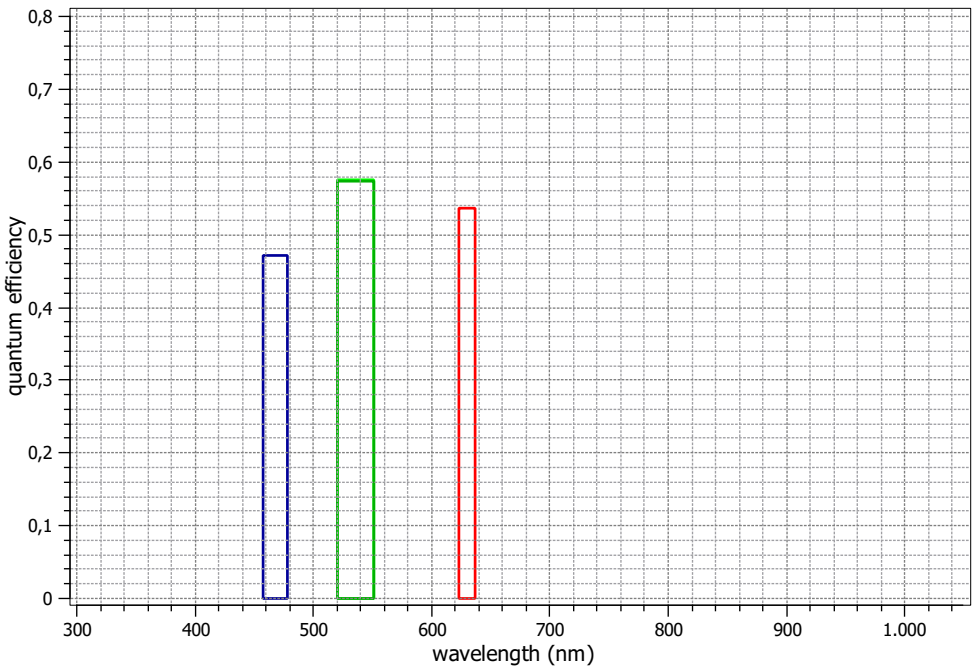
EMVA 1288 Data Sheet m0612

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 W.Dutt, Matrix Vision GmbH

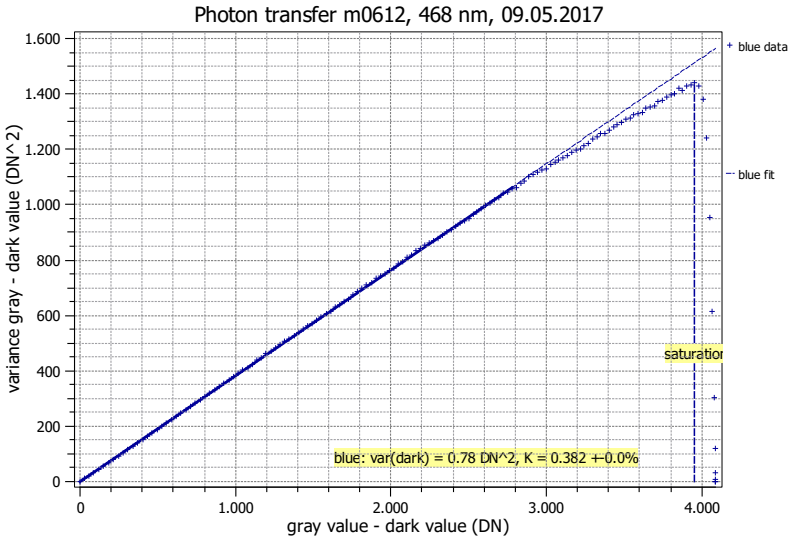
Vendor	MATRIX VISION
Model	mvBlueFOX3-2016C
Serial number	FF001065
Sensor diagonal	6.27 mm
Lens category	C-Mount
Resolution	1456 × 1088, 12 bit
Pixel size	3.45 μm × 3.45 μm
Sensor	IMX273
Sensor type	CMOS
Shutter type	Global
Overlap capabilities	Overlapping
Maximum frame rate	61.6 Hz
Interface type	USB3 Vision

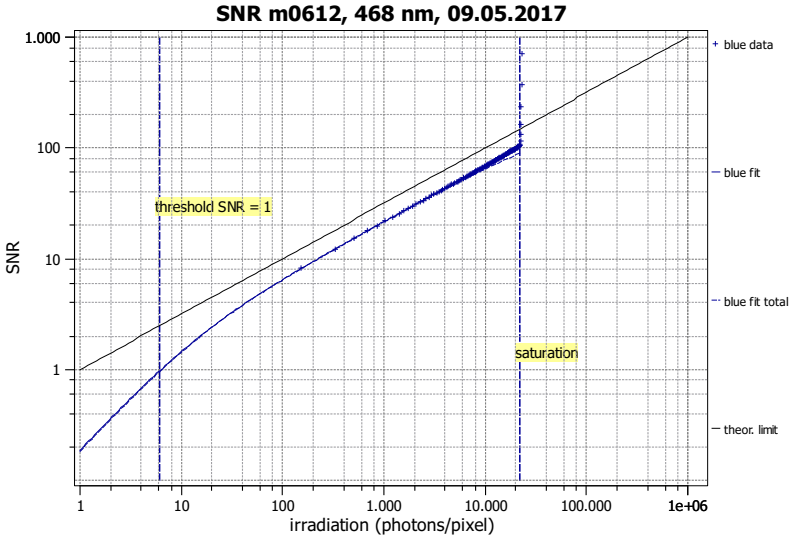
Type of data presented	Single
Operation point 1, (page ??)	
Wavelength centroid	468.0 nm
Wavelength FWHM	20.0 nm
Gain, black-level	0dB, 0.1
Operation point 2, (page ??)	
Wavelength centroid	536.0 nm
Wavelength FWHM	31.0 nm
Gain, black-level	0dB, 0.1
Operation point 3, (page ??)	
Wavelength centroid	630.0 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	24.7°C
Exposure time	16.00 ms	Camera body temperature	35.9°C
Frame rate	30.0 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	468 nm, 20.0 nm





Quantum efficiency

η	47.2%

Overall system gain

K	0.382 DN/e$^-$
$1/K$	2.614 e$^-$/DN

Temporal dark noise & DSNU

$\sigma_{y.dark}$	0.89 DN
$DSNU_{1288}$	0.21 DN
σ_d	2.19 e$^-$
$DSNU_{1288}$	0.56 e$^-$

Signal-to-noise ratio & PRNU

SNR_{max}	102
	40.1 dB
	6.7 bit
$1/SNR_{max}$	0.99 %
$PRNU_{1288}$	0.54 %

Nonlinearity

LE	0.23%
LE_{min}	-0.14%
LE_{max}	0.31%

Sensitivity & saturation

$\mu_{p,min}$	6.08 p
	0.511 p/μm^2
$\mu_{p,sat}$	21828 p
	1834 p/μm^2
$\mu_{e,min}$	2.87 e$^-$
	0.241 e$^-$/μm^2
$\mu_{e,sat}$	10305 e$^-$
	866 e$^-$/μm^2

Dynamic range

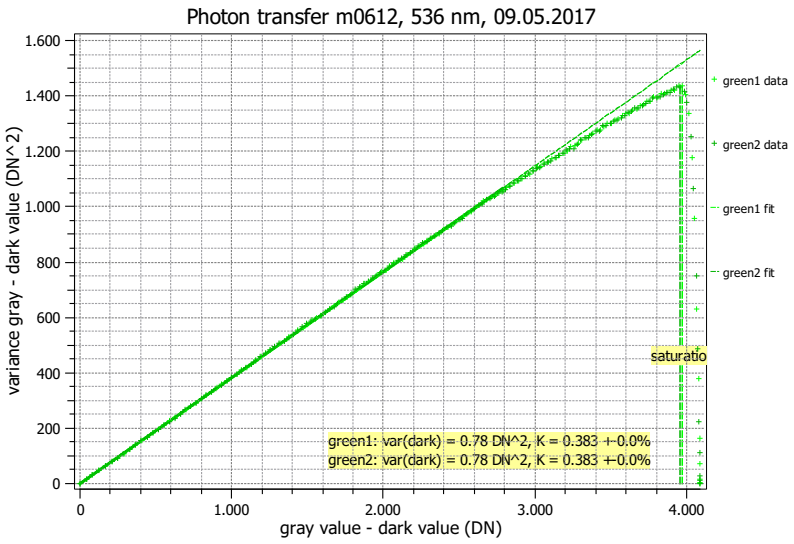
DR	3591
	71.1 dB
	11.8 bit

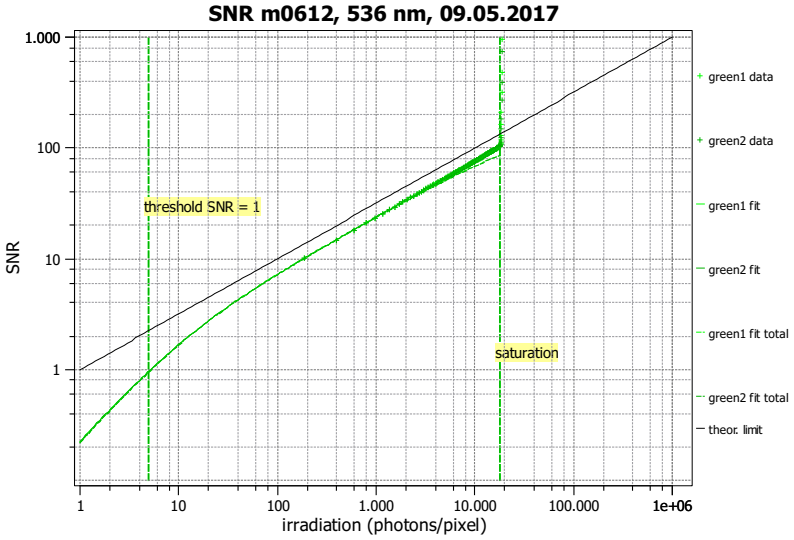
Dark current

$\mu_{c,mean}$	-2.1 DN/s
$\mu_{c,mean}$	-5.4 e$^-$/s
$\mu_{c,var}$	4.4 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	24.7°C
Exposure time	16.00 ms	Camera body temperature	35.9°C
Frame rate	30.0 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	536 nm, 31.0 nm





Quantum efficiency

η	57.5%

Overall system gain

K	0.383 DN/e$^-$
$1/K$	2.614 e$^-$/DN

Temporal dark noise & DSNU

$\sigma_{y.dark}$	0.89 DN
$DSNU_{1288}$	0.22 DN
σ_d	2.19 e$^-$
$DSNU_{1288}$	0.59 e$^-$

Signal-to-noise ratio & PRNU

SNR_{max}	102
	40.1 dB
	6.7 bit
$1/SNR_{max}$	0.98 %
$PRNU_{1288}$	0.63 %

Nonlinearity

LE	0.22%
LE_{min}	-0.15%
LE_{max}	0.28%

Sensitivity & saturation

$\mu_{p,min}$	4.99 p
	0.419 p/μm^2
$\mu_{p,sat}$	17998 p
	1512 p/μm^2
$\mu_{e,min}$	2.87 e$^-$
	0.241 e$^-$/μm^2
$\mu_{e,sat}$	10345 e$^-$
	869 e$^-$/μm^2

Dynamic range

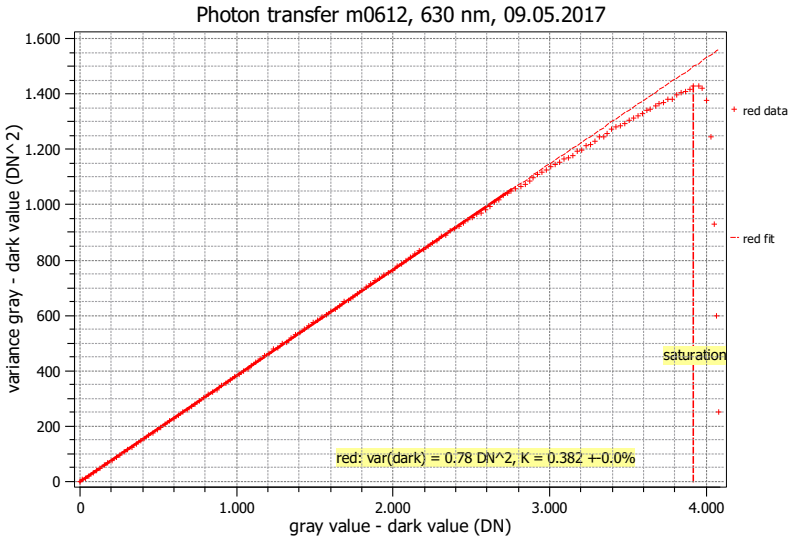
DR	3605
	71.1 dB
	11.8 bit

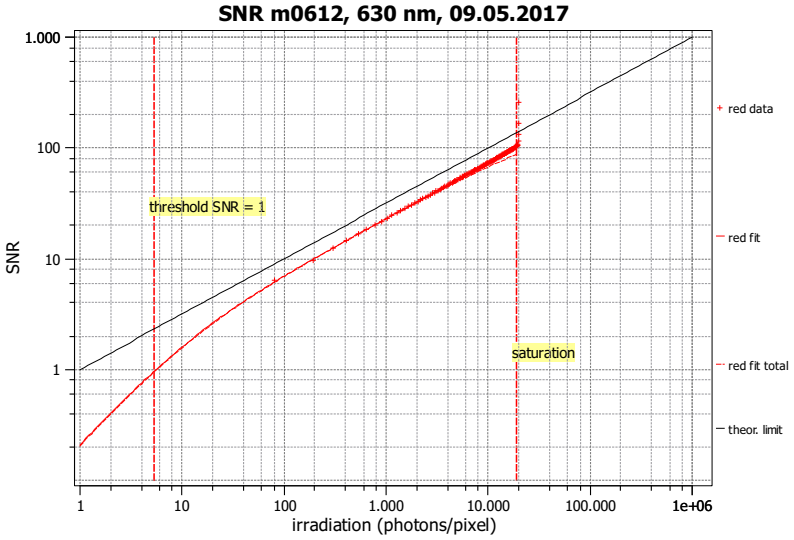
Dark current

$\mu_{c,mean}$	-2.1 DN/s
$\mu_{c,mean}$	-5.5 e$^-$/s
$\mu_{c,var}$	4.3 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	24.7°C
Exposure time	16.00 ms	Camera body temperature	35.9°C
Frame rate	30.0 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	630 nm, 13.0 nm





Quantum efficiency

η	53.6%

Overall system gain

K	0.382 DN/e$^-$
$1/K$	2.616 e$^-$/DN

Temporal dark noise & DSNU

$\sigma_{y.dark}$	0.89 DN
$DSNU_{1288}$	0.21 DN
σ_d	2.19 e$^-$
$DSNU_{1288}$	0.55 e$^-$

Signal-to-noise ratio & PRNU

SNR_{max}	101
	40.1 dB
	6.7 bit
$1/SNR_{max}$	0.99 %
$PRNU_{1288}$	0.58 %

Nonlinearity

LE	0.17%
LE_{min}	-0.21%
LE_{max}	0.13%

Sensitivity & saturation

$\mu_{p,min}$	5.36 p
	0.450 p/μm^2
$\mu_{p,sat}$	19176 p
	1611 p/μm^2
$\mu_{e,min}$	2.87 e$^-$
	0.241 e$^-$/μm^2
$\mu_{e,sat}$	10269 e$^-$
	863 e$^-$/μm^2

Dynamic range

DR	3578
	71.1 dB
	11.8 bit

Dark current

$\mu_{c,mean}$	-1.8 DN/s
$\mu_{c,mean}$	-4.7 e$^-$/s
$\mu_{c,var}$	4.8 e$^-$/s