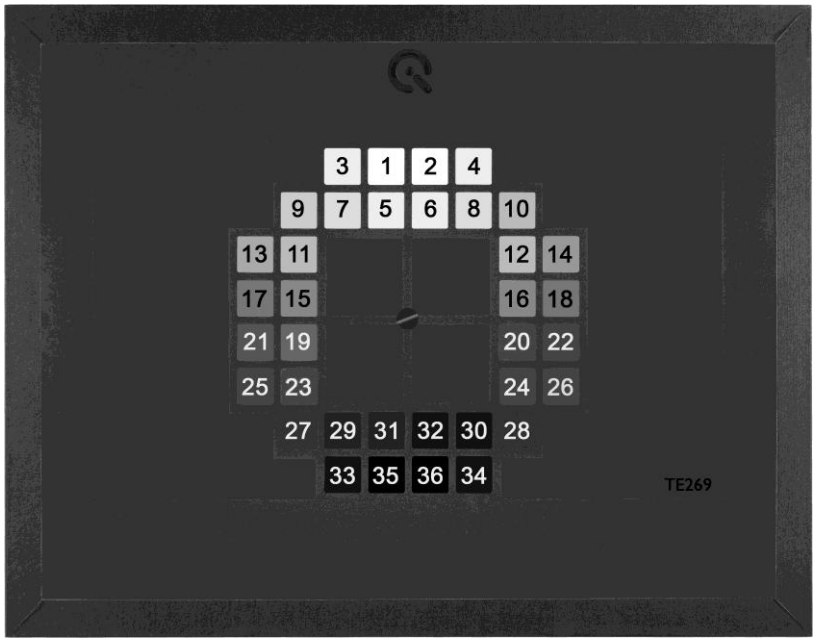
TE269 V3 D data sheet



Overview

Product name	TE269A V3, TE269AX* V3 TE269B V3, TE269BX* V3 TE269C V3, TE269CX* V3
Principle	Transparent gray scale test chart to determine the OECF / gamma, noise, SNR, ISO speed and dynamic range especially of digital high dynamic range cameras.

Features

OECF

Type/s of pattern	Gray scale, circular arranged (most optical systems are rotationally symmetric so all patches will be affected in the same way by shading)
Contrast	TE269A/AX* - TE269B/BX*: 1,000,000:1 / 120 dB / 20 f-stops TE269C/CX*: 5,000,000:1 / 134 dB / 22 f-stops
Size of OECF patch [mm]	16 x 16
Quality	Standard version with screening method X-version with continuous film*
Number of steps	36
Arrangement of steps	TE269A/AX* V3: according to ISO 14524 TE269B/BX* V3: Image Engineering's version shifts more steps to higher density levels TE269C/CX* V3: according to IEC 62676-5 standard
Density / Transmission	Individually measured values are provided in a separate Acceptance Protocol. Production tolerance is ± 0.05 OD
Surface finish	The film patches of transparent charts may show scratches. This issue does not affect the test chart's function, as the scratches are not visible under standard illumination geometry. We also recommend recording the OECF chart slightly out of focus to obtain a stable average value in the result.

General description hardware

Type	Transmissive (D)
Aspect ratio	16:9 (can be used for other aspect ratios without restrictions)
Chart size tolerances	+/- 2 mm as they are handmade in house and depends on edge protection type
Chart size [mm]	W / H / D D280: 360 / 280 / 4.6 / 9.2 (screw area)
Picture size [mm]	W / H D280: 280 / 157.5
Material	Photographic halftone film, suitable for IR (standard version) Combination photographic halftone and continuous film (X- version)
Mounting	Black anodized aluminum metal frames
Edge protection	Fabric tape, 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
Service life	Photographic film 3 years
Storage	Dark, dry, and free from harmful gas (e.g., formaldehyde or ozone). 20 °C and 25 °C with a humidity of 35% – 65% and no direct sunlight at any time.
Usage limitations	Do not use the test chart above 70 °C; the film might fade and materials can change.
Scope of delivery	Test chart, stable cardboard envelope to store the chart, air blower

Miscellaneous

Evaluation / Assessment	Supported by iQ-Analyzer
Reference data iQ-Analyzer-X	Individual reference file provided
Measurement device	X-Rite 361T (transparent charts) https://www.image-engineering.de/content/products/charts/IE_reference_data_accuracy.pdf
Standards	ISO 14524:2009 Methods for measuring opto-electronic conversion functions (OECFs) (TE269A V2 only) ISO 15739:2013 Noise measurements ISO 12232:2006 Determination of exposure index, ISO speed ratings, standard output sensitivity, and recommended exposure index IEC 62676-5 Video surveillance systems for use in security applications – Part 5: Data specifications and image quality performance for camera devices, this chart is adapted to the postulated requirements. (TE269C V2 only)
Accessories	PCR Krochmann Radiolux 111: luminance meter (tele-luminance meters can only be used in combination with a mask that covers the whole chart except the measured patch).
Related Products	LG3 TE269M (mask to cover complete background except patches)
Terms & Conditions	image-engineering.de/terms-and-conditions

* The gray level in most transparent charts is produced by screening, showing high-frequency content. The resolution of today's cameras can be high enough to resolve this high-frequency content. If the screening is resolved, it is interpreted as noise, which fools the measurement of noise and/or dynamic range. Possible solutions can be to defocus the charts or to increase the camera to chart distance. If this does not help, the affected patches are produced individually with a highly increased production effort by a unique manufacturing and mounting process. The background is still screened and can show aliasing / false noise, but the important patches are not screened and can still be used for the measurement. Please ask our team for the X-version.