



Overview

Product name	TE253 9x
Principle	Test chart to determine the resolution of a digital camera based on sinusoidal Siemens stars, slanted edges and noise pattern. The Siemens stars and slanted edges comply to ISO 12233:2014.

Features

Siemens stars

Type of pattern	9 sinusoidal Siemens stars, each with 16 surrounding gray patches		
Modulation	93 % (matt paper) 96 % (semi-matt photographic paper) ~96 % (photographic film)		
Cycles	<input type="checkbox"/> 144 <input type="checkbox"/> 72 <input type="checkbox"/> other: _____		
Diameter stars	220 mm (A1066 S, A1066 L) 240 mm (A1066 H) 105 mm (A460 H, A460 L) 6.5 mm (D35)		
Diameter registration marks	<input type="checkbox"/> 5 mm <input type="checkbox"/> 12 mm <input type="checkbox"/> 0.4 mm <input type="checkbox"/> other: _____		
Gray steps	The contrast of the gray scale complies to the contrast of the Siemens star. Please refer to Acceptance protocol for exact densities of each step.		
Reference data	individually measured on center star production tolerance: allowed variation of linearity of gray patches of 15% (remission) max.		
Sample rate* [MP]		minimum	maximum
	A1066 H	8	180 (> 8K)**
	A1066 S	2	30 (HDTV - 8K)**
	A1066 L	VGA	2 (HDTV)**
	A460 H	2	35 (HDTV - 8K)**
A460 L	VGA	2 (HDTV)**	



	D35	2	10	(HDTV - 4K)**
	other			

## Slanted edges

Type/s of pattern	2 subcharts of slanted edges, each consisting of 4 slanted edges with different modulation and accompanied by a set of 10 gray patches			
Modulation	40, 60, 80, 100 %			
Sample rate* [MP]		minimum	maximum	
	A1066 H	8	180	(> 8K)**
	A1066 S	2	30	(HDTV - 8K)**
	A1066 L	VGA	2	(HDTV)*
	A460 H	2	35	(HDTV - 8K)**
	A460 L	VGA	2	(HDTV)**
	D35	2	10	(HDTV - 4K)**
	other			

## Noise patches

Type/s of pattern	4 subcharts, each with 2 gaussian white noise patches with different variances and a flat patch without noise			
Variance	<p>C.1: no noise, OD***=0.5</p> <p>C.2: gaussian white noise, <math>\sigma=1/4</math>, OD<sub>mean</sub>=0.5</p> <p>C.3: gaussian white noise, <math>\sigma=1/8</math>, OD<sub>mean</sub>=0.5</p> <p>C.4: gaussian white noise, <math>\sigma=1/16</math>, OD<sub>mean</sub>=0.5</p> <p>C.5: gaussian white noise, <math>\sigma=1/2</math>, OD<sub>mean</sub>=0.5</p>			
		minimum	maximum	
	A1066 H	8	180	(> 8K)**
	A1066 S	2	30	(HDTV - 8K)**
A1066 L	VGA	2	(HDTV)**	
A460 H	2	35	(HDTV - 8K)**	
A460 L	VGA	2	(HDTV)**	
D35	2	10	(HDTV - 4K)**	
	other			

## General description hardware

Type	<input type="checkbox"/> reflective <input type="checkbox"/> transmissive
Aspect ratio	<input type="checkbox"/> 4:3 <input type="checkbox"/> 16:9 <input type="checkbox"/> variable (3 panels) <input type="checkbox"/> other: _____



Chart size [W x H x D]		W [mm]	H [mm]	D [mm]	Weight [g]
	<input type="checkbox"/> A1066	variable	835	3.2	
	<input type="checkbox"/> A460	600	500	3.2	
	<input type="checkbox"/> D35	50	50	2.6	
	<input type="checkbox"/> other				
Picture size		4:3		16:9	
		W [mm]	H [mm]	W [mm]	H [mm]
	A1066 S	variable	810	na	na
	A1066 H	Variable	780	na	na
	A460	460	345	460	303.75
	D35	32	24	-	-
	other				
Material	<input type="checkbox"/> specific matt paper <input type="checkbox"/> semi-matt photographic paper <input type="checkbox"/> photographic film				
Mounting	aluminum composite panel (size A1066) aluminum (size A460) framed (D35)				
Edge protection	none (A1066) fabric tape (A460)				
Scope of delivery	test chart, cardboard box (A charts only, except A1066), acceptance protocol				

## Miscellaneous

Evaluation / Assessment	supported by iQ-Analyzer (since version 4)
Standards	ISO 12233:2017 Resolution and special frequency responses
Accessories	Chart case

\* if chart fills the image height the chart can be used with a camera of minimum/maximum sample rate, stated in mega pixel (MP)

\*\* HDTV ~ 2.1 MP, 4K ~ 8.3 MP, 8K ~ 33 MP

\*\*\* OD = optical density

# TE253 9x A / TE253 single A



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## Acceptance protocol

SN: \_\_\_\_\_  
Diameter center mark: \_\_\_\_\_  
Number of cycles: \_\_\_\_\_  
Date: \_\_\_\_\_  
Operator: \_\_\_\_\_

## Reflectances of the gray patches\*

Patch	Reference reflectance	Measured reflectance**	Deviation	Measured reflectance
1 (white)	1,00		0,00	
2	0,93		0,00	
3	0,87		0,00	
4	0,80		0,00	
5	0,74		0,00	
6	0,67		0,00	
7	0,61		0,00	
8	0,54		0,00	
9	0,48		0,00	
10	0,41		0,00	
11	0,34		0,00	
12	0,28		0,00	
13	0,21		0,00	
14	0,15		0,00	
15	0,08		0,00	
16 (black)	0,02		0,00	



\* individually measured on center star

\*\* white corrected

\_\_\_\_\_  
Signature

# TE253 9x D / TE253 single D



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## Acceptance protocol

SN: \_\_\_\_\_  
Diameter center mark: \_\_\_\_\_  
Number of cycles: \_\_\_\_\_  
Date: \_\_\_\_\_  
Operator: \_\_\_\_\_

## Transmission of the gray patches\*

Patch	Measured transmission**	Measured density**
1 (white)	0,74	0,13
2	0,71	0,15
3	0,66	0,18
4	0,65	0,19
5	0,54	0,27
6	0,46	0,34
7	0,38	0,42
8	0,30	0,52
9	0,21	0,68
10	0,13	0,87
11	0,08	1,11
12	0,04	1,38
13	0,04	1,44
14	0,02	1,64
15	0,02	1,76
16 (black)	0,01	1,83

\* batch measured values

\*\*sample values, (batch measured) reference values of individual chart can vary

\_\_\_\_\_  
Signature