

**FICAM Transitional Reader
Test Procedures**
VERSION 0.1.0

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FIPS 201 EVALUATION PROGRAM

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1 Overview

The Federal Information Processing Standard (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 EP is to evaluate products and services against the requirements outlined in FIPS 201 and its supporting documents. The FIPS 201 EP is also charged with evaluation of products and services according to requirements from the Federal Identity, Credentialing and Access Management (FICAM) Program. The FICAM Testing Program encompasses both sets of requirements. The goal of the FICAM Testing Program is to provide the best known information on the conformance to standards, interoperability, and security of products and services for implementation of FICAM-conformant systems and services throughout the federal government.

This document provides the detailed test procedures that need to be executed by Industry and ICAM Labs in order to evaluate the FICAM Transitional Reader (henceforth referred to as "Product") against the subset of applicable requirements that need to be electronically tested for this category.

2 Testing Process

The Product must undergo an evaluation using all the evaluation criteria listed for this category prior to being deemed compliant. Only Products that have successfully completed the entire Approval Process and Testing Procedures will be designated as conformant to the FICAM Testing Program. To this effect, this document only provides details for the evaluation using the ICAM Lab Test Data Report approval mechanism.

A Lab Engineer follows the steps outlined below in order to test those requirements that have been identified to be electronically tested. The end result is a compilation of the observed behavior of the Product in the ICAM Lab Test Data Report.

For this category, there are five elements of testing performed in two stages:

Stage 1: Industry Testing

- a. Independent Lab testing and evaluation by a FIPS 201 *National Voluntary Laboratory Accreditation Program (NVLAP)* certified Lab for conformance and listing on the FIPS 201 APL under the Transparent Reader category per R-FTR-1.
- b. Independent Lab testing and evaluation for *ISO 7816* compliance by an *ISO 17025* certified Lab for testing in accordance with *ISO/IEC 10373-3:2010* per R-FTR-9.
- c. Independent Lab testing and evaluation of Product compliance to *ISO 14443* by an *ISO 17025* certified lab for testing in accordance with *ISO/IEC 10373-6:2011* and *ISO/IEC 10373-6 Amendment 4:2012* per R-FTR-10.

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Stage 2: ICAM Testing

- a. ICAM Test Lab evaluation and certification for compliance to R-FTR-2 through R-FTR-8 (Legacy and Interface requirements).
- b. ICAM Test Lab evaluation and certification for compliance to R-FTR-11 through R-FTR-28 (FICAM Reader requirements).

An Independent Lab, if certified by the appropriate authority, may perform any combination of the industry testing requirements.

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54 **3 Test Procedures for FICAM Transitional Reader**

55 **3.1 Requirements**

56 *FICAM Transitional Reader Approval Procedure* Section 3.1 provides the requirements
57 for the test procedures identified in this document.

58 **3.2 Test Components**

59 The following are the required test components to evaluate the Product. They include:

- 60
- 61 1. Legacy technology cards (detailed in Table 1 - Legacy Cards Used in Test).
- 62 2. Live PIV and PIV-I cards from various issuers.
- 63 3. ICAM Test Cards (detailed in *FICAM PACS Master Test Procedures* Section
- 64 1.3).
- 65 4. ICAM PKI infrastructure (detailed in *FICAM PACS Master Test Procedures*
- 66 Section 1.4)
- 67 5. NIST PIV Test Cards.
- 68 6. DoD JITC CAC Test Cards.
- 69 7. Full system under test, encompassing:
- 70 a. The Product;
- 71 b. Validation System; and
- 72 c. PACS Head-End.
- 73

74 **Table 1 - Legacy Cards Used in Test**

Legacy Cards Used in Test
125 KHz Prox
iClass
<i>ICAM Test Card</i> 'Golden' Test PIV (FASC-N)
<i>ICAM Test Card</i> 'Golden' Test PIV-I (UUID)

75

76 **3.3 Installation and set-up for testing**

77 The Supplier shall provide installation and configuration support as appropriate to make
78 their Product operational at the ICAM Test Lab. A Product cannot be tested
79 independently. It must be tested as connected to a Validation System and PACS Head-
80 End. The Supplier must coordinate all components necessary to support testing of the
81 Product. The Supplier will be provided with an eight foot (8') table and four (4) 120 volt
82 AC outlets. The Supplier shall be given one (1) Lab workday to demonstrate the
83 Product's ability to meet the category's requirements.

84

85 **3.4 Test Cases**

86 This section discusses the test cases that are needed to test a Product. For this category,
87 there are five elements of testing performed in two stages, as described here:

88

89 **Stage 1: Industry Testing**

- 90 a. Independent Lab testing and evaluation by a FIPS 201 *National Voluntary*
91 *Laboratory Accreditation Program* (NVLAP) certified Lab for conformance
92 and listing on the FIPS 201 APL under the Transparent Reader category per
93 R-FTR-1.
- 94 b. Independent Lab testing and evaluation for *ISO 7816* compliance by an *ISO*
95 *17025* certified Lab for testing in accordance with *ISO/IEC 10373-3:2010* per
96 R-FTR-9.
- 97 c. Independent Lab testing and evaluation of Product compliance to *ISO 14443*
98 by an *ISO 17025* certified lab for testing in accordance with *ISO/IEC 10373-*
99 *6:2011* and *ISO/IEC 10373-6 Amendment 4:2012* per R-FTR-10.

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101 **Stage 2: ICAM Testing**

- 102 a. ICAM Test Lab evaluation and certification for compliance to R-FTR-2
103 through R-FTR-8 (Legacy and Interface requirements).
- 104 b. ICAM Test Lab evaluation and certification for compliance to R-FTR-11
105 through R-FTR-28 (FICAM Reader requirements).

106

107 An Independent Lab, if certified by the appropriate authority, may perform any
108 combination of the industry testing requirements.

109 **3.4.1 Transparent Reader Test Cases**

110 The Independent FIPS 201 NVLAP certified Lab will perform the existing Test Cases per
111 the *Transparent Reader Approval Procedure* and *Transparent Reader Test Procedure*
112 documents.

113

114 **3.4.2 Legacy Technology Test Cases**

115 The Product will perform the following test cases to evaluate the Legacy Technology
 116 capabilities of the FICAM Transitional Reader.

117 **3.4.2.1 125KHz Prox**

118 A 125Khz Proximity card valid credential will be presented to the reader and the output
 119 of the reader should produce a valid credential of equal bit length to the specific card
 120 configuration being tested, as summarized in Table 2.
 121

Comment [FICAM1]: We are looking for industry-developed test cases that can be applied to this technology.

122 **Table 2 - 125Khz Proximity Card Reader Rules**

Credentials		Reader Rules	Panel Configuration
Prox	26-bit	Pass thru	26-bit
	32-bit	Pass thru	32-bit
	48-bit	Pass thru	48-bit

123 **3.4.2.2 iClass**

124 A valid iClass card will be presented to the reader. The transform rules and encryption
 125 will be tested against the iClass standards. The resulting output should be of equal bit
 126 length to the specific card configuration being tested, as summarized in Table 3.
 127

Comment [sph2]: We are looking for industry-developed test cases that can be applied to this technology.

128 **Table 3 - iClass Card Reader Rules**

Credentials		Reader Rules	Panel configuration
iClass	26-bit	Pass thru	26-bit
	32-bit	Pass thru	32-bit
	34-bit	Pass thru	34-bit
	37-bit	Pass thru	37-bit
	40-bit	Pass thru	40-bit
	56-bit	Pass thru	56-bit

129 **3.4.3 FICAM Transitional Reader Test Cases**

130 **3.4.3.1 ISO 7816 Test Cases**

131 The *ISO 7816* conformant contact interface of the Product shall be tested in accordance
 132 with *ISO/IEC 13073-3:2010* Sections 4, 7, and 8.

Comment [FICAM3]: We are looking for industry-developed test cases that can be applied to this technology.

133 **3.4.3.2 ISO 14443 Test Cases**

134 The *ISO 14443* Type A/B contactless interface of the Product shall be tested in
 135 accordance with *ISO/IEC 13073-6:2011* Sections 4, 5, 6.1, 7.1, and 8.1 and *ISO/IEC*
 136 *13073-6:2011/Amd.4:2012*.

Comment [FICAM4]: We are looking for industry-developed test cases that can be applied to this technology.

137 **3.4.3.3 FICAM Authentication Modes**

138 The FICAM Testing Program performs end-to-end system testing in accordance with the
139 *FICAM PACS Master Test Procedures* document. There are two possible test scenarios
140 for a Product:

141

- 142 1. The Product is being tested with a previously-approved Validation System and PACS
143 Head-End solution; or
- 144 2. The Product is being tested with an all new Validation System and PACS Head-End
145 solution.

146

147 For scenario (1), the ICAM Test Lab will run all tests identified in *FICAM PACS Master*
148 *Test Procedures* marked with an “R” in the 'Components' column.

149

150 For scenario (2), the ICAM Test Lab will run all tests identified in *FICAM PACS Master*
151 *Test Procedures*.