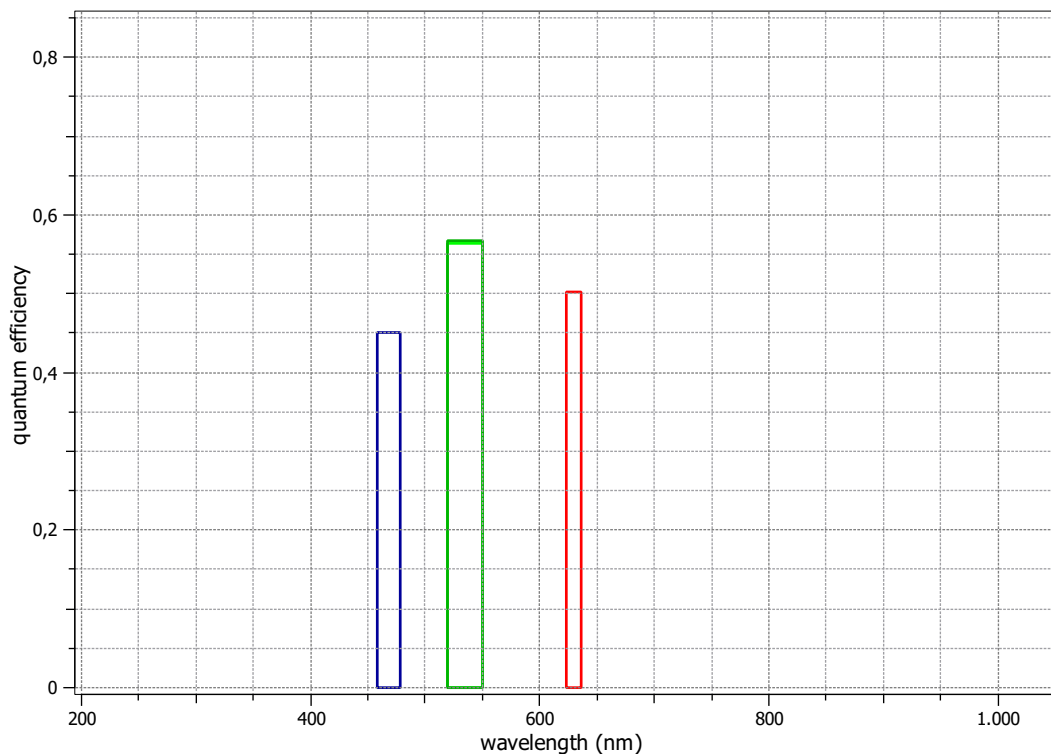


EMVA 1288 Data Sheet m0937

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

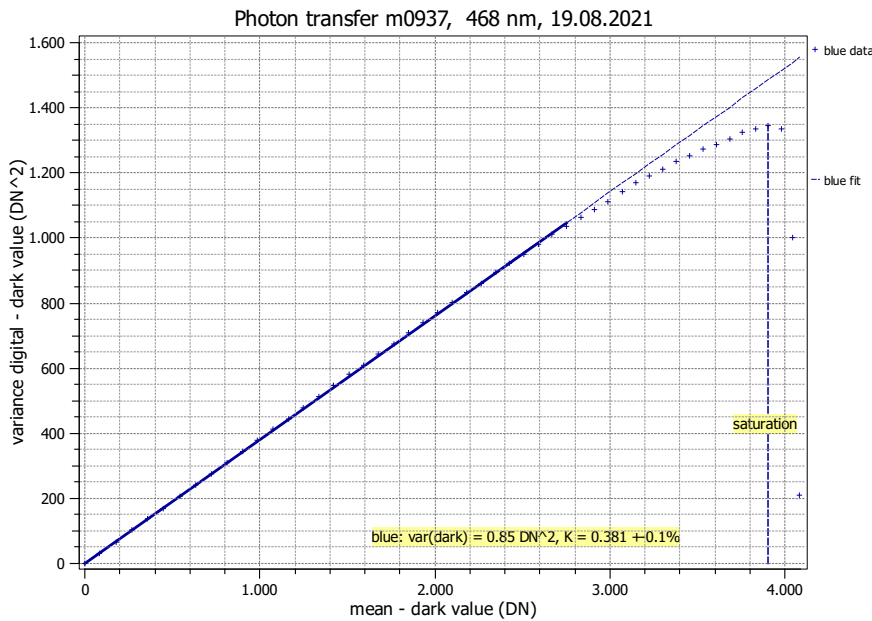
Vendor	MATRIX VISION	Type of data presented	Single
Model	BVS_CA-BN2-0089ZC	Operation point 1 (page 5)	
Serial number	BN000143	Wavelength centroid	468.0 nm
Sensor diagonal	16.00 mm	Wavelength FWHM	20.0 nm
Lens category	C-Mount	Gain, black-level	0dB, 0.1
Resolution	4096 × 2176, 12 bit	Operation point 2 (page 19)	
Pixel size (h×v)	3.45 μm × 3.45 μm	Wavelength centroid	535.0 nm
Sensor	IMX255	Wavelength FWHM	31.0 nm
Sensor type	CMOS	Gain, black-level	0dB, 0.1
Shutter type	Global	Operation point 3 (page 33)	
Overlap cap.	Overlapping	Wavelength centroid	630.0 nm
Max. frame rate	63.7 Hz	Wavelength FWHM	13.0 nm
Interface type	GENiCAM	Gain, black-level	0dB, 0.1
		Optional data measured	
		None	



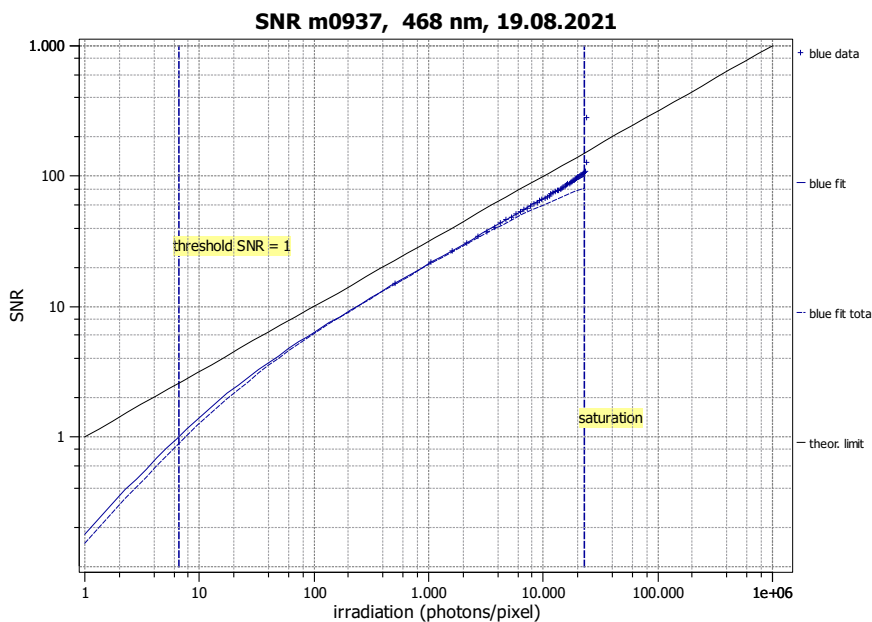
Summary Sheet for Operation Point 1 at a Wavelength of 468 nm

Type of data	Single	Gain, black-level	0dB, 0.1
Exposure control	By irradiance	Environmental temperature	22.4°C
Exposure time	17.00 ms	Camera body temperature	42.2°C
Frame rate	63.7 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12p	Wavelength, centr., FWHM	468 nm, 20.0 nm

Photon Transfer



Signal-to-Noise Ratio



Quantum efficiency

η 45.1%

Overall system gain

K 0.381 DN/e⁻

$1/K$ 2.627 e⁻/DN

Temporal dark noise

σ_d 2.30 e⁻

$\sigma_{y,\text{dark}}$ 0.92 DN

Signal-to-noise ratio

SNR_{max} 101

40.1 dB

6.7 bit

$1/\text{SNR}_{\text{max}}$ 0.99 %

Absolute sensitivity threshold

$\mu_{p,\text{min}}$ 6.60 p

$\mu_{p,\text{min,area}}$ 0.554 p/ μm^2

$\mu_{e,\text{min}}$ 2.98 e⁻

$\mu_{e,\text{min,area}}$ 0.250 e⁻/ μm^2

Saturation capacity

$\mu_{p,\text{sat}}$ 22772 p

$\mu_{p,\text{sat,area}}$ 1913 p/ μm^2

$\mu_{e,\text{sat}}$ 10273 e⁻

$\mu_{e,\text{sat,area}}$ 863 e⁻/ μm^2

Dynamic range

DR 3452

70.8 dB

11.8 bit

Spatial nonuniformities

DSNU₁₂₈₈ 1.58 e⁻

0.60 DN

PRNU₁₂₈₈ 0.74 %

Linearity error

LE_{min} -0.93%

LE_{max} 1.04%

Dark current

$\mu_{c,\text{mean}}$ -11 ± 2 e⁻/s

-4.1 DN/s

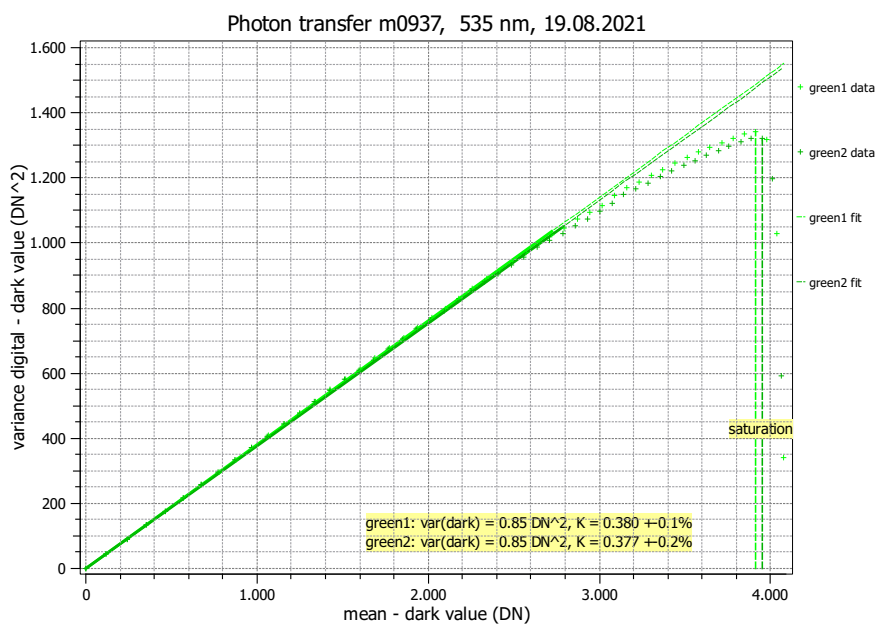
$\mu_{c,\text{var}}$ 11 ± 2 e⁻/s

T_d — °C

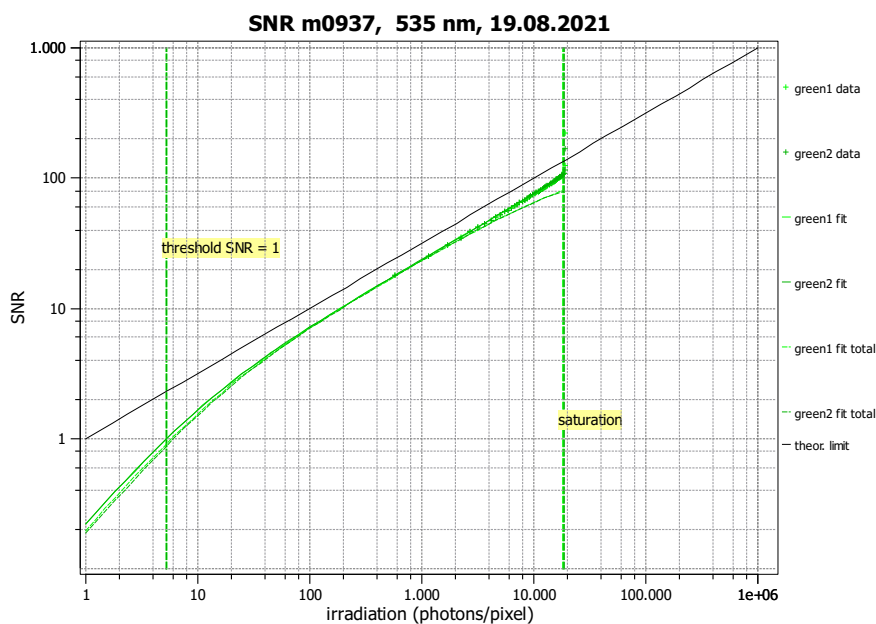
Summary Sheet for Operation Point 2 at a Wavelength of 535 nm

Type of data	Single	Gain, black-level	0dB, 0.1
Exposure control	By irradiance	Environmental temperature	22.4°C
Exposure time	17.00 ms	Camera body temperature	43.1°C
Frame rate	63.7 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12p	Wavelength, centr., FWHM	535 nm, 31.0 nm

Photon Transfer



Signal-to-Noise Ratio



Quantum efficiency

η 56.4%

Overall system gain

K 0.380 DN/e⁻

$1/K$ 2.630 e⁻/DN

Temporal dark noise

σ_d 2.31 e⁻

$\sigma_{y,\text{dark}}$ 0.92 DN

Signal-to-noise ratio

SNR_{max} 101

40.1 dB

6.7 bit

$1/\text{SNR}_{\text{max}}$ 0.99 %

Absolute sensitivity threshold

$\mu_{p,\text{min}}$ 5.29 p

$\mu_{p,\text{min},\text{area}}$ 0.444 p/μm²

$\mu_{e,\text{min}}$ 2.98 e⁻

$\mu_{e,\text{min},\text{area}}$ 0.251 e⁻/μm²

Saturation capacity

$\mu_{p,\text{sat}}$ 18242 p

$\mu_{p,\text{sat},\text{area}}$ 1533 p/μm²

$\mu_{e,\text{sat}}$ 10285 e⁻

$\mu_{e,\text{sat},\text{area}}$ 864 e⁻/μm²

Dynamic range

DR 3449

70.8 dB

11.8 bit

Spatial nonuniformities

DSNU₁₂₈₈ 1.32 e⁻

0.50 DN

PRNU₁₂₈₈ 0.76 %

Linearity error

LE_{min} -0.60%

LE_{max} 0.98%

Dark current

$\mu_{c,\text{mean}}$ -11 ± 2 e⁻/s

-4.1 DN/s

$\mu_{c,\text{var}}$ 11 ± 2 e⁻/s

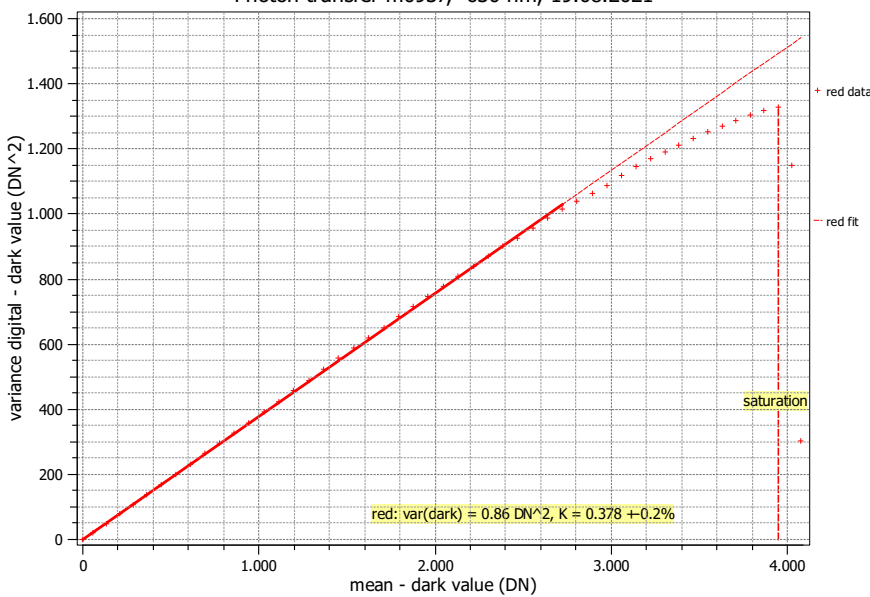
T_d — °C

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	22.5°C
Exposure time	17.00 ms	Camera body temperature	43.7°C
Frame rate	63.7 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12p	Wavelength, centr., FWHM	630 nm, 13.0 nm

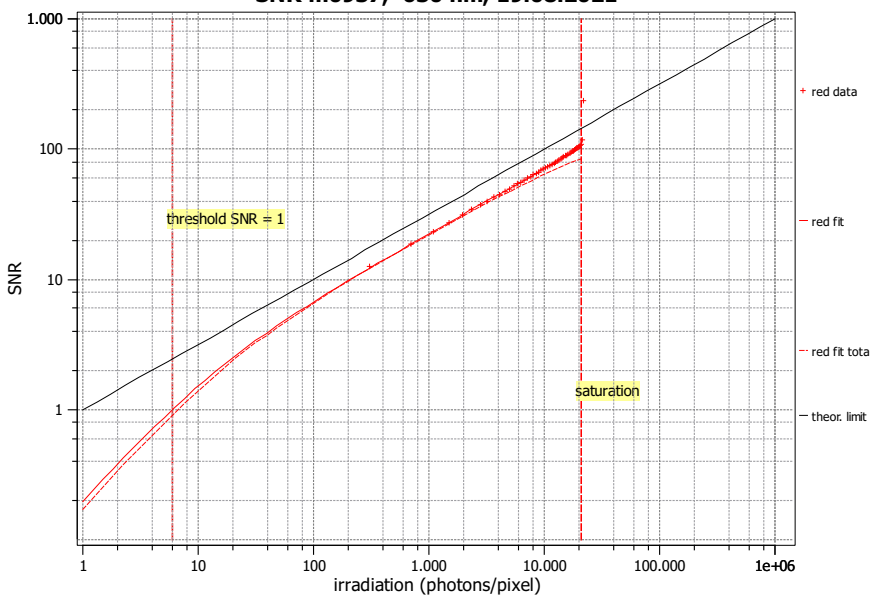
Photon Transfer

Photon transfer m0937, 630 nm, 19.08.2021



Signal-to-Noise Ratio

SNR m0937, 630 nm, 19.08.2021



Quantum efficiency

η 50.3%

Overall system gain

K 0.378 DN/e⁻

1/ K 2.644 e⁻/DN

Temporal dark noise

σ_d 2.33 e⁻

$\sigma_{y,\text{dark}}$ 0.93 DN

Signal-to-noise ratio

SNR_{max} 103

40.2 dB

6.7 bit

1/SNR_{max} 0.97 %

Absolute sensitivity threshold

$\mu_{p,\text{min}}$ 5.97 p

$\mu_{p,\text{min,area}}$ 0.501 p/ μm^2

$\mu_{e,\text{min}}$ 3.00 e⁻

$\mu_{e,\text{min,area}}$ 0.252 e⁻/ μm^2

Saturation capacity

$\mu_{p,\text{sat}}$ 21003 p

$\mu_{p,\text{sat,area}}$ 1765 p/ μm^2

$\mu_{e,\text{sat}}$ 10562 e⁻

$\mu_{e,\text{sat,area}}$ 887 e⁻/ μm^2

Dynamic range

DR 3519

70.9 dB

11.8 bit

Spatial nonuniformities

DSNU₁₂₈₈ 1.43 e⁻

0.54 DN

PRNU₁₂₈₈ 0.68 %

Linearity error

LE_{min} -0.73%

LE_{max} 0.37%

Dark current

$\mu_{c,\text{mean}}$ -13.9 ± 1.9 e⁻/s

-5.25 DN/s

$\mu_{c,\text{var}}$ 5.0 ± 2.4 e⁻/s

T_D — °C