

# **X9 REGISTRY FOR CHECK IMAGE TESTS**

## **FSTC Document Framing Error #006.00**

### **Check Image Test Status: A**

*Where:*

*A = Active (approved for use)*

*W = Withdrawn (not for use)*

*S = Superseded (not for use - replaced by specified test)*

### **Check Image Test Summary:**

<b>Field/ Element</b>	<b>Defined Values</b>	<b>Recommended Value</b>	<b>Data Units</b>
<b>Image Test Name</b>	FSTC Document Framing Error		
<b>Image Test Number</b>	006.00		
<b>Image Test Version</b>	00		
<b><i>Image Test Results (Ref. #):</i></b>			
<b>Framing Error Bottom (R1)</b>	'0' through '999'		Scan Lines
<b>Framing Error Left (R2)</b>	'0' through '999'		Scan Lines
<b>Framing Error Top (R3)</b>	'0' through '999'		Scan Lines
<b>Framing Error Right (R4)</b>	'0' through '999'		Scan Lines
<b><i>Image Test Parameters (Ref #):</i></b>			
<b>Maximum Bottom Edge Over scan Threshold (P1)</b>	'0' through '999'		Scan Lines
<b>Maximum Left Edge Over scan Threshold (P2)</b>	'0' through '999'		Scan Lines
<b>Maximum Top Edge Over scan Threshold (P3)</b>	'0' through '999'		Scan Lines
<b>Maximum Right Edge Over scan Threshold (P4)</b>	'0' through '999'		Scan Lines

<b>1.0</b>	<b>Applicant Information</b>	
<b>1.1</b>	Organization Name:	<b>Financial Service Technology Consortium</b>
<b>1.2</b>	Organization Address:	<b>44 Wall St. 12<sup>th</sup> Floor New York, NY 10005</b>
<b>1.3</b>	Organization Web Site URL:	<a href="http://www.fstc.org">www.fstc.org</a>

<b>2.0</b>	<b>Image Test Description</b>	
<b>2.1</b>	<b>Image Test Name:</b>	FSTC Document Framing Error
<b>2.2</b>	<b>Image Test XML Name:</b>	DocumentFramingError
<b>2.3</b>	<b>Image Test Definition:</b>	An image defect that is due to the inclusion of additional vertical and/or horizontal scan lines, within the document image, that contain no pixel data.
<b>2.4</b>	<b>Image Test Applicability:</b>	<input checked="" type="checkbox"/> <i>Front Image</i> <input checked="" type="checkbox"/> <i>Rear Image</i> <input checked="" type="checkbox"/> <i>B/W Image</i> <input checked="" type="checkbox"/> <i>Grayscale Image</i> <input checked="" type="checkbox"/> <i>Color Image</i>
<b>2.5</b>	<b>Intended Use:</b> Intended business use/ application, business context, and business impact when test fails.	<p>FSTC recommends this metric for use as part of a general system-health monitoring and image quality assurance program.</p> <p>The Document Framing Error metric for all check images is designed to detect occurrences where the document does not extend all the way to the edge of the image file. In general, Document Framing Errors do not create direct image legibility or usability issues in the source image. However, two possible operational impacts resulting from framing defects are:</p> <ul style="list-style-type: none"> <li>• Creation of esthetic artifacts with the document image that could create issues for image statement print applications, substitute check creation, and/or customer acceptance.</li> <li>• The presence of additional vertical and/or horizontal scan lines can negatively impact image print legibility, if the image must be scaled to a constant size for the image print process, e.g. image statement print or substitute check generation.</li> </ul>
<b>2.6</b>	<b>Possible Causes for Condition Being Tested:</b>	<p>This defect may be due to one or more of the following problems:</p> <ul style="list-style-type: none"> <li>• The capture system not being able to properly detect a document edge during the image capture process.</li> </ul>
<b>2.7</b>	<b>Additional (or Repetitive) Information:</b>	<b>XML Names:</b> FSTC defined XML names as needed for its project. FSTC is not submitting these XML names, and instead requests that the RMG or X9B assign appropriate XML names

and data structures for the metrics.

**Rounding Rule:** All fractional values shall be rounded to the nearest whole unit of measure when rounding is required. Fractional values of exactly ½ unit shall be rounded up.

**Data Ranges:** FSTC did not establish a formal data range for individual metrics. Any data ranges provided are based on adjusted values used during the FSTC project. FSTC does not object if the RMG modifies the data ranges.

**Data Range Exception Handling:** If a result exceeds the defined data range, the preferred handling is to truncate the result at the maximum (or minimum) value. If truncation is not implemented, then the test should fail and a result of indeterminate should be returned.

**Margin of Error:** FSTC established a margin of error for use during the FSTC Image Quality and Usability Phase 2 project. This margin of error is included in the recommendations below. It was established based on the expertise of the project's membership, the potential for various algorithms to produce slightly different results for a given metric, and the observed precision of the results submitted during accuracy testing of metric implementations.

**Orientation:** The test is defined relative to the image as seen by an observer. The test is performed along all four edges, and these edges are referred to as Lower (or Bottom) Right, Lower (or Bottom) Left, Upper (or Top) Left, and Upper (or Top) Right. For a properly oriented face of check, these are as follows:

Lower Right = Intersection of aligning and leading edge  
Lower Left = Intersection of aligning and trailing edge  
Upper Right = Intersection of top and leading edge  
Upper Left = Intersection of top and trailing edge

A framing error may be present on either or both sides of the check. The following is the mapping of a properly oriented check for the rear of the check:

Lower Right = Intersection of aligning and trailing edge  
Lower Left = Intersection of aligning and leading edge  
Upper Right = Intersection of top and trailing edge  
Upper Left = Intersection of top and leading edge

The description of the test contained within each result generally refers to the "check" under the assumption that the check is properly oriented and the measurement is relative to the side of the check being viewed/examined.

The terms "aligning edge", "leading edge", and "trailing edge" are defined in ANS X9.7-1999.

**Value Reporting:** The value of this metric will be reported under all image quality flag conditions. If the defect condition is "not tested" or "indeterminate", the value of the image metric(s) reported for this defect will be set to zero (0).

**2.8 Test Results Reported**

*A test result is the outcome realized from executing an image test. The outcome will typically be the observed or measured value of some attribute pertaining to the image being tested.*

*Any dependency of a test result on an image side (front or rear), image rendition (B/W, Gray, Color), or other condition shall be fully defined in the Additional Information section.*

*Data types allowed are as defined in ANS X9.100-180-2006, but are typically alphabetic, numeric, alphanumeric, signed numeric (using “+” and “-“ to denote sign), etc.*

**2.8.1 First Image Test Result (R1)**

**Test Result Name: Framing Error Bottom**

<b>Test Result XML Name:</b>	<b>Data Type:</b>	<b>Data Units:</b>	<b>Data Range:</b>	<b>Margin of Error (in Data Units) (Where Applicable):</b>
FramingErrorBottom	Numeric	Scan lines	0 – 999	4
<b>Description:</b>	The number of scan lines containing no pixel data from the bottom edge of the image (not the document) until the first scan line which contains pixel data.			
<b>Formula and/ or Algorithm:</b>				
<b>Additional Information:</b>	See section 2.7			

**2.8.2 Second Image Test Result (R2)****Test Result Name: Framing Error Left**

<b>Test Result XML Name:</b>	<b>Data Type:</b>	<b>Data Units:</b>	<b>Data Range:</b>	<b>Margin of Error in Data Units (Where Applicable):</b>
FramingErrorLeft	Numeric	Scan lines	0 – 999	4
<b>Description:</b>	The number of scan lines containing no pixel data from the left edge of the image (not the document) until the first scan line which contains pixel data.			
<b>Formula and/ or Algorithm:</b>				
<b>Additional Information:</b>	See section 2.7			

**2.8.3 Third Image Test Result (R3)****Test Result Name: Framing Error Top**

<b>Test Result XML Name:</b>	<b>Data Type:</b>	<b>Data Units:</b>	<b>Data Range:</b>	<b>Margin of Error in Data Units (Where Applicable):</b>
FramingErrorTop	Numeric	Scan lines	0 – 999	4
<b>Description:</b>	The number of scan lines containing no pixel data from the top edge of the image (not the document) until the first scan line which contains pixel data.			
<b>Formula and/ or Algorithm:</b>				
<b>Additional Information:</b>	See section 2.7			

### 2.8.4 Fourth Image Test Result (R4)

#### Test Result Name: Framing Error Right

Test Result XML Name:	Data Type:	Data Units:	Data Range:	Margin of Error in Data Units (Where Applicable):
FramingErrorRight	Numeric	Scan lines	0 – 999	4
<b>Description:</b>	The number of scan lines containing no pixel data from the right edge of the image (not the document) until the first scan line which contains pixel data.			
<b>Formula and/ or Algorithm:</b>				
<b>Additional Information:</b>	See section 2.7			

<b>2.9</b>	<b>Test Parameters Reported</b> <i>Examples of image test parameters are threshold values used to compute a pass/fail image test flag condition, and constant values used in a formula or algorithm to compute an image test result.</i> <i>Any dependency of a test parameter on an image side (front or rear), image rendition (B/W, Gray, Color), or other condition shall be fully defined in the Additional Information section.</i> <i>Any dependency of recommended values on an image side (front or rear), image rendition (B/W, Gray, Color), or other condition shall be fully defined in the Recommended Values section.</i> <i>Data types allowed are as defined in ANS X9.100-180-2006, but are typically alphabetic, numeric, alphanumeric, signed numeric (using "+" and "-" to denote sign), etc.</i>
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### 2.9.1 First Test Parameter (P1)

#### Test Parameter Name: Maximum Bottom Edge Over scan Threshold

Test Parameter XML Name:	Data Type:	Data Units:	Data Range:	Recommended Value(s) (Where Applicable):
MaxBottomEdgeThreshold	Numeric	Scan lines	0 – 999	Front: Not Available Rear: Not Available
<b>Description:</b>	This threshold represents the maximum acceptable number of empty scan lines between the edge of the image and the edge of the document.			
<b>Additional Information:</b>	See section 2.7			

### 2.9.2 Second Test Parameter (P2)

#### Test Parameter Name: Maximum Left Edge Over scan Threshold

Test Parameter XML Name:	Data Type:	Data Units:	Data Range:	Recommended Value(s) (Where Applicable):
MaxLeftEdgeThreshold	Numeric	Scan lines	0 – 999	Front: Not Available Rear: Not Available
<b>Description:</b>	This threshold represents the maximum acceptable number of empty scan lines between the edge of the image and the edge of the document.			
<b>Additional Information:</b>	See section 2.7			

### 2.9.3 Third Test Parameter (P3)

#### Test Parameter Name: Maximum Top Edge Over scan Threshold

<b>Test Parameter XML Name:</b>	<b>Data Type:</b>	<b>Data Units:</b>	<b>Data Range:</b>	<b>Recommended Value(s) (Where Applicable):</b>
MaxTopEdgeThreshold	Numeric	Scan lines	0 – 999	Front: Not Available Rear: Not Available
<b>Description:</b>	This threshold represents the maximum acceptable number of empty scan lines between the edge of the image and the edge of the document.			
<b>Additional Information:</b>	See section 2.7			

<b>2.9.4 Fourth Test Parameter (P4)</b>				
<b>Test Parameter Name: Maximum Right Edge Over scan Threshold</b>				
<b>Test Parameter XML Name:</b>	<b>Data Type:</b>	<b>Data Units:</b>	<b>Data Range:</b>	<b>Recommended Value(s) (Where Applicable):</b>
MaxRightEdgeThreshold	Numeric	Scan lines	0 – 999	Front: Not Available Rear: Not Available
<b>Description:</b>	This threshold represents the maximum acceptable number of empty scan lines between the edge of the image and the edge of the document.			
<b>Additional Information:</b>	See section 2.7			



**2.10**

**Image Test Flag Pass/Fail Criteria:**

*The Image Test Flag (see ANS X9.100-40-1-2006 for details) will convey one of the following four test conditions:*

- *Condition not tested*
- *Condition tested and result = fail*
- *Condition tested and result = pass*
- *Condition tested and result=indeterminate*

Results are reported independently for the Front and Rear image renditions. Selection of the threshold value corresponding to the image view (front or rear) is the responsibility of the implementer. The numbers in the parentheses in the formulae below refer to the section of this document where each result and parameter is defined.

If condition not tested then **flag=not tested**

If condition tested then **flag = fail** if one or more of the following conditions is present:

Framing Error Bottom (2.8.1)	>	Maximum Bottom Edge Over scan Threshold (2.9.1)	<b>OR</b>
Framing Error Left (2.8.2)	>	Maximum Left Edge Over scan Threshold (2.9.2)	<b>OR</b>
Framing Error Top (2.8.3)	>	Maximum Top Edge Over scan Threshold (2.9.3)	<b>OR</b>
Framing Error Right (2.8.4)	>	Maximum Right Edge Over scan Threshold (2.9.4)	

If condition tested and none of the fail conditions is present then **flag=pass**

If condition tested but could not determine pass or fail for any reason then **flag=indeterminate**

<b>3.0</b>	<b>Restrictions &amp; Intellectual Property</b>	
<b>3.1</b>	Are there any known restrictions in the use of the submitted check image test and related technology (technical, performance, legal, business, platform, etc.)?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - <i>please provide details:</i>
<b>3.2</b>	Are proprietary Intellectual Property (IP) rights in the form of Patents associated with the description and use of the submitted check image test?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes – <i>Please provide patent and/or patent application numbers and indicate who owns the IP. Also provide evidence that the patent holder agrees to comply with the X9 Procedures including the X9 patent policy:</i>
<b>3.3</b>	Are proprietary Intellectual Property (IP) rights in the form of proprietary material and/or other intellectual property (e.g. specific to a vendor tool, device, or product) associated with the description and use of the submitted check image test?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes – <i>Please provide evidence that the owner agrees to provide the Proprietary IP Holder Statement contained in Annex B of ANS X9.100-40-2006 Part 2:</i>

**Notice:** By accepting a check image test for registration, ASC X9 is not endorsing, certifying validity, certifying performance, nor providing any warranty for the registered check image test. The organization using the test shall determine which test(s) to use based on their own business needs, perceived benefit, and validation/ assessment of any test results provided by the check image test supplier, their own testing, or a third party.