

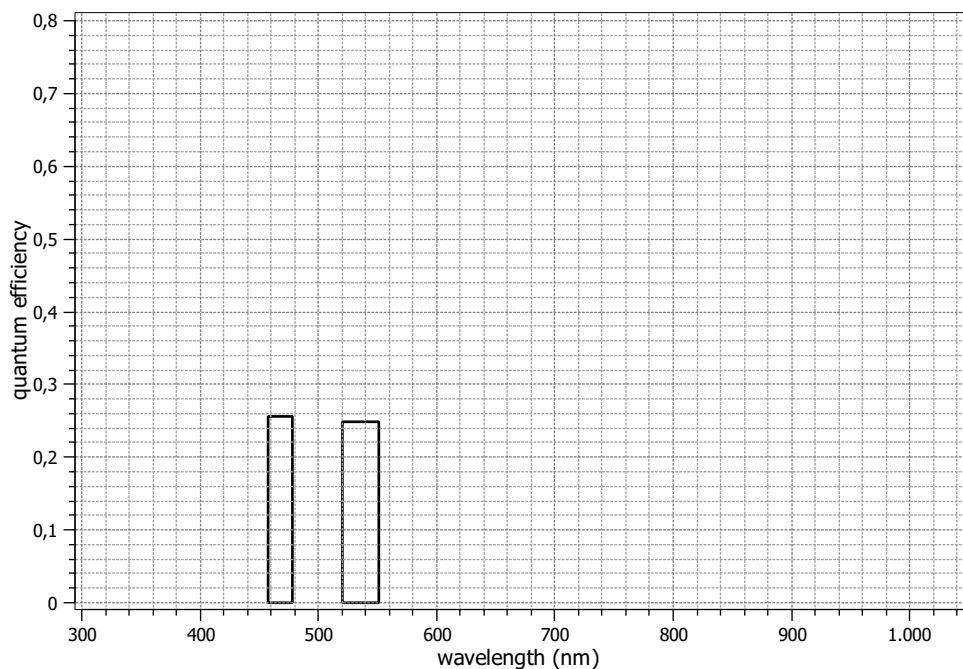
EMVA 1288 Data Sheet m0603

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 6, 18.07.2016, 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 T. Renner, Matrix Vision GmbH

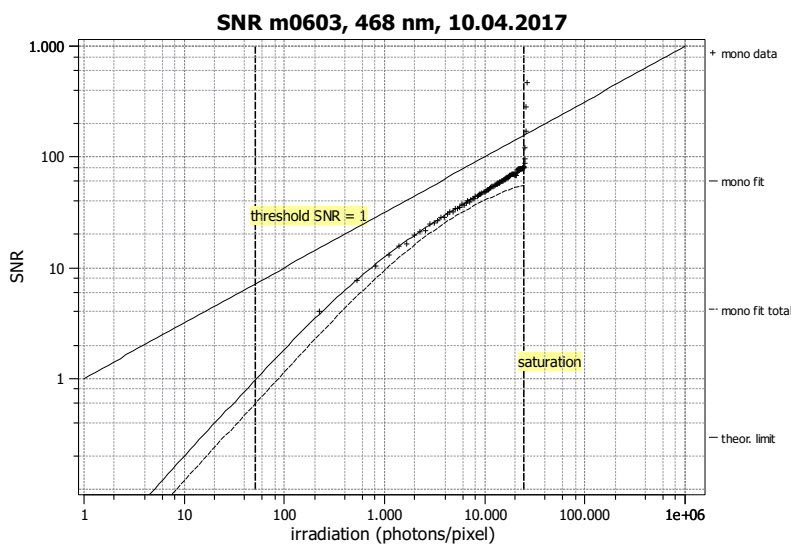
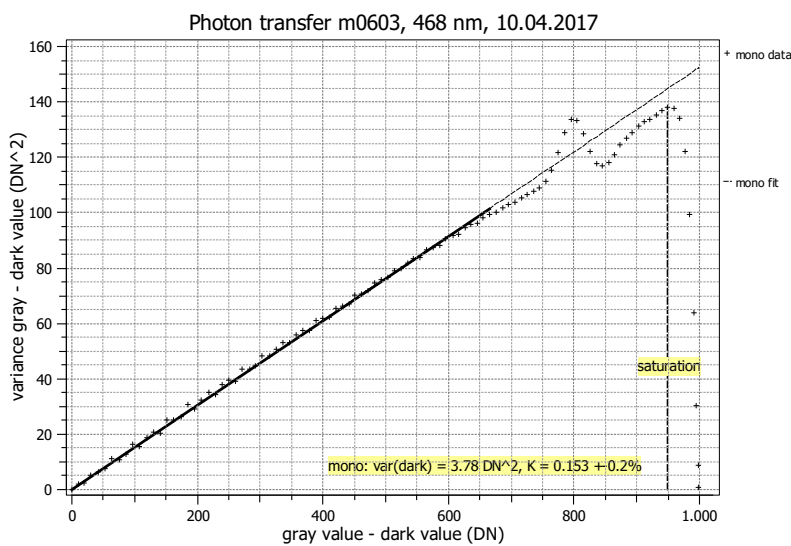
Vendor	MATRIX VISION
Model	mvBlueCOUGAR-X104bG-UV
Serial number	GX016786
Sensor diagonal	15.93 mm
Lens category	C-Mount
Resolution	2048 × 2048, 10 bit
Pixel size	5.50 μm × 5.50 μm
Sensor	CMV4000UV
Sensor type	CMOS
Shutter type	Global
Overlap capabilities	Overlapping
Maximum frame rate	18.8 Hz
Interface type	GigE Vision

Type of data presented	Single
Operation point 1, (page 4)	
Wavelength centroid	468.0 nm
Wavelength FWHM	20.0 nm
Gain, black-level	0.3dB, -4.0
Operation point 2, (page 18)	
Wavelength centroid	536.0 nm
Wavelength FWHM	31.0 nm
Gain, black-level	0.3dB, -4.0
Optional data measured	
None	



EMVA 1288 Summary Sheet for Operating Point 1

Type of data	Single	Gain, black-level	0.3dB, -4.0
Exposure control	By irradiance	Environmental temperature	26.2°C
Exposure time	9.00 ms	Camera body temperature	38.0°C
Frame rate	14.2 Hz	Internal temperature(s)	—
Data transfer mode	Mono10	Wavelength, centr., FWHM	468 nm, 20.0 nm



Quantum efficiency

η 25.6%

Overall system gain

K 0.153 DN/e⁻
 $1/K$ 6.557 e⁻/DN

Temporal dark noise & DSNU

$\sigma_{y,\text{dark}}$ 1.94 DN
 DSNU₁₂₈₈ 2.64 DN
 σ_d 12.61 e⁻
 DSNU₁₂₈₈ 17.28 e⁻

Signal-to-noise ratio & PRNU

SNR_{max} 79
 37.9 dB
 6.3 bit
 $1/\text{SNR}_{\text{max}}$ 1.27 %
 PRNU₁₂₈₈ 1.22 %

Nonlinearity

LE 0.24%
 LE_{min} -0.16%
 LE_{max} 0.32%

Sensitivity & saturation

$\mu_{p,\text{min}}$ 51.9 p
 1.71 p/ μm^2
 $\mu_{p,\text{sat}}$ 24236 p
 801 p/ μm^2
 $\mu_{e,\text{min}}$ 13.3 e⁻
 0.44 e⁻/ μm^2
 $\mu_{e,\text{sat}}$ 6195 e⁻
 205 e⁻/ μm^2

Dynamic range

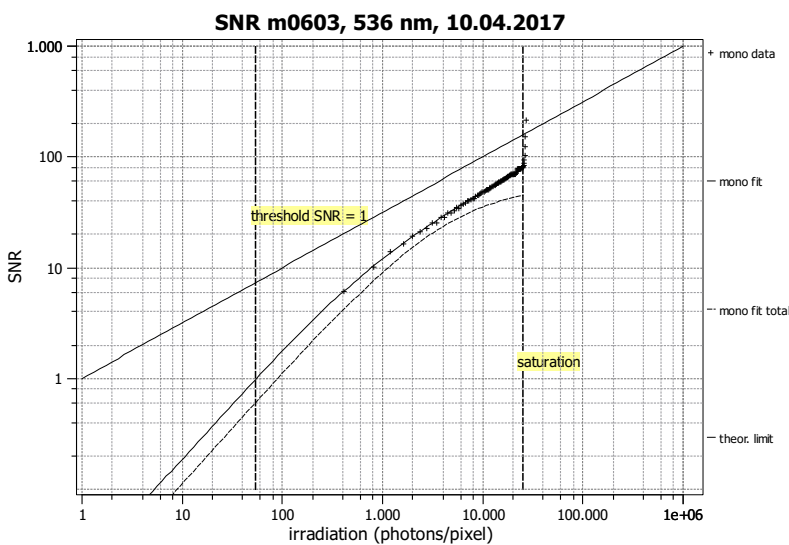
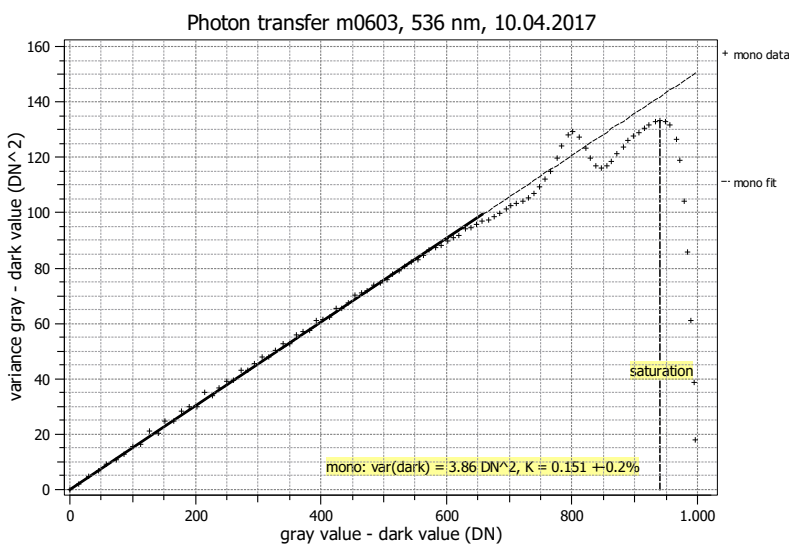
DR 467
 53.4 dB
 8.9 bit

Dark current

$\mu_{c,\text{mean}}$ 64.5 DN/s
 $\mu_{c,\text{mean}}$ 422.8 e⁻/s
 $\mu_{c,\text{var}}$ 167.5 e⁻/s

EMVA 1288 Summary Sheet for Operating Point 2

Type of data	Single	Gain, black-level	0.3dB, -4.0
Exposure control	By irradiance	Environmental temperature	26.2°C
Exposure time	9.00 ms	Camera body temperature	38.0°C
Frame rate	14.2 Hz	Internal temperature(s)	—
Data transfer mode	Mono10	Wavelength, centr., FWHM	536 nm, 31.0 nm



Quantum efficiency

η 24.8%

Overall system gain

K 0.151 DN/e⁻
1/ K 6.629 e⁻/DN

Temporal dark noise & DSNU

$\sigma_{y,dark}$ 1.97 DN
DSNU₁₂₈₈ 2.63 DN
 σ_d 12.89 e⁻
DSNU₁₂₈₈ 17.43 e⁻

Signal-to-noise ratio & PRNU

SNR_{max} 79
37.9 dB
6.3 bit
1/SNR_{max} 1.27 %
PRNU₁₂₈₈ 1.80 %

Nonlinearity

LE 0.39%
LE_{min} -0.22%
LE_{max} 0.57%

Sensitivity & saturation

$\mu_{p,min}$ 54.5 p
1.80 p/ μm^2
 $\mu_{p,sat}$ 24856 p
822 p/ μm^2
 $\mu_{e,min}$ 13.5 e⁻
0.45 e⁻/ μm^2
 $\mu_{e,sat}$ 6174 e⁻
204 e⁻/ μm^2

Dynamic range

DR 456
53.2 dB
8.8 bit

Dark current

$\mu_{c,mean}$ — DN/s
 $\mu_{c,mean}$ — e⁻/s
 $\mu_{c,var}$ — e⁻/s

Comments

Monochrome measurements with blue and green LED.
Sensor without Microlenses.
CMV4000 Version3.