

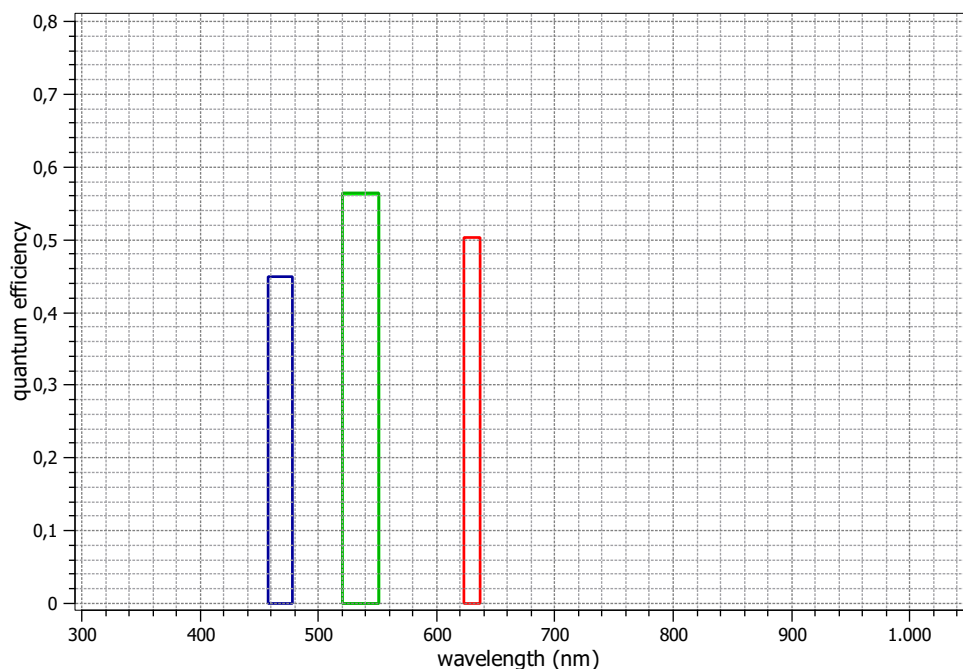
EMVA 1288 Data Sheet m0576

This datasheet describes the specification according to the standard 1288 for “Characterization and Presentation of Specification Data for Image Sensors and Cameras of the European Machine Vision Association (EMVA)” (see www.standard1288.org or the *Zenodo EMVA 1288 community*) release 3.0 with proprietary extensions from AEON. The measurements were performed with the AEON ACC3 Release 5, 06.06.2016, SN 0005(MatrixVision) . The performance parameters and estimated accuracy of the measurements are described in the technical report for the instrument, its calibration in the corresponding specification and calibration report.

Measurements performed by W.Dutt, Matrix Vision GmbH

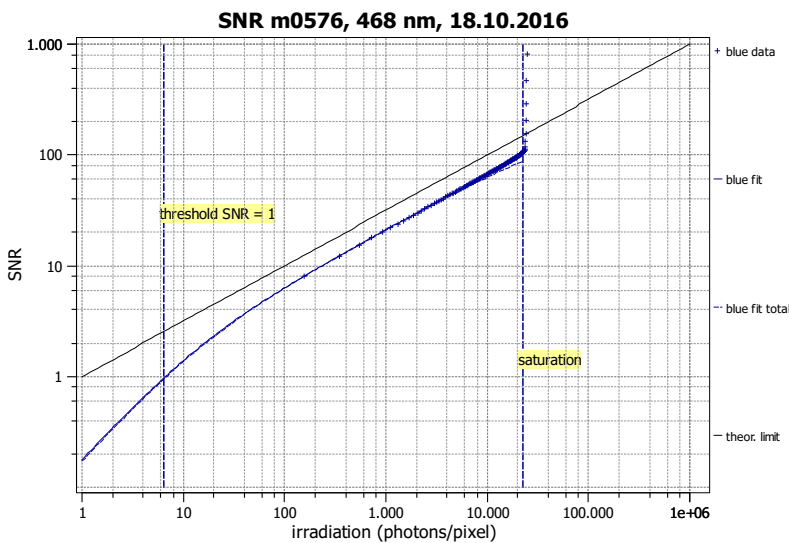
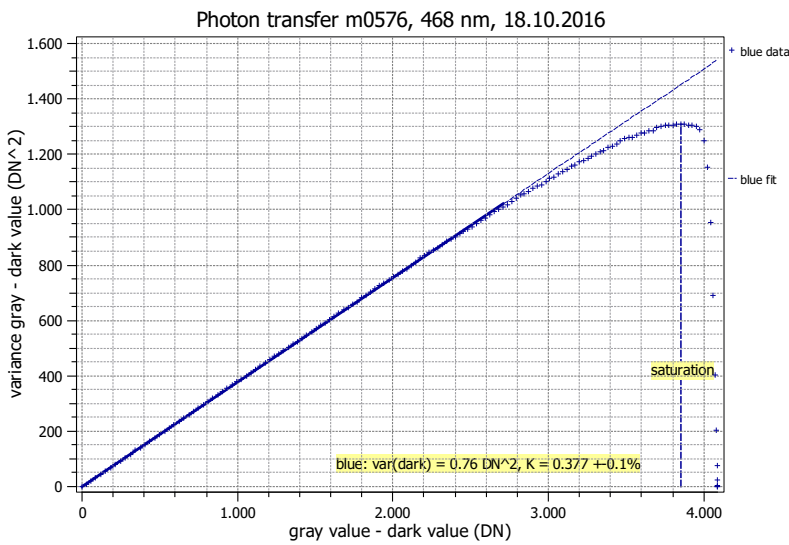
| | |
|----------------------|---------------------|
| Vendor | MATRIX VISION |
| Model | mvBlueCOUGAR-X104iC |
| Serial number | GX015217 |
| Sensor diagonal | 8.89 mm |
| Lens category | C-Mount |
| Resolution | 2064 × 1544, 12 bit |
| Pixel size | 3.45 μm × 3.45 μm |
| Sensor | IMX265 |
| Sensor type | CMOS |
| Shutter type | Global |
| Overlap capabilities | Overlapping |
| Maximum frame rate | 48.9 Hz |
| Interface type | GigE Vision |

| | |
|-------------------------------------|-----------|
| Type of data presented | Single |
| Operation point 1, (page ??) | |
| Wavelength centroid | 468.0 nm |
| Wavelength FWHM | 20.0 nm |
| Gain, black-level | 0dB / 0.1 |
| Operation point 2, (page ??) | |
| Wavelength centroid | 536.0 nm |
| Wavelength FWHM | 31.0 nm |
| Gain, black-level | 0dB / 0.1 |
| Operation point 3, (page ??) | |
| Wavelength centroid | 630.0 nm |
| Wavelength FWHM | 13.0 nm |
| Gain, black-level | 0dB / 0.1 |
| Optional data measured | |
| None | |



EMVA 1288 Summary Sheet for Operating Point 1

| | | | |
|--------------------|---------------|---------------------------|-----------------|
| Type of data | Single | Gain, black-level | 0dB / 0.1 |
| Exposure control | By irradiance | Environmental temperature | 26.3°C |
| Exposure time | 16.00 ms | Camera body temperature | 40.7°C |
| Frame rate | 18.7 Hz | Internal temperature(s) | — |
| Data transfer mode | BayerRG12 | Wavelength, centr., FWHM | 468 nm, 20.0 nm |



Quantum efficiency

η 45.0%

Overall system gain

K 0.377 DN/e⁻

$1/K$ 2.654 e⁻/DN

Temporal dark noise & DSNU

$\sigma_{y,dark}$ 0.87 DN

DSNU₁₂₈₈ 0.25 DN

σ_d 2.19 e⁻

DSNU₁₂₈₈ 0.67 e⁻

Signal-to-noise ratio & PRNU

SNR_{max} 101

40.1 dB

6.7 bit

$1/SNR_{max}$ 0.99 %

PRNU₁₂₈₈ 0.56 %

Nonlinearity

LE 0.19%

LE_{min} -0.21%

LE_{max} 0.18%

Sensitivity & saturation

$\mu_{p,min}$ 6.38 p

0.536 p/ μm^2

$\mu_{p,sat}$ 22736 p

1910 p/ μm^2

$\mu_{e,min}$ 2.87 e⁻

0.241 e⁻/ μm^2

$\mu_{e,sat}$ 10226 e⁻

859 e⁻/ μm^2

Dynamic range

DR 3562

71.0 dB

11.8 bit

Dark current

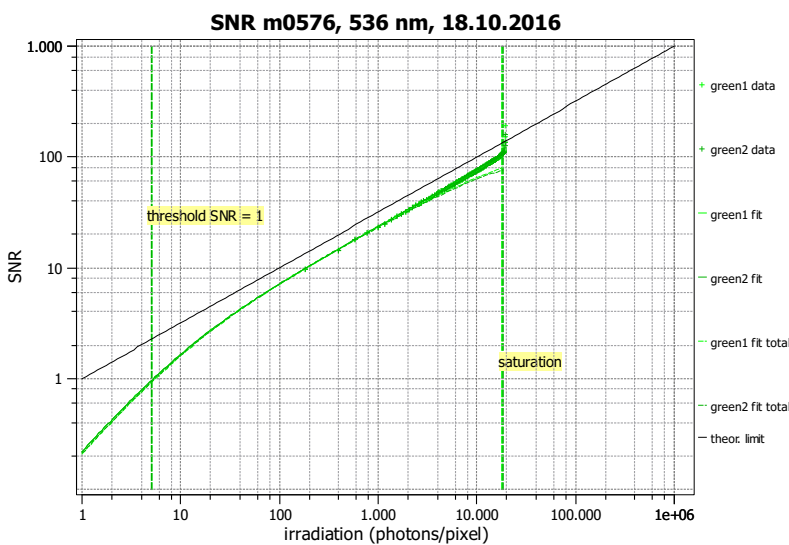
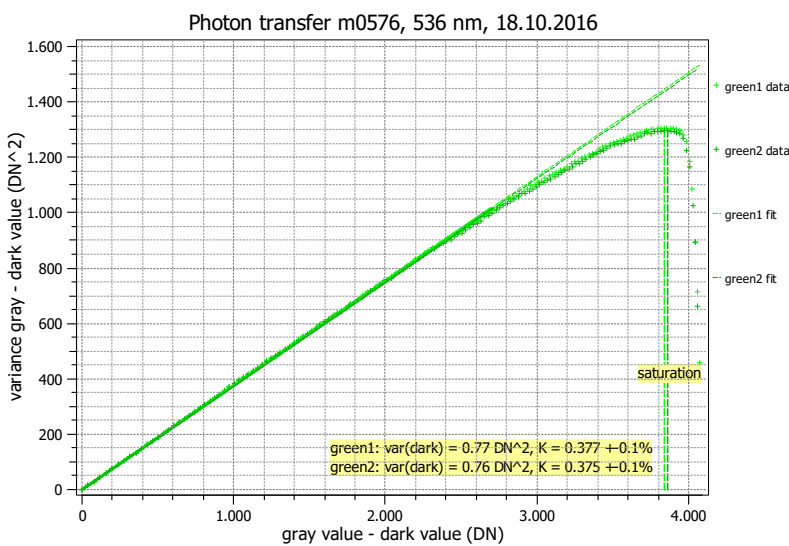
$\mu_{c,mean}$ 2.9 DN/s

$\mu_{c,mean}$ 7.6 e⁻/s

$\mu_{c,var}$ 3.7 e⁻/s

EMVA 1288 Summary Sheet for Operating Point 2

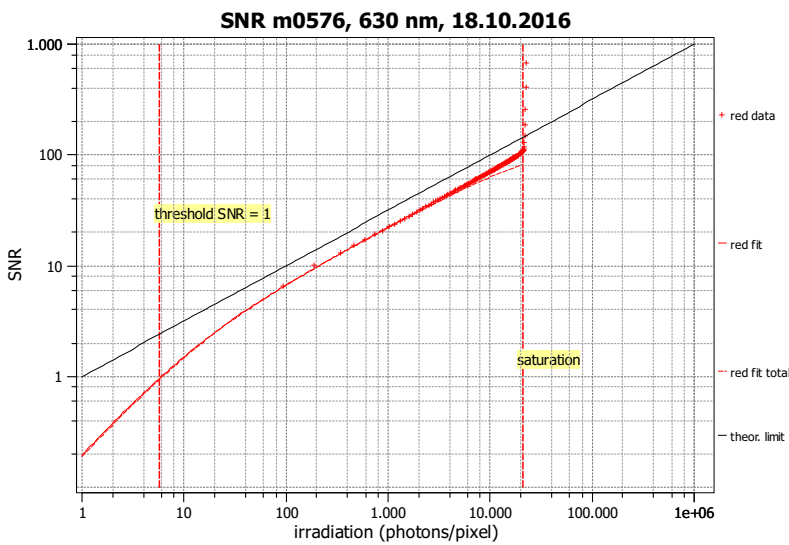
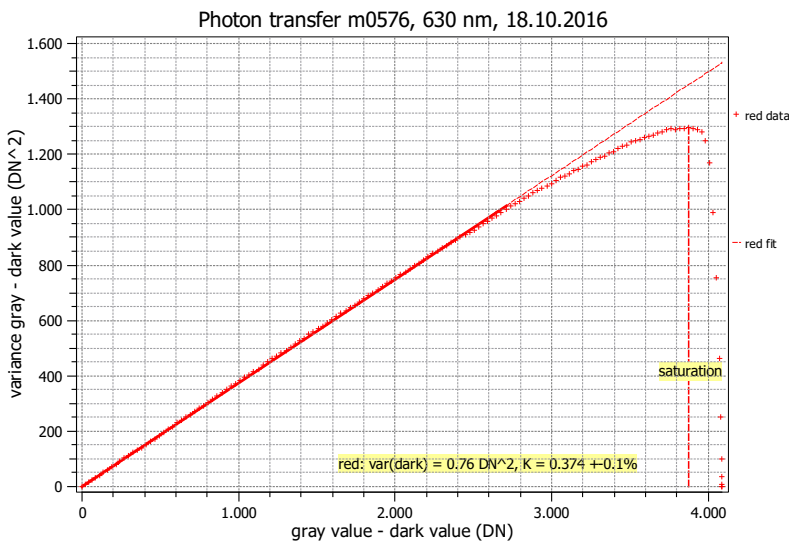
| | | | |
|--------------------|---------------|---------------------------|-----------------|
| Type of data | Single | Gain, black-level | 0dB / 0.1 |
| Exposure control | By irradiance | Environmental temperature | 26.3°C |
| Exposure time | 16.00 ms | Camera body temperature | 40.7°C |
| Frame rate | 18.7 Hz | Internal temperature(s) | — |
| Data transfer mode | BayerRG12 | Wavelength, centr., FWHM | 536 nm, 31.0 nm |



| | |
|---|--|
| Quantum efficiency | |
| η | 56.3% |
| Overall system gain | |
| K | 0.377 DN/e ⁻ |
| $1/K$ | 2.654 e ⁻ /DN |
| Temporal dark noise & DSNU | |
| $\sigma_{y,dark}$ | 0.87 DN |
| DSNU ₁₂₈₈ | 0.31 DN |
| σ_d | 2.19 e ⁻ |
| DSNU ₁₂₈₈ | 0.83 e ⁻ |
| Signal-to-noise ratio & PRNU | |
| SNR _{max} | 101 |
| | 40.1 dB |
| | 6.7 bit |
| $1/SNR_{max}$ | 0.99 % |
| PRNU ₁₂₈₈ | 0.76 % |
| Nonlinearity | |
| LE | 0.18% |
| LE _{min} | -0.18% |
| LE _{max} | 0.18% |
| Sensitivity & saturation | |
| $\mu_{p,min}$ | 5.11 p |
| | 0.429 p/ μm^2 |
| $\mu_{p,sat}$ | 18086 p |
| | 1519 p/ μm^2 |
| $\mu_{e,min}$ | 2.87 e ⁻ |
| | 0.242 e ⁻ / μm^2 |
| $\mu_{e,sat}$ | 10177 e ⁻ |
| | 855 e ⁻ / μm^2 |
| Dynamic range | |
| DR | 3540 |
| | 71.0 dB |
| | 11.8 bit |
| Dark current | |
| $\mu_{c,mean}$ | 2.9 DN/s |
| $\mu_{c,mean}$ | 7.6 e ⁻ /s |
| $\mu_{c,var}$ | 3.8 e ⁻ /s |

EMVA 1288 Summary Sheet for Operating Point 3

| | | | |
|--------------------|---------------|---------------------------|-----------------|
| Type of data | Single | Gain, black-level | 0dB / 0.1 |
| Exposure control | By irradiance | Environmental temperature | 26.3°C |
| Exposure time | 16.00 ms | Camera body temperature | 40.7°C |
| Frame rate | 18.7 Hz | Internal temperature(s) | — |
| Data transfer mode | BayerRG12 | Wavelength, centr., FWHM | 630 nm, 13.0 nm |



Quantum efficiency

η 50.2%

Overall system gain

K 0.374 DN/e⁻
1/ K 2.672 e⁻/DN

Temporal dark noise & DSNU

$\sigma_{y,dark}$ 0.87 DN
DSNU₁₂₈₈ 0.26 DN
 σ_d 2.20 e⁻
DSNU₁₂₈₈ 0.69 e⁻

Signal-to-noise ratio & PRNU

SNR_{max} 102
40.2 dB
6.7 bit
1/SNR_{max} 0.98 %
PRNU₁₂₈₈ 0.73 %

Nonlinearity

LE 0.28%
LE_{min} -0.35%
LE_{max} 0.20%

Sensitivity & saturation

$\mu_{p,min}$ 5.75 p
0.483 p/ μm^2
 $\mu_{p,sat}$ 20775 p
1745 p/ μm^2
 $\mu_{e,min}$ 2.89 e⁻
0.243 e⁻/ μm^2
 $\mu_{e,sat}$ 10432 e⁻
876 e⁻/ μm^2

Dynamic range

DR 3613
71.2 dB
11.8 bit

Dark current

$\mu_{c,mean}$ 2.5 DN/s
 $\mu_{c,mean}$ 6.7 e⁻/s
 $\mu_{c,var}$ 3.4 e⁻/s