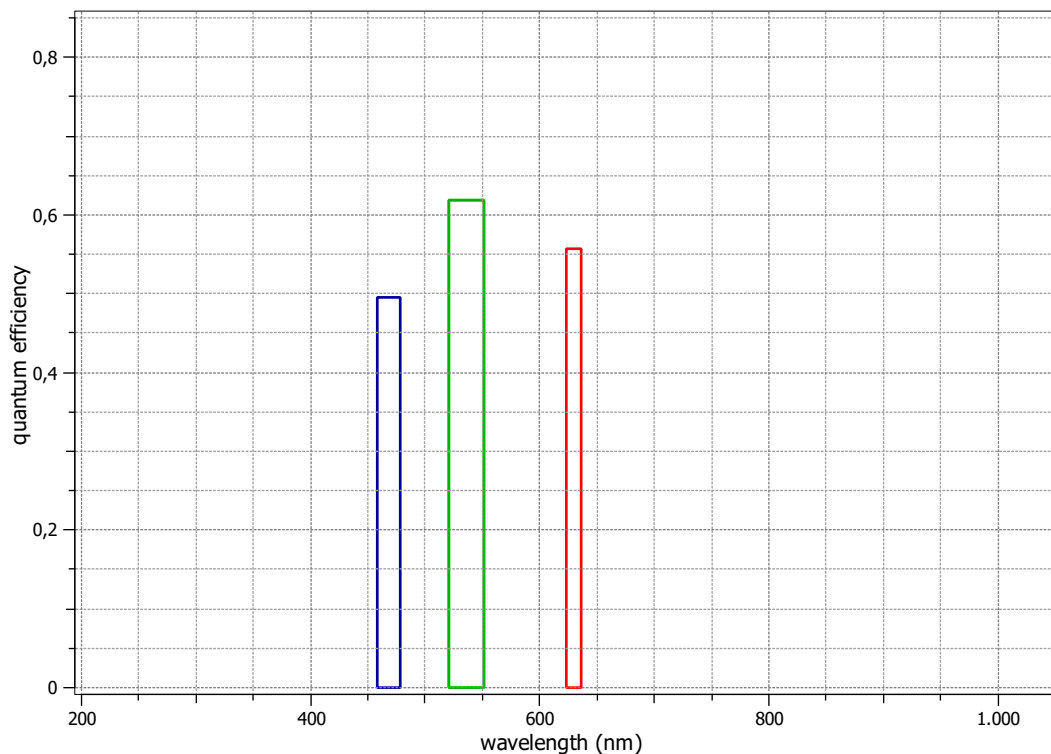


EMVA 1288 Data Sheet m0748

This datasheet describes the specification according to the standard 1288 release 3.1 for "Characterization and Presentation of Specification Data for Image Sensors and Cameras" issued on December 30, 2016 by the European Machine Vision Association (EMVA), published at www.standard1288.org and the *zenodo EMVA 1288 community* with proprietary extensions from AEON. The measurements were performed with the AEON ACC3 Release 6, 26.11.2016, SN 0005(MatrixVision.

Measurements performed by T.Renner, Matrix Vision GmbH

Vendor	MATRIX VI-SION	Type of data presented	Single
Model	mvBlueCOUGAR-X102nC	Operation point 1 (page 5)	
Serial number	GX025786	Wavelength centroid	468.0 nm
Sensor diagonal	9.25 mm	Wavelength FWHM	20.0 nm
Lens category	C-Mount	Gain, black-level	0dB, 0.1
Resolution	1632 × 1248, 12 bit	Operation point 2 (page 20)	
Pixel size (h×v)	4.50 μm × 4.50 μm	Wavelength centroid	536.0 nm
Sensor	IMX430	Wavelength FWHM	31.0 nm
Sensor type	CMOS	Gain, black-level	0dB, 0.1
Shutter type	Global	Operation point 3 (page 35)	
Overlap cap.	Overlapping	Wavelength centroid	630.0 nm
Max. frame rate	29.3 Hz	Wavelength FWHM	13.0 nm
Interface type	GigE Vision	Gain, black-level	0dB, 0.1
		Optional data measured	None

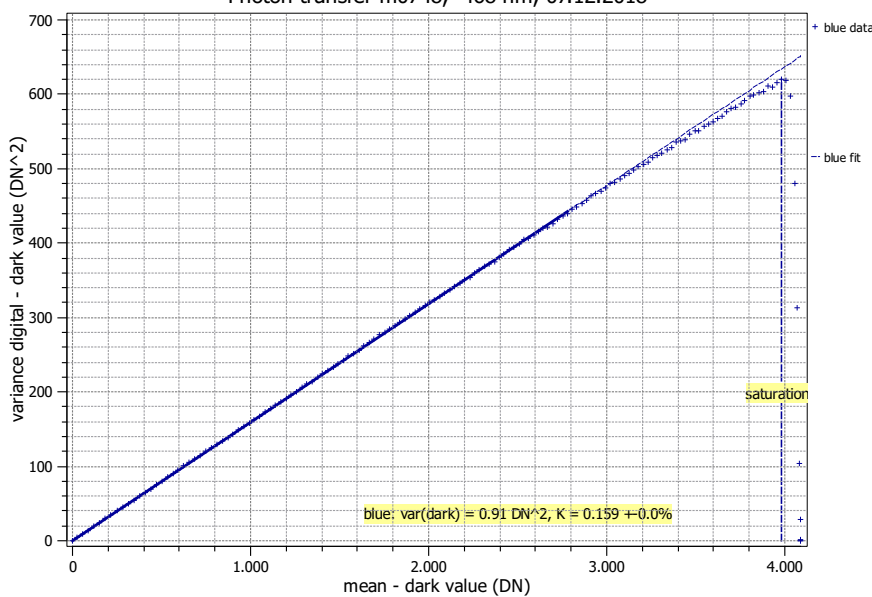


Summary Sheet for Operation Point 1 at a Wavelength of 468 nm

Type of data	Single	Gain, black-level	0dB, 0.1
Exposure control	By irradiance	Environmental temperature	25.6°C
Exposure time	18.00 ms	Camera body temperature	47.1°C
Frame rate	28.0 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	468 nm, 20.0 nm

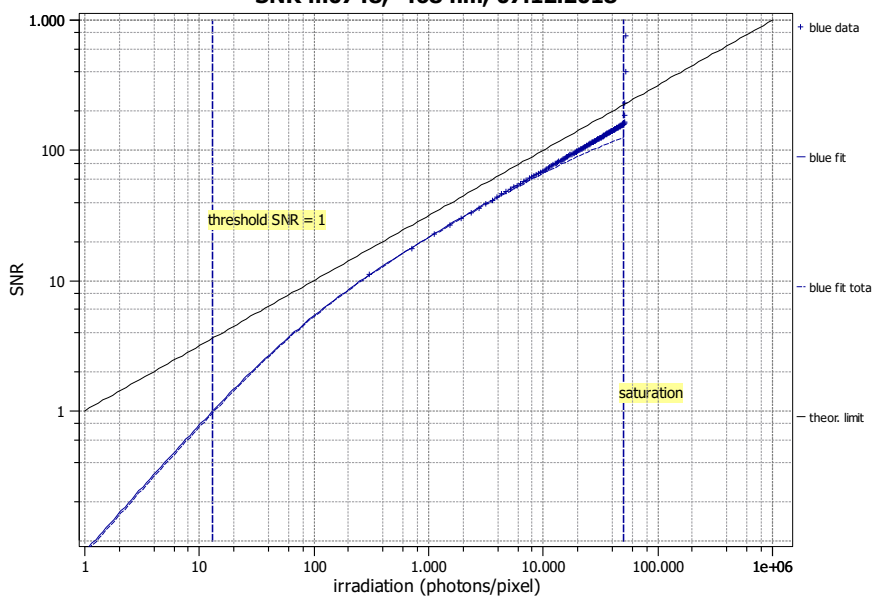
Photon Transfer

Photon transfer m0748, 468 nm, 07.12.2018



Signal-to-Noise Ratio

SNR m0748, 468 nm, 07.12.2018



Quantum efficiency

η 49.6%

Overall system gain

K 0.159 DN/e⁻

$1/K$ 6.282 e⁻/DN

Temporal dark noise

σ_d 5.70 e⁻

$\sigma_{y.dark}$ 0.95 DN

Signal-to-noise ratio

SNR_{max} 158

44.0 dB

7.3 bit

$1/\text{SNR}_{max}$ 0.63 %

Absolute sensitivity threshold

$\mu_{p.min}$ 13.10 p

$\mu_{p.min.area}$ 0.647 p/ μm^2

$\mu_{e.min}$ 6.50 e⁻

$\mu_{e.min.area}$ 0.321 e⁻/ μm^2

Saturation capacity

$\mu_{p.sat}$ 50430 p

$\mu_{p.sat.area}$ 2490 p/ μm^2

$\mu_{e.sat}$ 25016 e⁻

$\mu_{e.sat.area}$ 1235 e⁻/ μm^2

Dynamic range

DR 3850

71.7 dB

11.9 bit

Spatial nonuniformities

DSNU₁₂₈₈ 1.73 e⁻

0.28 DN

PRNU₁₂₈₈ 0.48 %

Linearity error

LE_{min} -0.27%

LE_{max} 0.49%

Dark current

$\mu_{c.mean}$ -27.6 ± 5.9 e⁻/s

-4.40 DN/s

$\mu_{c.var}$ 4.1 ± 5.7 e⁻/s

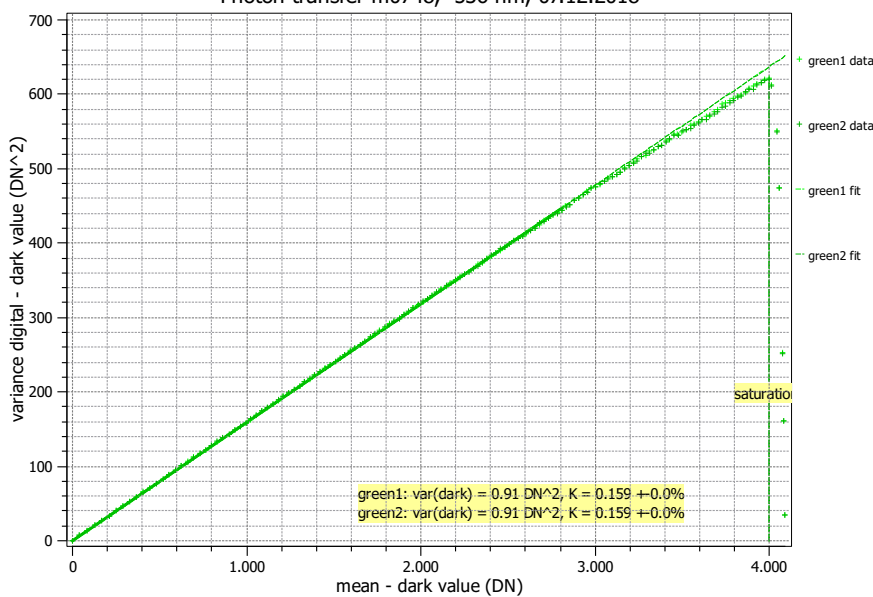
T_d — °C

Summary Sheet for Operation Point 2 at a Wavelength of 536 nm

Type of data	Single	Gain, black-level	0dB, 0.1
Exposure control	By irradiance	Environmental temperature	25.6°C
Exposure time	18.00 ms	Camera body temperature	47.6°C
Frame rate	28.0 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	536 nm, 31.0 nm

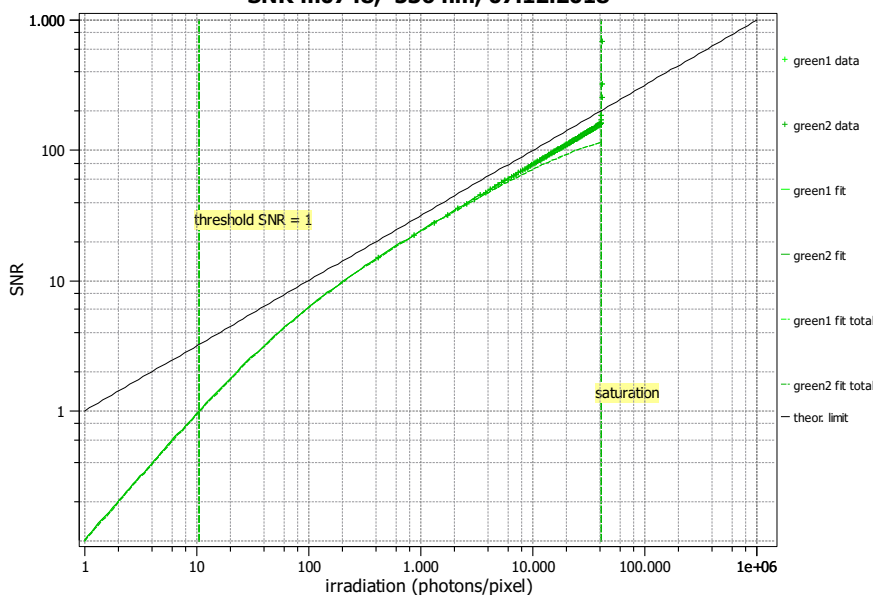
Photon Transfer

Photon transfer m0748, 536 nm, 07.12.2018



Signal-to-Noise Ratio

SNR m0748, 536 nm, 07.12.2018



Quantum efficiency

η 61.8%

Overall system gain

K 0.159 DN/e⁻

$1/K$ 6.276 e⁻/DN

Temporal dark noise

σ_d 5.70 e⁻

$\sigma_{y,\text{dark}}$ 0.95 DN

Signal-to-noise ratio

SNR_{max} 158

44.0 dB

7.3 bit

$1/\text{SNR}_{\text{max}}$ 0.63 %

Absolute sensitivity threshold

$\mu_{p,\text{min}}$ 10.51 p

$\mu_{p,\text{min,area}}$ 0.519 p/ μm^2

$\mu_{e,\text{min}}$ 6.50 e⁻

$\mu_{e,\text{min,area}}$ 0.321 e⁻/ μm^2

Saturation capacity

$\mu_{p,\text{sat}}$ 40544 p

$\mu_{p,\text{sat,area}}$ 2002 p/ μm^2

$\mu_{e,\text{sat}}$ 25071 e⁻

$\mu_{e,\text{sat,area}}$ 1238 e⁻/ μm^2

Dynamic range

DR 3859

71.7 dB

11.9 bit

Spatial nonuniformities

DSNU₁₂₈₈ 1.27 e⁻

0.20 DN

PRNU₁₂₈₈ 0.58 %

Linearity error

LE_{min} -0.31%

LE_{max} 0.76%

Dark current

$\mu_{c,\text{mean}}$ -27.8 ± 5.8 e⁻/s

-4.42 DN/s

$\mu_{c,\text{var}}$ 3.3 ± 5.7 e⁻/s

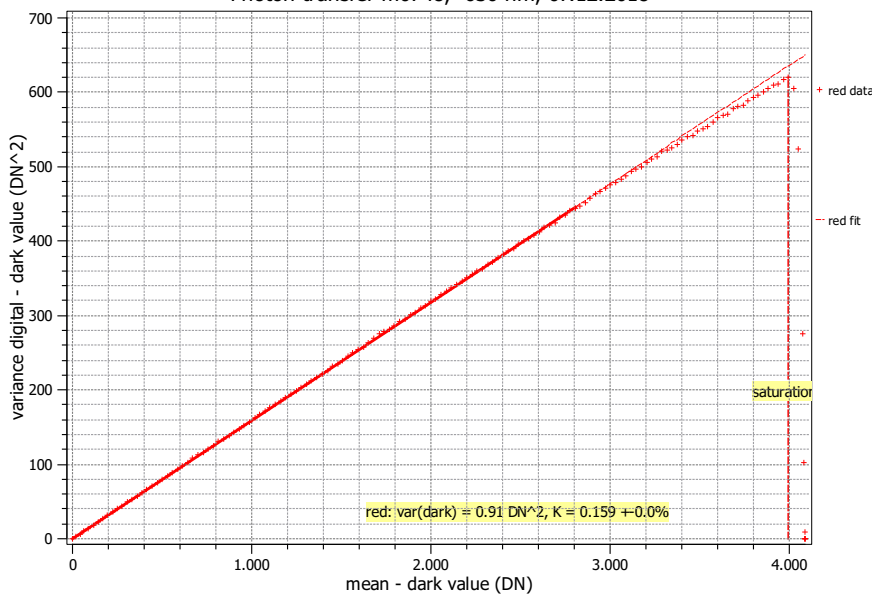
T_d — °C

Summary Sheet for Operation Point 3 at a Wavelength of 630 nm

Type of data	Single	Gain, black-level	0dB, 0.1
Exposure control	By irradiance	Environmental temperature	25.6°C
Exposure time	18.00 ms	Camera body temperature	47.8°C
Frame rate	28.0 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	630 nm, 13.0 nm

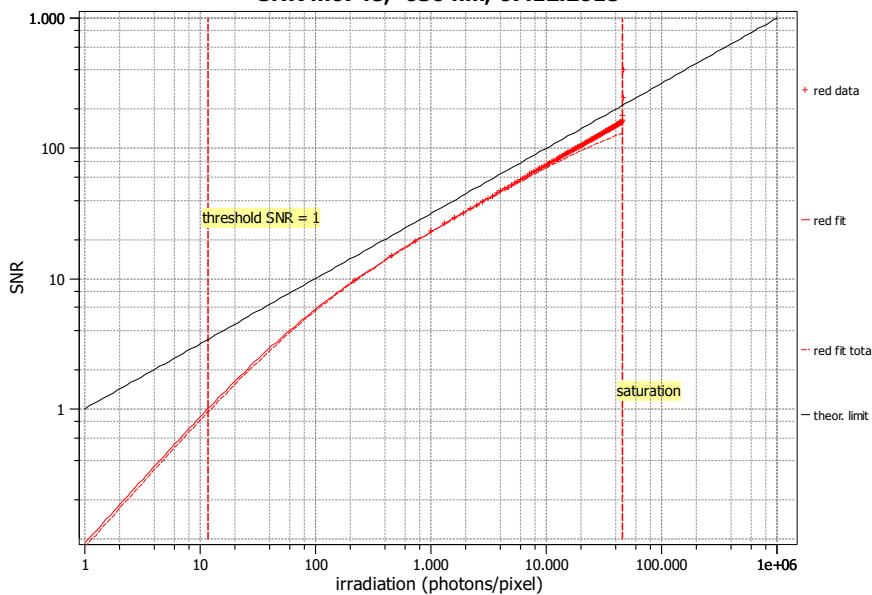
Photon Transfer

Photon transfer m0748, 630 nm, 07.12.2018



Signal-to-Noise Ratio

SNR m0748, 630 nm, 07.12.2018



Quantum efficiency

η 55.7%

Overall system gain

K 0.159 DN/e⁻

$1/K$ 6.289 e⁻/DN

Temporal dark noise

σ_d 5.71 e⁻

$\sigma_{y.dark}$ 0.95 DN

Signal-to-noise ratio

SNR_{max} 159

44.0 dB

7.3 bit

$1/\text{SNR}_{max}$ 0.63 %

Absolute sensitivity threshold

$\mu_{p.min}$ 11.69 p

$\mu_{p.min.area}$ 0.577 p/ μm^2

$\mu_{e.min}$ 6.51 e⁻

$\mu_{e.min.area}$ 0.322 e⁻/ μm^2

Saturation capacity

$\mu_{p.sat}$ 45430 p

$\mu_{p.sat.area}$ 2243 p/ μm^2

$\mu_{e.sat}$ 25315 e⁻

$\mu_{e.sat.area}$ 1250 e⁻/ μm^2

Dynamic range

DR 3887

71.8 dB

11.9 bit

Spatial nonuniformities

DSNU₁₂₈₈ 2.30 e⁻

0.37 DN

PRNU₁₂₈₈ 0.44 %

Linearity error

LE_{min} -0.49%

LE_{max} 0.33%

Dark current

$\mu_{c.mean}$ -27.8 ± 5.8 e⁻/s

-4.44 DN/s

$\mu_{c.var}$ 1.8 ± 5.9 e⁻/s

T_d — °C