

# **FIPS 201 Evaluation Program - Graphical Personalization Approval Procedure**

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## 1 Introduction

### 1.1 Overview

The FIPS 201 Evaluation Program (EP) is a U.S. Government entity administered by the Office of Government-wide Policy (OGP), within the General Services Administration (GSA) agency. The goal of the FIPS 201 Evaluation Program (EP) is to evaluate products and services against the requirements outlined in FIPS 201 and its supporting documents. In addition to derived test requirements developed to test conformance to the National Institute of Standards and Technology (NIST) Standard, GSA has also established interoperability and performance metrics to further determine product suitability. A set of approval and test procedures have been developed which outline the evaluation criteria, approval mechanisms and test process employed by the Laboratory during their evaluation of a Supplier's product or service against the requirements for that category.

A Supplier desiring to submit a Graphical Personalization (hereafter referred to as the Product) for evaluation must follow the Suppliers Policies and Procedures Handbook. In addition to this handbook, Supplier also need to refer to this Approval Procedure which provides the necessary category-specific details in order to have a Supplier's Product evaluated by the EP and placed on the Approved Products List (APL).

### 1.2 Category Description

The *Graphical Personalization* service provides the capability to graphically personalize (i.e. print) PIV cards. PIV Cards are to be customized according to the physical topology as described by FIPS 201 section 4.1. As an option, the Graphical Personalization service may provide the ability to print SP 800-104 compliant zones. Suppliers who wish to perform these services must be evaluated against all optional requirements found within this document.

### 1.3 Purpose

The purpose of this document is to provide the following information:

- (i) Provide a list of the artifacts and/or documentation that needs to be submitted to the Evaluation Lab as part of the application package submission.
- (ii) Document the list of the requirements that apply to this category
- (iii) Specify the evaluation criteria along with their approval mechanisms that will be used by Evaluation Labs to verify compliance of the Product against the requirements that apply to this category.

## 2 Application Package Contents

The Application Package Contents include the artifacts, documentation and in some cases the product itself that needs to be submitted to the Evaluation Lab so that evaluation can be performed. The Application Package Contents for this category include the following:

- A set of PIV Cards<sup>1</sup> that contain the mandatory and optional printed elements as mandated in FIPS 201 and supporting documents shall be printed by the Product and submitted to the Lab. These should be delivered to the Lab (address can be found at <http://fips201ep.cio.gov/labs.php>) using a reliable method of delivery (e.g., FedEx, UPS, hand delivery). The specifications for the personalized cards that need to be submitted to the Lab can be found in Appendix A.
- Completed Application Form, provided on the Evaluation Program website. (This form will be available through the web interface once users have been assigned a login credential);
- Completed and signed Attestation Form (found in the application submission package ZIP file). The Attestation Form should be completed and scanned into a document to be uploaded to Evaluation Program website;
- Completed and signed Lab Service Agreement (found in the application submission package ZIP file). The Lab Service Agreement should be completed and scanned into a document to be uploaded to Evaluation Program website;
- Completed Supplier VDR-VTDR justification worksheet (found in the application submission package ZIP file).
- A Vendor Test Data Report, which provides test results showing that the Product complies with the requirements for this category. In this regard, the Supplier is expected to develop and document the test procedures used to determine how the Product was tested to arrive at the conclusion that it met all necessary requirements. The VTDR must typically contain information as stated in the Supplier's Handbook. Wherever possible, information to be supplied as part of this Vendor Test Data Report has been described in Section 3.3 and Appendix B;
- All necessary Supplier documentation providing proof that the Service complies with the subset of requirements (as outlined in Section 3.1) for this category which has Supplier documentation review as its approval mechanism. Examples of specific documentation would include: user guides, technical specifications, white papers, line cards, etc.

Additionally, the Supplier needs to submit the following information to the Lab:

- Make and Model of the printer used. Please provide the corresponding APL # if the printer has been through GSA evaluation
- A list of the Supplier site(s) that will be graphically personalizing PIV Cards
- Graphical Personalization Service Standard Operating Procedures
- Human Resources Standard Operating Procedures

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<sup>1</sup> PIV Cards used for Supplier testing and submission to the Lab must be listed on the GSA Evaluation Program's Approved Products List.

- The background investigations service contract
- The Security Plan for the facility
- Server penetration reports for all servers which are publicly available on the Facility's network
- The Security Equipment Inventory List
- A screenshot of the PIV Card Automated Inventory Control System
- Server security vulnerability report
- Privacy Impact Assessment, which is in accordance with OMB Memoranda 06-06, Appendix E

### 3 Evaluation Procedure for Graphical Personalization

#### 3.1 Requirements

In order to approve the Service as conformant to the requirements of PIV, it at a minimum, must comply with all the requirements listed below. The approval mechanism column describes the technique utilized by the Lab to evaluate compliance to that particular requirement.

Identifier #	Requirement Description	Source	Reqt. #	Approval Mechanism
GP.1	The printing process shall not deposit debris on the printer rollers during printing and laminating.	FIPS 201-1, Section 4.1.1	1.1-36	Vendor Documentation Review Lab Test Data Report
GP.2	The printing process shall print on the card such that printed material does not interfere with the contact and contactless ICC(s) and related components.	FIPS 201-1, Section 4.1.1	1.1-37	Vendor Documentation Review
GP.3	The printing process shall support graphical personalization (i.e. printing)	Derived	N/A	Vendor Documentation Review
GP.4	The printing process used shall print to dual interface smart cards (i.e. smart cards that contain BOTH contact and contactless interfaces).	Derived	N/A	Vendor Test Data Report
GP.5	Only printed cards with an acceptable visual appearance with both the contact and contactless interfaces fully functional shall be released from the printing facility.	Derived	N/A	Vendor Documentation Review Site Visit
GP.6	The printing process shall support a printing resolution of 300 dots per inch (dpi) or greater.	FIPS 201-1, Section 4.1.4.1	1.1-54	Vendor Documentation Review
GP.7	Personalized PIV Cards shall contain at least one security feature that aids in reducing counterfeiting, are resistant to tampering, and provide visual evidence of tampering attempts. Examples of such security features include: <ul style="list-style-type: none"> <li>• Optical varying structures;</li> </ul>	FIPS 201-1, Section 4.1.2	1.1-38	Vendor Documentation Review Lab Test Data Report

Identifier #	Requirement Description	Source	Req. #	Approval Mechanism
	<ul style="list-style-type: none"> <li>• Optical varying inks;</li> <li>• Laser etching and engraving;</li> <li>• Holograms;</li> <li>• Holographic images; and</li> <li>• Watermarks</li> </ul>			
GP.8	<p>Incorporation of security features shall:</p> <ul style="list-style-type: none"> <li>• Be in accordance with durability requirements of ISO-7810 Be free of defects, such as fading and discoloration;</li> <li>• Not obscure printed information; and</li> <li>• Not impede access to machine-readable information</li> </ul>	FIPS 201-1, Section 4.1.2	1.1-39	<p>Vendor Documentation Review</p> <p>Lab Test Data Report</p>
GP.9	The PIV Card shall not be embossed.	FIPS 201-1, Section 4.1.3	1.1-40	Lab Test Data Report
GP.10	Decals shall not be adhered to the card.	FIPS 201-1, Section 4.1.3	1.1-41	Lab Test Data Report
GP.11	The reagents called out in Section 5.4.1.1 of ISO 10373 shall be modified to include a two percent soap solution.	FIPS 201-1, Section 4.1.3	1.1-45	Vendor Test Data Report
GP.12	The ANSI 322 tests shall include the Bar Code Abrasion (1D) test. This test applies only if the printer has the ability to print Linear 3 of 9 barcodes.	Derived	N/A	Vendor Test Data Report
GP.13	The card shall be subjected to actual, concentrated, or artificial sunlight to appropriately reflect 2000 hours of southwestern United States' sunlight exposure. The tests shall be in accordance with ANSI 322, Section 5.15.	FIPS 201-1, Section 4.1.3	1.1-46	Vendor Test Data Report
GP.14	The tests shall include the ANSI 322 Daylight Exposure Image Stability – Xenon Arc.	FIPS 201-1, Section 4.1.3	1.1-45	Vendor Test Data Report

Identifier #	Requirement Description	Source	Req. #	Approval Mechanism
GP.15	The card shall be subjected to the ISO 10373 dynamic bending test and shall have no visible cracks or failures.	FIPS 201-1, Section 4.1.3	1.1-45	Vendor Test Data Report
GP.16	The ANSI 322 tests shall include the Image Abrasion Test.	Derived	N/A	Vendor Test Data Report
GP.17	The ANSI 322 tests shall include the Temperature and Humidity Induced Dye Migration Test.	FIPS 201-1, Section 4.1.3	1.1-45	Vendor Test Data Report
GP.18	The ANSI 322 tests shall include the Plasticizer Induced Dye Migration Test.	FIPS 201-1, Section 4.1.3	1.1-45	Vendor Test Data Report
GP.19	The ANSI 322 tests shall include a laundry test.	FIPS 201-1, Section 4.1.3	1.1-45	Vendor Test Data Report
GP.20	The card material shall allow production of a flat card in accordance with ISO 7810 after lamination of one or both sides of the card.	FIPS 201-1, Section 4.1.3	1.1-43	Vendor Test Data Report
GP.21	Cards shall not malfunction after hand cleaning with a mild soap and water mixture.	FIPS 201-1, Section 4.1.3	1.1-45	Vendor Test Data Report Lab Test Data Report
GP.22	Zone 1—Photograph. The photograph shall be placed in the upper left corner as depicted in Figure 4-1.	FIPS 201-1, Section 4.1.4.1	1.1-54	Lab Test Data Report
GP.23	Zone 2—Name. The full name, or alternatively, pseudonyms as provided under the law, shall be printed directly under the photograph.	FIPS 201-1, Section 4.1.4.1	1.1-55	Lab Test Data Report
GP.24	Zone 2—Name. The name shall be printed [directly below the photograph].	FIPS 201-1, Section 4.1.4.1	1.1-55	Lab Test Data Report
GP.25	Zone 2—Name. The font shall be a minimum of 10 point.	FIPS 201-1, Section 4.1.4.1	1.1-55	Lab Test Data Report
GP.26	Zone 8—Employee Affiliation. A printed employee affiliation shall be printed on the card. Some examples of employee affiliation are	FIPS 201-1, Section 4.1.4.1	1.1-56	Lab Test Data Report

Identifier #	Requirement Description	Source	Req. #	Approval Mechanism
	“CONTRACTOR,” “ACTIVE DUTY,” and “CIVILIAN.”			
GP.27	Zone 10— Organizational Affiliation. The Organizational Affiliation shall be printed as depicted in Figure 4-1.	FIPS 201-1, Section 4.1.4.1	1.1-57	Lab Test Data Report
GP.28	Zone 14—Expiration Date. The card expiration date shall be printed in a YYYYMMDD format.	FIPS 201-1, Section 4.1.4.1	1.1-58	Lab Test Data Report
GP.29	Zone 1—Agency Card Serial Number. This item shall contain the unique serial number from the issuing department or agency. This zone shall be left-justified.	FIPS 201-1, Section 4.1.4.2	1.1-59	Lab Test Data Report
GP.30	Zone 2—Issuer Identification. This item shall consist of six characters for the department code, four characters for the agency code, and a five-digit number that uniquely identifies the issuing facility within the department or agency. This zone shall be right-justified.	FIPS 201-1, Section 4.1.4.2	1.1-60	Lab Test Data Report
GP.31	Zone 3—Signature. If used, the space for the signature shall not interfere with the contact and contactless placement.	FIPS 201-1, Section 4.1.4.3	1.1-61	Lab Test Data Report
GP.32	Zone 4—Agency Specific text area. If used, [No requirement]	FIPS 201-1, Section 4.1.4.3	1.1-62	Lab Test Data Report
GP.33	Zone 5—Rank. If used, the cardholder’s rank shall be printed in the area as illustrated.	FIPS 201-1, Section 4.1.4.3	1.1-63	Lab Test Data Report
GP.34	Zone 6—Portable Data File (PDF) Two-Dimensional Bar Code. If used, the PDF bar code placement shall be as depicted in the diagram (i.e., left side of the card).	FIPS 201-1, Section 4.1.4.3	1.1-64	Lab Test Data Report
GP.35	Zone 9— Header. If used, the text “United States Government” shall be placed as depicted in Figure 4-1.	FIPS 201-1, Section 4.1.4.3	1.1-65	Lab Test Data Report

Identifier #	Requirement Description	Source	Req. #	Approval Mechanism
GP.36	Zone 9—Header. If used, departments and agencies may choose to use this zone for other department or agency-specific information, such as identifying a Federal emergency responder role, as depicted in Figure 4-2.	FIPS 201-1, Section 4.1.4.3	1.1-65	Lab Test Data Report
GP.37	Zone 11—Agency Seal. If used, the seal selected by the issuing department, agency, or organization shall be printed in the area depicted.	FIPS 201-1, Section 4.1.4.3	1.1-66	Lab Test Data Report
GP.38	Zone 11—Agency Seal. If used, it shall be printed using the guidelines provided in Figure 4-2 to ensure information printed on the seal is legible and clearly visible. This zone shall be 20 x 20 mm in dimensions.	FIPS 201-1, Section 4.1.4.3	1.1-66	Lab Test Data Report
GP.39	Zone 12—Footer. If used, a department or agency may print “Federal Emergency Response Official” as depicted in Figure 4-2.	FIPS 201-1, Section 4.1.4.3	1.1-67	Lab Test Data Report
GP.40	Zone 12—Footer. If used, the departments or agency may also print a secondary line in Zone 9 to further identify the Federal emergency respondent’s official role. Some examples of official roles are “Law Enforcement,” “Firefighter” and “Emergency Response Team (ERT)”.	FIPS 201-1, Section 4.1.4.3	1.1-67	Lab Test Data Report
GP.41	Zone 13—Issue Date. If used, the card issuance date shall be printed above of the expiration date in YYYYMMDD format as depicted in Figure 4-2.	FIPS 201-1, Section 4.1.4.3	1.1-68	Lab Test Data Report
GP.42	Zone 15—Color-Coding for Employee Affiliation. If used, color-coding shall be used as a background color for Zone 2 (name) as depicted in Figure 4-4.	FIPS 201-1, Section 4.1.4.3	1.1-69	Lab Test Data Report
GP.43	Zone 15—Color-Coding for Employee Affiliation. If used, the following	FIPS 201-1, Section	1.1-69	Lab Test Data Report

Identifier #	Requirement Description	Source	Req. #	Approval Mechanism
	<p>color scheme shall be used for the noted categories:</p> <ul style="list-style-type: none"> <li>a. Blue—foreign nationals</li> <li>b. Red—emergency responder officials</li> </ul> <p>Green—contractors</p>	4.1.4.3		
GP.44	Zone 15—Color-Coding for Employee Affiliation. If used, blue, red and green shall be reserved color-codes and shall not be employed for other purposes.	FIPS 201-1, Section 4.1.4.3	1.1-69	Lab Test Data Report
GP.45	Zone 16—Photo Border for Employee Affiliation. If used, the photo border shall not obscure the photo.	FIPS 201-1, Section 4.1.4.3	1.1-70	Lab Test Data Report
GP.46	Zone 16—Photo Border for Employee Affiliation. If used, red shall be reserved for emergency response officials, blue for foreign nationals, and green for contractors. All other colors may be used at the department or agency’s discretion.	FIPS 201-1, Section 4.1.4.3	1.1-70	Lab Test Data Report
GP.47	Zone 17—Agency Specific Data. If used, Zone 17 may display other department or agency-specific information, as depicted in Figure 4-5. [Note that Zone 17 overlaps Zone 3 and Zone 12, and is only available if these other zones are not used.]	FIPS 201-1, Section 4.1.4.3	1.1-71	Lab Test Data Report
GP.48	The card material shall withstand the effects of temperatures required by the application of a polyester laminate on one or both sides of the card by commercial off-the-shelf (COTS) equipment.	FIPS 201-1, Section 4.1.3	1.1-43	Vendor Test Data Report Lab Test Data Report
GP.49	Zone 4—Return To. If used, the “return if lost” language shall be generally placed on the back of the card as depicted in Figure 4-7. The font shall be 5pt Arial Normal.	FIPS 201-1, Section 4.1.4.4	1.1-73	Lab Test Data Report
GP.50	Zone 5—Physical Characteristics of Cardholder. If used, the cardholder	FIPS 201-1, Section	1.1-74	Lab Test Data

Identifier #	Requirement Description	Source	Req. #	Approval Mechanism
	physical characteristics (e.g., height, eye color, hair color) shall be printed in the general area illustrated in Figure 4-7. English measurements shall be used.	4.1.4.4		Report
GP.51	Zone 6—Additional Language for Emergency Responder Officials. If used, this additional text shall not interfere with other printed text components or machine-readable components. The font shall be 5pt Arial Normal.	FIPS 201-1, Section 4.1.4.4	1.1-75	Lab Test Data Report
GP.52	Zone 7—Standard Section 499, Title 18 Language. If used, standard Section 499, Title 18, language warning against counterfeiting, altering, or misusing the card shall be printed in the general area depicted in Figure 4-7. The font shall be 5pt Arial Normal.	FIPS 201-1, Section 4.1.4.4	1.1-76	Lab Test Data Report
GP.53	Zone 8—Linear 3 of 9 Bar Code. If used, a linear 3 of 9 bar code shall be generally placed as depicted in Figure 4-7.	FIPS 201-1, Section 4.1.4.4	1.1-77	Lab Test Data Report
GP.54	Zone 8—Linear 3 of 9 Bar Code. If used, a linear 3 of 9 bar code shall be in accordance with Association for Automatic Identification and Mobility (AIM) standards.	FIPS 201-1, Section 4.1.4.4	1.1-77	Vendor Documentation Review Vendor Test Data Report
GP.55	Zone 8—Linear 3 of 9 Bar Code. If used, beginning and end points of the bar code will be dependent on the embedded contactless module selected.	FIPS 201-1, Section 4.1.4.4	1.1-77	Lab Test Data Report
GP.56	Zone 9, Zone 10—Agency-Specific Text. If used, Zone 9 may display other department or agency-specific information, as depicted in Figure 4-8. [Note that Zone 9 overlaps Zone 6 and Zone 7, and is only available if these other zones are not used.]	FIPS 201-1, Section 4.1.4.4	1.1-78	Lab Test Data Report

Identifier #	Requirement Description	Source	Req. #	Approval Mechanism
GP.57	Unless otherwise specified, the recommended font size is 5pt normal weight for data labels (also referred to as tags).	FIPS 201-1, Section 4.1.4.4	1.1-81	Lab Test Data Report
GP.58	Unless otherwise specified, the recommended font size is 6pt bold for actual data.	FIPS 201-1, Section 4.1.4.4	1.1-82	Lab Test Data Report
GP.59	All text is to be printed using the Arial font.	FIPS 201-1, Section 4.1.4.4	1.1-80	Lab Test Data Report
GP.60	The thickness added due to a laminate layer shall not interfere with the smart card reader operation.	FIPS 201-1, Section 4.1.3	1.1-43	Vendor Test Data Report Lab Test Data Report
GP.61	Zone areas printed on PIV Cards shall be precisely placed in position using the measurements defined by FIPS 201.	Derived	N/A	Vendor Test Data Report Lab Test Data Report
GP.62	All letterings on the PIV Card shall be printed in black except as explicitly stated.  <i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i>	SP 800-104, Section 2.1	7-1	Lab Test Data Report
GP.63	The ERO color-coding, when used, shall be depicted at the footer location of Zone 12 and must print “Emergency Response Official” with white lettering on a red background.  <i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i>	SP 800-104, Section 2.1	7-4	Lab Test Data Report
GP.64	When Zone 15 indicates Foreign National affiliation and the department or agency does not need to highlight ERO status, the footer location of Zone 12 may be used to denote the country or countries of citizenship. If so used, the department or agency shall print the country name or the three letter country abbreviation (alpha-3 format) in accordance with	SP 800-104, Section 2.1	7-6	Lab Test Data Report Vendor Documentation Review

Identifier #	Requirement Description	Source	Reqt. #	Approval Mechanism
	<p>ISO 3166-1, Country Codes [ISO 3166].</p> <p><i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i></p>			
GP.65	<p>Zone 18—Affiliation Color Code. The affiliation color code “B” for Blue or “G” for Green shall be printed in a white circle in Zone 15.</p> <p><i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i></p>	SP 800-104, Section 2.3	7-8	Lab Test Data Report
GP.66	<p>The diameter of the circle shall be 5 mm.</p> <p><i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i></p>	SP 800-104, Section 2.3	7-9	Lab Test Data Report
GP.67	<p>The lettering shall correspond to the printed color in Zone 15.</p> <p><i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i></p>	SP 800-104, Section 2.3	7-10	Lab Test Data Report
GP.68	<p>Zone 19—Expiration Date. The card expiration date shall be printed in a MMMYYYY format in the upper right hand corner.</p> <p><i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i></p>	SP 800-104, Section 2.3	7-11	Lab Test Data Report
GP.69	<p>The expiration date shall be printed in Arial 12pt Bold.</p> <p><i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i></p>	SP 800-104, Section 2.3	7-12	Lab Test Data Report
GP.70	<p>Zone 20—Organizational Affiliation Abbreviation. The organizational affiliation abbreviation may be printed in the upper right hand corner below the date as shown in Figure 1.</p> <p><i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i></p>	SP 800-104, Section 2.3	7-13	Lab Test Data Report
GP.71	<p>If printed, the organizational affiliation abbreviation shall be printed in Arial 12pt Bold.</p> <p><i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i></p>	SP 800-104, Section 2.3	7-14	Lab Test Data Report

Identifier #	Requirement Description	Source	Req. #	Approval Mechanism
GP.72	<p>White color values are printed as follows:</p> <ul style="list-style-type: none"> <li>• sRGB Tristimulus value {255, 255, 255}</li> <li>• sRGB value {255, 255, 255}</li> <li>• CMYK value {0, 0, 0, 0}</li> <li>• Pantone value {White}</li> </ul> <p><i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i></p>	SP 800-104, Section 2.4	7-18 7-19 7-20 7-21	Lab Test Data Report
GP.73	<p>Green color values are printed as follows:</p> <ul style="list-style-type: none"> <li>• sRGB Tristimulus value {153, 255, 153}</li> <li>• sRGB value {203, 255, 203}</li> <li>• CMYK value {40, 0, 40, 0}</li> <li>• Pantone value {359C}</li> </ul> <p><i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i></p>	SP 800-104, Section 2.4	7-22 7-23 7-24 7-25	Lab Test Data Report
GP.74	<p>Blue color values are printed as follows:</p> <ul style="list-style-type: none"> <li>• sRGB Tristimulus value {0, 255, 255}</li> <li>• sRGB value {0, 255, 255}</li> <li>• CMYK value {100, 0, 0, 0}</li> <li>• Pantone value {630C}</li> </ul> <p><i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i></p>	SP 800-104, Section 2.4	7-26 7-27 7-28 7-29	Lab Test Data Report
GP.75	<p>Red color values are printed as follows:</p> <ul style="list-style-type: none"> <li>• sRGB Tristimulus value {253, 27, 0}</li> <li>• sRGB value {254, 92, 79}</li> <li>• CMYK value {0, 90, 86, 0}</li> <li>• Pantone value {032C}</li> </ul> <p><i>(This requirement will be evaluated only if SP 800-104 zones are able to be printed)</i></p>	SP 800-104, Section 2.4	7-30 7-31 7-32 7-33	Lab Test Data Report
GP.76	Personalization facilities shall use a common set of standard operating procedures for production of printed PIV Cards.	Derived	N/A	Vendor Documentation Review

Identifier #	Requirement Description	Source	Req. #	Approval Mechanism
GP.77	Delivery facilities shall employ personnel who are knowledgeable of the organization's operating procedures.	Derived	N/A	Vendor Documentation Review Site Visit
GP.78	Delivery facilities shall employ personnel who are not on the list of known terrorists.	Derived	N/A	Vendor Documentation Review Site Visit
GP.79	Delivery facilities shall perform background checks on personnel handling PIV Cards. Background checks must reflect Federal, State and Local databases to ensure felonies have not been committed by PIV Card handlers.	Derived	N/A	Vendor Documentation Review Site Visit
GP.80	Delivery facilities shall maintain adequate security on the premise of the building.	Derived	N/A	Vendor Documentation Review Site Visit
GP.81	Delivery facilities shall utilize a PIV Card storage container which contains a multi-factor form of authentication to access the contents of the container.	Derived	N/A	Vendor Documentation Review Site Visit
GP.82	Delivery facilities shall maintain a log of visitors who enter the area which has been designated to print PIV Cards.	Derived	N/A	Vendor Documentation Review Site Visit
GP.83	Delivery facilities shall utilize automated card inventory control, which utilizes the Agency Serial Number, at a minimum, to track and manage the following transactions: <ul style="list-style-type: none"> <li>• Inventory of provisioned PIV Cards on hand; and</li> <li>• Inventory which has been delivered.</li> </ul>	Derived	N/A	Vendor Documentation Review Site Visit
GP.84	Delivery facilities shall utilize a mechanism to notify Agencies, on a	Derived	N/A	Vendor Documentation

Identifier #	Requirement Description	Source	Req. #	Approval Mechanism
	regular basis, which printed cards have been received (if applicable) and delivered.			Review Site Visit
GP.85	Delivery facilities must send personalized cards to their respective locations using a secure and reliable courier which provides delivery tracking and notification.	Derived	N/A	Vendor Documentation Review
GP.86	Facility personnel shall print all cards which are conformant to the requirements of Graphical Personalization Approval Procedure, Appendix A	Derived	N/A	Site Visit Lab Test Data Report
GP.87	Information Technology systems used to store personally identifiable system shall have a Privacy Impact Assessment conducted.	Derived	N/A	Vendor Documentation Review Site Visit
GP.88	The Supplier shall utilize a secure mechanism to transfer data related to the card printing request.	Derived	N/A	Vendor Documentation Review Site Visit
GP.89	Graphical Personalization Facilities shall be reviewed every two (2) years, from the date of GSA approval, to ensure the Standard Operating Procedures are followed by Facility Personnel.	Derived	N/A	Vendor Documentation Review Site Visit
GP.90	If implemented using an IT system, the mechanism used for protection of confidentiality and integrity of information exchanged between the contracting Agency and Service Provider is performed using a FIPS 140-2 approved cryptographic module.	Derived	N/A	Vendor Documentation Review

Table 1 - Applicable Requirements

### 3.2 Approval Mechanism Matrix

The table below provides an indication of the total number of requirements applicable for the Service and provides a breakup of how the evaluation will be conducted based on the different approval mechanisms available to the Lab.

Total Requirements	Approval Mechanisms					
	SV	VTDR	LTDR	VDR	C	A
90	13	16	60	23	N/A	1
<b>Legend:</b> SV – Site Visit; VTDR – Vendor Test Data Report; LTDR – Lab Test Data Report; VDR – Vendor Doc. Review; C – Certification; A - Attestation						

Table 2 - Approval Mechanism Matrix

### 3.3 Evaluation Criteria

This section provides details on the process employed by the Lab for evaluating the Service against the requirements enumerated above.

#### 3.3.1 Vendor Documentation Review

<b>Reference(s):</b>	GP.1 to GP.3, GP.5 to GP.8, GP.54, GP.64, GP.76 to GP.85, GP.87 to GP.89
<b>Evaluation Procedure:</b>	<ol style="list-style-type: none"> <li>1. The Lab will update the status in the Web-Enabled Tool to “VDR Begun” as instructed in the Web-enabled Tool Laboratory User Guide.</li> <li>2. The Lab will review the Service’s documentation to determine the following. At a minimum the documents submitted by the Supplier must include:           <ul style="list-style-type: none"> <li>▪ <i>Printing Process (GP.1, GP.2)</i> <ul style="list-style-type: none"> <li>• The process of performing regular maintenance of printer, including the frequency at which the rollers on the printer are cleaned. At a minimum, the cleaning and maintenance process must be performed at the prescribed intervals as recommended by the printer manufacturer.</li> <li>• A statement indicating that printed material does not interfere with the contact and contactless ICCs and related components. Also, a process description whereby the printed cards are checked to ensure that each batch of printed cards is checked to insure contact and contactless ICC functionality.</li> </ul> </li> <li>▪ <i>Card Personalization (GP.3)</i> <ul style="list-style-type: none"> <li>• A statement indicating that the Service Provider supports graphical personalization of the card in accordance with FIPS 201 and, optionally, SP 800-104.</li> <li>• A process description whereby the printed cards are checked to ensure that each batch of printed cards are visually acceptable. Visually acceptable cards shall not have any visible cracks, bubbles, or chips in the lamination, streaks or areas of light contrast in the ink,</li> </ul> </li> </ul> </li> </ol>

	<p>except where allowed, and all graphics shall be easy to discern.</p> <ul style="list-style-type: none"> <li>• A process description whereby printed cards that are not visually acceptable are shredded, incinerated, or otherwise rendered visually unrecognizable after being determined as visually unacceptable.</li> </ul> <ul style="list-style-type: none"> <li>▪ <i>Quality Assurance (GP.5)</i> <ul style="list-style-type: none"> <li>• A statement by the Service Provider that only cards with an acceptable visual appearance and both the contactless and contactless interfaces fully functional will be released from the printing facility.</li> <li>• The process of sampling a random set of cards printed to ensure that each batch of cards have an acceptable visual appearance, as defined previously, and both the contact and contactless interfaces are fully functional. At a minimum, at least 5% of cards must be sampled. If 5% of cards sampled result in a fractional number, the number will be rounded up to the next highest integer value.</li> </ul> </li> <li>▪ <i>Print Resolution (GP.6)</i> <ul style="list-style-type: none"> <li>• A statement by the printer manufacturer indicating that the printer is capable of printing at a resolution of 300 dots per inch or greater.</li> </ul> </li> <li>▪ <i>Printable Security Features (GP.7, GP.8)</i> <ul style="list-style-type: none"> <li>• A list of all security features supported by the Graphical Personalization Service.</li> <li>• Cards submitted for evaluation contain examples of all security features that are able to be printed by the Service. Note that additional cards, beyond the 5 (7) prescribed by Appendix A may need to be submitted to satisfy this requirement.</li> <li>• The security feature(s) is/are in accordance with the durability requirements of ISO-7810, free of defects, do not obscure printed information and do not impede access to machine-readable information.</li> <li>• All security feature(s) is/are free of any defects such as fading and discoloration.</li> <li>• All security feature(s) do/does not obscure any printed information.</li> <li>• All security feature(s) do/does not impede access to machine-readable information.</li> </ul> </li> <li>▪ <i>Linear 3 of 9 Bar Codes (GP.54)</i> <ul style="list-style-type: none"> <li>• A statement by the Service Provider that all linear 3 of 9 bar codes are printed in accordance with the Association for Automatic Identification and Mobility (AIM) standards.</li> <li>• A process description whereby the printed linear 3 of 9 bar codes on each batch of printed PIV Cards are randomly tested to ensure the quality of printing is sufficient and that the bar codes are able to be read by scanning equipment.</li> </ul> </li> <li>▪ <i>Country Abbreviations (GP.64)</i> <ul style="list-style-type: none"> <li>• If SP 800-104 printing is supported, the Suppliers implementation of the list of acceptable country codes, as prescribed by ISO 3166-1, shall be submitted.</li> </ul> </li> </ul>
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- *Standard Operating Procedures (GP.76)*
  - The Supplier has submitted detailed documentation for the complete process of printing PIV Cards at the Facility. The SOP should include, at a minimum, the hours of operation for the Facility as well as the PIV Card printing area, procedures for handling blank cardstock, partitioning cardstock quantities for customers, handling procedures, a list of authorized PIV Card handlers and their supervisors, contact information for local law enforcement, reference PIV Card layouts for current and prospective customers, storage procedures for printed PIV Cards, procedures for running batch orders, and methods for cryptographically locking printed cardstock.
- *Personnel Training & Knowledge (GP.77)*
  - Training materials of the Facility's Operating Procedures have been developed for each role in the printing facility.
  - A list of trusted roles in the Facility system has been defined as part of the Standard Operating Procedures.
  - A list of authorized personnel is maintained by the Facility and is referenced by the Standard Operating Procedures. The list of authorized has been furnished to the Lab for review.
  - A statement by the Service Provider that when the list of authorized personnel changes for any reason, the Lab who has performed the original evaluation will be provided with an updated list.
  - The Facility Standard Operating Procedures states that training occurs on at least an annual basis for all personnel serving a role within the Facility.
  - The Facility Standard Operating Procedures state that employees are retrained within one week of a procedure-based changed to the SOP.
- *Personnel History Checks (GP.78, GP.79)*
  - A statement from the background investigation service provider has been submitted which states the source of the Federal agency responsible for maintaining the list(s) of known terrorists for which Facility personnel are checked against. Examples of Agencies maintaining lists of known terrorists include the Department of Homeland Security, the Federal Bureau of Investigations, and INTERPOL. Human Resources personnel records should indicate that this check has been performed on all personnel of the PIV Card Facility.
  - The contract with the service provider for Federal, State, and Local criminal history has been provided and personnel records indicate that this check has been performed on all PIV Card handlers.
  - Human Resources Standard Operating Procedures indicate that employees whose job function is to handle PIV Cards (trusted roles), are to undergo a background check before performing functions a particular role in the Facility.
- *Premise Security (GP.80)*
  - The security plan for the premise has been provided and all security

	<p>protections on the building are well documented, and listed within the security inventory list.</p> <ul style="list-style-type: none"> <li>▪ <i>PIV Card Storage Container (GP.81)</i> <ul style="list-style-type: none"> <li>• The security equipment inventory list includes the make and model of the container used to store PIV Cards.</li> <li>• The Graphical Personalization Facility Standard Operating Procedures describes the type of factors for authentication to the container.</li> </ul> </li> <li>▪ <i>Visitor Logging (GP.82)</i> <ul style="list-style-type: none"> <li>• A template for the visitors log has been provided which matches the actual visitors log used at the Facility on a day-to-day basis.</li> </ul> </li> <li>▪ <i>Card Inventory Control (GP.83)</i> <ul style="list-style-type: none"> <li>• An automated inventory control system has been developed to log all outgoing and the number of on-hand PIV Cards which utilizes, at a minimum, the Agency Serial number, which is printed on the back of the card.</li> <li>• The automated inventory control system should provide both a count and itemization of every card printed for each contracting Agency. For cards that have been shipped from the facility, a list of each card must be maintained for a period of three (3) years for auditing purposes.</li> <li>• The Facility Standard Operating Procedures assigns duties to a particular role for auditing the number of cards stored at the Facility on a bi-weekly basis, using the automated inventory control system.</li> <li>• The system tracks incoming, outgoing, and the number of on-hand PIV Cards which utilizes, at a minimum, the FASC-N value in the CHUID or the entire agency serial number, which is printed on the back of the card. If the FASC-N is used, the following values will be extracted from the data object to identify cards: <ul style="list-style-type: none"> <li>a. Credential Number – The CN shall be used as the primary key to identify a cardholder.</li> <li>b. Agency Code – The AC shall be used as the secondary key, in the event that multiple CNs exist in the inventory control system.</li> <li>c. The facility may optionally choose to populate records using the card holder name which is printed on the front of the card; however, the PIN value of the card is never to be used to access privileged data objects (e.g. Printed Information Buffer) on the card for the purposes of card inventory.</li> </ul> </li> </ul> </li> <li>▪ <i>Agency Notification (GP.84)</i> <ul style="list-style-type: none"> <li>• The Facility Standard Operating Procedures describe the processes in place to notify an Agency that a card or batch of cards have been received and delivered to either the contracting Agency or another service provider.</li> </ul> </li> <li>▪ <i>Card Transporting (GP.85)</i> <ul style="list-style-type: none"> <li>• A contract with the secure and reliable courier (e.g. Brinks, Dunbar,</li> </ul> </li> </ul>
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	<p>UPS, FedEx) for transportation of personalized PIV Cards has been provided.</p> <ul style="list-style-type: none"> <li>• The Facility Standard Operating Procedures state how the delivery confirmation is to be checked after cards have been sent from the Facility to their respective locations.</li> <li>• The Facility Standard Operating Procedures states the steps that occur if and when a delivery has not been made by the courier.</li> </ul> <ul style="list-style-type: none"> <li>▪ <i>Privacy Impact Assessment (GP.87)</i> <ul style="list-style-type: none"> <li>• A privacy impact assessment has been developed by the Facility, in accordance, at a minimum, with OMB M-06-06 which identifies what information in identifiable form (IIF) will be stored by the facility and how IIF will be protected by the system for all machines participating in the PIV Card Delivery Service function.</li> </ul> </li> <li>▪ <i>Card Production Requests (GP.88, GP.90)</i> <ul style="list-style-type: none"> <li>• The Service Provider shall provide and document the mechanism for exchanging information with the contracting Agency. The mechanism shall ensure the confidentiality and integrity of information exchanged.</li> <li>• All cryptographic modules used in securing information exchanged with the contracting Agency shall be validated by NIST as compliant to FIPS 140-2, Overall Level 2 or higher.</li> </ul> </li> <li>▪ <i>Facility Review (GP.89)</i> <ul style="list-style-type: none"> <li>• The Facility Standard Operating Procedures state the operational status of the Facility as well as the anniversary of the reevaluation date of the Facility.</li> <li>• The Facility Standard Operating Procedures state that the preparation process for the Lab to visit every 2 years to ensure that the Facility is operating as per the Standard Operating Procedures.</li> </ul> </li> </ul> <p>3. The Lab will update the status to “VDR Complete” as instructed in the Web-enabled Tool Laboratory User Guide.</p>
<p><b>Expected Result:</b></p>	<ul style="list-style-type: none"> <li>a. The Service supports a printing process that does not deposit debris on the rollers and printed material does not interfere with the contact and contactless ICCs of the PIV Card.</li> <li>b. The Service supports graphical personalization of the PIV Card.</li> <li>c. The Service is capable of printing at a resolution of 300 dpi or greater.</li> <li>d. Graphically Personalized Cards conform to the printable security features requirements listed.</li> </ul>

**3.3.2 Vendor Test Data Report**

The Lab will update the status in the Web-Enabled Tool to “VTDR Begun” as instructed in the Web-enabled Tool Laboratory User Guide.

3.3.2.1 GP.4

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Print Capabilities:</i> The Card Printer is capable of printing on dual interface cards</li> </ul> <p>At a minimum, the following test scenario must be performed to confirm compliance:</p> <ol style="list-style-type: none"> <li>a. An Answer to Reset (ATR) from both the contact and contactless interfaces was obtained from the 5 (7) submitted test card(s) prior to printing.</li> <li>b. Front and back of the 5 (7) PIV Cards were graphically personalized.</li> <li>c. Obtain the ATR from both the contact and contactless interfaces for each card after graphical personalization.</li> </ol> <p><i>Note:</i> Suppliers in their documentation/report need to provide the ATR values received for the cards as part of their test result and all other accompanying information needed to prove successful completion of this test.</p>
<b>Expected Results:</b>	<p>The test results show that the cards tested were acceptable after the graphical personalization activity and the ATR from both the contact and contactless interfaces.</p>

3.3.2.2 GP.11

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Resistance to Chemicals:</i> The Product has been tested using the test procedure defined in Section 5.4.2 of ISO 10373.</li> </ul> <p>As a result of testing, the following must be included as part of the Vendor Test Data forwarded to the Lab:</p> <ol style="list-style-type: none"> <li>a. A report generated as a result of chemical testing which shows the short term contamination tests have been performed as called out in ISO 10373. The short term contamination test shall include a test using a two percent soap and water solution which has been completed. Each test (8 total) must be performed on two (2) cards.</li> </ol>
<b>Expected Result:</b>	<p>All cards tested remain visually in good condition, meaning cards are not bent, twisted, puckered, bubbles have not started to form on the surface, or portions of the card dissolved.</p>

3.3.2.3 GP.12

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Bar Code Abrasion:</i> The Product has been tested using the test procedure defined in Section 5.10.4 of ANSI 322 with test cards</li> </ul>
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	<p>generated by the standard configuration of the Supplier’s card printer.</p> <p>As a result of testing, the following must be included as part of the Vendor Test Data forwarded to the Lab:</p> <ul style="list-style-type: none"> <li>a. A report generated as a result of bar code abrasion test which shows that two (2) cards have been tested until 3,500 Taber cycles. The bar code must be placed as specified in Figure 18 of ANSI 322.</li> </ul>
<b>Expected Result:</b>	Both cards tested have an ANSI grade of D or higher after completion of the 3,500 Taber cycles.

3.3.2.4 **GP.13, GP.15**

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Sunlight Exposure:</i> The Product has been tested using the test procedures defined in ANSI 322, Section 5.15.</li> <li>• <i>Dynamic Bending Stress:</i> The Product has been subjected to a dynamic bending stress test described in ISO 10373, Section 5.8 using the apparatus depicted in Figure 10.</li> </ul> <p>As a result of testing, the following must be included as part of the Vendor Test Data forwarded to the Lab:</p> <ul style="list-style-type: none"> <li>a. A report generated as a result of sunlight exposure, showing that four (4) cards were tested – 1 pair tested using the front and the other pair tested using the back.</li> <li>b. Using the cards tested in the sunlight exposure test, subject each card to the ISO 10373 dynamic bending stress test. With the card facing up, perform 250 bends. Repeat this process on the perpendicular axis. Flip the card over and repeat both tests again. A total of 1,000 bends per card shall be performed.</li> </ul>
<b>Expected Result:</b>	<ol style="list-style-type: none"> <li>1. At the end of the sunlight exposure test, each tested card has a reflection density increase of less than 20%<sup>2</sup>.</li> <li>2. Graphic overlays should not be peeling, bubbling, or cracking.</li> </ol>

3.3.2.5 **GP.14, GP.15**

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Daylight Exposure Image Stability – Xenon Arc Test:</i> The Product has been tested using the test procedure defined in Section 5.16.4 of ANSI 322 in accordance with the precondition defined in Section 5.16.3 with test cards generated by the standard configuration of the Supplier’s card printer in accordance with the precondition described in Section 5.16.3, using the apparatus described in Section 5.16.2.</li> </ul>
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<sup>2</sup> This is calculated using unprinted areas on the PIV Card (used to determine the extent of “yellowing” of the card).

	<ul style="list-style-type: none"> <li>• <i>Dynamic Bending Stress:</i> The Product has been subjected to a dynamic bending stress test described in ISO 10373, Section 5.8 using the apparatus depicted in Figure 10.</li> </ul> <p>As a result of testing, the following must be included as part of the Vendor Test Data forwarded to the Lab:</p> <ol style="list-style-type: none"> <li>A report generated as a result of the daylight exposure image stability test which shows that two (2) pairs of cards (4 cards total) have been tested – 1 pair tested using the front and the other pair tested using the back.</li> <li>Using the cards tested in the sunlight exposure test, subject each card to the ISO 10373 dynamic bending stress test. With the card facing up, perform 250 bends. Repeat this process on the perpendicular axis. Flip the card over and repeat both tests again. A total of 1,000 bends per card shall be performed.</li> </ol>
<b>Expected Result:</b>	<ol style="list-style-type: none"> <li>1. At the end of the test, the colored squares found on all cards tested each have a reflection density decrease of less than 20%.</li> <li>2. Graphic overlays should not be peeling, bubbling, or cracking.</li> </ol>

3.3.2.6 GP.16

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Image Abrasion:</i> The Product has been tested using the test procedure defined in Section 5.12.4 of ANSI 322 with test cards generated by the standard configuration of the Supplier’s card printer in accordance with the pre-condition defined in Section 5.12.3 of ANSI 322 as depicted in Figure 20.</li> </ul> <p>As a result of testing, the following must be included as part of the Vendor Test Data forwarded to the Lab:</p> <ol style="list-style-type: none"> <li>A report generated as a result of image abrasion test which shows that two (2) pairs of cards (4 cards total) have been tested – 1 pair tested using the front and the other pair tested using the back<sup>3,4</sup> until 3,500 Taber cycles.</li> </ol>
<b>Expected Result:</b>	<p>At the end of the test (i.e. 3,500 Taber cycles), both pairs of cards (2 tested on the front and 2 on the back) have reflection densities (for yellow, magenta, cyan, composite black, resin black) that is not below 50% of its original value.</p>

<sup>3</sup> The Image Abrasion test on the back of the card needs to be only completed if the bar code abrasion test has not been performed.

<sup>4</sup> If the product has the capability to only print monochrome on the back of the card, the image abrasion test (on the back of the card) may be performed using only black. If the product is approved, the restriction column on the APL will reflect the Product’s limited ability to print only black on the back of the card.

## 3.3.2.7 GP.17

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Temperature and Humidity Induced Dye Migration:</i> The Product has been tested using the test procedure defined in Section 5.13.4 of ANSI 322 with test cards generated by the standard configuration of the Supplier's card printer in accordance with the pre-condition defined in Section 5.13.3 of ANSI 322 as depicted in Figure 21.</li> </ul> <p>As a result of testing, the following must be included as part of the Vendor Test Data forwarded to the Lab:</p> <ol style="list-style-type: none"> <li>a. A report generated as a result of temperature and humidity induced dye migration test which shows that two (2) pairs of cards (4 cards total) have been tested – 1 pair tested using the front and the other pair tested using the back<sup>4</sup>.</li> </ol>
<b>Expected Result:</b>	<p>At the end of the test, both pairs of cards (2 tested on the front and 2 on the back) have reflection density increases (for composite black, magenta, yellow, and cyan) of less than 20%.</p>

## 3.3.2.8 GP.18

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Plasticizer Induced Dye Migration Test:</i> The Product has been tested using the test procedure defined in Section 5.14.4 of ANSI 322 with test cards generated by the standard configuration of the Supplier's card printer in accordance with the pre-condition defined in Section 5.14.3 of ANSI 322 as depicted in Figure 22.</li> </ul> <p>As a result of testing, the following must be included as part of the Vendor Test Data forwarded to the Lab:</p> <ol style="list-style-type: none"> <li>a. A report generated as a result of plasticizer induced dye migration test which shows that two (2) pairs of cards (4 cards total) have been tested – 1 pair tested using the front and the other pair tested using the back<sup>4</sup> – for an exposure period of 48 hrs.</li> </ol>
<b>Expected Result:</b>	<p>At the end of the test (i.e. 48 hrs), both pairs of cards (2 tested on the front and 2 on the back) have retained 75% of the original contrast.</p>

## 3.3.2.9 GP.19

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Laundry Test:</i> The Product has been tested using the test procedure defined in Section 5.17.4 of ANSI 322 with test cards generated by the standard configuration of the Supplier's card printer.</li> </ul> <p>As a result of testing, the following must be included as part of the Vendor</p>
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	<p>Test Data forwarded to the Lab:</p> <ol style="list-style-type: none"> <li>a. A report generated as a result of laundry test which shows that two (2) cards have been tested.</li> </ol>
<b>Expected Result:</b>	At the end of the test, both cards shall not show signs of delamination, bubbling, warpage or water penetration.

3.3.2.10 **GP.20**

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Flat Card Production</i>: The Product has been tested to simulate the effects of lamination of the card, using the test procedure found in ISO 7810, Annex A.</li> </ul> <p>As a result of testing, the following must be included as part of the Vendor Test Data forwarded to the Lab:</p> <ol style="list-style-type: none"> <li>a. A report showing that ten (10) cards were subjected to the heat resistance test described in ISO 7810. Five (5) cards are tested with the front side up and the remaining with the back side up.</li> <li>b. The <math>\Delta h</math> values for each of the cards tested.</li> </ol>
<b>Expected Result:</b>	The cards subjected to the heat test have a $\Delta h$ value less than 3 mm.

3.3.2.11 **GP.21**

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Hand Cleaning</i>: The Product has been tested to verify that the personalized card does not delaminate after cleaning with a mild soap solution (e.g. Dawn, Joy, Palmolive, etc.).</li> </ul> <p>As a result of testing, the following must be included as part of the Vendor Test Data forwarded to the Lab:</p> <ol style="list-style-type: none"> <li>a. A report generated as a result of hand cleaning which shows the length of time (minimum 60 seconds) for which the card was washed, the type of soap used, and whether or not the card has delaminated or shows signs of delamination.</li> </ol>
<b>Expected Result:</b>	The cards have not delaminated or show signs of delamination.

3.3.2.12 **GP.48, GP.60**

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Application of Laminate</i>: The Product has been tested to ensure that the card is capable of withstanding the temperature effects of</li> </ul>
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	<p>lamine application.</p> <ul style="list-style-type: none"> <li>• <i>Card Thickness</i>: The Product has been tested to verify that the personalized cards do not interfere with smart card reader operation.</li> </ul> <p>As a result of testing, the following must be included as part of the Vendor Test Data forwarded to the Lab:</p> <ol style="list-style-type: none"> <li>a. Graphically personalize all cards as specified in Appendix A, that are to be submitted for evaluation.</li> <li>b. Visually examine all cards to ensure that the cards have not warped or bent, that the Integrated Circuit remains firmly in place and the antenna has not been exposed as a result of lamination.</li> <li>c. Ensure that laminated cards remain functional by (i) insert the cards into a contact smart card reader and (ii) hover the cards within 10 cm of a contactless smart card reader. As a result of both tests, the cards shall respond by presenting their ATR to the smart card reader.</li> </ol>
<b>Expected Result:</b>	<ol style="list-style-type: none"> <li>1. The cards have not warped or bent, the integrated circuit remains firmly in contact and the card is visually in excellent condition after the personalization process.</li> <li>2. The cards respond to the smart card reader with their ATR string.</li> </ol>

3.3.2.13 GP.54

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Linear 3 of 9 Bar Code Testing</i>: The Product has been tested to verify that the linear 3 of 9 bar codes applied by the printer are in accordance with the Association for Automatic Identification and Mobility (AIM) standards.</li> </ul> <p>As a result of testing, the following must be included as part of the Vendor Test Data forwarded to the Lab:</p> <ol style="list-style-type: none"> <li>a. The verifier used to determine compliance with the AIM standard for linear 3 of 9 bar codes.</li> <li>b. The output report for each card submitted to the Lab which displays the test results generated by the verifier.</li> </ol>
<b>Expected Result:</b>	<p>The scan profile analysis performed by the verifier reports 75% or better for each test performed by the device.</p>

3.3.2.14 GP.61

<b>Evaluation Procedure:</b>	<p>The Lab will review the documentation submitted by the Supplier to ascertain the following:</p> <ul style="list-style-type: none"> <li>• <i>Zone Placement</i>: The Product has been tested to verify that the zones printed on personalized cards are placed precisely as defined by FIPS 201.</li> </ul> <p>As a result of testing, the following must be included as part of the Vendor</p>
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	<p>Test Data forwarded to the Lab:</p> <ol style="list-style-type: none"> <li>Print the cards which will be submitted for evaluation, as defined by Appendix A.</li> <li>Using the templates provided in Attachment 1, which have been printed on transparency film, align each card with its corresponding template.</li> <li>Verify that the zones printed on the card are within the allowed measurement variances as described in Appendix A.</li> </ol>
<b>Expected Result:</b>	The zones printed on submitted cards do not vary more than 0.5mm for non-bordering zones and 0.2mm for bordering zones.

The Lab will update the status in the Web-Enabled Tool to “VTDR Complete” as instructed in the Web-enabled Tool Laboratory User Guide.

### 3.3.3 Lab Test Data Report

<b>Reference(s):</b>	GP.7 to GP.10, GP.21 to GP.53, GP.55 to GP.75, GP.86
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>The Lab will update the status in the Web-Enabled Tool to “LTDR Begun” as instructed in the Web-enabled Tool Laboratory User Guide.</li> <li>The Lab will execute test procedures for this category in accordance with the “<i>Graphical Personalization Test Procedure</i>”.</li> <li>The Lab will update the status to “LTDR Complete” as instructed in the Web-enabled Tool Laboratory User Guide.</li> </ol>
<b>Expected Result:</b>	The personalized PIV Card supplied to the Lab passes all the tests successfully.

### 3.3.4 Site Visit

A Lab Technician will perform a site visit<sup>5</sup> at the Facility to determine whether the documented procedures and other necessary requirements are adhered to and followed by the Service Provider.

<b>Reference(s):</b>	GP.77 to GP.84, GP.86 to GP.89
<b>Evaluation Procedure:</b>	<ol style="list-style-type: none"> <li>The Lab will update the status in the Web-Enabled Tool to “SV Begun” as instructed in the Web-enabled Tool Laboratory User Guide.</li> <li>The Lab will conduct an on site review of the Facility to determine the following. In this respect the Lab Technician shall review processes employed at the facility: <ul style="list-style-type: none"> <li><i>Knowledge of Personnel (GP.77)</i> <ul style="list-style-type: none"> <li>Testing knowledge of PIV Card handlers. This will be conducted by interviewing a sample of key personnel to determine whether they are knowledgeable of the facility's standard operating procedures.</li> </ul> </li> </ul> </li> </ol>

<sup>5</sup> Site visits not only include documentation review but may also include observing the actual process being carried out. Service Providers need to have equipment and processes in place to demonstrate execution of the Graphical Personalization Service.

	<ul style="list-style-type: none"><li>▪ <i>Personnel Background Checks (GP.78, GP.79)</i><ul style="list-style-type: none"><li>• Reviewing records of the hiring process employed by the Facility to determine whether the potential employee is on a list of known terrorists, prior to hiring.</li><li>• Reviewing records of the hiring process employed by the Facility to determine whether the potential employee has had a background check completed, prior to hiring.</li></ul></li><li>▪ <i>Security Provisions (GP.80, GP.81, GP.82)</i><ul style="list-style-type: none"><li>• Demonstration of security mechanisms that are in place on the premise of the facility. The demonstration must closely match the process defined in the Standard Operating Procedures.</li><li>• Demonstration of the logging procedures for visitors who enter the designated PIV Card printing area. The demonstration must closely match the process defined in the Standard Operating Procedures.</li><li>• Demonstration the security mechanisms that are in place on the storage container of PIV Cards waiting to be delivered. Mechanisms must employ a multi-factor form of authentication to gain access to the container. The demonstration must closely match the process defined in the Standard Operating Procedures.</li></ul></li><li>▪ <i>Inventory Control (GP.83, GP.84)</i><ul style="list-style-type: none"><li>• Demonstration of the automated card inventory control system. The demonstration must closely match the process defined in the Standard Operating Procedures.</li><li>• Demonstration of the procedures in place to log outgoing (delivered) PIV Cards. The demonstration must closely match the process defined in the Standard Operating Procedures.</li><li>• Demonstration of the facility's ability to communicate the logs with the contracting Agency. The demonstration must closely match the process defined in the Standard Operating Procedures.</li></ul></li><li>▪ <i>Demonstration of Personalization (GP.86)</i><ul style="list-style-type: none"><li>• All Facility roles shall participate in the demonstration of personalizing PIV Cards according to the Facility Standard Operating Procedures. At the conclusion of the demonstration, the Lab Engineer(s) will take the sample card(s) produced back to the Lab where testing of the cards produced will occur. The demonstration must closely match the process defined in the Standard Operating Procedures.</li></ul></li><li>▪ <i>Privacy Impact Assessment (GP.87)</i><ul style="list-style-type: none"><li>• An audit of the Privacy Impact Assessment will be conducted by Lab Engineers performing the site visit to ensure that the controls placed on privacy information are in place and functioning.</li></ul></li><li>▪ <i>Secure Data Transfer (GP.88)</i><ul style="list-style-type: none"><li>• Demonstration of the Facility's secure mechanism used to transfer</li></ul></li></ul>
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	<p>data related to the card printing request. The demonstration must closely match the process defined in the Standard Operating Procedures.</p> <ul style="list-style-type: none"> <li>▪ <i>Facility Review (GP.89)</i> <ul style="list-style-type: none"> <li>• The Standard Operating Procedures states the operational status of the Facility as well as the anniversary date of reaccreditation.</li> <li>• The Facility maintains a written record of the evaluation of the Facility.</li> <li>• The Facility is prepared for the Lab to visit every 2 years to ensure that the Facility is operating as per the Standard Operating Procedures.</li> </ul> </li> </ul> <p>3. The Lab will update the status to “SV Complete” as instructed in the Web-enabled Tool Laboratory User Guide.</p>
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**3.3.5 Attestation**

<b>Reference(s):</b>	N/A
<b>Evaluation Procedure:</b>	<ol style="list-style-type: none"> <li>1. The Lab will update the status in the Web-Enabled Tool to “A Begun” as instructed in the Web-enabled Tool Laboratory User Guide.</li> <li>2. Review the Attestation Form provided by the Supplier, confirming that the Product to the best of their knowledge, conforms to all the necessary requirements of the category under which the Product applies. Verify that person signing this Attestation Form has the authority to do so (a minimum “C” level [e.g. CSO, CEO, CIO, CFO, Vice-President, President, Business Partner or Owner]).</li> <li>3. The Lab will update the status in the Web-Enabled Tool to “A Complete” as instructed in the Web-enabled Tool Laboratory User Guide.</li> </ol>
<b>Expected Results:</b>	<ol style="list-style-type: none"> <li>1. The Attestation Form has been signed by an authorized individual (e.g. CSO, CEO, CIO, CFO, Vice-President, President, Business Partner or Owner).</li> </ol>

## Appendix A: Specification for Personalized Cards Submitted to the Lab

For cards sent to the Lab for evaluation, reference the table below. Please ensure that each card submitted has all of the mandatory fields, marked by “M”, printed. For cards that have optional fields (marked by “O”), the Supplier may print these fields on the submitted card to show the capability of their product to print optional fields.

Unless noted with an asterisk (\*), the measurement for each zone printed on the card shall not vary from the measurements prescribed by FIPS 201-1 more than 0.2 mm in the X and Y directions. Zones marked with an asterisk (\*) shall not vary more than 0.5 mm. Refer to Attachment 1 for the templates that are to be used when measuring variances in distances. Note that these templates can be printed on transparency film and used as an overlay to verify that all zones printed on the card satisfy the exact measurements as per FIPS 201-1.

Card		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	Zone 12	Zone 13	Zone 14	Zone 15	Zone 16	Zone 17	Zone 18	Zone 19	Zone 20	Employee Affiliation Color
1	Front	M	M						M		M				M							White
	Back	M	M																			
2	Front	M	M	O			O <sup>6</sup>		M	O <sup>7</sup>	M	O		O	M	O	O					Blue
	Back	M	M							O	O											
3	Front	M	M		O	O*			M	O <sup>8</sup>	M		O <sup>9</sup>		M	O	O					Red
	Back	M	M		O	O	O	O	O													
4	Front	M	M		O		O		M		M				M	O		O				Green
	Back	M	M					O*			O*											
5	Front	M	M	O		O			M		M			O	M		O					Green
	Back	M	M				O				O*											
6	Front	M	M						M		M				M	O	O		O	O	O	Blue
	Back	M	M																			
7	Front	M	M						M		M		O		M	O	O		O	O	O	Green
	Back	M	M																			

Notes:

1. Cards 6 and 7 are optional but must be submitted if SP 800-104 compliance is to be achieved.
2. Zones 1 and 2 on the back of the card shall begin at 48 mm from the left edge.
3. Zone 2 – Names, on the front of the card shall be formatted as:

**Last Name,  
First Name, MI.**

<sup>6</sup> Zone 6 – Size of PDF barcode should be reduced to not interfere with Zone 3

<sup>7</sup> Zone 9 – This field is to read “United States Government”

<sup>8</sup> Zone 9 – This field is to read “Fire Fighter”

<sup>9</sup> Zone 12 - This field is to read “Federal Emergency Response Official”

Front of Card – Mandatory Elements				
Zone #	Description	Content	Font	Comments
Zone 1	Photo of subject	Full frontal photo of Cardholder	Dimensions = 37.0 x 27.75 (.75 aspect) Resolution ≥ 300 dpi	Photograph shall be placed in the upper left corner.
Zone 2	Name of subject	Last Name, First Name, MI.	Arial 10 pt Bold	
Zone 8	Employee affiliation	e.g. "CONTRACTOR, "ACTIVE DUTY", "CIVILIAN"	Arial 6 pt Bold	
Zone 10	Organizational affiliation	Agency, Department or Organization affiliation of the Cardholder.	Arial 6 pt Bold	An optional second line may be used to print additional information if necessary
Zone 14	Expiration Date	YYYYMMDD format (e.g. "2013SEP12")	Arial 6 pt Bold	The actual expiration date shall be printed according to the current date and time. Expiration date shall not exceed 5 years past issuance date, if printed.
Front of Card – Optional Elements				
Zone 3	Signature	Signature of Cardholder	N/A	The signature shall be placed below the photograph.
Zone 4	Agency Specific text	Agency specific requirements (i.e. employee status)	Arial 6 pt Bold	
Zone 5	Rank	Rank of subject	Arial 6 pt Bold	Department / agency specific
Zone 6	Two-Dimensional Bar Code	Portable Data File (PDF) two-dimensional bar code	Arial 6 pt Bold	
Zone 9	Header	"United States Government"	Arial 6 pt Bold	If Zone 12 is used, Zone 9 may identify Federal emergency responder role (e.g. "Firefighter")
Zone 11	Agency Seal	Seal of the issuing department, agency or organization	Dimension = 20 x 20 mm	The Agency seal shall be legible and clearly visible
Zone 12	Footer	Preferred location for the "Federal Emergency Response Official"	Arial 6 pt Bold	Bottom of the card is preferred. Area beneath Zone 2 shall be used if printing is not permitted at the bottom
Zone 13	Issue Date	YYYYMMDD format (e.g. "2007SEP12")	Arial 6 pt Bold	Issuance date shall be printed above the expiration date
Zone 15	Employee affiliation color code	Following color schemes are reserved and shall be used for depicting employee affiliation: a. Blue – foreign nationals b. Red – emergency responder officials c. Green - contractors	N/A	May be a solid or gradient shaded line.
Zone 16	Employee affiliation photo border	Following color schemes are reserved and shall be used in the employee affiliation photo border: a. Red - Emergency Responders b. Blue - Foreign Nationals c. Green - Contractors	N/A	Color must match Zone 15.
Zone 17	Agency Specific Data	Other department or agency-specific information	Arial 6 pt Bold	Zone 17 overlaps Zones 3 & 12, and only used if specified zones are not available.

Back of Card – Mandatory Elements				
Zone 1	Agency Card Serial Number	Unique serial number from the issuing department or agency.	Arial 6 pt Bold	Serial Number Zone shall be left justified
Zone 2	Issuer Identification	[6] Characters – department code [4] Characters – agency code [5] Numbers – issuing facility within the department / agency	Arial 6 pt Bold	Issuer Identification Zone shall be right justified
Back of Card – Optional Elements				
Zone 4	Return To Language	Return Address	Arial 5 pt Normal	
Zone 5	Physical characteristics of card holder	i.e. Height, Eyes, Hair	Arial 6 pt Bold	Units of physical characteristics shall be English
Zone 6	Additional language for emergency responder official	“The bearer of this card is a designated Emergency responder. After credential verification, bearer should be given access to controlled areas”	Arial 5 pt Normal	The text shall not interfere with other printed text
Zone 7	Section 499, Title 18 language	“This credential is the property of the U.S. Government. Counterfeiting, altering, or misusing violates Section 499, Title 18 of the U.S. Code.”	Arial 5 pt Normal	
Zone 8	Linear 3 of 9 Bar Code	N/A	N/A	Bar code shall be in accordance with Association for Automatic Identification and Mobility (AIM) standards.
Zone 9	Agency specific text	Other agency or department specific information (e.g. Medical Care Information)	Data - Arial 6 pt Bold	Zone 9 overlaps Zones 6 & 7 and is only used if specified zones are not available
Zone 10	Agency specific text	Other agency or department specific information (e.g. DOB, ID, Geneva Conv.)	Data - Arial 6 pt Bold	Zone 10 overlaps zone 4 & 5 and is only used if specified zones are not available

SP 104 Elements – Front of Card				
Zone #	Description	Content	Font	Comments
Zone 12	Footer	“Emergency Response Official”	Arial 7 pt Bold White lettering on red background	Zone 12 may be used to denote the country or countries of citizenship when Zone 15 indicates Foreign National affiliation and the organization does not need to highlight ERO status. If used the country name or the 3-letter country abbreviation (alpha-3) shall be printed in accordance with ISO 3166.
Zone 15	Employee Affiliation color code	Following color schemes are reserved and shall be used for depicting employee affiliation: a. Blue – foreign nationals b. White <sup>1</sup> – Government Employee c. Green – contractors <sup>1</sup> Note that the card body shall be white	N/A	
Zone 18	Affiliation Color Code	Employee affiliation color coding lettering	Arial 6 pt Bold	Color Code lettering shall be printed in a white circle in

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		"B" – Blue "G" - Green	Circle Diameter = 5mm	Zone 15
Zone 19	Expiration Date	MMMYYYYYY format ("SEP2010")	Arial 12 pt Bold	Expiration date shall be printed in the upper right corner
Zone 20	Organization Affiliation Abbreviation	e.g. DHS	Arial 12 pt Bold	The affiliation abbreviation shall be printed in the upper right hand corner below the date.

**SP 104 – Color Specification**

Zone	Color	sRGB Tristimulus Value	sRGB Value	CMYK Value	Pantone value
Zone 12	Red	{253, 27, 20}	{254, 92, 79}	{0, 90, 86, 0}	032C
Zone 15	White	{255, 255, 255}	{255, 255, 255}	{0, 0, 0, 0}	White
Zone 15	Green	{153, 255, 153}	{203, 255, 203}	{40, 0, 40, 0}	359C
Zone 15	Blue	{0, 255, 255}	{0, 255, 255}	{100, 0, 0, 0}	630C

## Appendix B: Specification for Personalized Cards for VTDR Testing

This section defines the cards necessary to perform ANSI 322 testing per GSA Evaluation Program requirements. It is noted that each card submitted for testing must be printed using the standard configuration of Suppliers card printing device for which graphically personalized cards will be produced for Agency consumption.

Test(s)	# Cards tested	Personalization – Front	Personalization - Back
Resistance to Chemicals	16 total – 8 tests, 2 cards each	Mandatory FIPS 201 elements	Mandatory FIPS 201 elements
Bar Code Abrasion	2 cards	N/A	Zone 8 – Linear 3 of 9 barcode, as per Figure 18 of ANSI 322
Image Abrasion	4 total – 2 front, 2 back	Cyan, Magenta, Yellow, and Black circles, as depicted in Figure 20 of ANSI 322.	Cyan, Magenta, Yellow, and Black circles, as depicted in Figure 20 of ANSI 322.  <i>Note: For cards with magnetic stripes, the notch may be cut from the side which contains the magnetic stripe.</i>
Temperature and Humidity Induced Dye Migration	4 total – 2 front, 2 back	Cyan, Magenta, Yellow and Black square grids, as depicted in Figure 21 of ANSI 322.  <i>Note: The placement of the square grids may deviate slightly from Figure 21 to avoid placement over ICCs or OVD security features.</i>	Cyan, Magenta, Yellow and Black square grids, as depicted in Figure 21 of ANSI 322.  <i>Note: The placement of the square grids may deviate slightly from Figure 21 to avoid placement over laser etched text or magnetic stripes.</i>
Plasticizer Induced Dye Migration Test	4 total – 2 front, 2 back	Any AIM compliant barcode, placed as depicted in Figure 22 of ANSI 322.  <i>Note: The placement of this barcode may deviate slightly from Figure 22 to avoid placement over OVD security features.</i>	Any AIM compliant barcode, placed as depicted in Figure 22 of ANSI 322.  <i>Note: The placement of this barcode may deviate slightly from Figure 22 to avoid placement over OVD security features.</i>
Sunlight Exposure, Dynamic Bending Stress	4 total – 2 front, 2 back,	Mandatory FIPS 201 elements	Mandatory FIPS 201 elements
Daylight Exposure Image Stability – Xenon Arc, Dynamic Bending Stress	4 total – 2 front, 2 back	Cyan, Magenta, Yellow and Black square grids	Cyan, Magenta, Yellow and Black square grids
Laundry Test	2 cards	Mandatory FIPS 201 elements	Mandatory FIPS 201 elements
Flat Card Production	10 total – 5 front, 5 back	Mandatory FIPS 201 elements	Mandatory FIPS 201 elements
Hand Cleaning	1 card	Mandatory FIPS 201 elements	Mandatory FIPS 201 elements
Card Thickness	5 cards	See Appendix A	See Appendix A
Linear 3 of 9 Bar Code	1 card	See Appendix A	See Appendix A
<b>Total Cards Tested:</b>	<b>57 cards</b>		