
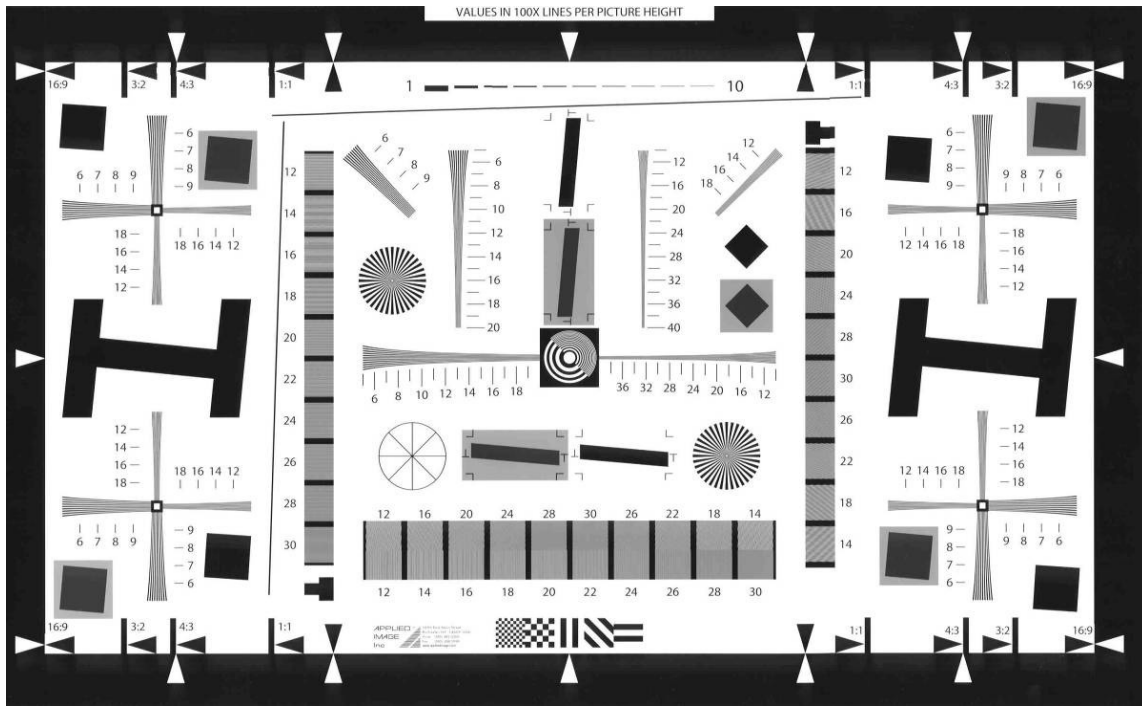


1653 East Main Street Rochester, NY 14609 USA Voice: 585.482.0300 FAX: 585.288.5989 imaging@appliedimage.com	<b>QA-77</b> Enhanced Electronic Still Picture Test Chart (ISO-12233 based) Product Specifications	<b>APPLIED</b> <sup>®</sup> <b>IMAGE</b> Inc 
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**Catalog Part No: QA-77-P-RM (1x size), QA-77-2-P-RM (1/2x size), QA-77-3-P-RM (2x size) , QA-77-4-P-RM (4x size)**

**Product Name: Enhanced Digital Camera Resolution Chart**

Drawing / Photo of part:




The above image is an approximate representation of the actual product.  
 Specifications are subject to change without notice.

**Description: Image evaluation tool for resolution and SFR (MTF) measurement**

**Sizes and Image Forming Material:**

<i>Part Number</i>	<i>Substrate Size (mm)</i>	<i>Active Image Area (mm)</i>	<i>Substrate Type</i>	<i>Image Forming Material</i>
QA-77-P-RM	1X	240 x 395	Photo-paper	Photographic emulsion
QA-77-2-P-RM	½ X	198 x 120		
QA-77-3-P-RM	2X	480 x 791		
QA-77-4-P-RM	4X	960 x 1582		

Note: QA-77-4-P-RM (4X size does not contain gray features, it consists of black and white line work only).

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### Image Description:

(For reference, please refer to the ISO-12233 standard document.)


This test chart is an enhancement of the ISO-12223 chart and contains the following improvements:

- Extended resolution ranges. Central hyperbolic wedges measure to 4000 lw/ph (line widths per picture height). Corner wedges measure to 2000 lw/ph.
- Two star sector targets have been added.
- Additional SFR features provide SFR analysis at reduced contrast for better correlation to average pictorial grayscale image data. Dark grey rotated squares (5 degrees) have nominally 8% reflectance on grey background of nominally 32% reflectance.
- Short line-pair series (square wave sweep) and slanted short line-pair series (tilted square wave bursts) measure a range from 1200 to 3000 lw/ph.

Polarity: Positive image features

Image Contrast / Density: 40:1 / 4:1 typical

Terms: *Line widths per picture height (lw/ph)*; resolution features on this chart are labeled in line widths x 100 per picture height. Note that each line transition is counted.

1653 East Main Street Rochester, NY 14609 USA Voice: 585.482.0300 FAX: 585.288.5989 imaging@appliedimage.com	QA-77 Enhanced Electronic Still Picture Test Chart (ISO-12233 based) Product Specifications	 The logo for Applied Image Inc features the company name in a bold, sans-serif font. To the right of the text is a stylized graphic consisting of several parallel diagonal lines in red and blue, forming a triangular shape pointing upwards and to the right.
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### Analysis Tools:

Windows and Mac SFR program (sfr.zip) is available at no charge from:

Image Quality from an Edge Target (SFR)

<http://www.mitre.org/tech/mtf/index.html>

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I3A offers a version of the Slant Edge Analysis Tool for sale, in the ISO Tools section of this page (appears to be sfrmat (matlab version) and regular SFRwin offered):

<http://www.i3a.org/resources/>

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Sourceforge offers a “pre-alpha” version of SFR analysis at:

<http://sourceforge.net/projects/slantededge/>

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Imatest (sold by Applied Image) is an easy to use program which allows more advance analysis.

<http://www.aig-imaging.com/Imatest.html>

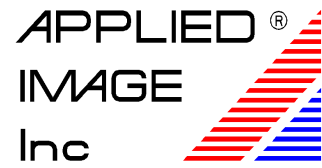
### Related Information:

- Standard Document ISO-12233

Related Parts: QA-72, QA-76, QA-62, QA-61

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QA-77  
 Enhanced Electronic Still  
 Picture Test Chart  
 (ISO-12233 based)  
 Product Specifications



QA-77 Linewidth Dimensions rev 1-00.xls

Linewidth/ Picture Height	QA-77-P-RM 200mm x 355.6mm active size Height= 200		QA-77-2-P-RM 100mm x 177.8mm active size Height= 100		QA-77-3-P-RM 400mm x 711.3mm active size Height= 400		QA-77-4-P-RM 800mm x 1422.2mm active size Height= 100	
	Line width(mm)	Pitch (mm)	Line width(mm)	Pitch (mm)	Line width(mm)	Pitch (mm)	Line width(mm)	Pitch (mm)
600	0.333	0.667	0.167	0.333	0.667	1.333	1.333	2.667
700	0.286	0.571	0.143	0.286	0.571	1.143	1.143	2.286
800	0.250	0.500	0.125	0.250	0.500	1.000	1.000	2.000
900	0.222	0.444	0.111	0.222	0.444	0.889	0.889	1.778
1000	0.200	0.400	0.100	0.200	0.400	0.800	0.800	1.600
1200	0.167	0.333	0.083	0.167	0.333	0.667	0.667	1.333
1400	0.143	0.286	0.071	0.143	0.286	0.571	0.571	1.143
1600	0.125	0.250	0.063	0.125	0.250	0.500	0.500	1.000
1800	0.111	0.222	0.056	0.111	0.222	0.444	0.444	0.889
2000	0.100	0.200	0.050	0.100	0.200	0.400	0.400	0.800
2200	0.091	0.182	0.045	0.091	0.182	0.364	0.364	0.727
2400	0.083	0.167	0.042	0.083	0.167	0.333	0.333	0.667
2600	0.077	0.154	0.038	0.077	0.154	0.308	0.308	0.615
2800	0.071	0.143	0.036	0.071	0.143	0.286	0.286	0.571
3000	0.067	0.133	0.033	0.067	0.133	0.267	0.267	0.533
3200	0.063	0.125	0.031	0.063	0.125	0.250	0.250	0.500
3400	0.059	0.118	0.029	0.059	0.118	0.235	0.235	0.471
3600	0.056	0.111	0.028	0.056	0.111	0.222	0.222	0.444
3800	0.053	0.105	0.026	0.053	0.105	0.211	0.211	0.421
4000	0.050	0.100	0.025	0.050	0.100	0.200	0.200	0.400