



# Chip Card Testing & Approval Requirements

Visa Approval Services

Version 11.0



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## Introduction

The process and requirements described in this document applies to the following types of products

- Contact chip products supporting Visa Smart Debit/Credit (VSDC)
- Contactless chip products supporting MSD/qVSDC/K8
- Dual interface chip products supporting VSDC and MSD/qVSDC/K8

For the purpose of this document the term “card” shall be used to represent ID1 size cards, fobs, mini cards, micro-tags, adhesive micro-tags (stickers), and inlays for non-card products with static contactless chip.

Other form factors will be referred to as “non-card products with a static contactless chip”, one example being a wearable product such as a wristband.

A product with a static contactless chip is defined as a payment product that cannot have its account data provisioned or updated post issuance. In other words, the genuine account number, not a token, is personalized to the product prior to issuance.

For information about the mobile product type approval process, please refer to Visa Approval Services Mobile Product Testing and Compliance Requirements document.

## Audience

This document is intended for vendors submitting chip card products and non-card products with a static contactless chip to Visa Approval Services for testing. It describes Visa’s product testing and approval process.

## Contact Information

Visa Approval Services is responsible for managing the accreditation and various other 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.

<b>Email:</b>	<a href="mailto:ApprovalServices@visa.com">ApprovalServices@visa.com</a>
<b>Website:</b>	Visa Digital Partner Services (VDPS) <a href="https://digitalpartnerservices.visaonline.com">https://digitalpartnerservices.visaonline.com</a>
<b>US Postal Address:</b>	Visa Inc Approval Services 900 Metro Center Boulevard Mail Stop M3-2NW Foster City, California 94404 United States of America Mailroom Contact : +1 650 432-8822
<b>Singapore Postal Address:</b>	Visa Worldwide Pte Ltd Approval Services 10 Eunos Road 8 #10-01 Mailstop SP08-A2 Singapore Post Centre 408600 Singapore Mailroom Contact +65 6579 3712

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## Process Overview

The type approval process consists of the following stages:

- Registration, Licensing and Agreement Execution (done once)
- Product Submission
- Testing Authorization
- Laboratory Testing
- Test Reports Review
- Product Approval

The scope of testing includes (where applicable) the following:

- Testing of basic electrical and protocol characteristics of the contact interface
- Testing of radio frequency and protocol of the contactless interface
- Testing of Visa payment application(s)
- Security testing of the final product

To reduce the duplication of testing for vendors, Visa's type approval process utilizes testing and certification programs offered by EMVCo and GlobalPlatform.

The applicability and scope of functional and security 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.

If the product successfully passes all required testing and requirements, Visa issues a Letter of Approval (for card products) or Letter of Compliance (for stickers and non-card products). The approval recognition applies internationally unless specified in the letter.

The vendor can ask questions about Approval Services' testing and approval processes, including test plan and personalization images via the Query Application on [VDPS](#).

The VDPS Knowledgebase can be utilized to search through the query database using filter fields, question numbers, and keywords, allowing you to view public questions and answers.

**Note:** The process described in this document does not approve vendors, it only approves products. Approval is not transferrable from one product to another, or from one vendor to another.

**Note:** The issuance of a letter by Approval Services does not provide an allowance of the card construction per ISO 7810 & 7811-6, or review against the Visa Product Brand Standards, as required by Global Design & Innovation (Brand). Information regarding this separate and required qualification process can be found on the Visa Product Brand Standards website (Log-in via [Visa Online](#)) or by contacting [cardinnovation@visa.com](mailto:cardinnovation@visa.com).

# 1 Vendor Registration, Licensing & Agreements

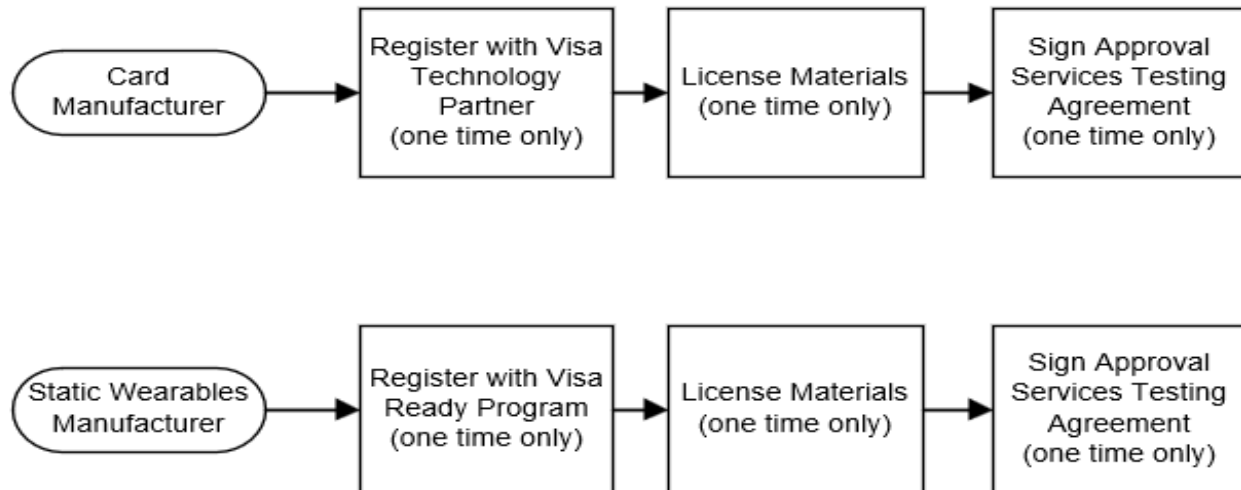


Figure 1-1: Vendor Registration, Licensing & Agreements

## Vendor Requirements for Product Certification

Before submitting a product for testing, all vendors must complete the following steps (depending on the type of product):

### Card Form Factor

1. Register with Visa Technology Partner.
2. License Visa specifications and software (if applicable).
3. Execute an Approval Services Testing Agreement (ASTA).

### Non-Card product with Static Contactless Chip (Static Wearable)

1. Register with the Visa Ready Program.
2. License Visa specifications and software (if applicable).
3. Execute an Approval Services Testing Agreement (ASTA).

## 1.1 Vendor Registration

The Visa Technology Partner website facilitates the vendor registration process. Information can be found at <https://technologypartner.visa.com/Registration>. Vendors only need to register once.

Upon completion of company registration, should there be any changes to your registered information such as Company Name or Address, please contact Visa Technology Partner at [TechnologyPartner@visa.com](mailto:TechnologyPartner@visa.com) and Approval Services.

**Note:** Vendors who are submitting a non-card product with a static contactless chip, e.g. a wearable or an Internet of Things (IoT) product, should also contact Visa Ready at [VisaReadyDigitalPlat@visa.com](mailto:VisaReadyDigitalPlat@visa.com). *Visa Ready Requirements and Program Guide for Static Contactless Chip Form Factors* can be found in the library on the Visa Digital Partner Services.

## 1.2 Licensing Specifications and Software

Product manufacturers are responsible for developing products to supported Visa specifications and requirements.

The Visa Technology Partner website facilitates the licensing of Visa's chip specifications and Visa-developed software, which in turn allows access to additional documentation vendors will need:

- Visa Contactless Payment Specification
- Visa Integrated Circuit Card Specification
- Visa-developed Visa Smart Debit/Credit application software
- Visa Chip Security Program
- Visa Prepaid Specification
- Multi-Access for Visa Smart Debit/Credit Specification
- Test plans and personalization (see section 1.4)
- Visa Biometric Sensor-on-Card Specification

This list is not exhaustive of all specifications and requirements that may be used in the development of a Visa-compliant payment product, for example EMVCo and GlobalPlatform. The vendor developing a product is ultimately responsible for obtaining all specifications and requirements relevant to the product it submits for testing and approval.

Information about licensing can be found at <https://digitalpartnerservices.visaonline.com/Portal/VtpPublic/VtpHome>.

## 1.3 Legal Agreements

In addition to the license agreements, vendors intending to submit a product to Approval Services for testing must execute an ASTA. The ASTA is a standard agreement that defines the terms and conditions governing the testing and approval of the vendor's product. After completing the license agreements

with VTP, please contact Approval Services to initiate the signing of the ASTA. If you have questions about the ASTA, please reach out to Approval Services.

Vendors who are submitting non-card form factors with a static contactless chip will also need to execute the Visa Ready Contract. Please contact Visa Ready at [VisaReadyDigitalPlat@visa.com](mailto:VisaReadyDigitalPlat@visa.com).

Vendors will also need to enter into agreements with Visa-recognized testing laboratories that will test their product. Visa does not get involved with agreements between laboratories and vendors. A current list of Visa Recognized Testing Laboratories and their contacts can be found on the [VDPS](#).

## 1.4 Test Plans and Commercial Test Tools

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.

### 1.4.1 Test Plans

Successful completion of all the test scripts by the vendor does not imply approval, nor does it depict Visa's full testing process. Rather, it provides the vendor with insight into the product testing process. Visa reserves the right to develop and run additional tests that are not part of the current test plan. Visa testing may include subjecting the product to additional physical and situation-specific tests as needed.

Visa grants vendors who have signed the required agreements permission to use the test plans solely for purposes of developing and testing products for a Visa application. Visa may revoke its permission at any time. Possession and use of these materials is subject in all respects to the terms and the continued effectiveness of the ASTA.

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.

### 1.4.2 Commercial Test Tools and Test Scripts

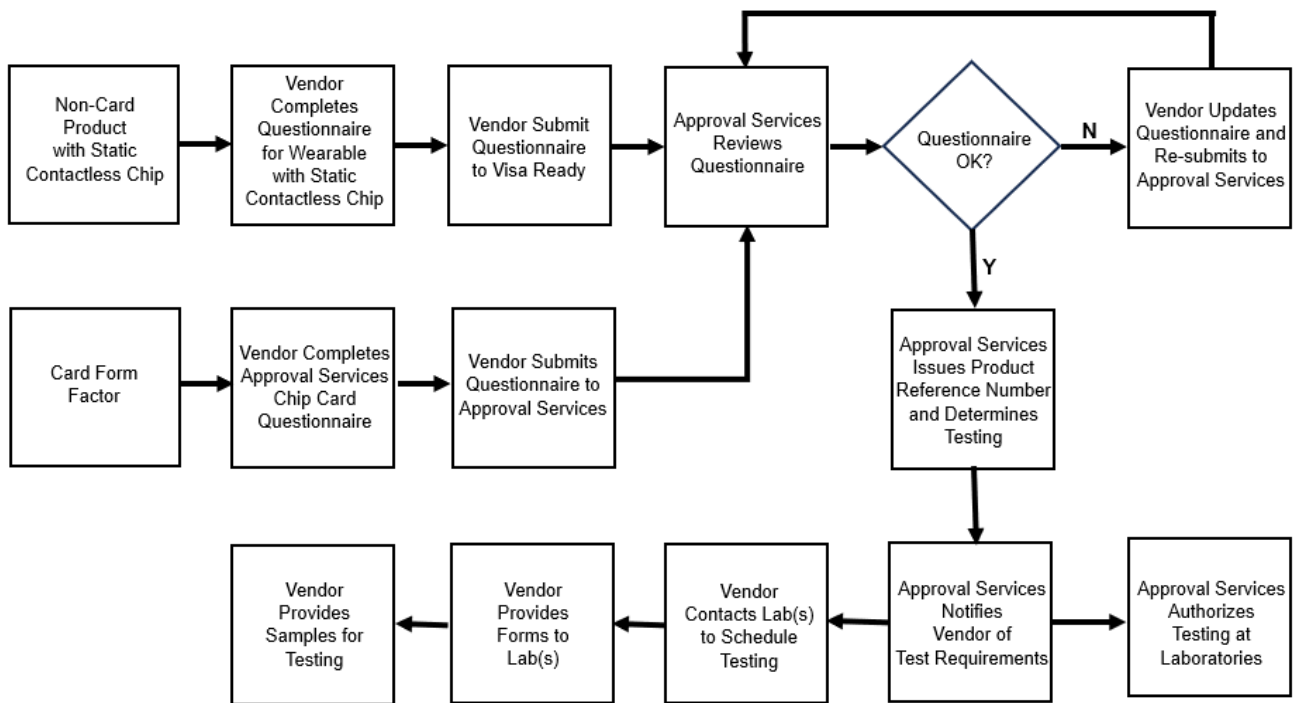
Commercial test tools and test scripts are available from Test Tool Vendors. Test Tool Vendor contact information is published on [VDPS](#).

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

## 2 Product Submission Process

All necessary forms for testing are available on the [VDPS](#). Vendors should download and complete the latest version of the forms. This section discusses the forms that are required and the requirements for scheduling.

The forms and process differ slightly between cards and non-card form factors with a static contactless chip.



**Figure 2-1: Product Submission Process**

Product Submission Process Steps:

1. Vendor completes the relevant questionnaire (Wearable with Static Contactless Chip or Chip Card).
2. Vendor submits the questionnaire to Approval Services (Visa Ready for Non-card products and directly for Card Form Factor)
3. Approval Services reviews the questionnaire
4. Is the questionnaire accepted?
  - If No: Vendor updates the questionnaire and re-submits it to Approval Services.
  - If Yes: Approval Services issues a Product Reference Number and determines testing requirements
5. Approval Services notifies the vendor of the test requirements
6. Approval Services authorizes testing at laboratories
7. Vendor contacts lab(s) to schedule testing
8. Vendor provides the necessary forms to the lab(s) Vendor provides samples for testing

## 2.1 Product Questionnaire

Vendors must provide a Product Questionnaire for each product submitted for testing and approval. The questionnaire is used to determine whether the product is acceptable and what testing is required.

- If a product supports both T=0 and T=1 protocols, the product can be submitted separately for each protocol or can be both protocols in one questionnaire. If submitted with both protocols, the product will be evaluated in one testing scope.
- If a contactless product supports both Type A and Type B, the product must be submitted separately for each contactless type and each will be tested independently.
- If a product supports multiple memory sizes, it shall be submitted with multiple memory sizes declared in the same questionnaire. Approval Services assigns a single Product reference number ("VTF number"). Visa's approval extends to all chip models or memory sizes covered by the EMVCo IC Certificate Number referenced in the approval letter.

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### 2.1.1 Online Questionnaire

Vendors can view and submit products online through [VDPS](#). Vendors can log on to Approval Services' portal using their Company Code, corporate email address, and a one-time passcode that is emailed to them.

For submitting questionnaires online, the information will be populated from the base product and/or payment applet to ensure accuracy. On-screen instructions and integrated data validation are in place to prevent mistakes/errors, thereby accelerating the submission process.

Vendor can also view the submission progress on VDPS (Example: CCQ review stage or Testing Authorization issued stage), download QR codes for card samples and LoA directly from VDPS.

**Note:** Only contacts known to Approval Services who are involved with product submissions can log in. Please contact Approval Services for support.

## 2.2 Laboratory Scheduling and Testing

The vendor and the laboratory(s) are responsible for scheduling testing once the vendor has received confirmation of the testing requirements from Approval Services and testing is authorized. Visa does not participate in and is not responsible for any scheduling between the Laboratories and Vendors.

Security testing can take longer than functional testing. It is the vendor's choice when to start security and functional testing.

A vendor has six months from the testing authorization date to complete all testing and submit test results to Approval Services. If applicable, all test samples for Performance and Cross Testing must be

submitted within reasonable timeframe so that testing can be completed within the six months from the testing authorization date.

It may be necessary to contact more than one laboratory, depending on the characteristics of the product, the scope of testing, and the testing availability at various laboratories. For a current list of testing offered by accredited test laboratories, go to the [VDPS](#).

**Note:** If any problems occur during functional or security testing that would not allow the product to successfully complete testing, the following will occur:

- Official testing will stop.
- The vendor is responsible for all costs incurred with the Laboratory(s).
- The problem is corrected, and the product questionnaire resubmitted.

Laboratories performing functional testing may offer QA testing that can be completed prior to submitting a product for official testing. However, QA testing is not part of Visa's official testing and approval process, and QA test results are not accepted for review.

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### 2.2.1 Retention of Samples After Testing

Visa will keep samples, reports and logs used for official testing for duration of 10 years starting from the completion of the test cycle for a card product.

When the retention period is reached, Visa will securely destroy any chip card samples.

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

## 2.3 Forms Required for Testing

Official testing shall not begin until the vendor has provided all necessary forms to the laboratory.

The Exhibit A and Request for Approval Forms are combined in a single document.

Table 2-1: Forms Required for Testing

Form	Description
Exhibit A: Request for Testing Services and Request for Approval Form	An official request to release test reports to Visa so that Visa can begin the review and approval process for a product tested at the Laboratory. Vendors who have signed the ASTA May 2018 or newer version no longer need to provide this form.

Form	Description
Single Production Batch Confirmation Form	An attestation by the vendor that all samples submitted for testing (initial test samples or replacement samples), regardless of the Laboratory to which they are being sent, are from the same production batch and without modification.  If submitting products using the online card questionnaire, this form is completed as part of the questionnaire.
Implementation Conformance Statement (ICS)**	A vendor must provide detailed information regarding the Visa payment application, platform, or interface.  A separate ICS is needed for each type of functional testing performed.

\*\* Visa accepts the equivalent forms used by EMVCo and GlobalPlatform, specifically:

- EMVCo Common Payment Application Level 1 & Level 2 ICS (for EMV® Contact Level1). The vendor only needs to complete the section for Electrical and Protocol testing. The ICS must show the hexadecimal values returned by the chip card in response to Answer to Reset (ATR), SELECT command, and GET PROCESSING OPTIONS. Data provided by the Vendor is used to check the data returned by the card during testing.
- EMVCo PICC Level 1 ICS (for EMV® Contactless Level1)

Forms must be submitted for each product submission. If a product fails testing, a new version of each form must be provided when the product is resubmitted for testing.

## 2.4 Functional Testing Requirements Overview

Laboratories test various functions and applications supported by Visa. Such testing includes the electrical aspects of the chip protocol and communications of the product, as well as functionality of the applications.

Testing is dependent on the technology and applications supported by the product. Examples are shown below.

Table 2-2: Functional Testing Requirements

Product Type	Description
Contact Product	EMV® Contact Level 1 (Electrical & Protocol) T=0 and/or T=1 Visa Payment Application (VSDC) Visa Biometric Sensor on Card Specification Application (VBSS) Visa Biometric Sensor Performance Testing

Product Type	Description
Contactless Product	EMV® Contactless Level 1 (Analog & Digital) Type A or Type B Visa Payment Application (MSD/qVSDC/K8) Cross Testing Performance Testing Visa Biometric Sensor on Card Specification Application (VBSS)
Dual Interface Product	EMV® Contact Level 1 (Electrical & Protocol) T=0 and/or T=1 Visa Payment Application (VSDC) EMV® Contactless Level 1 (Analog & Digital) Type A or Type B Visa Payment Application (MSD/qVSDC/K8) Cross Testing Performance Testing Visa Biometric Sensor on Card Specification Application (VBSS) Visa Biometric Sensor Performance Testing
GlobalPlatform Products	GlobalPlatform Functional Platform Testing

Testing of **dynamic CVV2** functionality is out of scope of functional testing. However, if dCVV2 functionality is supported, it should be enabled.

**EMV® Contact Level 1** ensures a level of interoperability for cards and acceptance devices. Testing is comprised of electrical characteristics, transmission protocol T=0 and/or T=1, and Answer to Reset (ATR) speed D=1 (Default) or D=4 (Quadruple). All base product submissions shall have an ATR speed of D=4 (Quadruple).

**EMV® Contactless Level 1** ensures a level of interoperability for contactless products and acceptance devices. Testing is comprised of analog testing to ensure the magnetic field characteristics are able to carry the communication, and digital testing to ensure the timing, anti-collision, and protocol characteristics are able to carry the communication.

**Visa Payment Application testing** ensures that the application processes the transactions correctly, in accordance with the relevant specifications. MSD/qVSDC/K8 application paths are for contactless use only and shall not be used through a contact interface. VSDC application path is for contact use only and shall not be used over a contactless interface. Multi-Access for VSDC and Prepaid application testing are also included if declared to be supported by the product. VBSS application is for contact and contactless interfaces.

Visa performs **cross-testing** (also referred to as interoperability testing) to ensure that contactless products and devices are interoperable with each other. Cross-testing is a part of the official testing process, and the performance during this testing will be part of final approval consideration. Products that fail to communicate with multiple devices may not be eligible for approval.

**Note:** Visa is not permitted to disclose information about the terminals used for cross-testing to Vendors. Samples cannot be shared for contactless level 1 and cross-testing.

**Performance testing:** Contactless and dual interface products are required to support a minimum ICC key size of 1152 bits in qVSDC path and/or P-256 ECC key in K8 path and still meet the contactless performance requirement of  $\leq 400$  milliseconds.

Biometric Sensor-on-Card products shall meet the contactless performance requirement of  $<1$  second.

**GlobalPlatform** (GP) manages the platform functional testing for GP platforms. Visa only accepts official GP test results performed by a GP-qualified Laboratory. Self-testing results are not accepted as proof of specification compliance. Vendors shall provide Supported Configuration Options (SCO) number and Letter of Qualification (LoQ) from GP to Visa in support of their submission. Visa requires the SCO and LoQ prior to issuing an approval or compliance letter. More information about the GlobalPlatform compliance testing process can be found on its website at <http://www.globalplatform.org>.

A closed GP platform (post issuance is disabled) shall be submitted as a static native platform.

A **JavaCard-S** product is based on both GlobalPlatform and JavaCard-S requirements. Because JavaCard-S requirements do not allow for post-issuance download of applet packages or deletion of applet packages or instantiations, the product cannot be tested in the same manner as a GlobalPlatform card. Therefore, it is necessary to test the Visa payment application on the product to ensure that the JavaCard-S platform can correctly interface with the Visa payment application. A JavaCard-S product shall be submitted as static native card.

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### 2.4.1 Sharing of Test Results

Vendors can leverage functional test reports from approved products. A product that shares test results may be eligible for reduced testing.

If Visa discovers a defect in a product that other products have shared test results from, all Vendors involved in the sharing agree that Visa can communicate all relevant information to each affected Vendor and its customers, including an explanation of the nature of the defect and products at issue.

Shared test results are permitted only if:

- All Vendors involved in the sharing have an ASTA.
- The product being leveraged from has been tested and approved with no issues or comments.
- The product being leveraged from is not already sharing test results from another product.
- A product using shared results will be tied to the original approved product as follows:

- The product will receive the same expiration date as the product from which the results are shared.
- If the original product is revoked, then all products sharing testing results will be revoked.
- If the original product is modified and/or updated, then all products sharing testing results may require additional testing.
- The questionnaire being submitted should indicate that the product is seeking to share test results and provide the VTF number of the approved product.

**Note:** If a product is submitted for full testing, it will receive an independent approval, and its expiration date is not tied to any other product.

## 2.5 Security Testing Requirements

### 2.5.1 Integrated Chip (IC) Security Evaluations

Chip hardware is defined as the basic 'Chip' or 'IC' product without an operating system or application. The security of the chip hardware is evaluated by EMVCo. The EMVCo IC security evaluation process considers the security of chip products and aims to provide a high level of assurance that the chip is designed to resist known attack methods. Visa leverages the EMVCo process to minimize cost and time spent in performing evaluation work and to avoid duplication of effort.

EMVCo issues an IC certificate with an IC Certificate Number (ICCN) when a chip has successfully completed the EMVCo IC security evaluation process. EMVCo approved 'IC' products are listed on the EMVCo website at <http://www.emvco.com/>.

**Requirement:** Visa will only accept new products for security testing if the chip has successfully completed the EMVCo IC security evaluation process and the chip is listed on the EMVCo approved chips list.

For detailed information on the EMVCo 'IC' security evaluation process, please see *EMV® Security Guidelines – EMVCo Security Evaluation Process* available at <http://www.emvco.com/>, or contact the EMVCo Security Evaluation Secretariat at [securityevaluation@emvco.com](mailto:securityevaluation@emvco.com) with any questions.

For further information on how the EMVCo security evaluation process ties in with the Visa chip product security testing, refer to Visa Chip Security Program Testing Process on [VDPS](#).

## 2.5.2 Visa Chip Security Program (VCSP)

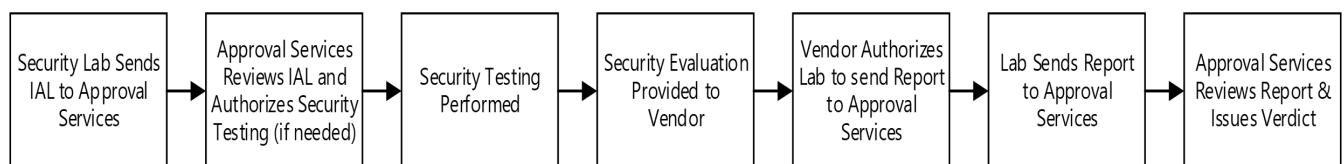
Like functional testing, security testing is performed only on a product in its final configuration, as it would be supplied to a Visa client. Security testing focuses on aspects of the product implementation that may have a security impact. Security testing goes beyond the functional testing to see if the product is vulnerable to known attacks, whether these are explicitly cited in the specification.

The VCSP seeks to minimize the cost and time spent in performing evaluation work and to avoid duplication of effort. Security testing is not exhaustive and focuses on the most likely vulnerabilities as revealed by previous testing, knowledge of the application(s), and past experience with similar products.

The level of testing is continuously increasing to reflect 'state-of-the-art' attack potential. Consequently, the introduction of new chip products should offer a higher level of protection against the latest threats. However, no testing can anticipate all potential future attacks. Security, by definition, is an ongoing process; as time progresses, attack and defense become a race.

All Visa chip-based payment products are required to go through VCSP security testing.

The VCSP — Security Testing Process document provides detailed information about the process and high-level requirements of the chip product security testing, as highlighted in Figure 2-2 below. The detailed security testing requirements including Initial Assessment Letter (IAL) and security evaluation report requirements when submitting them to Visa are detailed in VCSP – Testing Requirements and Guidance document. These documents are available on [VDPS](#) (Log-in is required).



**Figure 2-2: Security Testing Process**

Security Testing Process:

1. Security Lab sends the Initial Assessment Letter (IAL) to Approval Services.
2. Approval Services reviews the IAL and authorizes Security Testing if needed.
3. Security Testing is performed.
4. Security Evaluation is provided to the Vendor.
5. Vendor authorizes the Lab to send the report to Approval Services.
6. Lab sends the report to Approval Services.
7. Approval Services reviews the report and issues a verdict.

Products exist in many variants and may sometimes have minor differences. A product with a "minor change" is not required to undergo Visa security testing and will leverage the approval date and comments of the original product.

A minor change is defined as:

- Verified bug fixes with no negative impact on security
- Functional changes that do not have an impact on security testing
- VSDC code changes that Visa has defined as minor

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### 2.5.3 Initial Assessment Letter (IAL)

Visa will assess whether a product submission requires an IAL. If necessary, Visa will issue an IAL request to the vendor's preferred test laboratory. The review of the IAL will determine the scope of security testing to be performed, and Visa may decide if additional or reduce testing is required based on product history and other factors. The following summarizes different security testing scenarios:

- Full security testing – This will be required in the case of a new product that has not been evaluated previously by the Laboratory under the VCSP program.
- Delta security testing – This will be performed in the case of product modification or patch.
- No security testing – This may result in the instance that the product has been evaluated before and the changes have no negative security impact (e.g., it is classified as a Minor Change).

## 2.6 Product Samples for Testing

A vendor is required to provide samples for testing as described in this section.

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### 2.6.1 Sample Requirements

Laboratories will accept products for testing only in their final configuration as they will be supplied to Visa clients. A product submitted for testing shall be in the state described below.

Table 2-3: Sample Requirements

Requirement	Descriptions
Chip	The chip must be embedded and bonded to the product's body.
Commands	Commands that can update the product must be in compliance with the Visa specifications for the application(s) in the product.
Documentation	When providing technical documentation, all commands and status words must be identified. Failure to identify commands and status words in the technical documentation may cause the product to fail testing.

Requirement	Descriptions
Debugging code	All debugging code must be removed from the product before it is submitted for testing. Failure to remove this code may cause the product to fail testing.
Personalization	Static native products personalized for testing must be in their personalized/locked state.
ATR values (contact only)	After the card is put into an initialized state, the Answer to Reset (ATR) values (except for historical bytes) cannot be changed.  A product may not contain both T=0 and T=1 protocols within the same Answer to Reset (ATR).
ATS values (contactless only)	For Type A contactless products, the Answer to Select (ATS) values on the product submitted for testing must be those identified in the Implementation Conformance Statement (ICS).
Answer to REQB Command	For Type B contactless products, the values of bytes 10, 11, and 12 in the "Answer to REQB Command" on the product submitted for testing must be those identified in the Implementation Conformance Statement (ICS).
Antenna Schematic (contactless only)	A schematic of the antenna must be provided for all contactless and dual interface products if the antenna does not have a rectangular shape.

## 2.6.2 Number of Samples and Personalization for Functional Testing

A product that supports more than one Visa payment application requires a full set of samples for each Visa payment application. For dual interface products, a full set of samples must be provided for each interface.

All personalization requirement documentations are published on [VDPS](#) website.

Personalization of test data will differ for each Visa application being tested. The functionality of the Visa application must not be affected by personalization. Visa performs validation of the personalized on the submitted samples. If the samples are not personalized correctly, the vendor must provide replacement samples.

Samples must be from the same production batch.

Inlays for non-card products (Inlay and wearable) are treated the same as the card for the purposes of this section.

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Chip Card Testing & Approval Requirements

Table 2-4: Sample and Personalization requirements for Functional Testing

Form Factor	Type of Testing	Number of Samples	Personalization Requirements / Profile	Comments
Card (ID1 Card, Micro Tag, Sticker, Fob, Mini, Card, Inlay with static contactless chip)	Cross Testing	55	<p><b>For VCPS 2.1.3 or less:</b> 21_1152_v2*</p> <p><b>For VCPS 2.2.x:</b> 22_1152_v1*</p> <p><b>For VCPS 3.0:</b> 30_1408_v1 30_P256_v1</p>	<p>Send samples to Singapore location except Inlay, which goes to Foster City.</p> <p>*See Notes below this table</p>
Card (ID1 Card, Micro Tag, Sticker, Fob, Mini, Card, Inlay with static contactless chip)	Performance Testing	9 or 12**	<p><b>For VCPS 2.1.3 or less:</b> 21_1024_v2 21_1152_v2 21_1408_v2 21_1920_v2</p> <p><b>For VCPS 2.2.x:</b> 22_1024_v1 22_1152_v1 22_1408_v1 22_1920_v1</p> <p><b>For VCPS 3.0:</b> 30_1408_v1 30_1920_v1 30_P256_v1</p>	<p>Vendors are required to provide three samples of each profile.</p> <p>Send samples to Singapore location except Inlay, which goes to Foster City.</p> <p>**If key size 1920 is supported</p>
Card (Metal, Electronic Components, dCVV2)	Cross Testing	5	<p><b>For VCPS 2.1.3 or less:</b> 21_1152_v2*</p> <p><b>For VCPS 2.2.x:</b> 22_1152_v1*</p>	<p>Send samples to Singapore location.</p> <p>*See Notes below this table</p>

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Form Factor	Type of Testing	Number of Samples	Personalization Requirements / Profile	Comments
			<p><b>For VCPS 3.0:</b> 30_1408_v1 30_P256_v1</p>	
Card (Metal, Electronic Components, dCVV2)	Performance Testing	3 or 4**	<p><b>For VCPS 2.1.3 or less:</b> 21_1024_v2 21_1152_v2 21_1408_v2 21_1920_v2</p> <p><b>For VCPS 2.2.x:</b> 22_1024_v1 22_1152_v1 22_1408_v1 22_1920_v1</p> <p><b>For VCPS 3.0:</b> 30_1408_v1 30_1920_v1 30_P256_v1</p>	<p>Vendors are required to provide one sample of each profile.</p> <p>Send samples to Singapore location.</p> <p>**If key size 1920 is supported</p>
Card	Contact Level 1	Number depends on test requirements. Refer to test laboratory for guidance	<p><b>For VIS 1.5.4 or less:</b> VSDC01, VSDC11, VSDC12 or VSDC13  (VIS Card Images Requirements v1.5.4b)</p> <p><b>For VIS 1.6.1:</b> CT_L1 (VIS Contact L1 Test v1.6.1 R01)</p> <p><b>For VIS 3.0:</b> 30_YY_v1 (DI) 30_YN_v1 (Contact Only)</p>	Card Image files are included in the VIS test plan package

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Form Factor	Type of Testing	Number of Samples	Personalization Requirements / Profile	Comments
Any	Contactless Level 1	Number depends on test requirements. Refer to test laboratory for guidance	<p><b>For VCPS 2.1.3 or less:</b> VCPS_1_000 or VCPS_2_000 (VCPS Card Image Book 2 Part 1 v2.1.3b_R_01)</p> <p><b>For VCPS 2.2.x:</b> CTL_L1 (VCPS Contactless L1 Test v2.2 R01)</p> <p><b>For VIS 3.0:</b> 30_YY_v1 (DI) 30_NY_v1 (Contact Only)</p>	Card Image files are included in the VCPS test plan package
Card	Visa Smart Debit/Credit	Refer to the personalization requirements for the applicable VSDC test plan version.	Refer to the personalization requirements for the applicable VSDC test plan version.	
Any	Visa Contactless Payment	Refer to the personalization requirements for the applicable VCPS test plan version.	Refer to the personalization requirements for the applicable VCPS test plan version.	
Card	Static Native	Refer to the personalization requirements for the applicable VSDC/VCPS test plan version.	Refer to the personalization requirements for the applicable VSDC/VCPS test plan version.	

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Form Factor	Type of Testing	Number of Samples	Personalization Requirements / Profile	Comments
Any	GlobalPlatform	<p>Refer to the GlobalPlatform Test Card Preparation Requirements.</p> <p>Vendors can take the opportunity of Reduced Sample Testing, to reduce the number of test samples needed for a GlobalPlatform chip card product's approval. Refer to <a href="#">Reduced Sample Testing requirements</a></p>	Refer to the GlobalPlatform Test Card Preparation Requirements.	<p>Visa discourages extensions of the GlobalPlatform Application Programming Interface (API) and does not test extensions, if implemented.</p>
Non-card product with static contactless chip	Cross Testing	3	<p><b>For VCPS 2.1.3 or less:</b> 21_1152_v2*</p> <p><b>For VCPS 2.2.x:</b> 22_1152_v1*</p> <p><b>For VCPS 3.0:</b> 30_1408_v1 30_P256_v1</p>	<p>Send samples to Foster City location.</p> <p>Vendors may provide additional equipment for the purpose of holding the product at its preferred angle for testing, otherwise the default presentment shall be face down, parallel to the terminal landing plane.</p> <p>*See Notes below this table</p>

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Form Factor	Type of Testing	Number of Samples	Personalization Requirements / Profile	Comments
Non-card product with static contactless chip	Performance Testing	4	<p><b>For VCPS 2.1.3 or less:</b></p> <p>21_1024_v2 21_1152_v2 21_1408_v2 21_1920_v2</p> <p><b>For VCPS 2.2.x:</b></p> <p>22_1024_v1 22_1152_v1 22_1408_v1 22_1920_v1</p> <p><b>For VCPS 3.0:</b></p> <p>30_1408_v1 30_1920_v1 30_P256_v1</p>	<p>Vendors are required to provide one samples of each profile.</p> <p>Send samples to Foster City location.</p>
Card (Biometric)	Cross Testing	5	VBSS_XT_v1	<p>All samples with sensor.</p> <p>Send samples to Singapore location.</p>
Card (Biometric)	Performance Testing	8	<p>VBSS_1024_v1 VBSS_1152_v1 VBSS_1408_v1 VBSS_1920_v1</p>	<p>Vendors are required to provide two samples of each profile.</p> <p>All samples with sensor.</p> <p>Send samples to Singapore location.</p>

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Form Factor	Type of Testing	Number of Samples	Personalization Requirements / Profile	Comments
Card (Biometric)	Level 1 / Sensor Performance	3	Level 1/Sensor Performance***	<p>All samples with sensor.</p> <p>Send samples to Functional Test Laboratory.</p> <p>***7 samples are required if the samples are non-erasable</p>

**Notes:**

Vendors should always check and use the latest Card Images for Performance and Cross-testing on [VDPS](#) website. The current card image version for **VCPS 2.1.x products** is **v2** and **VCPS 2.2.x products** is **v1**. Samples for card image 1920 is required if the product or its base product supports this key size. The vendor shall indicate any limitations in the Chip Card Questionnaire (CCQ) if the product cannot meet this requirement.

### 2.6.3 Information Printed on Samples

The table below details the information printed on samples are mandatory for functional testing.

This information is optional for the Performance, Cross Testing and Archive samples.

**Table 2-5: Information printed on samples**

Form Factor	Information	Comment
Card	Product Reference Number Chip Model Number Contactless Interface Type (Type A or Type B) if applicable Transmission Protocol (T=0 or T=1) if applicable Unique Serial Number per card List of applications on the card (abbreviations are acceptable) Card Image Number – (not applicable for Reduced Sample Testing for GP cards supporting VIS 1.6.1 and VCPS 2.2)	Paste-on labels are not acceptable.  Test cards are not required to have a magnetic stripe for the testing process.
Non-card product: <ul style="list-style-type: none"> <li>• Inlay with static contactless chip</li> <li>• Wearable</li> </ul>	Product Reference Number Card Image Number The center point of the proximity payment antenna	Put the samples in individualized plastic bags labelled with profile.

### 2.6.4 QR Code Labels for Performance, Cross Testing and Archive Samples

The QR code label requirement is applicable to all Performance, Cross Testing and Archive samples for the following product form factors: ID1 Cards, Micro Tag, Fob, Sticker, Mini Card. The printed information detailed in section 2.6.3 is optional for Performance, Cross testing and Archive samples.

Each individual QR code label will contain and display the following information:

- Performance and Cross Testing Samples
  - Product Reference Number
  - Serial Number (example: 001)
  - Card Image Name (example: 22\_1152\_v1)
  - Test Type (XT for cross testing and PF for performance testing)
  - Contactless Protocol (Type A, Type B)

- Archive Samples
  - Product Reference Number
  - Serial Number (example: 068)
  - Card Image Name (example: 22\_YYYYY\_v1)
  - Test Type (AR for archive)
  - Contactless and/or Contact Protocol (A0, A1, B0, B1)

Upon testing authorization, Vendors can download the QR codes from the [VDPS](#) from within the product record (Log-in is required). The number of codes in each file is dependent on the quantity required for the card product. The package includes following:

- The PNG file contains .PNG image files that are customizable according to the Vendor's in-house label printer requirements.
- The PDF file is a ready-to-print 8.5" x 11" label template with 1"x1" QR code labels.
- A sample QR code label package is attached with this announcement. Vendors may use both file formats that are included for trial runs at their respective printing facility.

Vendors shall comply with the following requirements when using the QR code labels:

- Print the QR code on durable white matte or semi-gloss adhesive labels.
- Using transparent or printer/copy paper as labels is not acceptable.
- Alternatively, Vendors can also print the QR code directly on each sample. The QR code should be in black ink with white background.
- The text around the QR code should be clear and readable
- For ID1 size cards:
  - Place the QR code label on the back of the card as shown in Figure 1. Ideally, its position should be right in the center, but we can accept displacement of up to 10mm.
  - The size of the QR code should be between 18mm x 18mm to 25mm x 25mm

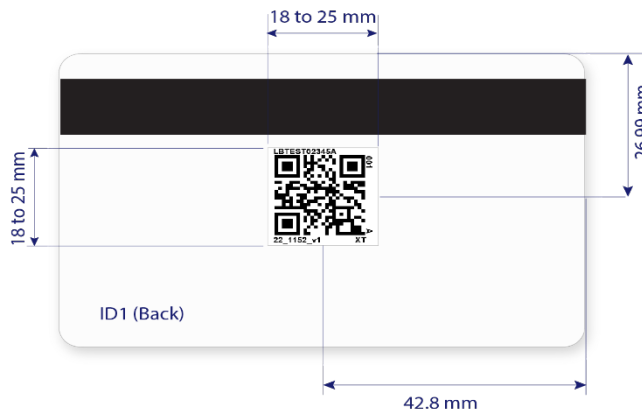


Figure 2-3: Positioning the QR code label on an ID1 card sample

- For non-ID1 size cards:
  - For Inlay with Static Contactless Chip or wearable, no QR code labels required / provided. Please proceed to put the samples in individualized plastic bags labelled with profile.
  - Otherwise, please contact Approval Services with details and physical dimensions of your product for further instructions.

Vendors can optionally generate their own QR codes and not use the labels provided during test authorization if the additional requirements below are met.

- QR codes are consistent with the product information declared in the questionnaire
- QR fields are separated by a semi-colon
- Example: "LBTEST02345A;001;22\_1152\_v1;XT;A"
- QR image resolution should be at least 200 dpi.
- Serial numbering of the samples should follow the format as shown in Table 2–4.
- Use Arial font for the text around the QR code. Please choose a font size that is easy and clear enough to read.

Vendors and Laboratories should contact Approval Service or use the Query Application if there are any question related to the personalization.

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### 2.6.5 Reduced Sample Testing requirements

Current test plans and test tools provide the opportunity to reduce the number of test samples needed for a GlobalPlatform chip card product's approval test cycle. This approach is called Reduced Sample testing.

Following are the eligibility requirements for using Reduced Sample Testing:

- i. Platform must be compliant to GlobalPlatform version 2.1.1
- ii. Platform must support dynamic JavaCard with garbage collection.
- iii. Product must use Visa-developed VSDC applet or vendor -developed applet that supports:
  - EMV® Card Personalization Specification version 1.1
  - VSDC Personalization Specification version 2.1 (for VIS 1.6 & VCPS 2.2)
- iv. Product must be developed to the following specifications:
  - Visa Integrated Circuit Card Specification (VIS) 1.6 UL1
  - Visa Contactless Payment Specification (VCPS) 2.2

For the specification-related criteria listed above, the version referenced is the minimum requirements (ie more recent versions also qualify for eligibility).

If the product meets all of the above criteria, then the Reduced Sample testing approach can be used. Instead of submitting a test sample image for each test case and the test plan, the card vendor may submit test samples as follows:

- Provide 90 samples to Visa-recognized test lab for testing
- The card samples must have the Visa payment applet loaded
- The card samples must be in OP\_SECURED state

VIS 1.6 UL1 and/or VCPS 2.2 products that do not meet eligibility requirements for Reduced Sample testing must continue to submit test sample images as specified by the test plan. However, these types of products still benefit from the personalization image scripts that are provided in XML format (that are easily imported into card vendor personalization tools).

Note that test plans for earlier version of VIS and VCPS (such as the VIS 1.5.4b and VCPS 2.1.3b) will continue to use the existing document-based approach for specifying personalization test images.

### 3 Test Reports Review and Approval Process

A product that supports more than one Visa payment application requires a full set of samples for each Visa payment application. For dual interface products, a full set of samples must be provided for each interface.

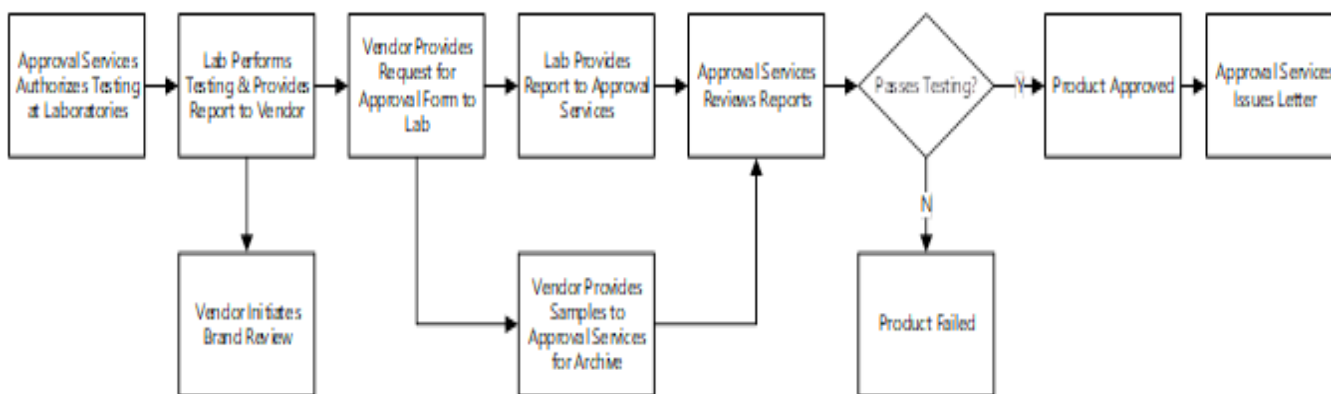


Figure 3-1: Report Review and Approval Process

#### Test Reports Review and Approval Process

1. Approval Services authorizes testing at laboratories.
2. Lab performs testing and provides the report to the vendor.
3. Vendor sends a request for approval form to the lab and sends archive samples in parallel.

4. Lab sends the report to Approval Services.
5. Approval Services reviews the report.
6. Is testing passed?
  - If Yes: Product is approved, and Approval Services issues a Letter of Approval.
  - If No: Product fails, and Approval Services notifies the vendor.

## 3.1 Test Results

When functional testing is complete, the Laboratory will provide the Vendor with a report outlining the test results. There are two possible outcomes from functional testing, pass or fail.

### 3.1.1 Product Fails Testing

In the instance where a product fails testing, the Laboratory will send a report to the Vendor identifying the reasons for the failures. If the Vendor intends to resubmit the product, the Vendor must do the following:

- Correct the discrepancies
- Submit a new questionnaire to Approval Services
- Prepare new versions of the forms
- Contact the Laboratories for a new test date
- Provide new samples for testing

### 3.1.2 Product Passes Testing

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

The Vendor determines whether it wishes to submit the results of application testing to Visa. If so, the Vendor completes and signs the Request for Approval if required. Refer to Section 2.3.

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.

## 3.2 Requesting an Approval

Visa will consider issuing a letter only for products that have successfully passed all testing at a Laboratory and that support Visa-defined applications.

Upon successful completion of official testing, the product will appear on the Visa Approved Products List located on [VDPS](#), unless the Vendor requests otherwise. Publication of wearables with static contactless chip is managed through the Visa Ready program using the [Visa Partner Portal](#) website.

**Note:** Vendors are required to submit ten (10) cards for archiving, whether testing was performed or a paper approval. The sample quantity and personalization are detailed in the table below.

Table 3-1: Quantity and personalization for archive samples

Form Factor	Interface Type	Number of Samples	Personalization (Choose one archive image if a range is provided)	Comment
Cards (including inlays)	Contact Only*	10	<p><b>VIS 1.5.4:</b> 15_YY_v1 to 15_NN_v1</p> <p><b>VIS 1.6.x:</b> 16_YYY_v1 to 16_NNN_v1</p> <p><b>VIS 3.0:</b> 30_YN_v1</p>	<p>Samples for archiving should be sent to Approval Services Foster City location.</p> <p><b>*If product supports both contact T=0/1, we require one set per protocol.</b></p>
Cards (including inlays)	Contactless Only	10	<p><b>VCPS 2.1.3:</b> 21_YYYY_v1 to 21_NNNN_v1</p> <p><b>VCPS 2.2.x:</b> 22_YYYYY_v1 to 22_NNNNN_v1</p> <p><b>VIS 3.0:</b> 30_NY_v1</p>	<p>Samples for archiving should be sent to Approval Services Foster City location.</p> <p><b>*If product supports both contact T=0/1, we require one set per protocol.</b></p>
Cards (including inlays)	Dual Interface*	10	<p><b>VCPS 2.1.3:</b> 21_YYYY_v1 to 21_NNNN_v1</p> <p><b>VCPS 2.2.x:</b> 22_YYYYY_v1 to 22_NNNNN_v1</p> <p><b>VIS 3.0:</b> 30_YY_v1</p>	<p>Samples for archiving should be sent to Approval Services Foster City location.</p> <p><b>*If product supports both contact T=0/1, we require one set per protocol.</b></p>
Cards (Metal, Electronic Components, or dCVV2)	Contact Only*	5	<p><b>VIS 1.5.4:</b> 15_YY_v1 to 15_NN_v1</p> <p><b>VIS 1.6.x:</b> 16_YYY_v1 to 16_NNN_v1</p> <p><b>VIS 3.0:</b> 30_YN_v1</p>	<p>Samples for archiving should be sent to Approval Services Foster City location</p> <p><b>*If product supports both contact T=0/1, we require one set per protocol.</b></p>

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Form Factor	Interface Type	Number of Samples	Personalization (Choose one archive image if a range is provided)	Comment
Cards (Metal, Electronic Components, or dCVV2)	Contactless Only	5	<p><b>VCPS 2.1.3:</b> 21_YYYY_v1 to 21_NNNN_v1</p> <p><b>VCPS 2.2.x:</b> 22_YYYY_v1 to 22_NNNNN_v1</p> <p><b>VIS 3.0:</b> 30_NY_v1</p>	<p>Samples for archiving should be sent to Approval Services Foster City location</p> <p><b>*If product supports both contact T=0/1, we require one set per protocol.</b></p>
Cards (Metal, Electronic Components, or dCVV2)	Dual Interface*	5	<p><b>VCPS 2.1.3:</b> 21_YYYY_v1 to 21_NNNN_v1</p> <p><b>VCPS 2.2.x:</b> 22_YYYY_v1 to 22_NNNNN_v1</p> <p><b>VIS 3.0:</b> 30_YY_v1</p>	<p>Samples for archiving should be sent to Approval Services Foster City location</p> <p><b>*If product supports both contact T=0/1, we require one set per protocol.</b></p>
Cards (Biometric)	Contact Only*	3	<p><b>VBSS 1.0.x:</b> Level 1/ Performance/Archive</p>	<p>All samples with sensor.</p> <p>Samples for archiving should be sent to Approval Services Foster City location</p> <p><b>*If product supports both contact T=0/1, we require one set per protocol.</b></p>
Cards (Biometric)	Contactless Only	3	<p><b>VBSS 1.0.x:</b> Level 1/ Performance/Archive</p>	<p>All samples with sensor.</p> <p>Samples for archiving should be sent to Approval Services Foster City location</p> <p><b>*If product supports both contact T=0/1, we require one set per protocol.</b></p>
Cards (Biometric)	Dual Interface*	3	<p><b>VBSS 1.0.x:</b> Level 1/ Performance/Archive</p>	<p>All samples with sensor.</p> <p>Samples for archiving should be sent to Approval Services Foster City location</p> <p><b>*If product supports both contact T=0/1, we require one set per protocol.</b></p>

Form Factor	Interface Type	Number of Samples	Personalization (Choose one archive image if a range is provided)	Comment
Non-card products with static contactless chip	Contactless Only	0	NA	Archive Samples not required

### 3.3 Product Approval

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

A Letter of Approval for a non-card form factor with a static contactless chip will be provided to the vendor once all requirements of the Visa Ready program have been met. Contact [VisaReadyDigitalPlat@visa.com](mailto:VisaReadyDigitalPlat@visa.com) to obtain the letter.

#### 3.3.1 Legal Conditions & Restrictions

The term “approval” is being used generically in this section to mean either the issuance of an approval letter or the issuance of a compliance letter.

Visa’s approval only applies to products that are identical to the product tested by Visa or one of Visa’s 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 letter of approval or letter of compliance. 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 product may state that they have the approval.

No product 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 or letter of compliance 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, 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 a letter of approval or letter of compliance 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 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. Approval granted by Visa does not supersede additional testing requirements as may be imposed by national testing bodies, financial institutions, network services providers, Visa Region Specific Requirements or other customers.

The issuance of an approval or compliance letter does not provide an allowance of the card construction per ISO 7810 & 7811-6, or the Visa Product Brand Standards, as required by Global Design & Innovation (Brand). Information regarding this separate and required qualification process can be found on the Visa Product Brand Standards website (Log-in to [Visa Online](#)) or by contacting [cardinnovation@visa.com](mailto:cardinnovation@visa.com).

## 3.4 Product Approval Period

This section describes the card lifecycle management policy for cards and non-card products with a static contactless chip.

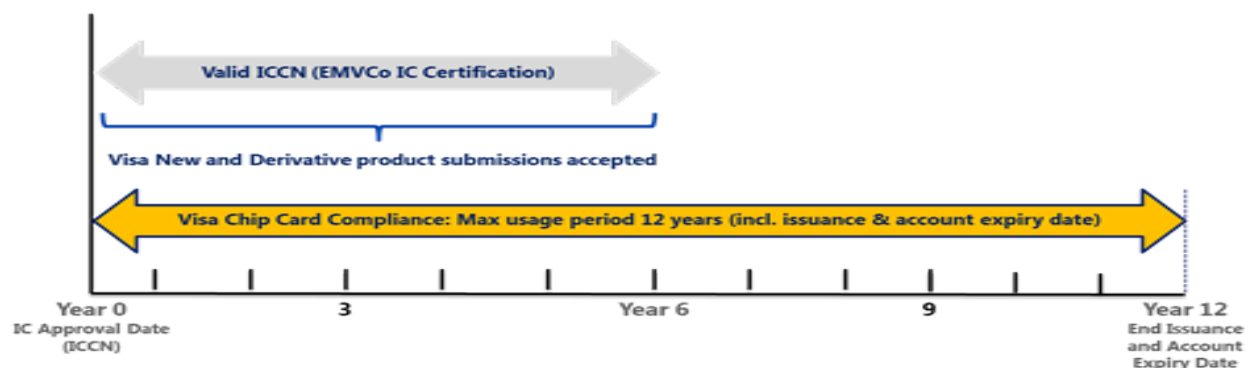


Figure 3-2: Card Lifecycle Management Policy

Upon approval, the usage date assigned on the product's letter will be based on the issue date of the underlying IC Certificate from EMVCo. The current approval period is replaced with a usage period covering the entire life of the product in the field. The usage date is defined as the IC Certificate issue date + 12 years. The vendor may sell the product at any time during its usage period. If the product is submitted on a newly certified IC's, the usage date timeframe will be shorter. Base and derivative product submissions may be submitted during the IC's certification period.

Products submitted as a base product will receive the usage date based on the underlying IC Certificate. Derivative products are tied to the parent product's usage date.

When the usage date of a product has been reached, the product will be removed from the Visa Approved Products List.

## 3.5 Global Design and Innovation Product Review & Qualification

The issuance of a letter by Approval Services does not provide an allowance of the card construction per ISO 7810 & 7811-6, or review against the Visa Product Brand Standards, as required by Global Design & Innovation (Brand). Information regarding this separate and required qualification process can be found on the Visa Product Brand Standards website (Log-in to Visa [Online](#)) or by contacting [cardinnovation@visa.com](mailto:cardinnovation@visa.com).

Appendix A – Revision History  
Chip Card Testing & Approval Requirements

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## A Appendix A – Revision History

Version	Date	Description
11.0	November 2024	Corrections, clarifications and updates Updated registration and licensing process, flow diagram for sub docs Added VSDC 3.0 and K8 Requirements
10.0	December 2023	Corrections, clarifications and updates Added Query Application and Knowledgebase Added New Card Image Personalization for Archive Samples and QR Labels Requirements Added LED Card Testing Requirements
9.0	June 2022	Corrections, clarifications and updates. Online questionnaire, QR Code can be downloaded from VDPS Updated Functional Testing and Archive Samples Updated on Contact Card Quadruple Speed Requirements
8.0	April 2021	Corrections, clarifications and updates. QR Code Personalization VBSS Requirements
7.1	December 2017	Clarification of memory sizes acceptance
7.0	July 2017	Corrections, clarifications and updates. Updated mailing address for Foster City location. Updated testing Card images for cross testing and performance testing
6.9	October 2016	Addition of content related to non-card products and inlays with a static contactless chip.
6.8	October 2016	Addition of references to Visa Brand Standards. New Sample Requirements for VIS 1.6.1 and VCPS 2.2. Added reference to Reduced Sample Testing for GP cards. New card images for VIS 1.6.1 and VCPS 2.2. Addition of dCVV2 card acceptance requirements.

Appendix A – Revision History  
Chip Card Testing & Approval Requirements

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<b>Version</b>	<b>Date</b>	<b>Description</b>
6.7	June 2016	Corrections, clarifications and updates. Updated mailing address for Singapore location.
6.6	December 2015	Cross-Testing Cards Added Appendix A: Revision History
6.5	December 2015	Cross-Testing Cards: Updated cross-testing cards and mailing address Cross-Testing: Added the performance testing card profiles Added the Card Lifecycle Management policy
6.4	October 2015	Added Cross-Testing information Moved the General Conditions & Exceptions section to the Renewal Policy section Appendix B: Added VCSP testing requirements

## B Appendix B – Testing Requirements

### B.1 Product Test Requirements

Derivative products must have a new name and/or versioning to indicate it is a different product from the original certified Visa product.

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#### B.1.1 Appendix Structure

This appendix lists the testing requirements for products. Products have been grouped into four categories:

- Static native platforms (including JavaCard-S and GP Closed Platform)
- GlobalPlatform
- Inlays for non-card products with static contactless chip / wearable
- Non-card products with static contactless chip
- VBSS

If a vendor wants to make a change that is not listed, contact [ApprovalServices@visa.com](mailto:ApprovalServices@visa.com) to determine which process may be utilized.

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#### B.1.2 Limits to Change Process

A change to ROM is considered a new submission and full testing is required.

Vendors that have received a letter from Approval Services identifying issues in the specification deviation/comments sections may not use this process to make changes to a product. Vendors must correct the issue(s) identified in the Letter before submitting the next version of the product for testing.

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#### B.1.3 Paper Approval Process

No functional or security testing is required.

Samples must be provided to Approval Services for archiving. Refer to Section 2.6.4 for QR code labels.

Exhibit A – Request for Testing Services form must be completed, signed and provided to Approval Services if the vendor has not executed a version of the ASTA that is May 2018 or newer.

## B.2 Product Test Requirements - Static Native, Base Product

Table B.2-2: Product Test Requirements – Static Native for Base Product

#	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comment
1	Full	N/A	Full	N/A	IAL	Contact Only One contact protocol supported
2	Full Electrical (on one protocol) Full Protocol (T=0 and T=1)	N/A	Full (On one protocol) VIS Transaction (on the other protocol)	N/A	IAL	Contact Only Both contact protocol supported
3	N/A	Full	Full	Full	IAL	Contactless Only
4	Full	Full	Full	Full	IAL	Dual Interface One contact protocol supported
5	Full Electrical (on one protocol) Full Protocol (T=0 and T=1)	Full	Full (On one protocol) VIS/VCPS Transaction (on the other protocol)	Full	IAL	Dual Interface Both contact protocol supported

## B.3 Product Test Requirements - Static Native, Changes/Derivatives

Below is a list of acceptable changes for a Static Native Base Product. 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. Changes to the ROM mask are treated as a base product.

**Table B.2-3: Product Test Requirements – Static Native for Changes/Derivative**

#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comments
6	Contact Protocol	Full Protocol	N/A	VIS Transaction	N/A	IAL	Contact only product
7	Contact Protocol	Full Protocol	Full Digital	VIS/VCPS Transaction	None	IAL	Dual interface product
8	Contactless Type	Full Protocol	Full	VIS/VCPS Transaction	Full	IAL	Dual interface product
9	Contactless Type	None	Full	VCPS Transaction	Full	IAL	Contactless only product
10	VIS Application Change	None	None	Full VIS	None	IAL	Level 1 components not affected
11	VCPS Application Change	None	None	Full VCPS	Selected	IAL	Level 1 components not affected
12	Contact L1 Firmware	Full Protocol	None	VIS Transaction	None	IAL	Level 2 components not affected. Contact Only
13	Contactless L1 Firmware	None	Full Digital	VCPS Transaction	Selected	IAL	Level 2 components not affected. Contactless Only
14	L1 Firmware	Full Protocol	Full Digital	VIS and VCPS Transactions	Selected	IAL	Dual interface L2 components not affected

Appendix B – Testing Requirements  
Chip Card Testing & Approval Requirements

#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comments
15	Add or Update Proprietary Application	None	None	Regression or Full*	Performance	IAL	*if proprietary app interacts with Visa payment app or app not in Flash.
16	Antenna / Inlay	None	Full Analog	VCPS Transaction	Full	None	Size or shape, material, connection technology, layout changes
17	Chip Module	None	None* or Full Analog	None* or VCPS Transaction	None* or Full	None	Dual Interface product or Contactless only product  *None if 8/6 pin change only
18	Embedder	None	None	None	None	None	Paper approval
19	Plastics*	None	None	None	None	None	Paper approval *product submission is optional
20	Card body changes to foil or metal layer	None	Full Analog	VCPS Transaction	Full	None	Depends on materials.
21	Remove Contact Plate	None	None	None	None	None	Paper approval
22	Remove Antenna	None	None	None	None	None	Paper approval
23	Add Contact Plate	Full	Full Analog	Full VIS	None	IAL* or None**	*if contact interface was not in scope in base product or if any change in firmware/software  **Otherwise, no need for IAL

Appendix B – Testing Requirements  
Chip Card Testing & Approval Requirements

#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comments
24	Change Contact Plate	None*	None* or Full Analog	Non e* or VIS/VCPS Transactions	None* or Full	None	Size or shape  *if change from gold/silver material only
25	Add Antenna	None	Full	Full VCPS	Full	IAL* or None**	*if contactless interface was not in scope in base product or if any change in firmware/software  **Otherwise, no need for IAL
26	Adding dCVV2	None	Full* or None	Regression VCPS and/or VIS** or None	Full*	IAL or None***	*if contactless interface  **if data sharing or interaction with dCVV2 and Visa app or their ICs  ***if the exact dCVV2 components were evaluated previously (even for other product) with security report less than 2-year-old
27	Contact ATR Speed	Full Protocol	None	VIS Transaction	None	None	
28	Visa-developed payment applet swap	None	None	Full	Performance	None or IAL*	*depending on the applet version. To be confirmed with Approval Services

Appendix B – Testing Requirements  
Chip Card Testing & Approval Requirements

#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comments
29	Vendor developed payment applet update	None	None	Full	Full	IAL	
30	Add LED(s)	None	Full Analog	VCPS Transaction	Full	None	LED(s) in fixed position.
31	Add LED(s) that can reposition within a defined card area	None	Full Analog (LED)*	VCPS Transaction	Full	None	* Analog (LED) test report will include the actual values measured in the test results rather than simply indicate PASS or FAIL verdicts.  Note: LED antenna in fixed position.
32	Add LED antenna that can reposition within a defined card area	None	Full Analog (LED)*	VCPS Transaction	Full	None	* Analog (LED) test report will include the actual values measured in the test results rather than simply indicate PASS or FAIL verdicts.  Note: LED(s) in fixed position.

## B.4 Product Test Requirements – GlobalPlatform, Base Product

The list in this section defines the base product requirements for products submitted on a GP platform. GlobalPlatform manages the platform functional testing for GP platforms.

Refer to the [GlobalPlatform website](#) to understand its process.

Table B.2-4: Product Test Requirements – GlobalPlatform for Base Product

#	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comments
1	Full	N/A	Full	N/A	IAL	Contact Only Using a previously approved Visa applet in ROM.
2	N/A	Full	Full	Full	IAL	Contactless Only Using a previously approved Visa applet in ROM.
3	Full	Full	Full	Full	IAL	Dual Interface Using a previously approved Visa applet in ROM.

## B.5 Product Test Requirements – GlobalPlatform, Changes/Derivatives

Below is a list of acceptable changes for a GP Base Product. 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, it should contact Approval Services to determine which process the Vendor may utilize. Changes to the ROM mask will require full functional testing.

**Table B.2-5: Product Test Requirements – GlobalPlatform for Changes/Derivative**

#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comments
4	Contact Protocol	Full Protocol	N/A	VIS Transaction	N/A	IAL	Contact only product
5	Contact Protocol	Full Protocol	Full Digital	VIS/VCPS Transaction	None	IAL	Dual interface product
6	Contactless Type	Full Protocol	Full	VIS/VCPS Transaction	Full	IAL	Dual interface product
7	Contactless Type	None	Full	VCPS Transaction	Full	IAL	Contactless only product
8	Add Approved Applet to EEPROM	None	None	VIS and/or VCPS Regression	Selected	IAL	
9	Antenna / Inlay	None	Full Analog	VCPS Transaction	Full	None	Size or shape, material, layout changes
10	Chip Module	None	None* or Full Analog	None* or VCPS Transaction	Depends on Analog results	None	Dual Interface product or Contactless only product  *None if 8/6 pin change only
11	Embedder	None	None	None	None	None	Paper approval

Appendix B – Testing Requirements  
Chip Card Testing & Approval Requirements

#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comments
12	Plastics	None	None	None	None	None	Paper approval *product submission is optional
13	Card body materials changes to foil or metal layer	None	Full Analog	VCPS Transaction	Full	None	Depends on material
14	Remove Contact Plate	None	None	None	None	None	Paper approval
15	Add Contact Plate	Full	Full Analog	VCPS Transaction  VIS Transaction**  or  Full VIS*	None	IAL** or None***	*if not Visa Applet.  **if contact interface was not in scope in base product or if any change in firmware/software  ***Otherwise, no need for IAL
16	Remove Antenna	None	None	None	None	None	Paper approval
17	Add Antenna	None	Full	Full VCPS	Full	IAL* or None**	*if contactless interface was not in scope in base product or if any change in firmware/software  **Otherwise, no need for IAL

Appendix B – Testing Requirements  
Chip Card Testing & Approval Requirements

#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comments
18	Adding dCVV2	None	Full* or None	Regression VCPS and/or VIS** or None	Full*	IAL or None***	*if contactless interface.  **if data sharing or interaction with dCVV2 and Visa app or their ICs.  ***if the exact dCVV2 components were evaluated previously (even for other product) with security report less than 2-year-old
19	VIS Application Change	None	None	Full VIS	None	IAL	Level 1 components not affected
20	VCPS Application Change	None	None	Full VCPS	Selected	IAL	Level 1 components not affected
21	Add or Update Proprietary Application	None	None	None or Full*	None or Performance*	IAL	*if proprietary app interacts with Visa payment app or app not in Flash
22	Add LED(s)	None	Full Analog	VCPS Transaction	Full	None	LED(s) in fixed position.
23	Add LED(s) that can reposition within a defined card area	None	Full Analog (LED)*	VCPS Transaction	Full	None	*Analog (LED) test report will include the actual values measured in the test results rather than simply indicate PASS or FAIL verdicts.  Note: LED antenna in fixed position.

Appendix B – Testing Requirements  
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#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comments
24	Add LED antenna that can reposition within a defined card area	None	Full Analog (LED)*	VCPS Transaction	Full	None	*Analog (LED) test report will include the actual values measured in the test results rather than simply indicate PASS or FAIL verdicts.  Note: LED(s) in fixed position.

## B.6 Product Test Requirements – Inlays for non-card products with static contactless chip, Base Product

Table B.2-6: Product Test Requirements – Inlay for non-card products with static contactless chip for Base Product

#	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comments
1	Full	Full	Full	IAL	Static Native Platform, Contactless Only – no leveraging from an approved product
2	Full	Full	Full	IAL	GlobalPlatform Platform, Contactless Only – no leveraging from an approved product Visa approved applet in ROM
3	Full Analog	None	Full	None	Static Native or GlobalPlatform Platform, Contactless Only – leveraging from an approved product Antenna different from approved product

## B.7 Product Test Requirements - Inlays for non-card products with static contactless chip, Changes/Derivatives

Below is a list of acceptable changes for an inlay. 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, it should contact Approval Services to determine which process the Vendor may utilize.

**Table B.2-7: Product Test Requirements – Inlay for non-card products with static contactless chip for Changes/Derivatives**

#	Change / Derivation	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comments
4	Contactless Type	Full	None	Selected	IAL	
5	Contactless L1 Firmware	Full or Full Digital*	VCPS Transaction	Selected	IAL	Level 2 components not affected.  *depends on the change
6	Antenna	Full Analog	None	Selected	None	New design or materials
7	Different Antenna Manufacturer or Manufacturing Site	Full Analog*	None	Selected*	None	Design and materials are unchanged.  *if approved, additional presentments do not need testing.
8	Inlay Size or Shape	Full Analog*	None	Selected*	None	*if RF performance may be affected
9	Embedder	None	None	None	None	Paper approval
10	Materials	Full Analog*	None	Full*	None	*if materials have metallic composition

## B.8 Product Test Requirements – Non-card products with static contactless chip, Base Product

Table B.2-8: Product Test Requirements – Non-card products with static contactless chip for Base Product

#	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comments
1	Full	Full VCPS	Full	IAL	Static Native Platform, Contactless Only – no leveraging from an approved product
2	Full	Full	Full	IAL	GlobalPlatform Platform, Contactless Only – no leveraging from an approved product Visa approved applet in ROM
3	Full Analog	None	Full	IAL*	Static Native or GlobalPlatform Platform, Contactless Only – leveraging from an approved card product  *only if other electronic component/s exist in the product (e.g. additional MCU, display, etc.). Otherwise, no IAL is required.
4	Full Analog or None	None	Full or Selected or None	None	Static Native or GlobalPlatform Platform, Contactless Only – using a compliant inlay  Testing Requirements will vary, dependent on changes in size, shape or materials from the Inlay that may impact RF performance of the final product.

## B.9 Product Test Requirements – Non-card products with static contactless chip, Changes/Derivatives

Below is a list of acceptable changes/derivatives to a base product. 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, it should contact Approval Services to determine which process the Vendor may utilize.

**Table B.2-9: Product Test Requirements – Non-card products with static contactless chip for Changes/Derivatives**

#	Change / Derivation	Contactless L1 Testing	Application Testing	Cross Testing	Security	Comments
5	Size and/or Shape of Product	Full Analog	VCPS Transaction	VCPS Transaction	None	Change impacts thickness or distance of antenna from surface. Testing dependent on differences.
6	Materials	Full Analog*	VCPS Transaction	VCPS Transaction	None	*if materials have metallic composition

## B.10 Product Test Requirements – VBSS, Base Product

Table B.2-10: Product Test Requirements – VBSS for Base Product

#	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Sensor Performance Testing	Security	Comments
1	Full	N/A	Full VIS/VBSS	N/A	Full	IAL	Contact Only
2	N/A	Full	Full VCPS/VBSS	Full	Full	IAL	Contactless Only
3	Full	Full	Full VIS/VCPS/VBSS	Full	Full	IAL	Dual Interface

## B.11 Product Test Requirements – VBSS compliant products, Changes/Derivatives

This section defines the testing requirements for VBSS compliant products and it’s derivatives. The list below is not exhaustive. If a Vendor wants to make a change that is not listed below, they should contact Approval Services.

Table B.2-11: Product Test Requirements – VBSS for Changes/Derivatives

#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Sensor Performance Testing	Security	Comments
4	Contactless Type	Full Protocol	Full	Full VBSS	Full	ISO Analog Timing Performance + Matching Performance (FAR/FRR)	IAL	Dual interface product
5	Contactless Type	None	Full	Full VBSS	Full	ISO Analog Timing Performance + Matching Performance (FAR/FRR)	IAL	Contactless only product
6	VIS Application Change	None	None	Full VBSS	None	None	IAL	Level 1 components not affected
7	VCPS Application Change	None	None	Full VBSS	Performance	ISO Analog Timing Performance	IAL	Level 1 components not affected
8	Contact L1 Firmware	Full Protocol	None	Full VBSS	None	None	IAL	Level 2 components not affected. Contact Only
9	Contactless L1 Firmware	None	Full Digital	Full VBSS	Full	ISO Analog Timing Performance	IAL	Level 2 components not affected. Contactless Only

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#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Sensor Performance Testing	Security	Comments
10	L1 Firmware	Full Protocol	Full Digital	Full VBSS	Full	ISO Analog Timing Performance	IAL	Dual interface L2 components not affected
11	Add or update Proprietary Application	None	None	None or Full VBSS*	None	Sensor characteristics + ISO Analog Timing Performance or Full*	IAL	*if proprietary app interacts with Visa payment app or app not in Flash.
12	Antenna / Inlay	None	Full Analog	Full VBSS	Full	Sensor characteristics + ISO Analog Timing Performance or Full*	None	size or shape, material, connection technology, layout changes *if noticeable difference on sensor characteristic on Card.
13	Chip Module	None	None* or Full Analog	Full VBSS	None	Sensor characteristics + ISO Analog Timing Performance or Full**	None	Dual Interface product or Contactless only product *if 8/6 pin change only **if noticeable difference on sensor characteristic.

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Chip Card Testing & Approval Requirements

#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Sensor Performance Testing	Security	Comments
14	Materials *card body materials	None	Full Analog	None	Full	Sensor characteristics + ISO Analog Timing Performance or Full*	None	Depends on materials. e.g. Add foil or metal layer *if noticeable difference on sensor characteristic.
15	Remove Contact Plate	None	None	Full VBSS	None	Sensor characteristics or Full*	None	*if noticeable difference on sensor characteristic.
16	Remove Antenna	None	None	Full VBSS	None	Sensor characteristics or Full*	None	*if noticeable difference on sensor characteristic.
17	Add Contact Plate	Full	Full Analog	Full VBSS	Full	Sensor characteristics + ISO Analog Timing Performance or Full*	IAL** or None***	*if noticeable difference on sensor characteristic.  **if contact interface was not in scope in base product or if any change in firmware/software  ***Otherwise, no need for IAL

Appendix B – Testing Requirements  
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#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Sensor Performance Testing	Security	Comments
18	Add Antenna	None	Full	Full VBSS	Full	Full	IAL* or None**	*if contactless interface was not in scope in base product or if any change in firmware/software  **Otherwise, no need for IAL
19	Matching Algorithm (Sensor manufacturer/Vendor)	None	None	Full VBSS	None	ISO Analog Timing Performance + Matching Performance (FAR/FRR) + Spoofing	IAL	
20	Acquisition Algorithm (template extraction)	None	None	Full VBSS	None	Full	IAL	
21	Biometric Applet	None	None	Full VBSS	None	ISO Analog Timing Performance + Matching Performance (FAR/FRR) + Spoofing	IAL	

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#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Sensor Performance Testing	Security	Comments
22	Sensor change or modification (including coating)	None	None	Full VBSS	None	Full	IAL* or None**	*if with changes in any component firmware/SW  **if purely physical change
23	Enrollment Sensor (if different from Sensor from VBSS product) Probably not accepted / Tending to disappear due to lack of acceptance and potentially poor results	None	None	Full VBSS	None	Full	IAL* or None**	*if with changes in any component firmware/SW  **if purely physical change
24	Any Hardware change of the card product not listed previously	None	None	Full VBSS	Full*	Sensor characteristics or Full*	IAL** or None***	*if noticeable difference  **if with changes in any component firmware/SW  ***if purely physical change

Appendix B – Testing Requirements  
Chip Card Testing & Approval Requirements

#	Change / Derivation	Contact L1 Testing	Contactless L1 Testing	Application Testing	Cross Testing	Sensor Performance Testing	Security	Comments
25	OS Update Card	Full	Full	Full VBSS	Full	Sensor characteristics or Full*	IAL	*if noticeable difference
26	Secure Software modules (White box modules for biometry) [Related to Matching and acquisition Algorithm]	None	None	Full VBSS	None	Full	IAL	
27	MCU Change [Related to Matching and acquisition Algorithm]	None	None	Full VBSS	None	Full	IAL	

## Acronyms and Glossary

This appendix defined selected terms used in this document.

Approval	A generic term meaning the issuance of a letter of approval or letter of compliance
ASTA	Approval Services Testing Agreement. A contract legally binding arrangement between vendor and visa
Chip Supplier	The entity that manufactures the silicon chip
CCQ	Chip Card / Product Questionnaire. A form fill up by vendor for product submitted for testing and approval
Dual Interface	That which supports both contact and contactless payment
EMVCo (EMV)	EMVCo, LLC is an association of payment systems that manage, maintain, and enhance the EMV® specifications
IC	Integrated Chip
ICCN	IC Certificate Number (issued by EMVCo)
ICS	Implementation Conformance Statement. A form providing detailed technical information regarding the Visa payment application, platform, or interface
Inlay	A functional component that is made to be embedded into a non-card product with a static contactless chip. Typically consisting of a contactless chip and antenna, e.g. a wearable wristband
IoT	Internet of Things
K8	A contactless application path to communicate with terminals that support EMV Kernel 8.
LoA	Letter of Approval. A formal letter issue for product successfully passes all required testing
MSD	Magnetic Stripe Data, a Visa payment application for contactless cards

Official Testing	In the context of this document, refers to testing conducted by a Visa-Recognized Laboratory with the intention of obtaining Visa approval of a chip card product
Product Manufacturer	The entity that offers the final tested and approved product to the financial institution
QA	A generic term meaning quality assurance
qVSDC	Quick VSDC, a Visa payment application for contactless products
Static Native	A chip card that was not developed to GlobalPlatform requirements
VIS	Visa Integrated Circuit Card Specification, which provides the technical details of chip card and terminal functionality, related to VSDC payment transactions.
VBSS	Visa Biometric Sensor-on-Card Specification, provides technical details of cards with a fingerprint sensor.
VCSP	Visa Chip Security Program, defines the process and requirements of security
VDPS	Visa Digital Partner Services. A platform for vendor doing business with Visa
VOL	Visa Online - A platform for vendor doing business with Visa
VSDC	Visa Smart Debit/Credit.
VTF	Visa Reference Number / Product Reference Number
VTP	Visa Technology Partner. A website that facilitates the vendor registration process become an authorized partner / vendor
Visa Recognized Laboratory	A Laboratory that is recognized by Visa to test products in preparation for approval by Visa.