EMV Level 3 Contactless Certification Recommended Solutions to Reduce Deployment Time

Version 1.0

Publication Date: June 2019

About the U.S. Payments Forum

The U.S. Payments Forum, formerly the EMV Migration Forum, is a cross-industry body focused on supporting the introduction and implementation of EMV chip and other new and emerging technologies that protect the security of, and enhance opportunities for payment transactions within the United States. The Forum is the only non-profit organization whose membership includes the entire payments ecosystem, ensuring that all stakeholders have the opportunity to coordinate, cooperate on, and have a voice in the future of the U.S. payments industry. Additional information can be found at http://www.uspaymentsforum.org.

EMV is a trademark owned by EMVCo LLC.

Table of Contents

1. Introduction

The U.S. Payments Forum Testing and Certification Working Committee has identified possible testing and certification challenges to implementation and deployment of Level 3 (L3) certified contactless implementations for merchants. This white paper describes these challenges and opportunities to address them, and proposes possible solutions.

The white paper assumes knowledge of the EMV testing and certification process and terminology. The following are recommended resources for additional information.

U.S. Payments Forum

- "EMV Testing and Certification White Paper: Current Global Payment Network Requirements for the U.S. Acquiring Community"[1]
- "Testing & Certification Terminology"[2]
- "Mobile and Contactless Payments Glossary"[3]

EMVCo

- "EMVCo L3 Framework Implementation Guidelines"[4]
- "EMVCo Terminal L3 Pseudo Function Definitions[5]
- L3: Please refer to EMVCo's bulletin[6] and FAQ.[7]

---

[1] https://www.uspaymentsforum.org/emv-testing-and-certification-white-paper-current-global-payment-network-requirements-for-the-u-s-acquiring-community/

[2] https://www.uspaymentsforum.org/testing-certification-terminology/

[3] https://www.uspaymentsforum.org/mobile-and-contactless-payments-glossary/

[4] https://www.emvco.com/wp-content/plugins/pmpro-customizations/oy-getfile.php?u=/wp-content/uploads/documents/EMVCo_Level3_Framework_Implementation_Guidelines_V_1_1_20190411.pdf

[5] https://www.emvco.com/wp-content/plugins/pmpro-customizations/oy-getfile.php?u=/wp-content/uploads/documents/EMVCo_Terminal_L3_Pseudo_Function_Definitions_v1.4_20190411.pdf

[6] Terminal Integration Bulletin No. 001, "Formal Adoption of Level 3," First Edition, March 2015, https://www.emvco.com/terms-of-use/?u=wp-content/uploads/documents/TIB-001-Formal_Adoption_of_Level_3_20150318045356884.pdf

[7] "EMVCo Level 3 Testing Frequently Asked Questions (FAQ)," https://www.emvco.com/wp-content/uploads/2017/08/EMVCo-Level-3-QA_FINAL_14-August-2017.pdf

2. White Paper Scope

Contactless implementations that fall into the categories below are likely to require full testing and certification with the acquirer:

- Device has not been previously certified for chip (Faster or traditional "full flow" EMV).
- Device is changing acquirer host platforms with a different payment application and message format.
- Device is changing Level 2 (L2) configurations and is not part of the same terminal family as previously certified.
- Device is changing kernel versions, unless reviewed and approved (based on the EMVCo Bulletin 11[8]).

These scenarios are out of scope for this white paper.

2.1 Identified Challenges and Opportunities and White Paper Scope

This section outlines the testing and certification challenges identified and opportunities that may help to address them. The section also notes whether it was considered in scope or out of scope for this white paper. Each in-scope challenge is discussed in more depth in Sections 3 through 7.

2.1.1 Challenge #1

Challenge: Merchant-to-acquirer forms contain inconsistent formatting and terminology.

Opportunity:

- Define a standardized form, in a machine-readable format, such as XML, that acquirers may adopt to provide consistent format and content across the various payment network forms. Standardized forms could be completed by merchants/vendors and would need to be consistent with payment network forms.
- Within each form to be completed by the merchant and/or vendor, add a line for the L2 configuration to be certified, if not already present.
- If the L2 configuration was identified on payment network intake forms, the need to complete the items covered by the configuration would be unnecessary. Any deviation from the identified configuration could be noted on the intake form itself.
- Recommend a normalized naming convention to be used within the forms.

Scope: Proposing specific forms to address this challenge is beyond the scope of this paper. However, the working group does acknowledge the need for a standardized intake form in a machine-readable format and plans to address it during this year. Recommendations for modifications to those forms would have to be undertaken by the Testing and Certification Working Committee and presented to EMVCo for consideration, leveraging any work accomplished by EMVCo's L3 testing task group.

---

[8] EMV® Terminal Type Approval Bulletin No. 11, "Major and Minor Change Definitions," Ninth Edition, April 2019, Minor Change Definitions, Ninth Edition, April 2019, https://www.emvco.com/wp-content/uploads/documents/TTA_Bulletin_No_11_Major_Minor_Change_Definitions_9th-ed_190405_Cata.pdf

Opportunity: Reiterate communication of "family certifications." Each family only requires one intake form. Differences between one model and another are based on the individual kernel configuration.

    Scope: In scope. This item is addressed in the body of this document.

2.1.2 Challenge #2

Regardless of implementation scope for contactless, a full contactless L3 certification is required.

Opportunity: Define a regression testing process and related criteria, in order to help reduce time spent in certification and, as a result, help decrease burdens on the entities involved with certification and field deployment bottlenecks.

    Scope: In scope. This item is addressed in the body of this document.

2.1.3 Challenge #3

Certification data validation is currently scoped to full implementation of EMV, instead of scoped for contactless-only feature implementation.

Opportunity: Define a regression testing process and related criteria, in order to help reduce time spent in certification and, as a result, help decrease burdens on the entities involved with certification and field deployment bottlenecks.

    Scope: In scope. This item is addressed in the body of this document.

Opportunity: Validation guidance should identify the requirements between the site system and acquirer. This helps put focus on the critical elements of validation – the terminal interaction with the card and the acquirer.

- Outline the EMV contactless impact within the validation guidance.
- Identify the EMV contactless tags, flows, and conditions that are of concern with the implementation of contactless.
- The requirements and impact assessment in the validation guidance can be structured to provide the validation tools and the test cases that are necessary to generate the critical EMV contactless tags for completion.

    Scope: In scope. This item is addressed in the body of this document.

2.1.4 Challenge #4

Certification setup and execution require testing authority step-by-step oversight.

Opportunity: The requirements for testing can be streamlined by defining the processes of the 'unattended test,' and when such testing can be applied as a 'regression' test or targeted test. This will also help reduce burdens on validation resources by defining an established process for performing such a test.

    Scope: In scope. This item is addressed in the body of this document.

2.1.5 Challenge #5

Contactless kernel L2 acceptance timeframe is inconsistent with contact kernels.

Opportunity: Bring the L2 certification timeline in line with contact requirements, four years plus one-year grace period.

Scope: In scope. This item is addressed in the body of this document.

Opportunity: With the maturity of the EMV specification, explore possibility of increasing L2 certifications past the four-year-plus-one-year timeframe.

Scope: Out of scope. EMVCo L1 and L2 certification timelines are set by EMVCo.

2.1.6 Challenge #6

L3 Letter of Approval detail is inconsistent between payment networks and it can be difficult to understand the scope of the certification.

Opportunity: Define a standardized form that acquirers and payment networks may adopt that provides a consistent format and quality of information.

Scope: In scope. This item is addressed in the body of this document.

Opportunity: The form should identify:

- The device tested, using standard language easily matched to other repositories such as the L1/L2 database
- The test plan(s) used, including version number
- The types of transactions tested and supported
- The cardholder verification methods (CVMs) supported
- Inclusion in a family certification, if appropriate
- Any waivers, exceptions, or restrictions associated with certification

Scope: In scope. This item is addressed in the body of this document.

3. Challenge #1: Inconsistent Formatting and Terminology in Merchant-to-Acquirer Forms

For terminal family certifications and forms, a single form is required per family. For any clarification of a terminal family, see the U.S. Payments Forum published resource "EMV Testing and Certification White Paper: Current Global Payment Network Requirements for the U.S. Acquiring Community."

Terminology and recommendations for form formatting can be found in the resources listed in Section 1.

4. Challenges #2 and #3: L3 Contactless Terminal Testing Requirements

Every global payment network has its own certification requirements for contact and contactless chip terminals, which the terminal must fulfill before being deployed. These testing and certification requirements may differ among global payment networks and are also based on the specifics of the terminal deployment. For additional information, refer to the U.S. Payments Forum resource, "EMV Testing and Certification White Paper: Current Global Payment Network Requirements for the U.S. Acquiring Community."[9]

For terminals that are already certified for contact EMV processing and are adding contactless functionality, each global payment network has its own testing requirements and processes to reduce the time to complete L3 certification and testing. Table 1 includes details for each global payment network.

Table 1. Global Payment Network Testing Requirements: Addition of Contactless Functionality to a Terminal

Global Payment Network	L3 Terminal Testing Requirements: Adding Contactless EMV to a Terminal Previously Certified for Contact EMV
American Express	Official testing required. Required test cases determined based on the scope.
China UnionPay	Official testing required. Required test cases determined based on the scope.
Discover* *Includes JCB	Official testing required. Required test cases determined based on the scope.
Mastercard	Official testing required. Required test cases determined based on the scope.
Visa	Visa does not require a complete formal L3 contactless chip terminal certification with Visa and the acquirer/processor when adding qVSDC to a terminal device that has been previously certified for contact chip. Please refer to Visa U.S. EMV Chip Terminal Testing Requirements[10] for details regarding Visa's U.S. acquirer streamlined L3 contactless certification process.

Note: As a reminder, magnetic stripe testing is out of scope for L3 terminal device implementation testing.

---

[9] https://www.uspaymentsforum.org/emv-testing-and-certification-white-paper-current-global-payment-network-requirements-for-the-u-s-acquiring-community/

[10] https://technologypartner.visa.com/Download.aspx?id=407

5. Challenge #4: Testing Authority Step-by-Step Oversight Required for Certification Setup and Execution

Another challenge within the U.S. payments industry is the difficulty of scheduling testing and certification slots. Manual setup or intervention requirements to conduct certification testing may cause certification queues.

In order to help address this challenge, acquirers and parties providing L3 testing solutions may wish to consider implementing automated solutions that require no or minimal manual setup and intervention during and after the testing process. Full automation likely will enable merchants or entities conducting testing to perform certification testing on demand, as soon as the solution is ready to be tested, helping to minimize scheduling delays. Acquirers already provide different levels of automation. Maximizing these acquirer capabilities may assist the ecosystem in increasing speed of implementation.

Acquirers generally require a certification analyst be assigned to certification projects. The certification analyst establishes the initial setup of the client and populates the various intake forms with the correct information based on individual host capabilities. Automation of the validation of test runs is offered by some acquirers through the use of web-based tools, where clients can review their transactions without human interaction to determine which passed and which failed. Further automation efforts may be possible to provide robotic automation for certification of physical testing. Due to current regulatory and industry requirements (e.g., for Know Your Customer and underwriting), a truly automated solution for onboarding a client from initial registration through production is not available.

6. Challenge #5: Inconsistent Timeline for Contactless Kernel L2 Acceptance vs. Contact Kernels

L1/L2 expiration for contact kernels is four years. The current expiration timeframes for contactless kernels is provided in Table 2.

Table 2. Contactless Kernel Expiration

Contactless Authority	Contactless Product Names	Expiration Period
EMVCo	Common Core	3 years
American Express	ExpressPay	3 years
Discover	DPAS Contactless	3 years, plus up to three 1-year extensions
Mastercard	Mastercard Contactless	3 years
Visa	Visa Contactless Payment Specification (VCPS)	A contactless Level 2 letter of approval provided by Visa has a 4-year life-cycle and can be renewed for another 4 years if eligible for renewal.
UnionPay	Quick Pass	3 years plus 3-year extension

Note: All payment networks support testing on an expired EMVCo-approved kernel for a year from the expiration date of the kernel. Refer to each payment network for details on their processes.

In order to maximize the time available to perform L3 certifications, the following recommendations may be considered:

- For device vendors, perform L2 contactless certifications with the payment networks simultaneously rather than concurrently. The contactless kernel is usually unique for each payment network and built in a modular fashion. Simultaneous certifications could allow more time for the device to certify with acquirers.
- For merchants, certify the device with acquirers for both contact and contactless at the same time.

7. Challenge #6: Inconsistent L3 Letter of Approval Detail among Payments Networks and Difficulty in Understanding Certification Scope

L3 Letters of Approval (LoAs) introduce the following challenges:

- The amount of information on a LoA varies based on who issues it.
- Even among the payment networks, the forms vary widely.
- It is difficult to identify exactly what was tested during certification.
- These factors can lead to discrepancies between what was tested and what is utilized in a production environment.

These challenges are magnified by the following:

- Under self-certification, each acquirer is permitted to design its own form.
- When not self-certified, each payment network issues a separate form.[11]

The opportunity for the industry would be to define a standardized form that acquirers and payment networks may adopt to provide consistent format and quality of information.

7.1 Recommendations

Once a merchant has moved to production, a different team is responsible for addressing any processing issues encountered. Because of the shift of personnel from testing to production, it can be difficult to easily identify exactly what was certified. A detailed LoA included in the handoff from the certification team to the product team would help alleviate that difficulty.

Inclusion of the following information on a comprehensive LoA, in particular, may help to reduce the difficulty of this handoff:

- The type of certification – Traditional EMV or Faster EMV or minimum U.S. online-only terminal configuration
- Certification scope – contact, contactless, or both
- The test plan(s) used, including version number
- The device tested, using standard language easily matched to other repositories such as the L1/L2 database
    - o Manufacturer
    - o Model
    - o Payment application software and version
    - o Location of deployment
    - o Number of terminals to be deployed
    - o Terminal type – e.g., POS, mPOS, integrated, semi-integrated
    - o Indication of which payment networks/AIDs are supported
    - o L1/L2 approval numbers
    - o L1/L2 expiration dates
    - o Terminal Quality Management reference *applicable for Mastercard's TQM

---

[11] Visa does not provide a L3 LoA.

- - o   Payment Card Industry PIN Transaction Security (PCI PTS) approval number
- The types of transaction tested and supported.
  - o   Sale, refund, void, other
- Transaction limits – e.g., floor limit, No CVM limit
- The CVMs supported
- Inclusion of the device in a family certification
- Any waivers, exceptions, or restrictions associated with the certification

Note: The recommendations in Section 7 will be sent to EMVCo for review and potentially create a standard.

8. Conclusions

Vendors and merchants currently face a variety of testing and certification challenges in connection with the implementation and deployment of Level 3 (L3) certified contactless solutions. Many of these stem from inconsistencies among payment network certification requirements for contactless. A more consistent, more streamlined, and less intrusive contactless certification process would likely help address these challenges and, as a result, help decrease associated burdens on merchants and other payments industry stakeholders.

These inconsistencies in contactless certification requirements are compounded by the present requirement for full payment network certification across processor platforms.

When the U.S. first began its transition to EMV, stakeholders were on an upward learning curve and eager to address potential liability shifts. Now, clients and vendors have a much better understanding of EMV and EMV certification, and new liability shifts for automated fuel dispensers (AFDs) are scheduled for 2020. These factors, along with Visa's streamlined contactless Level 3 chip certifications approach, as well as concerns among AFD vendors and merchants regarding the short amount of time remaining to certify before the AFD liability shifts and the anticipated time needed to certify under current requirements, suggest this may be an opportune time to rethink and optimize overall EMV contactless certification.

As suggested in this paper, many aspects of certification can be considered and potentially improved and streamlined: from intake forms for initial payment network certification to acknowledgement of a certified solution and the role of regression testing.

This document is intended to further that process, by providing payment networks, acquirers and vendors with concrete opportunities for streamlining and optimizing contactless certification, in a way that could prove critical for broad contactless acceptance in the U.S., and at the same time, help increase efficiency by saving resources and expense and avoiding overlapping and repeated testing.

It is in this spirit that this white paper is presented.

9. Legal Notice

While great effort has been made to ensure that the information in this document is accurate and current as of the publication date, this information does not constitute legal advice and should not be relied upon for any legal purpose, whether statutory, regulatory, contractual or otherwise. Any person that uses or otherwise relies in any manner on the information set forth herein does so at his or her sole risk. All warranties of any kind, whether express or implied, relating to this document, the information set forth or otherwise referenced herein or the use thereof are expressly disclaimed, including but not limited to all warranties relating to or arising in connection with the use of or reliance on the information set forth herein, all warranties as to the accuracy, completeness or adequacy of such information, all implied warranties of merchantability and fitness for a particular purpose, and all warranties regarding title or non-infringement.

Merchants and others implementing EMV contactless are strongly encouraged to consult with their respective payment networks, acquirers, processors and appropriate professional and legal advisors regarding all aspects of implementation.

Without limiting the foregoing, it is important to note that the information provided in this document is limited to the specific matters expressly described herein.

Nothing in this document constitutes or should be construed to constitute an endorsement or recommendation by the U.S. Payments Forum of any particular approach, service or provider, and all implementation decisions and activities should be properly reviewed in light of applicable business needs, strategies, requirements, industry rules, and laws.

Publication of this document does not imply the endorsement of any U.S. Payments Forum member organization.

All registered trademarks, trade names, or service marks are the property of their respective owners.