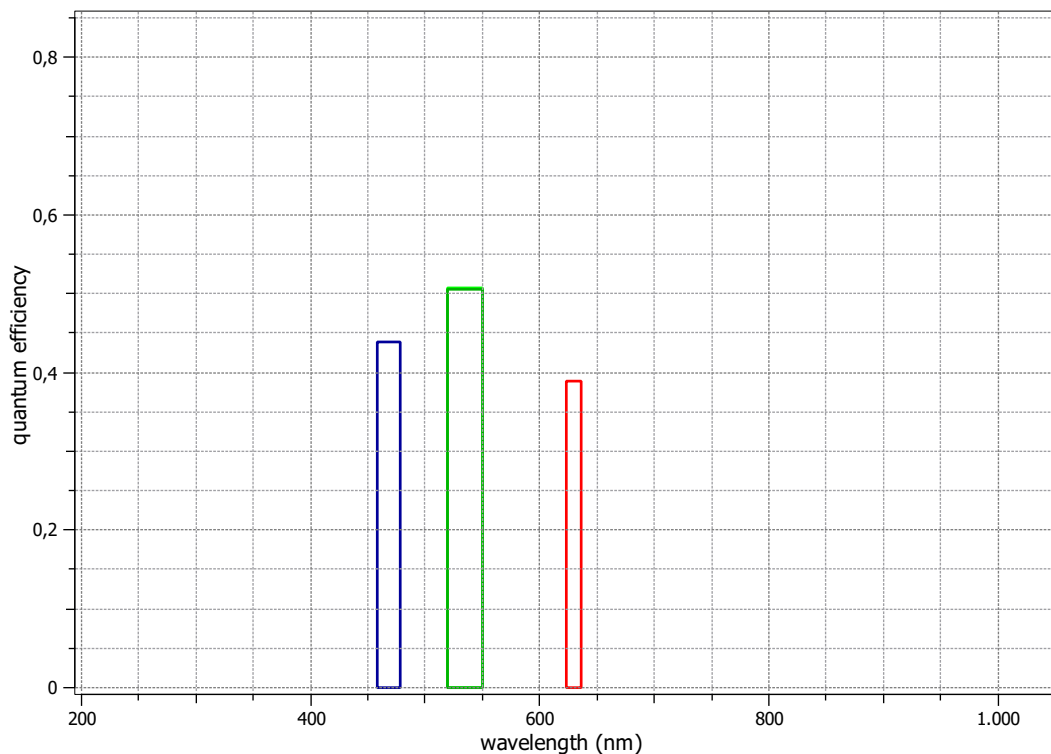


EMVA 1288 Data Sheet m0891

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 | BVS-CA-GT1-0162ZC | Operation point 1 (page 5) | |
| Serial number | GT000011 | Wavelength centroid | 468.0 nm |
| Sensor diagonal | 16.81 mm | Wavelength FWHM | 20.0 nm |
| Lens category | C-Mount | Gain, black-level | 0dB, 0.1 |
| Resolution | 5328 × 3040, 12 bit | Operation point 2 (page 19) | |
| Pixel size (h×v) | 2.74 μm × 2.74 μm | Wavelength centroid | 535.0 nm |
| Sensor | IMX532 | 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 | 50.9 Hz | Wavelength FWHM | 13.0 nm |
| Interface type | USB3 Vision | Gain, black-level | 0dB, 0.1 |
| | | Optional data measured | |
| | | None | |

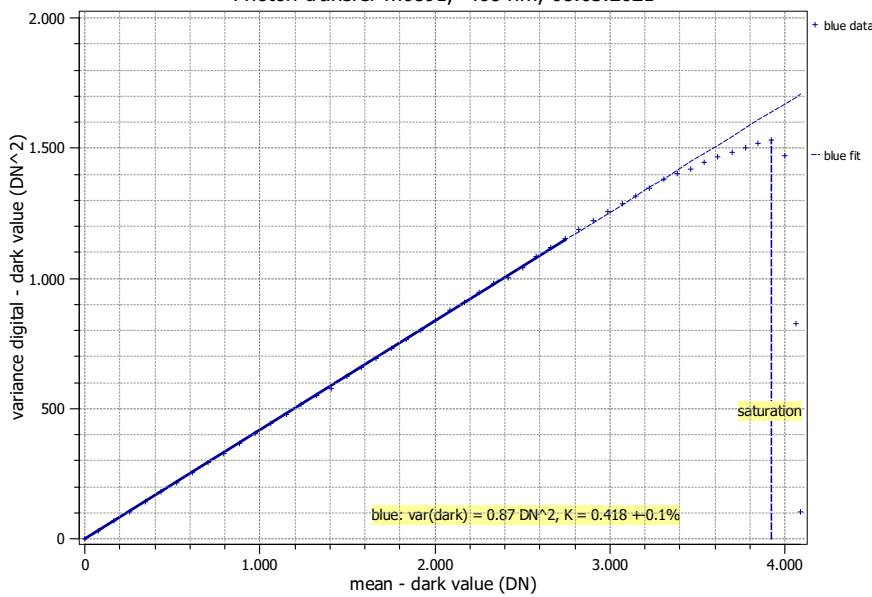


Summary Sheet for Operation Point 1 at a Wavelength of 468 nm

| | | | |
|--------------------|---------------|---------------------------|-----------------|
| Type of data | Single | Gain, black-level | 0dB, 0.1 |
| Exposure control | By irradiance | Environmental temperature | 25.0°C |
| Exposure time | 1.50 ms | Camera body temperature | 33.8°C |
| Frame rate | 9.8 Hz | Internal temperature(s) | — |
| Data transfer mode | BayerRG12p | Wavelength, centr., FWHM | 468 nm, 20.0 nm |

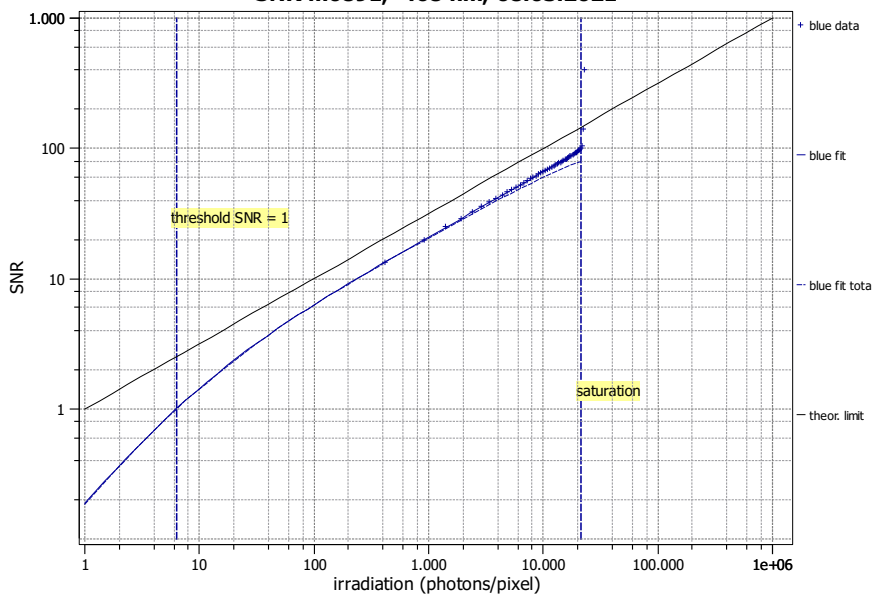
Photon Transfer

Photon transfer m0891, 468 nm, 08.03.2021



Signal-to-Noise Ratio

SNR m0891, 468 nm, 08.03.2021



Quantum efficiency

η 43.8%

Overall system gain

K 0.418 DN/e⁻

$1/K$ 2.393 e⁻/DN

Temporal dark noise

σ_d 2.12 e⁻

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

Signal-to-noise ratio

SNR_{max} 97

39.7 dB

6.6 bit

$1/\text{SNR}_{\text{max}}$ 1.03 %

Absolute sensitivity threshold

$\mu_{p,\text{min}}$ 6.35 p

$\mu_{p,\text{min,area}}$ 0.846 p/μm²

$\mu_{e,\text{min}}$ 2.78 e⁻

$\mu_{e,\text{min,area}}$ 0.370 e⁻/μm²

Saturation capacity

$\mu_{p,\text{sat}}$ 21471 p

$\mu_{p,\text{sat,area}}$ 2860 p/μm²

$\mu_{e,\text{sat}}$ 9404 e⁻

$\mu_{e,\text{sat,area}}$ 1253 e⁻/μm²

Dynamic range

DR 3381

70.6 dB

11.7 bit

Spatial nonuniformities

DSNU₁₂₈₈ 0.36 e⁻

0.15 DN

PRNU₁₂₈₈ 0.71 %

Linearity error

LE_{min} -0.33%

LE_{max} 0.38%

Dark current

$\mu_{c,\text{mean}}$ 0.93 ± 0.09 e⁻/s

0.39 DN/s

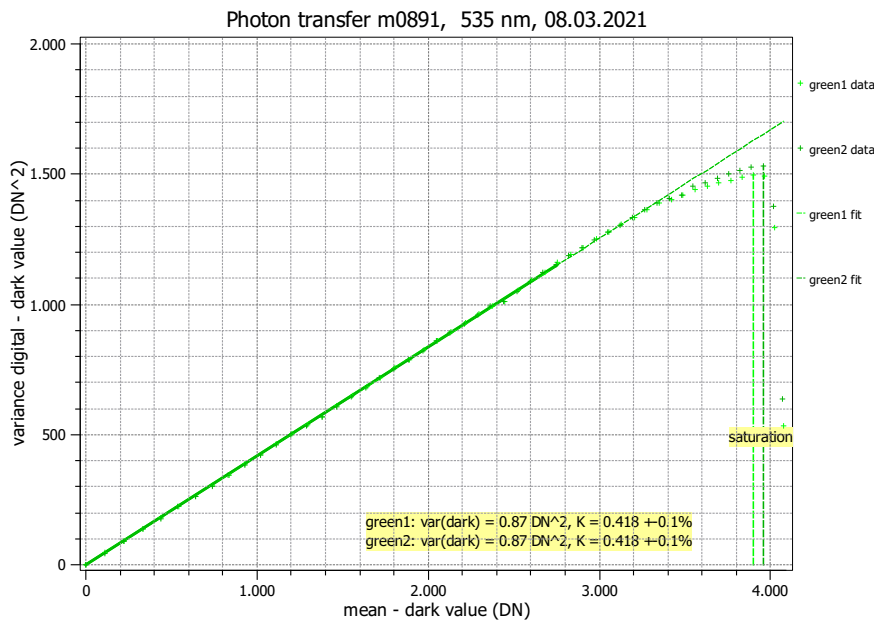
$\mu_{c,\text{var}}$ 0.76 ± 0.01 e⁻/s

T_d — °C

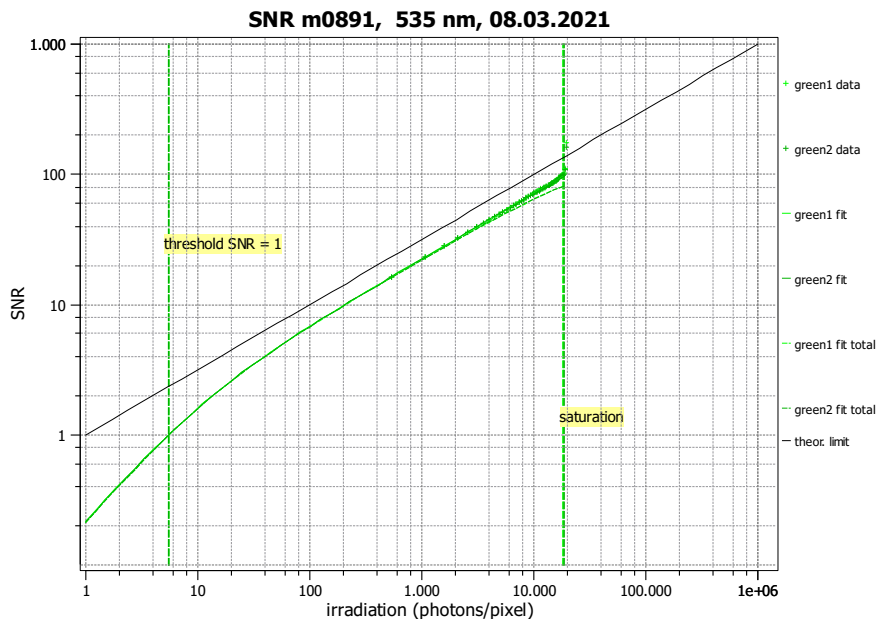
Summary Sheet for Operation Point 2 at a Wavelength of 535 nm

| | | | |
|--------------------|---------------|---------------------------|-----------------|
| Type of data | Single | Gain, black-level | 0dB, 0.1 |
| Exposure control | By irradiance | Environmental temperature | 25.3°C |
| Exposure time | 1.50 ms | Camera body temperature | 34.0°C |
| Frame rate | 9.8 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 50.7%

Overall system gain

K 0.418 DN/e⁻

$1/K$ 2.394 e⁻/DN

Temporal dark noise

σ_d 2.12 e⁻

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

Signal-to-noise ratio

SNR_{max} 97

39.7 dB

6.6 bit

$1/\text{SNR}_{\text{max}}$ 1.04 %

Absolute sensitivity threshold

$\mu_{p,\text{min}}$ 5.49 p

$\mu_{p,\text{min,area}}$ 0.732 p/μm²

$\mu_{e,\text{min}}$ 2.78 e⁻

$\mu_{e,\text{min,area}}$ 0.371 e⁻/μm²

Saturation capacity

$\mu_{p,\text{sat}}$ 18376 p

$\mu_{p,\text{sat,area}}$ 2448 p/μm²

$\mu_{e,\text{sat}}$ 9312 e⁻

$\mu_{e,\text{sat,area}}$ 1240 e⁻/μm²

Dynamic range

DR 3345

70.5 dB

11.7 bit

Spatial nonuniformities

DSNU₁₂₈₈ 0.34 e⁻

0.14 DN

PRNU₁₂₈₈ 0.66 %

Linearity error

LE_{min} -0.50%

LE_{max} 0.95%

Dark current

$\mu_{c,\text{mean}}$ 0.92 ± 0.08 e⁻/s

0.39 DN/s

$\mu_{c,\text{var}}$ 0.79 ± 0.01 e⁻/s

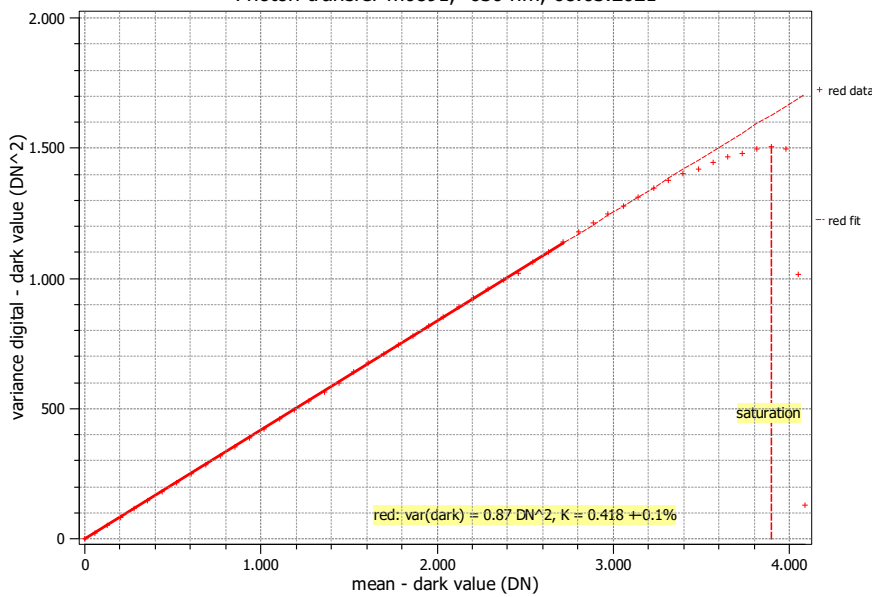
T_d — °C

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 | 25.5°C |
| Exposure time | 1.50 ms | Camera body temperature | 34.3°C |
| Frame rate | 9.8 Hz | Internal temperature(s) | — |
| Data transfer mode | BayerRG12p | Wavelength, centr., FWHM | 630 nm, 13.0 nm |

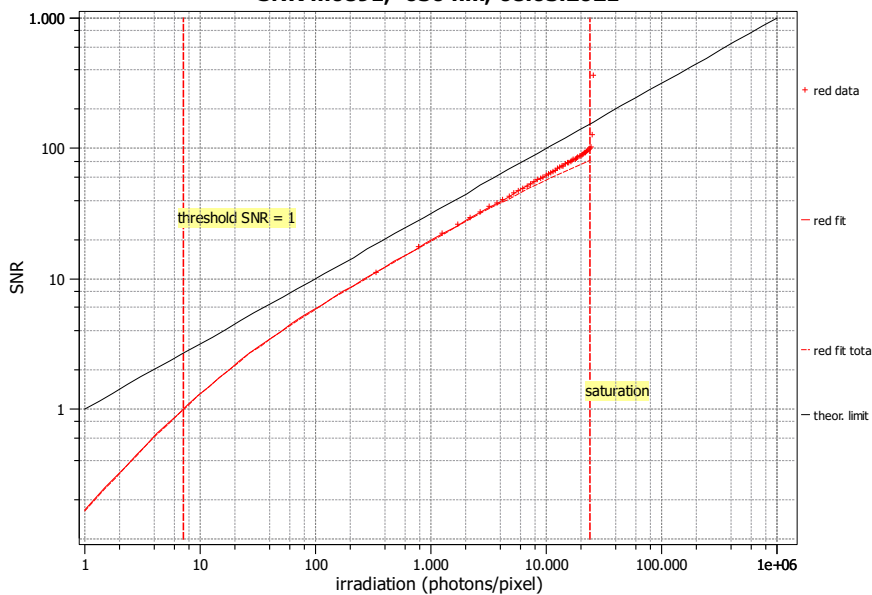
Photon Transfer

Photon transfer m0891, 630 nm, 08.03.2021



Signal-to-Noise Ratio

SNR m0891, 630 nm, 08.03.2021



Quantum efficiency

η 38.9%

Overall system gain

K 0.418 DN/e⁻

$1/K$ 2.395 e⁻/DN

Temporal dark noise

σ_d 2.13 e⁻

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

Signal-to-noise ratio

SNR_{max} 97

39.7 dB

6.6 bit

$1/\text{SNR}_{\text{max}}$ 1.03 %

Absolute sensitivity threshold

$\mu_{p,\text{min}}$ 7.18 p

$\mu_{p,\text{min,area}}$ 0.957 p/ μm^2

$\mu_{e,\text{min}}$ 2.79 e⁻

$\mu_{e,\text{min,area}}$ 0.372 e⁻/ μm^2

Saturation capacity

$\mu_{p,\text{sat}}$ 24141 p

$\mu_{p,\text{sat,area}}$ 3216 p/ μm^2

$\mu_{e,\text{sat}}$ 9385 e⁻

$\mu_{e,\text{sat,area}}$ 1250 e⁻/ μm^2

Dynamic range

DR 3362

70.5 dB

11.7 bit

Spatial nonuniformities

DSNU₁₂₈₈ 0.38 e⁻

0.16 DN

PRNU₁₂₈₈ 0.69 %

Linearity error

LE_{min} -0.29%

LE_{max} 0.23%

Dark current

$\mu_{c,\text{mean}}$ 0.88 ± 0.08 e⁻/s

0.37 DN/s

$\mu_{c,\text{var}}$ 0.73 ± 0.01 e⁻/s

T_d — °C