X9 REGISTRY FOR CHECK IMAGE TESTS

FSTC Below Minimum Compressed Image Size #011.00

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W = Withdrawn (not for use)
S = Superseded (not for use - replaced by specified test)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:

Field/ Element	Defined Values	Recommended Value	Data Units
Image Test Name	FSTC Below Minimum Compressed Image Size		
Image Test Number	011.00		
Image Test Version	00		
Image Test Results (Ref. #):			
Compressed Image Size (R1)	'0' through '9999999'		Bytes
Image Test Parameters (Ref #):			
Minimum Bi-Tonal Compressed Image Size Threshold (P1)	'0' through '9999999'	Front: 600 Rear: Not Available	Bytes
Minimum Gray Level Compressed Image Size Threshold (P2)	'0' through '9999999'	Front: 15000 Rear: Not Available	Bytes

1.0	**Applicant Information**	
1.1	Organization Name:	**Financial Service Technology Consortium**
1.2	Organization Address:	**44 Wall St. 12th Floor New York, NY 10005**
1.3	Organization Web Site URL:	www.fstc.org

2.0	**Image Test Description**	
2.1	**Image Test Name:**	FSTC Below Minimum Compressed Image Size
2.2	**Image Test XML Name:**	BelowMinCompressedImageSize
2.3	**Image Test Definition:**	The compressed image size is too low.
2.4	**Image Test Applicability:**	☒*Front Image* ☒ *Rear Image* ☒*B/W Image* ☒*Grayscale Image* ☒ *Color Image*
2.5	**Intended Use:** Intended business use/ application, business context, and business impact when test fails.	FSTC recommends this metric for use as part of a general system-health monitoring and image quality assurance program. The Below Minimum Compressed Image Size metric is designed to detect occurrences of images where there is a possibility that the check data not readable. The impact of this may be: • Inability to create legible substitute checks • Financial losses due to information being eliminated in one or more fields • Information missing in customer statements, CD ROM delivery, or online viewing. • General customer service issues and complaints.
2.6	**Possible Causes for Condition Being Tested:**	This defect may be due to one or more of the following problems: • Improper suppression (thresholding) of the document background. • Image capture system calibration problems. • Inappropriate JPEG compression parameters/settings, yielding an image with a high level of distortion. • A white document with very little writing or printing, e.g. the rear of a check with a small or missing endorsement.

2.7	Additional (or Repetitive) Information:	**XML Names**: 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.
		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: Compressed Image Size

Test Result XML Name:	Data Type:	Data Units:	Data Range:	Margin of Error (in Data Units) (Where Applicable):
ImageSize	Numeric	Bytes	0-9999999	0
Description:	The size of the compressed image of the view of the check, expressed in bytes. The compressed image is defined as the compressed image raster data, exclusive of any image header.			
Formula and/ or Algorithm:				
Additional Information:				

2.9	**Test Parameters Reported**
	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.
	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.
	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.
	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.

2.9.1 First Image Test Parameter (P1)

Test Parameter Name: Minimum Bi-Tonal Compressed Image Size Threshold

Test Parameter XML Name:	Data Type:	Data Units:	Data Range:	Recommended Value(s) (Where Applicable):
MinBWImageSizeThreshold	Numeric	Bytes	0-9999999	Front: 600 Rear: Not Available

Description:	This threshold represents the minimum size of the compressed bitonal image.
Additional Information:	The recommended threshold settings for the bitonal fronts are based on the analysis work performed during the FSTC Image Quality and Usability Phase 2 study of images in conjunction with Viewpointe. The images analyzed were almost exclusively 200 DPI CCIT G4 compressed bitonal TIFF files. Should it be needed, separate threshold values should be established for other resolutions or compression techniques. There was insufficient data to recommend a threshold for an image view of the rear of the check.

2.9.2 Second Image Test Parameter (P2)				
Test Parameter Name: Minimum Gray Level Compressed Image Size Threshold				
Test Parameter XML Name:	**Data Type:**	**Data Units:**	**Data Range:**	**Recommended Value(s) (Where Applicable):**
MinGSImageSizeThreshold	Numeric	Bytes	0-9999999	Front: 15000 Rear: Not Available
Description:	This threshold represents the minimum size of the compressed grayscale or color image.			
Additional Information:	The recommended threshold settings for the grayscale and color fronts are based on the analysis work performed during the FSTC Image Quality and Usability Phase 2 study of images in conjunction with Viewpointe. These results were based on grayscale images of 80 and 100 DPI only, and given the limitations of the sample tested, should be used as a starting guideline only. This recommendation was for images compressed using JPEG, and commingled all resolutions in the study sample. For this metric, separate thresholds should be established for each resolution and compression method (e.g. JPEG, JBIG, etc.). There was insufficient data to draw a correlation between compressed image size and usability for rear images, and therefore no recommendations are made for rear thresholds..			

2.10	**Image Test Flag Pass/Fail Criteria:**	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
	The Image Test Flag (see ANS X9.100-40-1-2006 for details) will convey one of the following four test conditions:	If condition not tested then **flag=not tested**
	• *Condition not tested*	If condition tested then **flag = fail** if any of the following conditions is present:
	• *Condition tested and result = fail*	**Bitonal:**
	• *Condition tested and result = pass*	
	• *Condition tested and result=indeterminate*	Compressed Image Size (2.8.1) **<** Minimum Bi-tonal Compressed Image Size Threshold (2.9.1)
		Grayscale or Color:
		Compressed Image Size (2.8.1) **<** Minimum Gray Level Compressed Image Size Threshold (2.9.2)
		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**

3.0	Restrictions & Intellectual Property	
3.1	Are there any known restrictions in the use of the submitted check image test and related technology (technical, performance, legal, business, platform, etc.)?	☒ No ☐ Yes - *please provide details:*
3.2	Are proprietary Intellectual Property (IP) rights in the form of Patents associated with the description and use of the submitted check image test?	☒ No ☐ Yes – *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:*
3.3	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?	☒ No ☐ Yes – *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:*

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.*