

IQA Specification Document 1.0:

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1. Introduction:

Scanned images of the instruments to be presented in CTS clearing are validated of Image Quality Assessment (IQA). The instruments that fail the assessment are to be classified as Paper to follow (P2f) instrument and to be exchanged with other banks. This document provides the details of various parameters on which IQA validation has to be carried out at the capture level.

2. IQA defect test:

The latest threshold limits to be configured in capture system are provided below.

DEFECT TESTS	Binary Front	Binary Rear
Partial Image	0	0
Excessive Image Skew	20	20
Streaks and/or Bands	3	9
Bent Corner	20	20
Below Minimum Image Size	1000	500
Exceeds Maximum Image Size	130000	100000
Binary Too Light	3	1
Binary Too Dark	39	39
Image Height Mismatch	10	10
Image Length Mismatch	10	10
Below Minimum Image length	150	150
Exceeds Maximum Image length	230	230
Below Minimum Height	60	60
Exceeds Maximum Height	110	110
Torn Corner	20	20

IQA defect test is carried out for all the three images. For parameters image height mismatch and image length mismatch all three scales of images are considered for validation and rejected if failed. Maximum allowed threshold values are provided below for these two parameters.

2.1-IQA Parameter Validation (Front Gray):

Defective Tests -Front Gray		
	Maximum allowed Threshold Values	Validate
Image Height Mismatch	10	Y
Image Length Mismatch	10	Y

For Remaining all parameters **front black & white and back black & white images** are considered for rejection if failed.

If validation of one or more parameters for any image fails, such image will be rejected in CHI. The list of parameter considered for each binary scale of images and the maximum allowed threshold value for each parameter is provided below.

2.2-IQA Parameter validation (Front BW):

Defective tests - front BW		
	Maximum allowed threshold Values	Validate
Partial Image	0	Y
Below Minimum Image Size	1000	Y
Exceeds Maximum Image size	130000	Y
Binary Too Light	3	Y
Binary Too Dark	39	Y
Image Height Mismatch	10	Y
Image Length Mismatch	10	Y
Below Minimum Image length	150	Y
Exceeds Maximum Image Length	230	Y
Below Minimum Height	60	Y
Exceeds Maximum Height	110	Y

2.3-IQA Parameter Validation (back BW):

Defective tests - back BW		
	Maximum allowed Threshold Values	Validate
Partial Image	0	Y
Excessive Image Skew	20	Y
Streaks and or Bands	9	Y
Exceeds Maximum Image size	100000	Y
Binary Too Dark	39	Y
Image Height Mismatch	10	Y
Image Length Mismatch	10	Y
Below Minimum Image length	150	Y
Exceeds Maximum Image Length	230	Y
Below Minimum Height	60	Y
Exceeds Maximum Height	110	Y

3. Image View Analysis:

As per CHI specification document version 2.9 (refer page no: 96). Member banks are advised to start capturing the IQA test results in Image view analysis field (source=capture) for all the three cheque variants in the presentment (CXF files). NPCI may implement validation and reject all such instruments presented without IQA test results.

4. Possible causes on IQA failure - parameter wise:

Sl. No	Test Name	Possible Causes
1	Partial Image	This test indicates that compressed image data was truncated to fit into the maximum buffer size allocated for images.
2	Excessive Image Skew	Problems in document preparation. Proper jogging and handling of documents should result in alignment of the lower edge of all documents in the feeder with the track on the transport.
		Rotation of documents, prior to scanning them, while being moved on a transport. This can be caused by mechanical issues in the operation of the transport, such as damaged, misaligned, or missing rollers and belts.
		Improper alignment of the document relative to the view of the camera.
		To overcome this issue, Cheques which are failing under this test should be rescanned.
3	Piggy Back	The image view contains information from more than one document.
		There is a perfect overlap of multiple documents captured in the image.
		There is dirt, dust, ink or debris in the optical path.
		Failures of the imaging equipment, such as a set of consecutive pixels being dead or stuck.
		The document contains a horizontal band of ink across its width.
		There is a significant scratch, or damage, on the lens of the camera or on other members in the optical path.
5	Bent Corner	
6	Below Minimum Image Size	Blank document face where there should not be, or reversed document (switched back to front).
		Poor writing contrast on the source document.
		For a bitonal image, improper thresholding of the background was performed such that too much information from the document is lost in the image.
		Illumination failures.
7	Exceeds Maximum Image Size	Image quality setting for JPEG compression set too high;
		In a binary image, a method of thresholding / binarization producing a noisy/busy background was used.

Sl. No	Test Name	Possible Causes
		Piggyback. Two or more documents are captured in the image.
		Image is uncropped.
		Excessive noise is present in the image capture equipment.
		The document contains an excessively busy background.
		The document is not image ready, and is not designed to ANSI standards for image-ready documents.
8	Binary too light	A method of binarization was used that extracts too much of the background texture in the image.
		The face of the document is blank.
9	Binary too Dark	The background information in the image obscures the text, such that the text becomes illegible.
		The document contains an excessive amount of texture in the background, and/or may contain an excessive number of stamps.
10	Torn Corner	Document is torn such that a significant portion of it is missing.
11	Image Height Mismatch	This defect condition can indicate:
		Poor camera alignment with the bottom of the document.
		Truncation in image height due to improper cropping of the image of the entire document from the full image view of the camera.
		Poor camera calibration, or excessive noise in an imaging subsystem associated with a camera.
		The various image views of the document were scanned on different scanners. This may lead to differences in edge detection, or in other words, in document framing or cropping.
		There may be a mismatch between the document and its images due to a potential synchronization error in the image capture solution. For example, the front and rear images may be for different documents
12	Image Length Mismatch	This defect condition can indicate:
		Poor camera alignment with the top & bottom of the document.
		Truncation in image length due to improper cropping of the image of the entire document from the full image view of the camera.
		Poor camera calibration, or excessive noise in an imaging subsystem associated with a camera.

Sl. No	Test Name	Possible Causes
		<p>The various image views of the document were scanned on different scanners. This may lead to differences in edge detection, or in other words, in document framing or cropping.</p> <p>There may be a mismatch between the document and its images due to a potential synchronization error in the image capture solution. For example, the front and rear images may be for different documents</p>
13	Exceeds Maximum Image Length	<p>The document is longer than expected, and could be a non-financial item.</p> <p>Piggyback. Two or more documents are captured in the image.</p> <p>Improper cropping of the image. There was an error detecting the trail-edge of the document.</p>
14	Below Minimum Image Length	<p>Document has a missing corner(s) due to either a fold or tear.</p> <p>Document is folded such that a significant portion of it is obscured.</p> <p>Document is torn such that a significant portion of it is missing.</p>
15	Exceed Max Height	<p>Improper cropping of the image.</p> <p>Piggyback. Two or more documents are captured in the image.</p> <p>The document is taller than expected, and could be a non-financial item.</p>
16	Below Min Height	<p>Document has a missing corner(s) due to either a fold or tear.</p> <p>Document is folded such that a significant portion of it is obscured.</p> <p>Document is torn such that a significant portion of it is missing.</p>