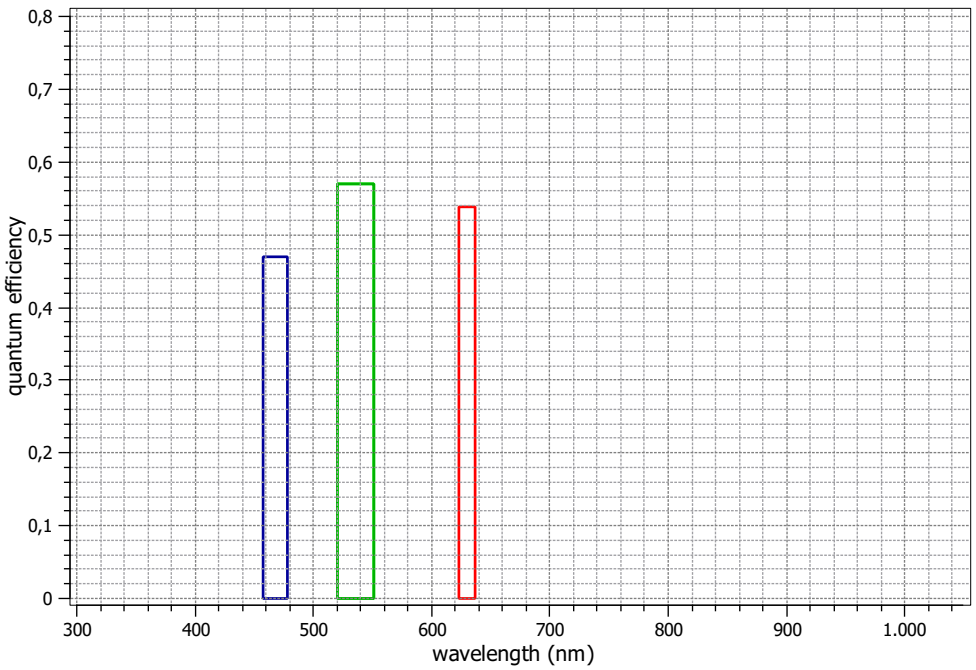
EMVA 1288 Data Sheet m0624

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

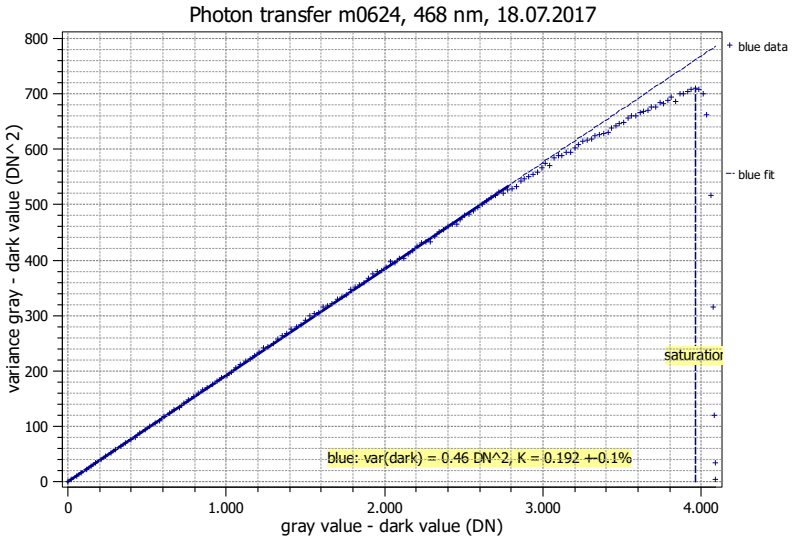
Vendor	MATRIX VISION
Model	mvBlueFOX3-2004C
Serial number	FF001168
Sensor diagonal	6.27 mm
Lens category	C-Mount
Resolution	728 × 544, 12 bit
Pixel size	6.90 µm × 6.90 µm
Sensor	IMX287
Sensor type	CMOS
Shutter type	Global
Overlap capabilities	Overlapping
Maximum frame rate	237.2 Hz
Interface type	USB3 Vision

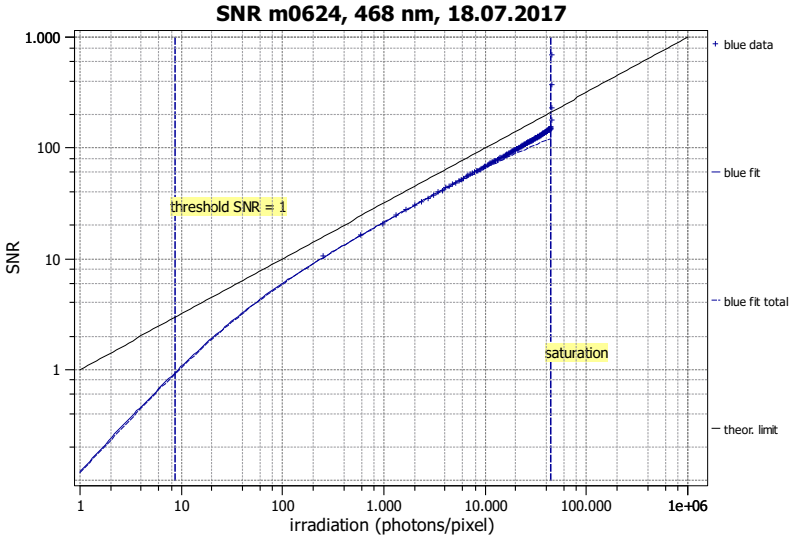
Type of data presented	Single
Operation point 1, (page ??)	
Wavelength centroid	468.0 nm
Wavelength FWHM	20.0 nm
Gain, black-level	0dB, 0.1
Operation point 2, (page ??)	
Wavelength centroid	536.0 nm
Wavelength FWHM	31.0 nm
Gain, black-level	0dB, 0.1
Operation point 3, (page ??)	
Wavelength centroid	630.0 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	27.3°C
Exposure time	7.00 ms	Camera body temperature	37.0°C
Frame rate	32.0 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	468 nm, 20.0 nm





Quantum efficiency

η	47.0%

Overall system gain

K	0.192 DN/e$^-$
$1/K$	5.204 e$^-$/DN

Temporal dark noise & DSNU

$\sigma_{y.dark}$	0.68 DN
$DSNU_{1288}$	0.20 DN
σ_d	3.21 e$^-$
$DSNU_{1288}$	1.05 e$^-$

Signal-to-noise ratio & PRNU

SNR_{max}	144
	43.1 dB
	7.2 bit
$1/SNR_{max}$	0.70 %
$PRNU_{1288}$	0.45 %

Nonlinearity

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

Sensitivity & saturation

$\mu_{p,min}$	8.68 p
	0.182 p/μm^2
$\mu_{p,sat}$	43854 p
	921 p/μm^2
$\mu_{e,min}$	4.08 e$^-$
	0.086 e$^-$/μm^2
$\mu_{e,sat}$	20621 e$^-$
	433 e$^-$/μm^2

Dynamic range

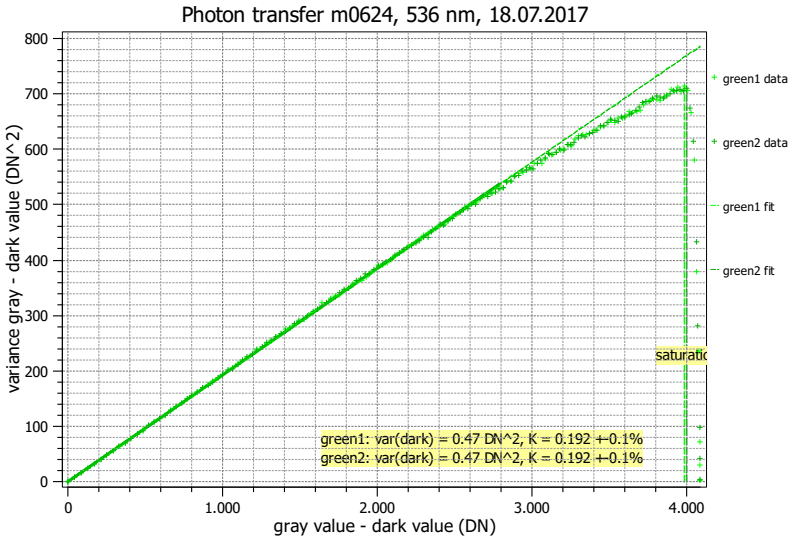
DR	5053
	74.1 dB
	12.3 bit

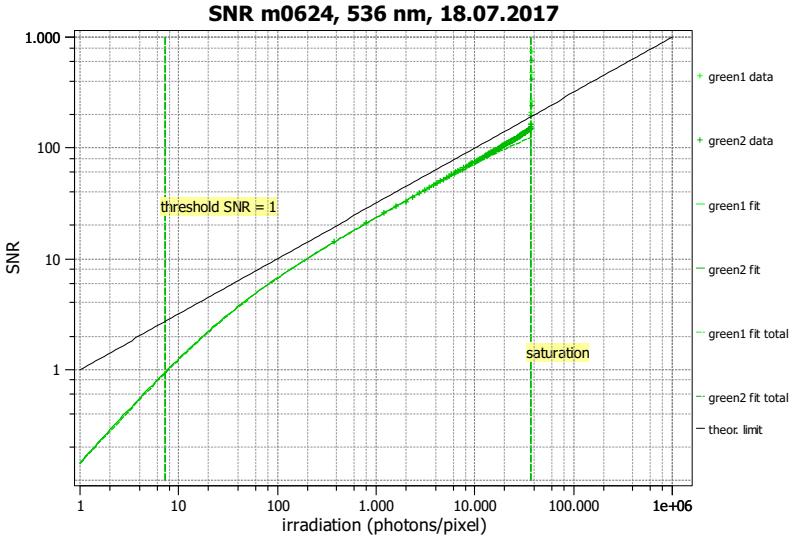
Dark current

$\mu_{c,mean}$	-2.4 DN/s
$\mu_{c,mean}$	-12.2 e$^-$/s
$\mu_{c,var}$	17.6 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	27.3°C
Exposure time	7.00 ms	Camera body temperature	37.0°C
Frame rate	32.0 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	536 nm, 31.0 nm





Quantum efficiency

η	56.9%

Overall system gain

K	0.192 DN/e$^-$
$1/K$	5.200 e$^-$/DN

Temporal dark noise & DSNU

$\sigma_{y.dark}$	0.68 DN
$DSNU_{1288}$	0.19 DN
σ_d	3.23 e$^-$
$DSNU_{1288}$	1.00 e$^-$

Signal-to-noise ratio & PRNU

SNR_{max}	144
	43.2 dB
	7.2 bit
$1/SNR_{max}$	0.69 %
$PRNU_{1288}$	0.42 %

Nonlinearity

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

Sensitivity & saturation

$\mu_{p,min}$	7.19 p
	0.151 p/μm^2
$\mu_{p,sat}$	36537 p
	767 p/μm^2
$\mu_{e,min}$	4.09 e$^-$
	0.086 e$^-$/μm^2
$\mu_{e,sat}$	20793 e$^-$
	437 e$^-$/μm^2

Dynamic range

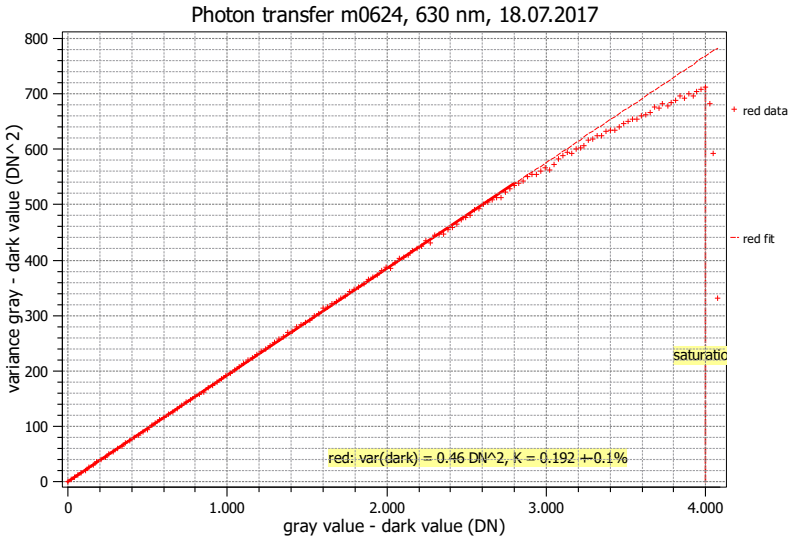
DR	5080
	74.1 dB
	12.3 bit

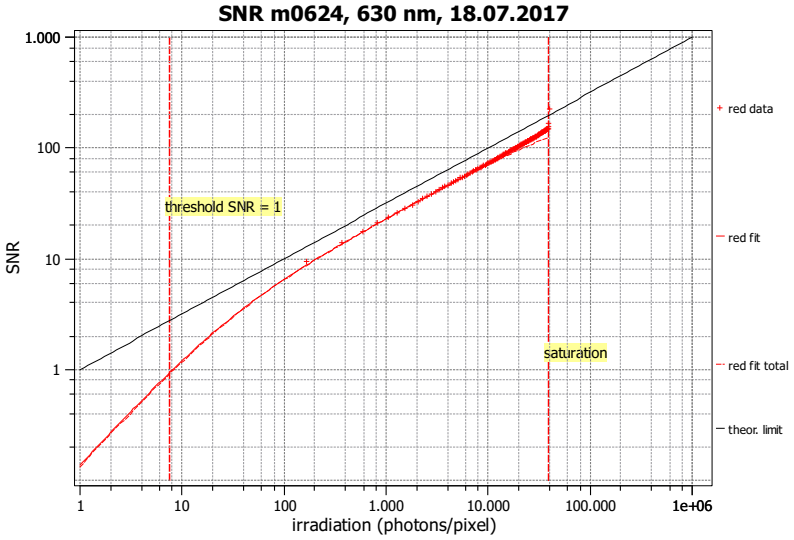
Dark current

$\mu_{c,mean}$	-2.4 DN/s
$\mu_{c,mean}$	-12.3 e$^-$/s
$\mu_{c,var}$	17.4 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	27.3°C
Exposure time	7.00 ms	Camera body temperature	37.0°C
Frame rate	32.0 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	630 nm, 13.0 nm





Quantum efficiency

η	53.9%

Overall system gain

K	0.192 DN/e$^-$
$1/K$	5.206 e$^-$/DN

Temporal dark noise & DSNU

$\sigma_{y.dark}$	0.68 DN
$DSNU_{1288}$	0.19 DN
σ_d	3.22 e$^-$
$DSNU_{1288}$	0.99 e$^-$

Signal-to-noise ratio & PRNU

SNR_{max}	145
	43.2 dB
	7.2 bit
$1/SNR_{max}$	0.69 %
$PRNU_{1288}$	0.40 %

Nonlinearity

LE	0.22%
LE_{min}	-0.29%
LE_{max}	0.16%

Sensitivity & saturation

$\mu_{p,min}$	7.58 p
	0.159 p/μm^2
$\mu_{p,sat}$	38822 p
	815 p/μm^2
$\mu_{e,min}$	4.08 e$^-$
	0.086 e$^-$/μm^2
$\mu_{e,sat}$	20910 e$^-$
	439 e$^-$/μm^2

Dynamic range

DR	5119
	74.2 dB
	12.3 bit

Dark current

$\mu_{c,mean}$	-2.4 DN/s
$\mu_{c,mean}$	-12.3 e$^-$/s
$\mu_{c,var}$	17.6 e$^-$/s