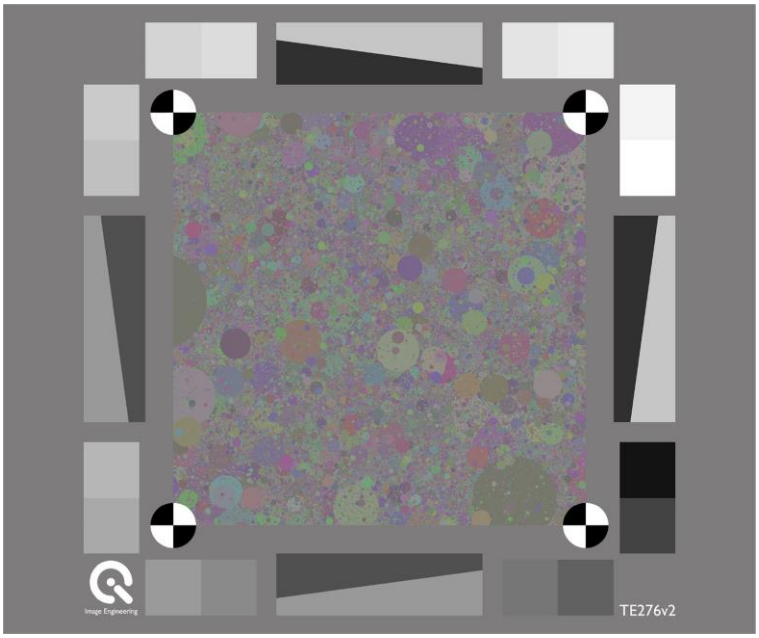
TE276 A/D data sheet



Overview

Product name	TE276 A / TE276 D
Principle	The Dead Leaves Target is used for the analysis of 'texture loss', which is the loss of low contrast, fine details in images due to noise reduction or other image processing techniques. The main item is the so called Dead Leaves pattern. This pattern consists of circles stacked on top of each other with a known probability distribution of position, radius and digital value of channel R, G and B.

Features

Dead Leaves

Type/s of pattern	Dead Leaves according to the approach from 2016			
Modulation	Low contrast			
Size of sub-chart [mm]	A sizes	200 x 200		
	D35	15.7 x 15.7		
Sample rate* [MP]		Minimum	Maximum	
	A sizes	---***	30	(HDTV – 8K)**
	D35	---***	10	(HDTV - 4K)**

Slanted edges

Type/s of pattern	4 slanted edges with different, reduced modulation • 2 in vertical orientation • 2 in horizontal orientation			
Modulation	Low contrast: ~ 50% High contrast: ~ 80%			
Size of sub-chart [mm]	A sizes	100 x 30		
	D35	7.85 x 2.35		

Sample rate* [MP]		Minimum	Maximum	
	A sizes	---****	30	(HDTV – 8K)**
	D35	---****	10	(HDTV - 4K)**
Density / Refection values	Individually measured values are provided in a separate Acceptance Protocol.			

OECF

Type/s of pattern	Grayscale	
Contrast	~ 25:1 (28 dB, 4.7 f-stops)	
Size of OECF patch [mm]	A sizes	27 x 27
	D35	2.15 x 2.15
Number of steps	16	
Arrangement of steps	Reflectance linear (OD logarithmic)	
Density / Refection	Individually measured values are provided in a separate Acceptance Protocol.	

General description hardware

Type	Reflective (A) Transmissive (D)			
Aspect ratio	~ 1:1			
Chart size [W x H x D]		W [mm]	H [mm]	D [mm]
	A1066	1245	835	3.2
	A460	600	500	3.2
	A360	500	400	3.2
	A280	365	305	3.2
	D35	50	50	2.6
Picture size		W [mm]	H [mm]	
	A1066	287	287	
	A460	287	287	
	A360	287	287	
	A280	287	287	
	D35	22.6	22.6	
Material	Photographic paper, matt finishing, resolution 9-10 LP/mm (A) Photographic color film (D)			
Mounting	Aluminum composite panel (aluminum Dibond) with TE182 background, size A1066 Aluminum with TE182 background, size A460, A360, A280 Embedded in 35mm slide frame without glass, size D35			
Edge protection	Fabric tape (except A1066, D35), might have influence to chart thickness tolerance			
Chart size tolerances	Up to +/- 2 mm as they are handmade in-house and fabric tape is used Up to +/- 0.5 mm as they are handmade in-house and no edge protection is used			
Service life	Photographic paper, matt finishing 3 years (A) Photographic film 3 years (D)			
Storage	Dark, dry, and free from harmful gas (e.g., formaldehyde or ozone). 20 °C and 25 °C with a humidity of 60% – 65% and no direct sunlight at any time.			

Miscellaneous

Evaluation / Assessment	Supported by iQ-Analyzer Visual appraisal
Reference data iQ-Analyzer-X	Individual reference file provided
Measurement device	X-Rite eXact (A) X-Rite 361T (D) https://www.image-engineering.de/content/products/charts/IE_reference_data_accuracy.pdf
Papers	The analysis procedure behind this test chart is described in this paper: “Description of texture loss using the dead leaves target: current issues and a new intrinsic approach”, Kirk, Herzer, Artmann, Kunz, Proc. SPIE 9023, Digital Photography X, 90230C (7 March 2014); doi:10.1117/12.2039689 The Dead Leaves pattern and its properties are described in this paper: "Occlusion Models for Natural Images: A Statistical Study of a Scale-Invariant Dead Leaves Model" Ann Lee, David Mumford, and Jinggang Huang , International Journal of Computer Vision 41(1/2), 35-59, 2001
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* If the chart fills the image height, the chart can be used with a camera of minimum/maximum sample rate, stated in megapixels (MP)

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

*** ROI should be reproduced by at least 128 by 128 pixels, with a lower limit based on this requirement

**** no lower limit for Slanted Edges, small ROI increases variance, min. 100-pixel ROI required