

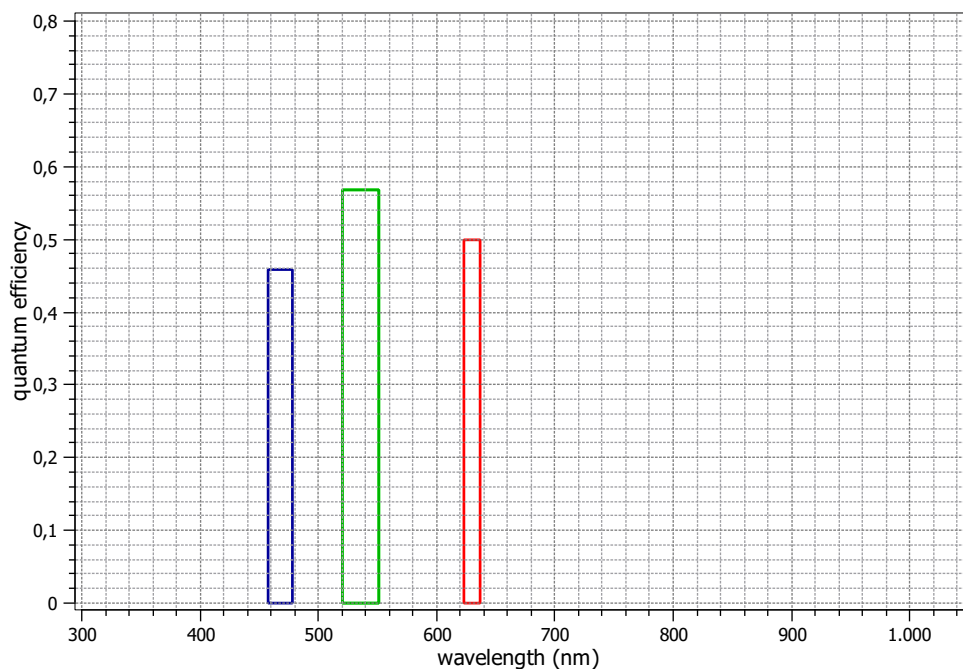
EMVA 1288 Data Sheet m0547

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 T. Renner, Matrix Vision GmbH

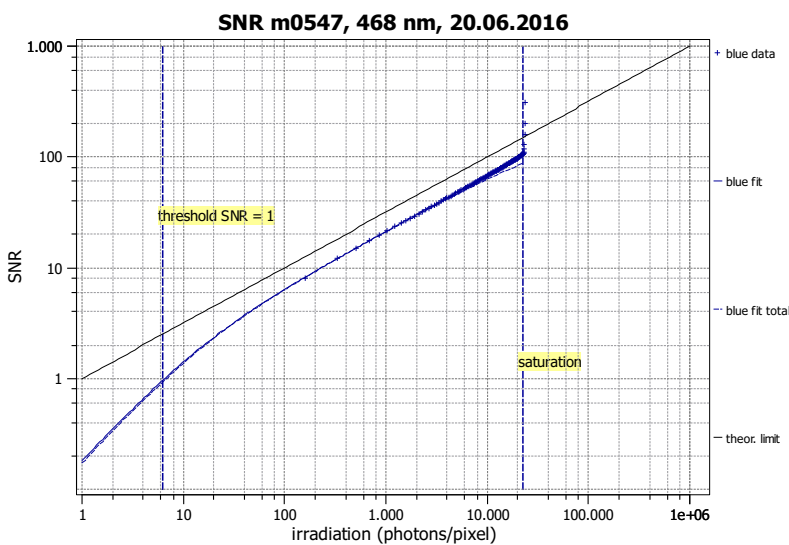
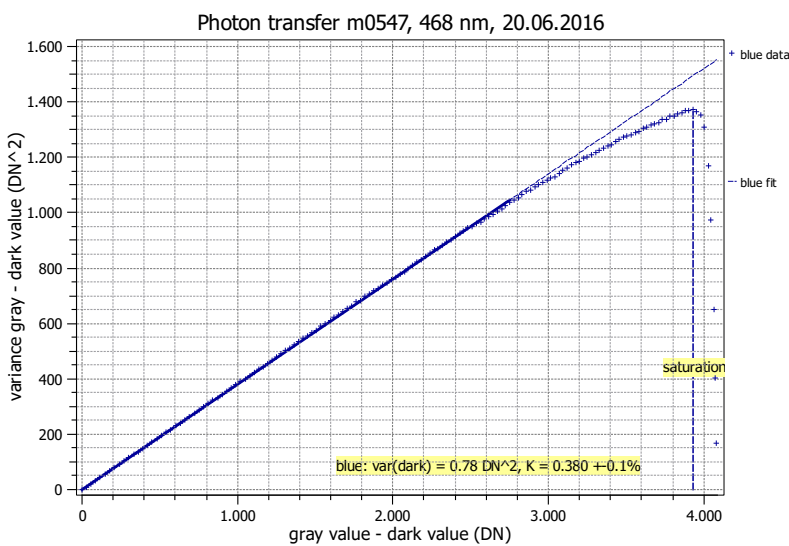
Vendor	MATRIX VISION
Model	mvBlueCOUGAR-XD105aC
Serial number	GX202465
Sensor diagonal	11.07 mm
Lens category	C-Mount
Resolution	2464 × 2056, 12 bit
Pixel size	3.45 μm × 3.45 μm
Sensor	IMX250
Sensor type	CMOS
Shutter type	Global
Overlap capabilities	Overlapping
Maximum frame rate	49.8 Hz
Interface type	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	27.4°C
Exposure time	16.00 ms	Camera body temperature	42.8°C
Frame rate	23.5 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	468 nm, 20.0 nm



Quantum efficiency

η 45.9%

Overall system gain

K 0.380 DN/e⁻
1/ K 2.632 e⁻/DN

Temporal dark noise & DSNU

$\sigma_{y,dark}$ 0.88 DN
DSNU₁₂₈₈ 0.30 DN
 σ_d 2.20 e⁻
DSNU₁₂₈₈ 0.80 e⁻

Signal-to-noise ratio & PRNU

SNR_{max} 102
40.1 dB
6.7 bit
1/SNR_{max} 0.98 %
PRNU₁₂₈₈ 0.59 %

Nonlinearity

LE 0.19%
LE_{min} -0.21%
LE_{max} 0.17%

Sensitivity & saturation

$\mu_{p,min}$ 6.28 p
0.528 p/ μm^2
 $\mu_{p,sat}$ 22563 p
1896 p/ μm^2
 $\mu_{e,min}$ 2.88 e⁻
0.242 e⁻/ μm^2
 $\mu_{e,sat}$ 10347 e⁻
869 e⁻/ μm^2

Dynamic range

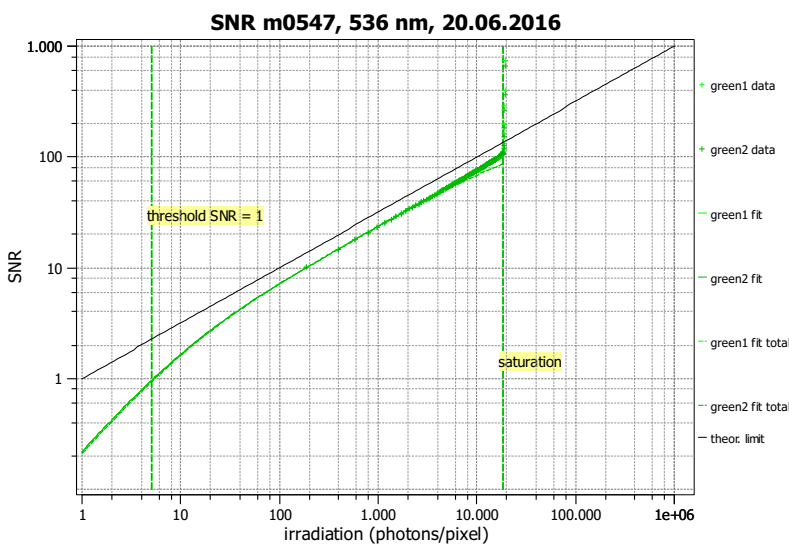
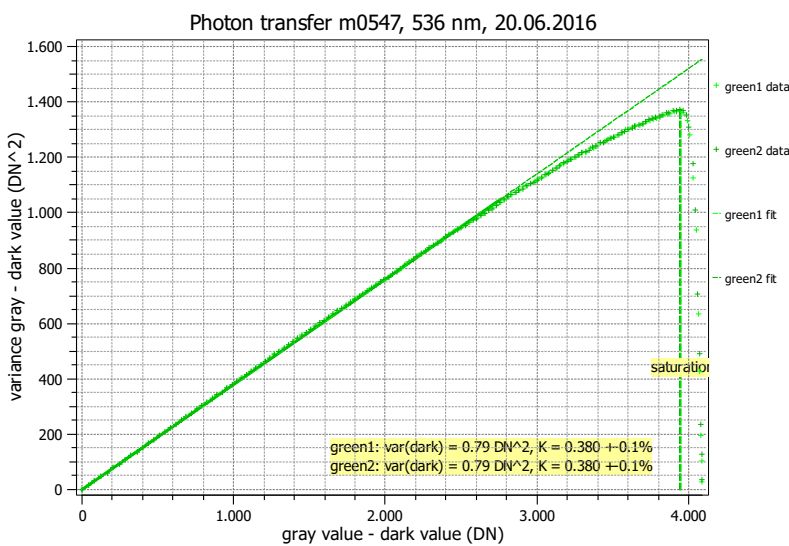
DR 3591
71.1 dB
11.8 bit

Dark current

$\mu_{c,mean}$ -3.1 DN/s
 $\mu_{c,mean}$ -8.1 e⁻/s
 $\mu_{c,var}$ 1.5 e⁻/s

EMVA 1288 Summary Sheet for Operating Point 2

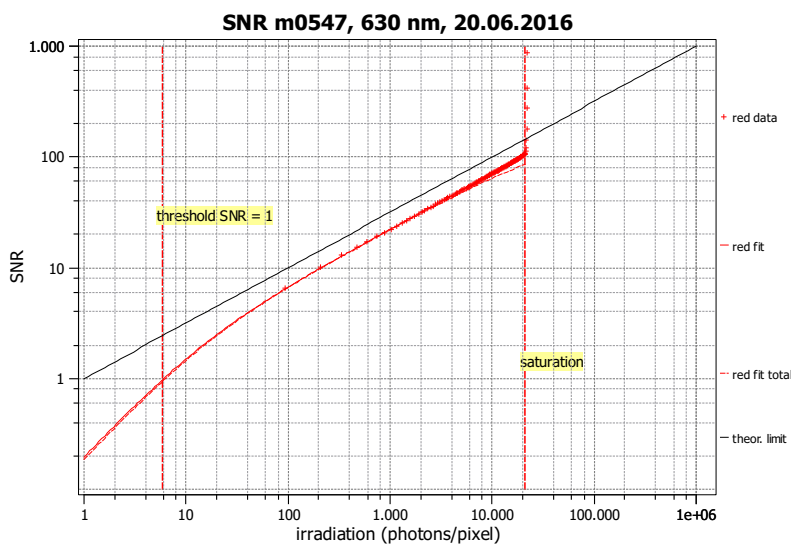
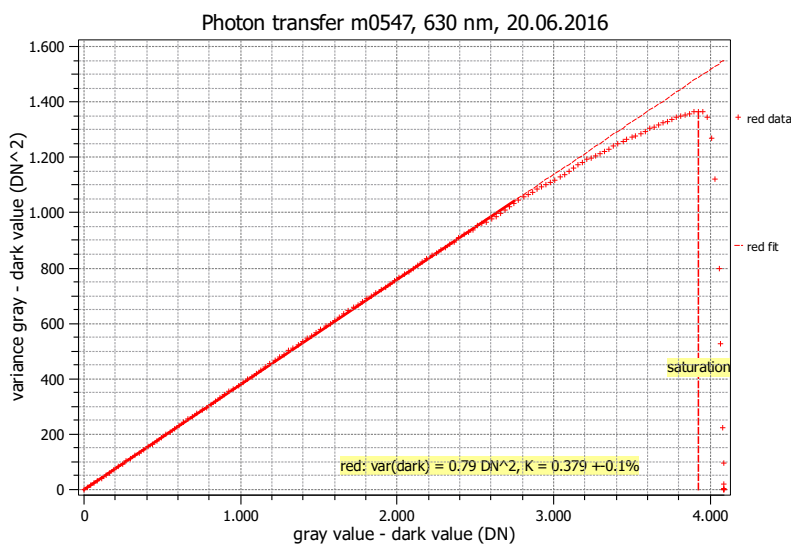
Type of data	Single	Gain, black-level	0dB / 0.1
Exposure control	By irradiance	Environmental temperature	27.4°C
Exposure time	16.00 ms	Camera body temperature	42.8°C
Frame rate	23.5 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	536 nm, 31.0 nm



Quantum efficiency	
η	56.8%
Overall system gain	
K	0.380 DN/e ⁻
$1/K$	2.632 e ⁻ /DN
Temporal dark noise & DSNU	
$\sigma_{y,dark}$	0.89 DN
DSNU ₁₂₈₈	0.30 DN
σ_d	2.22 e ⁻
DSNU ₁₂₈₈	0.79 e ⁻
Signal-to-noise ratio & PRNU	
SNR _{max}	102
	40.2 dB
	6.7 bit
$1/SNR_{max}$	0.98 %
PRNU ₁₂₈₈	0.61 %
Nonlinearity	
LE	0.19%
LE _{min}	-0.16%
LE _{max}	0.22%
Sensitivity & saturation	
$\mu_{p,min}$	5.10 p
	0.428 p/ μm^2
$\mu_{p,sat}$	18257 p
	1534 p/ μm^2
$\mu_{e,min}$	2.90 e ⁻
	0.243 e ⁻ / μm^2
$\mu_{e,sat}$	10374 e ⁻
	872 e ⁻ / μm^2
Dynamic range	
DR	3583
	71.1 dB
	11.8 bit
Dark current	
$\mu_{c,mean}$	-3.1 DN/s
$\mu_{c,mean}$	-8.0 e ⁻ /s
$\mu_{c,var}$	1.5 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	27.4°C
Exposure time	16.00 ms	Camera body temperature	42.8°C
Frame rate	23.5 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	630 nm, 13.0 nm



Quantum efficiency

η 49.9%

Overall system gain

K 0.379 DN/e⁻

$1/K$ 2.637 e⁻/DN

Temporal dark noise & DSNU

$\sigma_{y,dark}$ 0.89 DN

DSNU₁₂₈₈ 0.32 DN

σ_d 2.22 e⁻

DSNU₁₂₈₈ 0.83 e⁻

Signal-to-noise ratio & PRNU

SNR_{max} 102

40.2 dB

6.7 bit

$1/SNR_{max}$ 0.98 %

PRNU₁₂₈₈ 0.65 %

Nonlinearity

LE 0.26%

LE_{min} -0.36%

LE_{max} 0.16%

Sensitivity & saturation

$\mu_{p,min}$ 5.81 p

0.488 p/ μm^2

$\mu_{p,sat}$ 20857 p

1752 p/ μm^2

$\mu_{e,min}$ 2.90 e⁻

0.244 e⁻/ μm^2

$\mu_{e,sat}$ 10417 e⁻

875 e⁻/ μm^2

Dynamic range

DR 3590

71.1 dB

11.8 bit

Dark current

$\mu_{c,mean}$ -3.0 DN/s

$\mu_{c,mean}$ -7.9 e⁻/s

$\mu_{c,var}$ 1.8 e⁻/s