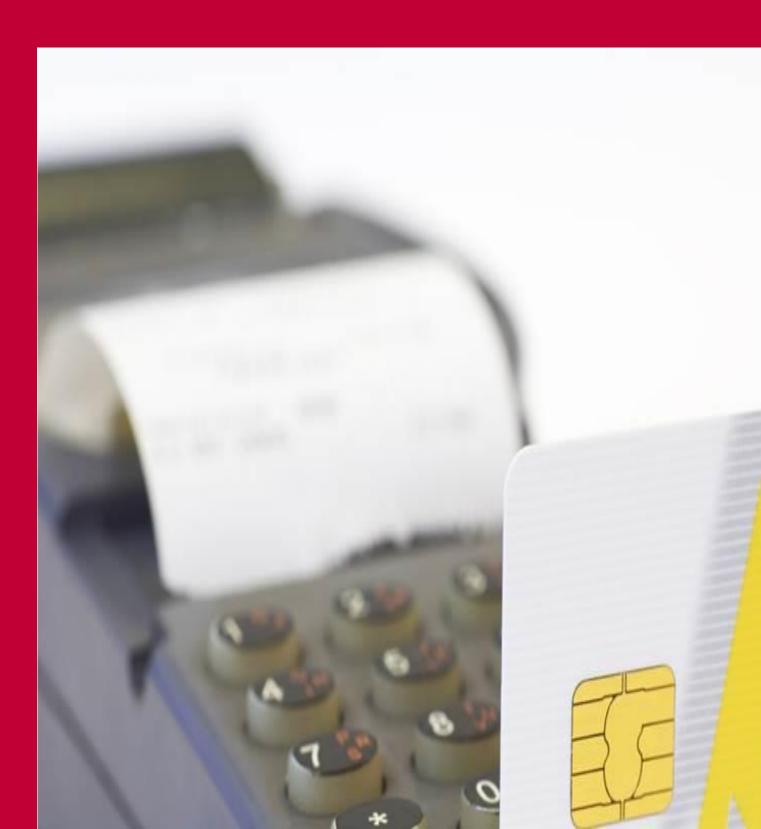**Transaction Security**

D-PAS End-To-End Certification

Customer Guide
August 2017 Version 1.4.1

UL Transaction Security

UL Transaction Security stands for one or more of the following entities: UL TS B.V. (Leiden, Netherlands), UL VS Ltd (Basingstoke, UK), UL Transaction Security Pty Ltd (Melbourne, Australia), UL Transaction Security Ltd (Edinburgh, UK), UL TS Pte Ltd (Singapore), UL TS Inc (St. Paul, MN, USA), UL TS FZE (Dubai, UAE)

For contact details, please see: www.ul-ts.com

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1 Introduction

Discover requires D-PAS Terminal End-To-End Certification to be completed by acquirers that intend to deploy or update terminals with D-PAS. The main purpose is to make sure that terminal products that are accepting Discover branded payment applications, meet the minimum quality and interoperability requirements as specified by Discover. Underwriters Laboratories' Transaction Security division (UL TS) will be your partner throughout the full process: from initiation and definition to development and implementation, including testing and certification. We can facilitate vendor selection, provide technical consultancy during the entire process and can take care of all testing and certification.

UL has been accredited by Discover as a D-PAS Terminal End-to-End Certification Service Provider for:
   a. Contact and contactless ATM and POS (including Discover Debit, JCB, Quick Chip, UnionPay and mPOS) terminals for Discover Network.
   b. Contact and contactless ATM and POS (including mPOS) for Diners Club International.
   c. Domestic and International contact ATM for Pulse Network.
   d. Contact POS PIN Debit for Pulse Network.

UL is offering a modular service which covers the entire scope to ensure an efficient and effective approval process with Discover. This Customer Guide describes the process and the steps to take for D-PAS Terminal End-to-End Certification[1] for each of these Networks.

The pricing of the D-PAS service is detailed in the D-PAS order form. Please contact UL.TS.DPASe2e@ul.com or your representative at UL for the latest version of the order form.

Key Benefits of UL TS
UL TS is a leading service provider in the field of payment technology since 1997. We have in-depth knowledge and a great record based on extensive experience in payment technology and its business use in financial and retail domain. UL supports you through entire processes by excellent execution of services that are required to cover your needs including any additional, value adding support; on site, and by telephone and email. All with the purpose of ensuring conformance, quality and interoperability of your product and enabling short time to market. Giving you peace of mind and the time and attention to focus on your core business. One of these services is the D-PAS End-to-End Certification.

Covering the complete process and procedures required by Discover, we offer you one-stop shopping to successful implementation of your payment terminal.

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1 Some parts of the text in this document have been obtained from other documents. For a full description please refer to the original documents available via DFS and/or UL. In case of discrepancies the latest versions of the original documents will always prevail.

Under no circumstance UL can be held liable for any information provided in this guide.

2 Overview

2.1 Terminal End-to-End Certification Objective

An Acquirer must successfully execute the D-PAS Terminal End-to-End Certification to obtain certification for D-PAS Transaction processing.

The D-PAS Terminal End-to-End Certification process is designed by Discover to test a terminal in a replica of its future production environment. Therefore this process tests not only the terminal with its specific settings but also the intermediate connections from terminal to acquirer host system and the interface of the acquirer host system with the Network, as depicted below in Figure 1.
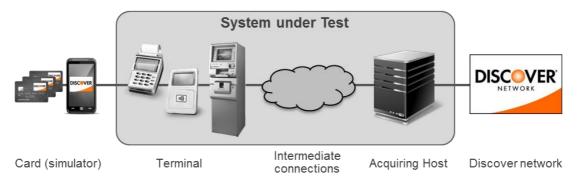

Figure 1 System under test, the so called Acquirer Deployment, that is subject to testing is not only consisting of the terminal.

We call this system under test an 'Acquirer Deployment'. During the certification the issuer host and Network will be simulated using a qualified test tool and optionally the test cards can be simulated as well. In case the test cards are not simulated physical test cards should be obtained via Discover.

The purpose of the Acquirer Terminal End-to-End Test is to ensure that Acquirers meet the following criteria:
- Ability to demonstrate that the deployed Terminals meet the requirements of both the Acquirer and Discover
- Ability to demonstrate the Terminals' acceptance of D-PAS products
- Ability to send and receive Authorization Requests and Responses between a Terminal, Acquirer host, and the Network
- Ability to demonstrate the capability of Terminals to process chip-based functions including support of PIN, fallback Transactions, and card verification methods (as supported by the Terminal).

These criteria will be assessed by performing a number of test cases selected by UL, as service provider accredited by Discover.

2.2 Service Scope

UL has been accredited by Discover to perform the D-PAS Terminal End-to-End Certification for:

- a. Contact and contactless ATM and POS (including Discover Debit, JCB, Quick Chip, UnionPay and mPOS) terminals for Discover Network.
- b. Contact and contactless ATM and POS (including mPOS) for Diners Club International Network.
- c. Domestic and International contact ATM for Pulse Network.
- d. Contact POS PIN Debit for Pulse Network.

For other D-PAS Terminal End-to-End Certifications, please contact your representative at Discover Financial Services or via dpasinfo@discover.com.

2.3 Certification, Recertification and Expansion

Acquirers are required by Discover to perform a successful D-PAS Terminal End-to-End Certification for acceptance of D-PAS chip cards in a *new acquirer deployment*.

A Recertification of an *existing acquirer deployment* is needed when adding:
- New hardware
- New payment functionality that will impact:
  - Cash over
  - Refunds
  - Online PIN
  - Balance/available funds inquiry
  - Cash advance or other functionality
- New Discover partner Application Identifier.
- Or when changing:
  - The EMV Kernel, payment application software, orconfiguration parameters.
  - D-PAS processing parameters.
  - Terminal parameters to allow D-PAS offline Transactions.
  - Terminal CVM parameters to allow offline PIN.
  - Terminals and messaging upgrade to support Contactless D-PAS or Discover Mobile payments.
- Or when upgrading Terminals and messaging to support Contactless D-PAS or Mobile payments.

An Expansion certification is only allowed for Discover Brand that can be performed in situations where additional feature like Discover Debit, JCB, UnionPay, Online PIN or Quick Chip are added to an *existing acquirer deployment*, where functionality under scope will be tested.

Note: For terminals supporting both Diners and Discover that will be deployed in US and non-US region, certification should be done for each Brand (one for a terminal deployed internationally connected to the Diners Network and one for a terminal on the Discover Network in North America).
In case of doubt if a (Re-) Certification or Expansion Certification is needed, please contact UL via UL.TS.DPASe2e@ul.com.

2.4   Prerequisites

The following prerequisites are needed to start D-PAS Terminal End-to-End Certification:
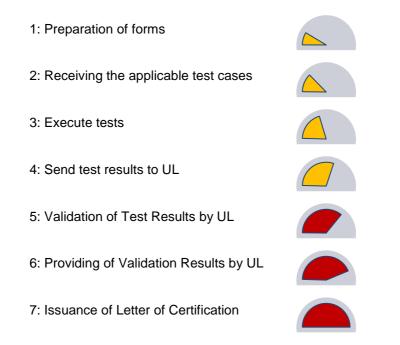
- A Terminal with valid EMVCo Level 1 and Level 2 certification and PCI-PED if applicable and D-PAS Contactless Level 2 certification for contactless.
- Terminal to Acquirer Host Network Interface
- Acquirer Host
- Qualified Smart Card Simulator or D-PAS Test Cards
- Qualified test tool that simulates the network and Issuer host
- Ability to retrieve test results, including receipts when applicable

To ensure delivery of the certification services in line with your 'go to market' timelines, you can engage with UL before getting the above prerequisites in place. We will then reserve the required timeslots for your certification, in alignment with your certification team.

3   The D-PAS End-To-End Certification Service Process

3.1   Process Steps

The D-PAS Terminal End-to-End Certification process consists of the following steps:

1: Preparation of forms

2: Receiving the applicable test cases

3: Execute tests

4: Send test results to UL

5: Validation of Test Results by UL

6: Providing of Validation Results by UL

7: Issuance of Letter of Certification

Hereafter, each step will be explained in more detail. The steps to be performed by you are steps 1 - 4, steps 5 – 7 will be managed by UL.

Step 1: Preparation of forms

The D-PAS Terminal End-to-End Certification service requires the following forms to be completed.

1. Order Form (.xlsx format and pdf format)
    a. Initiates business agreement when signed
2. Certification Request Form (CRF) (.xlsx format)
    a. Contains technical information about terminal deployment
    b. Dependent on completion of the Order Form

Both documents can be requested at and sent to UL via UL.TS.DPASe2e@ul.com, the Order Form can be obtained via your UL sales manager as well. Please include any approved waivers applicable for this service.

On request UL can provide you with the latest documentation applicable for this service.

In case of an Expansion Certification, you would need to provide a copy of the Letter of Certification of the previously certified terminal for which this expansion is applicable.

Step 2: Receiving the applicable test cases

When you have sent the documents of the previous step, UL will generate the applicable test cases based on the data in the CRF and you will receive these via e-mail in the 'Response Form' (RF).

Step 3: Execute tests

This step includes the following tasks:

1. Prepare your infrastructure for testing, specifically:
    a. Connection of the terminal under test to the acquirer infrastructure.
    b. Acquirer infrastructure to the (simulated) Network and (simulated) issuer host using a qualified tool.
2. Execute the test cases as generated in the RF.
    a. For mPOS devices please note specific test criteria on applicable test cases.
3. Enter the outcome of the results in the appropriate fields of the RF.

For the execution of the test cases, either physical D-PAS Test Cards or any Discover qualified tool (with the feature of card simulation) can be used. For information on how to obtain physical D-PAS Test Cards, please contact your Discover account executive.

UL's 'Brand Test Tool' is a state-of-the-art tool combining all required functionality for this service including test case execution, user-guidance, and clear reporting. The UL Brand Test Tool is qualified by Discover. Please ask your UL sales representative for further information.

Step 4: Send test results to UL

Once all the tests have been executed successfully you can submit the results to UL. The following evidences need to be submitted:

*   The RF form with the test results
*   The DFS Simulator log files
*   EMV Card-Terminal log files
*   Receipts

Step 5: Validation of Test Results by UL

Based on the documents that you sent us in step 4, UL will analyze and validate whether the results comply with the specifications, brand rules and whether the Letter of Certification can be granted.

In the RF, UL will provide the result of the analysis per test case in the appropriate columns containing the Service Provider Results. Per test case it is indicated whether the test case was considered as pass (with or without waiver), not required, failed, or that appropriate countermeasures should be taken, such as retesting of that particular test case, sending missing log files, or requesting a waiver (UL will request a waiver to Discover on your behalf. UL will inform you about the final decision whether the waiver is approved or declined by Discover).

Step 6: Providing of Results by UL

After the validation is performed you will receive the RF with the validation results and UL will inform you about the next steps to be taken.

In case the outcome of step 5 is positive on all test cases, the certification is successful. UL will create the Letter of Certification and send it to DFS for final approval. DFS will approve the Letter of certification by generating the pdf version.

In all other cases, you will receive all the findings and suggestions for improvement and a new iteration of testing must be performed (i.e. go back to step 3) where you will need to retest failed test cases. For more information, see section 3.2.

Step 7: Issuance of Letter of Certification

When your deployment is successfully finished, UL will send you the final PDF version of 'Letter of Certification' created by DFS.

The project will be closed, meaning UL will update the reporting to Discover with the results of the project and an invoice is created for the services delivered.

3.2   Additional Iterations

In case the verdict of step 5 (Validate Test Results by UL) is unsuccessful, Discover requires you to perform an additional iteration. This means, you need resolve any issues reported and perform the required test cases again as explained in step 3 (Execute tests). You can then re-send the updated RF including all files listed in step 4 (Send test results to UL) to UL for an additional validation of your test results as described in step 5.

3.3 Pricing

The pricing fee for the D-PAS End-To-End Certification service is given in the corresponding Order Form. Please contact your UL sales representative or send an email to UL.TS.DPASe2e@ul.com to obtain the latest version.

D-PAS End-To-End Certification

4 High priority D-PAS End-To-End Certification

In certain cases an Acquirer may prefer the D-PAS End-To-End Certification service to be delivered with high priority. High priority means that the service is delivered in a guaranteed shorter time frame compared to the maximum delivery time of a normal D-PAS End-To-End Certification service. This duration represents the time UL spends; possible time required for Discover support is excluded. Please note that Discover has 48 hours to respond to such support requests.

In case only an additional iteration of the service is ordered as high-priority, only the fee for the additional iteration will be charged as high priority.

Please contact your UL contact person for more information about the high priority D-PAS End-To-End Certification formal approval service and the timelines for your project.

5 D-PAS End-To-End Certification Support

During or prior to the D-PAS End-To-End Certification service, you might want to have access to the latest chip or specifications expertise, e.g. to find out about the applicable regional rules and mandates, or about allowed settings in the terminal deployment for your product. Or if you want to know why certain issues appear in the validation result for your product and want to know how to solve those, you can ask the UL team for support.

UL offers you D-PAS End-To-End Certification support for all your questions related to settings and specifications upon initiation of your D-PAS End-To-End Certification project or during the delivery of the D-PAS End-To-End Certification service. For more details on the pricing, please refer to the Order Form document, or ask your local representative.

A.1 Contact Details

For any further questions please contact us through:

For Europe:

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