Visa functional testing will immediately stop and any results discarded.

Any cost associated with testing is the responsibility of the Vendor at all times.

EMV® Contactless Level 1 Type Approval administrative process, specifications, and test requirements can be found at EMVCo website. Please contact EMVCo directly for more information.

3.1.3 Visa Contactless Payment Testing (VCPS)

Visa Contactless Payment allows chip acceptance devices to perform a Visa payment transaction over Near-field communication protocol Type A or Type B.

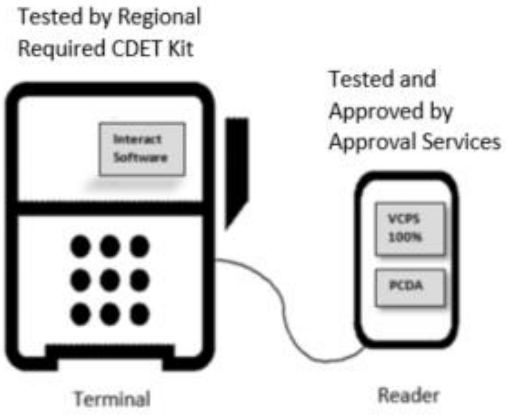
A chip acceptance device may be submitted for testing in one of the following configurations.

3.1.3.1 PCDA (Single Component Intelligent Card Reader as defined by EMVCo)

PCDA or S-ICR contains all the components to perform a payment transaction (i.e. qVSDC or qVSDC and MSD applications with the contactless interface) with the exception of Merchant/Consumer Interfaces or Network Interface.

Any additional integration testing between the Intelligent Reader and the Terminal will be managed through the globally mandated Contactless Device Evaluation Toolkit (CDET) during User Acceptance/End to end testing. Please contact your regional representative for any local testing requirements.

Figure 3–1: Testing and Approval for ICR (PCDAs) Compliant to the Visa Contactless Reader



3.1.3.2 PCDI (Fully Integrated Terminal (FIT) as defined by EMVCo)

PCDI or FIT supports qVSDC only or qVSDC and MSD application.

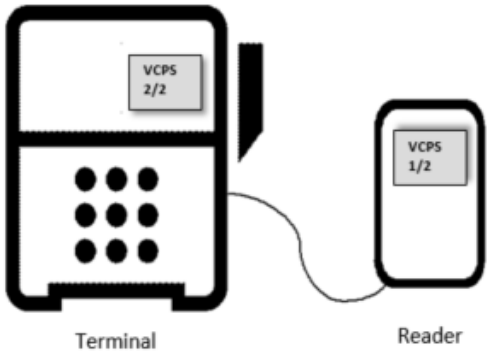
PCDI is a terminal with an Integrated Contactless Reader.

3.1.3.3 Combination Devices and Multiple Component Intelligent Card Readers (M-ICR)

Other types of terminal implementations include Combination Devices and Multiple Component ICR's. Combination Devices are defined as a terminal supporting an external reader, where the terminal contains the entire kernel for processing VCPS while the external reader only supports hardware and firmware related to the PCD reader. Other software may be contained on the hardware of the PCD, but is not related to VCPS kernel (e.g. contact kernel).

A M-ICR exists when the product is composed of two or more components and the VCPS kernel is divided amongst multiple components. (i.e. a device consists of a terminal and external reader with a portion of the VCPS kernel on the terminal and another portion of the VCPS kernel on the external reader).

Figure 3–2: Multiple Component Intelligent Card Reader (M-ICR/PCDA) connected to another device (e.g. terminal)



The following are required to be submitted with the Vendor's product:

- All appropriate equipment and peripherals to operate and test the Reader (power cables, PC cables, Terminal/ Host simulator software)
- Terminal/ Host simulator software must include clear instructions and provide capability to configure and operate the Reader.
- The software must also be able to capture and display the data sent by the Reader (cryptogram information, Track 1/ Track 2 for qVSDC and/or MSD data according to Reader's capabilities) and simulate Host authorization (e.g. approval/ decline) for online transactions.

3.1.3.4 VCPS Contactless Interference Testing

This is to evaluate based on the requirements that the chip acceptance device fully conform to VCPS Req 5.8 if it supports multiple interfaces. The following terminal types will be exempted from having to pass tests related to contactless reader placement and accidental contactless transactions:

Mobile Point-of-Sale Devices (mPOS) is a chip acceptance device that is physically connected to, or is itself, a mobile handset

Vending Devices is a chip acceptance device that is to be mounted on a Vending Machine. The device conforms to the physical dimensions prescribed by a national or international standards body.

All terminal types, including mPOS and Vending Devices, that supports multiple interfaces, are subject to test cases corresponding to Req 5.8 in the Visa Contactless Payment Specifications (VCPS).

mPOS and Vending Devices are not required to pass test cases related to contactless reader placement and accidental contactless transactions. These terminal types are eligible for approval regardless of the results of these test cases. This is on condition that there are no other failures.

All other terminal types, regardless of size, are required to fully conform to VCPS Req 5.8 and pass appropriate test cases.

If the contactless interface detects the contactless-capable card but the transaction is still able to successfully complete the attempted contact or magnetic stripe transaction, then the test case pass criteria is considered to have been met.

However, the terminal will NOT be eligible for an approval if the terminal is not able to complete the transaction over any one of the attempted interfaces when a contactless interference occurs.

3.1.4 Visa Application Kernel Checksum

A Visa Application Kernel Checksum value is mandatory for all Visa Kernels. It is to ensure stability and helps identify a product change. This section describes the implementation and submission requirements for Visa Application checksum.

3.1.4.1 Implementation Requirements for Visa Application Kernel Checksum

The Visa Kernel Checksum ("checksum") must include at a minimum the Visa Kernel ("kernel") and all external libraries supporting kernel functionality. Pre-processing/Application Selection may be included in the checksum of the kernel or may have an independent checksum. If separate, the Vendor is required to provide the checksum for the kernel and the checksum for the Pre-processing/Application Selection module. If only one checksum is provided, it is assumed Pre-processing/Application Selection is included in the Visa Kernel Checksum. If the Visa Kernel is split into multiple locations (i.e. part on the reader, part on a server), each portion should have an independent checksum but the Kernel Checksum shall include all sub-portions of the kernel into the final checksum.

3.1.4.2 Submission Requirements for Visa Application Kernel Checksum

All Vendors are required to submit the Visa Application Kernel Checksum and all Checksum related details.

- The CDQ submission shall include:

  - The Visa Application Kernel Checksum Value
  - Vendor must provide checksum for Application Selection/Pre-processing module, if independent from Visa Kernel. If no checksum is provided, Application Selection/Pre-Processing is assuming to be part of the Visa Kernel checksum.

- The chip acceptance device shall contain a software mechanism that:
  - Retrieve the unique Checksum of each software module for a Visa Kernel implementation that is based on several software modules
  - Dynamically computes the Visa Application Kernel Checksum

3.1.4.3 Changes to Checksum Values

Once authorized, all declared Checksum values shall not change:

- It is a major change if a declared Checksum value changes
- Vendor is responsible to inform Approval Services by resubmitting their CDQ for a new test cycle

All Vendors are required to submit the Visa Application Kernel Checksum and all Checksum related details.

3.1.5 Visa Contactless Transit Kernel Testing (VCTKS)

Chip acceptance devices implemented to support VCTKS will be tested against the VCTKS Test Plan.

As a product developed to VCPS may not be appropriate for use in transit environment, the VCTKS specification provides requirements and recommendations for transit kernels to ensure that transit terminals can meet the needs of transit acceptance.

3.1.6 VCAS Interface

VCAS defines the interface communication and the requirements for building the communication between the robot controller and the SDK. The requirements for the VCAS can be found in the SDK Interface Standardization Guideline for Automated Device Cross Testing. This document contains the VCAS functions and their requirements to allow a successful automated cross-testing process with the test Laboratory robot systems

Visa encourages Vendors to utilize the VCAS Verifier Tool before submitting a product to the Laboratories. The VCAS Verifier Tool produces a VCAS Verifier Report that will be submitted to the Laboratories along with the device. Laboratories review the VCAS Verifier Report and notify Approval Services of any failures before start of testing. If failures are indicated in the report, Approval Services will analyze and determine if testing shall resume. Vendors who have signed the Visa Sub-License Agreement for VCAS Verifier can obtain the VCAS Verifier tool on our website.

3.1.7 Interoperability Testing

Also known as cross testing, it is intended to mitigate the risk of interoperability issues with approved Visa contactless cards. The chip acceptance device will undergo interoperability testing where it will be evaluated for successful communication with a set of Visa approved cards.

Test results will be reviewed and evaluated as part of the approval process.

Chip acceptance devices that fail to communicate with tested card products may not be eligible for approval.

3.2 Test Scope Exclusions

The following are excluded from the Functional Testing scope:

- Components and firmware/software, including any Non-Visa or proprietary software that do not interact with the Visa kernel application in the product.
- Regional requirements, e.g. Visa Europe's requirements. Please contact a regional Visa Representative for more information.

3.3 Test Cycle

A test cycle is a set of applicable test scripts and other related testing requirements that are to be executed on a single version of the chip acceptance device during Visa's testing process.

A successful test cycle is defined as completion of all the executed test scripts and testing requirements with no failures.

3.4 Sharing Test Results

Vendors have the opportunity to leverage functional test reports from approved products.

If a chip acceptance device shares test results gets approved, it will be an additional listing on the Approved Products List.

IMPORTANT NOTE

- If Visa discovers a defect or issue with the product whose test results are being shared, all Vendors involved in the sharing will consent to Visa's communication of all relevant information, including nature of the defect/issue and affected products, to each affected Vendor and its customers.
- The ASTA owner of the parent product and all Vendors involved in the sharing have given an official authorization or agreement (where applicable) to allow the product details and corresponding test results to be shared.
- The approval of the parent product has no known issues:
    - The leveraged Visa approval (LoA) does not have any technical comments
    - The leveraged EMVCo Level 1 approval is not expired or restricted
    - The components leveraged are not already sharing test results from another product.

The newly approved product will:

- Share the same expiration date as the parent product.
- Be subjected to revocation if the approval of the parent product is revoked.
- May be subjected to additional testing, as determined by Visa, if the parent product is modified or updated.

3.5 Test Results

Upon completion of Functional Testing and/or Interoperability Testing, Laboratory will submit an official report outlining the test results to the Vendor. The Vendor is required to authorize the Laboratory to release the complete report to Approval Services for review and approval consideration.

IMPORTANT NOTE:

- Laboratories are required to submit all test results to Approval Services within 180 days from the official Testing Authorization.
- Laboratories are not permitted to disclose details or information that identifies the test card products and/or card manufacturer for Interoperability Testing results to Vendors.

There are two possible outcomes from the testing of a chip acceptance device:

3.5.1 Chip Acceptance Device Passes Testing

When a product passes testing, the Laboratory sends a final report to the Vendor.

The Vendor reviews the results to determine if they wish to submit the results to Approval Services for review.

Test results should be submitted to Approval Services for evaluation within six months after testing authorization date. Please contact Approval Services if testing cannot be completed with reports submitted within this timeframe.

3.5.2 Chip Acceptance Device Fails Testing

The Laboratory sends a report to the Vendor identifying the Visa Contactless Payment Application tests that failed and the reasons for the failures.

The Vendor can choose to resubmit a failed product for a new test cycle with the following steps:

- Rectify the identified issues.
- Complete a new CDQ with details of the changes made and submit to Approval Services for review and testing authorization.
- Contact the Laboratory for scheduling a new test date.
- Submit a new set of sample units as listed in section Testing Materials Requirements.

3.6 Product Approval

When a product successfully passes all required testing, Approval Services will issue a Letter of Approval.

3.6.1 Visa Approved Products List

Upon successful completion of official testing and approval, the chip acceptance device will appear on the Visa Approved Chip Acceptance Devices List on VDPS website under Chip Product Testing, unless the Vendor requests otherwise.

3.6.2 Product Approval Period

When a chip acceptance device is approved by Visa, it is assigned an approval expiration date which is communicated to the Vendor in the LoA and also appears on the Visa Approved Products List.

Unless otherwise noted, the expiration date is four years from the date of approval. Derivative products leveraging a parent product inherit the parent product's expiration date.

When the expiration date is due, the product will be removed from Visa Approved Products List.

3.6.3 Legal Conditions and Restrictions

Visa's approval only applies to products that are identical to the product tested by Visa or one of Visa-recognized Laboratories. A product may not be considered approved by Visa, nor promoted as approved, if any aspect of the product is different from that which was tested by a Laboratory or by Visa, even if the product conforms to the basic product description contained in the LoA. For example, even though a product contains applications or operating systems that have the same name or model number as those tested by one of Visa's recognized Laboratories or by Visa, but the product is not identical to the features previously tested by one of Visa's recognized Laboratories or by Visa, the product should not be considered or promoted as approved by Visa.

Visa's approval is granted solely in connection with a specific product and to the submitting Vendor. Such approval may not be assigned, transferred or sublicensed, either directly or indirectly, by operation of law or otherwise. Only Vendor(s) that receive a Visa approval for a chip card acceptance device product may state that they have the approval.

No manufacturer, chip supplier, or other third party may refer to a product, service or facility as "Visa-approved," nor otherwise state or imply that Visa has, in whole or in part, approved any aspect of a manufacturer, or supplier, or its products, services or facilities, except to the

extent and subject to the terms and restrictions expressly set forth in a written agreement with Visa, or in a Letter of Approval provided by Approval Services. All other references to Visa approval are strictly and actively prohibited by Visa.

When granted, Visa approval is provided by Visa to ensure certain security and operational characteristics important to Visa's systems as a whole, but does not, under any circumstances, include any endorsement or warranty regarding the functionality, quality or performance of any particular product or service. Visa does not warrant any products or services provided by third parties. Approval does not, under any circumstances, include or imply any product warranties from Visa, including, without limitation, any implied warranties of merchantability, fitness for purpose or non-infringement, all of which are expressly disclaimed by Visa. All rights and remedies regarding products and services which have received Visa approval shall be provided by the party providing such products or services, and not by Visa. Unless otherwise agreed in writing by Visa, all property and services contemplated in this document, which Visa provides to any third parties, are provided on an "as-is" basis, "with all faults" and with no warranties whatsoever. Visa specifically disclaims any implied warranties of merchantability, fitness for purpose or non-infringement.

The issuance of the approval letter is conditioned upon the Vendor having executed all necessary agreements, including without limitation, the applicable license agreements with Visa, and shall be of no force and effect unless such agreements have been executed contemporaneously with or prior to the issuance of the approval letter.

Visa performs limited testing to ascertain a product's compliance with any required specifications and may perform interoperability testing with other approved products. Visa's limited testing program is not designed to establish the functionality of an approved product in all potential conditions in which it may be used. Visa's approval does not in any circumstances include or imply any guarantees, assurances or warranties that the approved product will operate in all possible settings or in connection with any other approved product.

4 Level 3 (L3) Testing

Approval Services does not manage Level 3 (L3) Testing).

For information on Level 3 (L3) testing, see the Visa Global Level 3 (L3) Testing Requirements and Frequently Asked Questions (FAQ) available on VTP website.

5 Entry Point and Kernel C-3 Testing

Visa recognizes EMVCo's certification process for Entry Point (Book B) and Kernel C-3 (Book C-3). Visa does not require these devices to be submitted to Visa

EMV® Contactless Product Type Approval (Entry Point and C-3) administrative process, specifications, and test requirements can be found at EMVCo website . Please contact EMVCo directly for more information.

6 Renewal of a Chip Acceptance Device

This section describes the requirements and process of renewing the approval of a chip acceptance device.

6.1 Renewal Criteria

Chip acceptance devices are eligible for renewal if they meet all the following criteria:

- Complies with Visa's supported versions of specifications and requirements.
- The LoA does not contain technical comments, e.g. specification deviations or items identified during testing that should be rectified in the next version of the product.
- Successfully completes any required additional testing.
- EMVCo Contactless Level 1 LOA should still be valid and not expired at the time of renewal.

6.2 Renewal Process

As the chip acceptance device approaches its approval expiration date, Visa will review the product details for compliance to all current Visa policies, including the VCPS and/or VCTKS specifications that Visa continues to support.

Approval Services will determine if a chip acceptance device is eligible for renewal based on the renewal criteria listed in section Renewal Criteria.

Renewals are linked to the conditions contained in the LoA sent to the Vendor. If problems are identified with an approved product Visa may revoke the approval. Visa reserves the right to revoke the approval at any time.

Visa reserves the right to amend this policy without prior notice. The effective date of any such change will be communicated to Visa personnel and Vendors.

6.2.1 Chip Acceptance Device Eligible for Renewal

Approval Services will contact the Vendor six months prior to the approval expiration date. The Vendor will need to confirm via email to Approval Services that they wish to renew their chip acceptance device. When Approval Services receives this confirmation email, the approval is extended for an additional four years. The LoA will not be reissued, but the change in the approval expiration date will be reflected in Visa Approved Products List.

6.2.2 Chip Acceptance Device Not Elgibile for Renewal

The Vendor will not be notified that the product is not eligible for renewal. The chip acceptance device will be removed from Visa Approved Products List the month following the approval expiration date.

Appendix A – Revision History

Version	Date	Description
8.0	Feb 2024	Updates and corrections: Contact Information Process Overview Structure
7.0	April 2022	New Arconym and Definition Table Clarifications and updates
6.0	April 2021	Corrections, clarifications, and updates.
5.0	July 2018	New structure, Updates to Test Requirements Clarifications and updates

Appendix B – Testing Requirements

This appendix lists the testing requirements for chip acceptance devices. The list below is not exhaustive, but it provides examples of commonly submitted change requests. If a Vendor wants to make a change that is not listed below, they should contact Approval Services to determine which process the Vendor may utilize.

Table C–1: Testing Requirements Matrix for Base Product

This table defines the requirements for the base product. A Base product is the Parent product that is coming in for a new submission. All derivatives will descend from a base product. It is recommended that the product/model with the most enabled VCPS functionalities to be submitted as a base product.

#		Contactless L1 Testing	Application Testing	Cross Testing	Comments
1	Base Product	EMV® PCD Level 1 LOA required	Full	Full	New product

Table C–2: Testing Requirements Matrix for Derivatives or Changes

This table defines the acceptable changes for a Base Product to be eligible as a derivative. The list below is not exhaustive but provides examples of commonly submitted change requests. If a Vendor wants to make a change that is not listed below, they should contact Approval Services to determine which process the Vendor may utilize.

#	Change / Derivation	Contactless L1 Testing	Application Testing	Interoperability	Other Testing	Comments
2	Level 1 Analog Firmware and/or Digital Software Change	EMV® PCD Level 1 LOA required	None	Full	None	
3	Add/ Remove proprietary protocol	EMV® PCD Level 1 LOA required	None	Full	None	
4	PCB Change	EMV® PCD Level 1 LOA required	None	Full	None	
5	Antenna Design	EMV® PCD Level 1 LOA required	None	Full	None	
6	Antenna Materials	EMV® PCD Level 1 LOA required	None	Full	None	

7	Antenna Location	EMV® PCD Level 1 LOA required	None	Full	None	
8	IFM Replacement		None	Full	EMVCo IFM Level 1 LOA required	IFM and PCD reside on the same device
9	IFM Firmware Change		None	Full	EMVCo IFM Level 1 LOA required	IFM and PCD reside on the same device
10	Porting Approved PCD	EMV® PCD Level 1 LOA required	None	None		
11	Replace existing Operating System (OS)	EMV® PCD Level 1 LOA required	Full	Full		This is considered as a new product
12	Replace existing Operating System (OS) Visa Application Kernel Checksum is present	EMV® PCD Level 1 LOA required	Regression	None		No recompilation of the Kernel. Checksum is identical to original product.
13	Update existing Operating System (OS)	EMV® PCD Level 1 LOA required	Regression	None		

14	Update existing Operating System (OS) Visa Application Kernel Checksum is present	EMV® PCD Level 1 LOA required	None	None		No recompilation of the Kernel. Checksum is identical to original product.
15	New Visa Application Kernel	EMV® PCD Level 1 LOA required	Full	Full		This is considered as a new product
16	Update Visa Application Kernel	EMV® PCD Level 1 LOA required	Full or Regression	Full or None		Testing is determined based on functional impact of update
17	Add Non-Visa Application	EMV® PCD Level 1 LOA required	Regression	None		
18	Add Non-Visa Application Visa Application Kernel Checksum is present	EMV® PCD Level 1 LOA required	None	None		No recompilation of the Kernel. Checksum is identical to the original product.
19	Update Non-Visa Application	None	Regression * or None	None		Testing is required if there were shared library dependencies.

20	Update Non-Visa Application Visa Application Kernel Checksum is present	None	None	None		No recompilation of the Kernel. Checksum is identical to the original product.
21	Remove Non-Visa Application	None	Regression * or None	none		*Testing is required if there were shared library dependencies.
22	Remove Non-Visa Application Visa Application Kernel Checksum is present	None	None	None		No recompilation of the Kernel. Checksum is identical to the original product.
23	Casing Change Model Label Change Only	EMV® PCD Level 1 LOA required	None	None		Only model rebrand. Original casing unchanged – no modifications to IFM, PCD, antenna placement, landing plane placement, etc.
24	Casing Change Landing Plane Change	EMV® PCD Level 1 LOA required	None	Full		

25	Casing Change New Material: Metallic	EMV® PCD Level 1 LOA required	None	Full		
26	Casing Change New Material: Non-metallic	EMV® PCD Level 1 LOA required	None	None		
27	Add New Interface Contact and/or Magstripe	EMV® PCD Level 1 LOA required	Delta	Full	EMVCo IFM Level 1 LOA required	Full Cross Testing is required if a new interface is added to the Terminal or Reader where the PCD resides.
28	Remove Other Interface Contact and/or Magstripe	None	Delta	None		
29	Replace Existing Interface Contact and/or Magstripe	None	None	None	EMVCo IFM Level 1 LOA required	Interface approved in original product. Landing plane is unchanged and not impacted.
30	Rebranded Terminal	None	None	None		LOA should exist from original terminal

31	Connector Change	None	None	None		
32	Adding VCTKS	EMV® PCD Level 1 LOA required	Full	None		Cross Testing is required if new PCD
33	Updating existing VCTKS	EMV® PCD Level 1 LOA required	Full	None		Cross Testing is required if new PCD

B.1 Changes that requires Full Testing

Changes to an approved chip acceptance device may require full testing. The Vendor may update/change the original product with the intent that the original product will no longer be supported as approved. Alternatively, the Vendor may intend to support both the existing product and the new product being submitted. The list below is not exhaustive but provides examples of commonly questioned scenarios.

If a Vendor wants to make a change that is not listed below, Approval Services should be contacted to help determine which process they may utilize.

Note: *Vendors who have received a LoA from Visa that identified in the comments section issue(s) that must be corrected in the next version of the product submitted for testing must correct the identified issue(s) during submission of the changed product.*

Table 6–3: Changes That Require Full Testing

Change Requiring Full Testing	Description
Operating System (OS) Changes	Adding, deleting, or modifying code in the Operating System that directly impacts the functionality of the device.
EMV® Contact Level 1 Changes	Modifications that affect the electrical and protocol characteristics. Contact EMVCo for more details.
Visa Payment Application Changes	Any changes that impact or interact with the Visa application.
EMV® Contactless Level 1 Analog and Digital Changes	Modifications to a contactless terminal or reader that affect the magnetic field, protocol, and anti-collision aspects. Contact EMVCo for more details.

B.2 Changes to Previously Approved Chip Acceptance Devices

Vendors may make certain changes to a chip acceptance device listed on Visa Approved Products List (see sections below for qualified changes). The chip acceptance device must be currently approved and has completed all required testing, and the LoA must not contain any comments or specification deviations.

To initiate a change request, the Vendor must submit a CDQ to Approval Services. After testing is completed and passes testing, a new approval will replace the original approval on the Visa Approved Products List.

Note: *Vendors who have received a LoA from Visa that identified in the comment/specification deviations section issue(s) that must be corrected in the next version of the product submitted for testing may not use the process outlined in this section to make changes to the approved product.*

B.3 Paper Approvals

Paper Approvals are granted to derivative chip acceptance device products that meet the following conditions:

1. The original product has a valid approval with no Technical or Informational Comment for both EMV® PCD Level 1 and Visa's LoA.
2. Product is physically identical to the original product. For example, derivative is the exact same product model as the parent.
3. Product is logically identical to the original product. For example, it contains the same PCD analog firmware and digital software, and Level 2 Visa Application kernel. Checksum of the Visa Application, if present, shall be identical to the original product.

If the conditions above are met, the derivative is eligible for Paper Approval and is not required to undergo any forms of testing.

Any differences from the original product shall be indicated in the CDQ.

The CDQ will be reviewed in accordance to the standard process to determine if product is eligible for Paper Approval or if testing is required.

Visa determines eligibility for a Paper Approval on a case-by-case basis.

Table B–4: Test Matrix for Paper Approvals

The following table is a test matrix for the common Paper Approval derivative scenarios. Please contact Approval Services for eligibility for Paper Approval.

#	Change / Derivation	Contactless L1 Testing	Application Testing	Cross Testing	Other Process	Minimum Condition
1	Rebranding Label for Marketing	EMV® PCD Level 1 LOA required	None	None	Paper Approval	Identical to original approved product
2	Rebranding Reseller Approval Request	EMV® PCD Level 1 LOA required	None	None	Paper Approval	Identical to original approved product

B.4 Visa Application Kernel Porting for Range of Devices

This section defines the requirements for submission of a derivative range for the family of products. This section is divided into the two parts that covers the different scenarios for submission.

B.4.1 Visa application kernel porting to a new PCD

The following features must be identical for each submission

- Operating Systems
- Software Architecture
- Application is ported across same terminal configuration (i.e. from a FIT to another FIT)
- The Checksum value of the application shall remain the same.

Table B–4: Requirements for Visa Application Kernel Porting

The following table describes the different types of scenarios for each submission containing a Visa application kernel porting for range of devices. These requirements are supplied for derivatives based on an approved baseline product**.**

- Each product variant has its own EMV® PCD Level 1 approval

Submission Type	Contactless L1 Testing	Application Testing	Cross Testing	Other Process	Comments
First Derivative	EMV® PCD Level 1 LOA required	Regression VCPS	Full	None	Base product approved with no known issues.
Nth Derivative	EMV® PCD Level 1 LOA required	None	Full	None	Base product approved with no known issues.

B.4.2 Updated Visa Application Kernel

Submission that contain an updated Visa Application Kernel must consist of the following requirements

- Each variant has its own valid EMV® PCD Level 1 approval and existing Visa LoA.
- The previous approval on each variant has no known issues.
- The only change on each variant is the Visa Application Kernel.

The following requirements must be identical for each submission for an updated Visa application Kernel

- Platform
- Operating Systems
- Software Architecture

Examples of updates

- Same version specification updates e.g. VCPS 2.1.3 Update List 1 to Update List 2
- Bug fixes on original kernel

Table B–5: Requirements for updated Visa Application Kernel Porting

The following table describes the different types of scenarios for each submission containing an updated Visa application kernel porting:

Submission Type	Contactless L1 Testing	Application Testing	Cross Testing	Other Process	Samples	Comments
Base		Full VCPS	None *		4 samples	*maybe required based on functional changes
First Derivative	EMV® PCD Level 1 LOA required	None	None	Paper Approval	None	Base product approved with no known issues.
Nth Derivative	EMV® PCD Level 1 LOA required	None	None	Paper Approval	None	Base product approved with no known issues.