

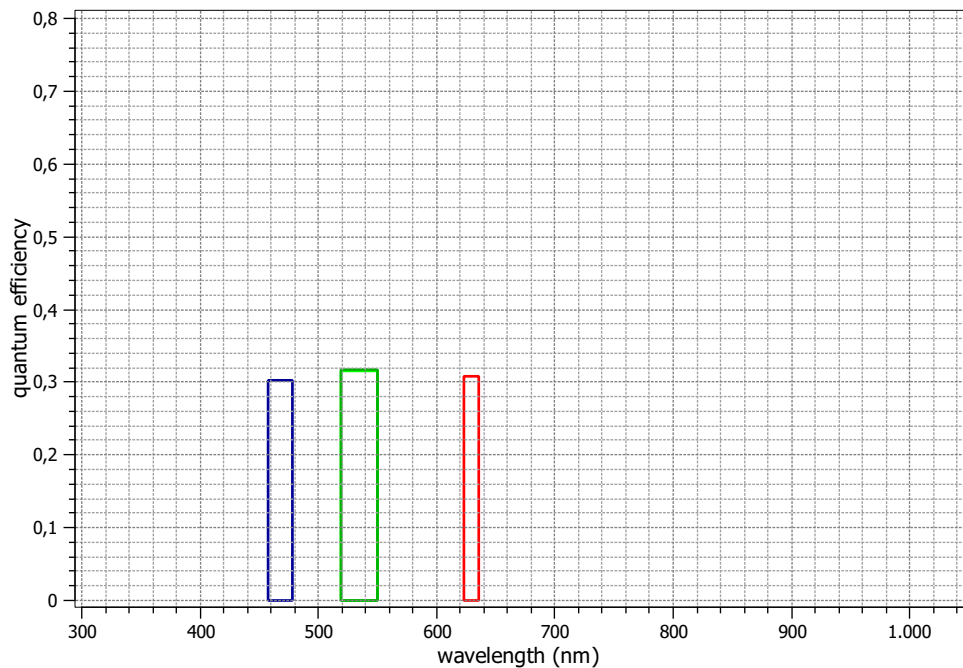
## EMVA 1288 Data Sheet m0504

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](http://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-RGB Release 3, 12.04.2015, SN 0005(Matrix Vision) . 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

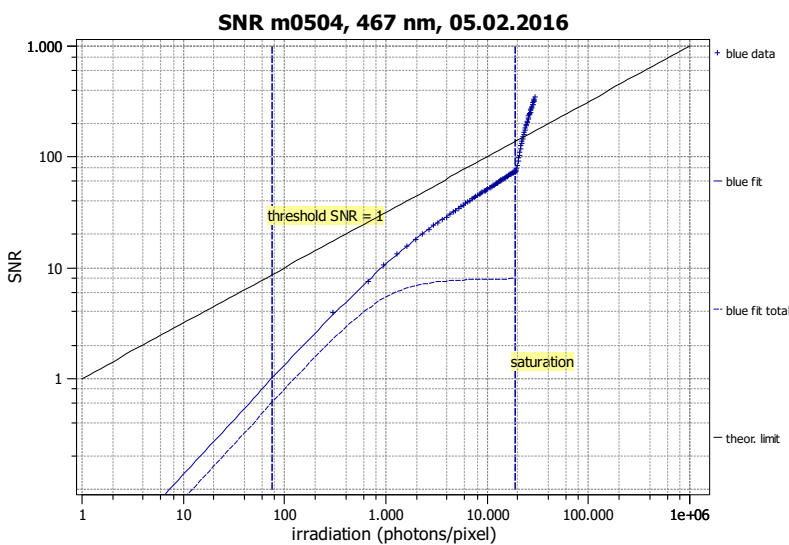
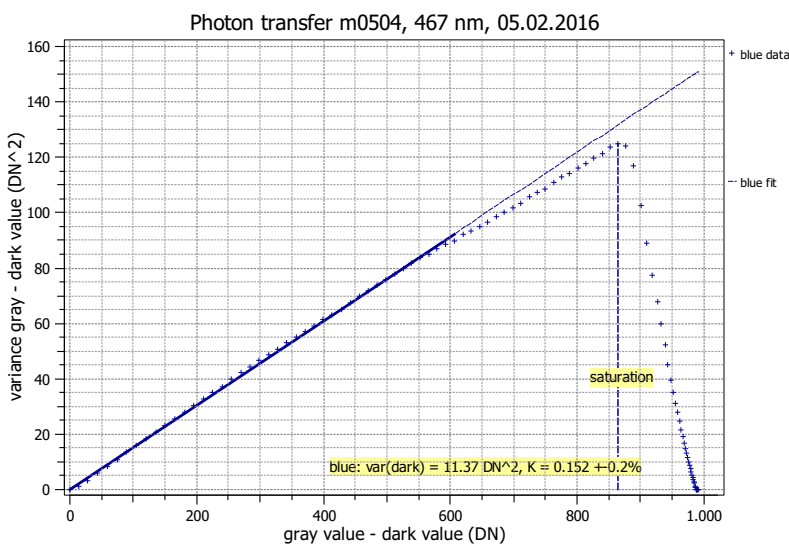
Vendor	MATRIX VISION
Model	mvBlueFOX3-1020aC
Serial number	F2900071
Sensor diagonal	9.00 mm
Lens category	C-Mount
Resolution	1600 × 1200, 10 bit
Pixel size	4.50 μm × 4.50 μm
Sensor	EV76C570-AxT6
Sensor type	CMOS
Shutter type	Global
Overlap capabilities	Overlapping
Maximum frame rate	60.0 Hz
Interface type	USB3 Vision

Type of data presented	Single
<b>Operation point 1, (page ??)</b>	
Wavelength centroid	467.3 nm
Wavelength FWHM	20.5 nm
Gain, black-level	0dB, 34.0
<b>Operation point 2, (page ??)</b>	
Wavelength centroid	534.2 nm
Wavelength FWHM	30.9 nm
Gain, black-level	0dB, 34.0
<b>Operation point 3, (page ??)</b>	
Wavelength centroid	629.5 nm
Wavelength FWHM	13.1 nm
Gain, black-level	0dB, 34.0
<b>Optional data measured</b>	
None	



## EMVA 1288 Summary Sheet for Operating Point 1

Type of data	Single	Gain, black-level	0dB, 34.0
Exposure control	By irradiance	Environmental temperature	28.1°C
Exposure time	14.00 ms	Camera body temperature	35.1°C
Frame rate	60.0 Hz	Internal temperature(s)	—
Data transfer mode	BayerGR10	Wavelength, centr., FWHM	467 nm, 20.5 nm



### Quantum efficiency

$\eta$  30.2%

### Overall system gain

$K$  0.152 DN/e<sup>-</sup>  
 $1/K$  6.566 e<sup>-</sup>/DN

### Temporal dark noise & DSNU

$\sigma_{y,\text{dark}}$  3.37 DN  
 DSNU<sub>1288</sub> 4.54 DN  
 $\sigma_d$  22.05 e<sup>-</sup>  
 DSNU<sub>1288</sub> 29.82 e<sup>-</sup>

### Signal-to-noise ratio & PRNU

SNR<sub>max</sub> 76  
 37.6 dB  
 6.2 bit  
 $1/\text{SNR}_{\text{max}}$  1.32 %  
 PRNU<sub>1288</sub> 12.48 %

### Nonlinearity

LE 0.57%  
 LE<sub>min</sub> -0.61%  
 LE<sub>max</sub> 0.52%

### Sensitivity & saturation

$\mu_{p,\text{min}}$  74.9 p  
 3.70 p/ $\mu\text{m}^2$   
 $\mu_{p,\text{sat}}$  19038 p  
 940 p/ $\mu\text{m}^2$   
 $\mu_{e,\text{min}}$  22.6 e<sup>-</sup>  
 1.12 e<sup>-</sup>/ $\mu\text{m}^2$   
 $\mu_{e,\text{sat}}$  5752 e<sup>-</sup>  
 284 e<sup>-</sup>/ $\mu\text{m}^2$

### Dynamic range

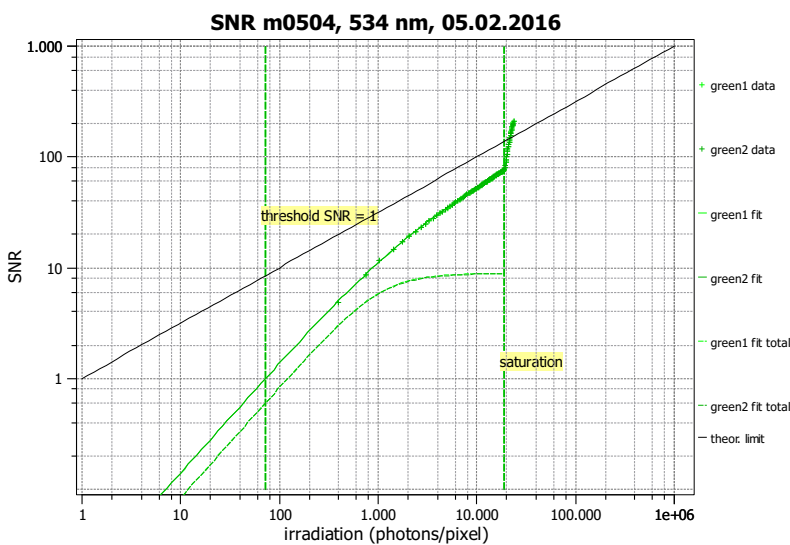
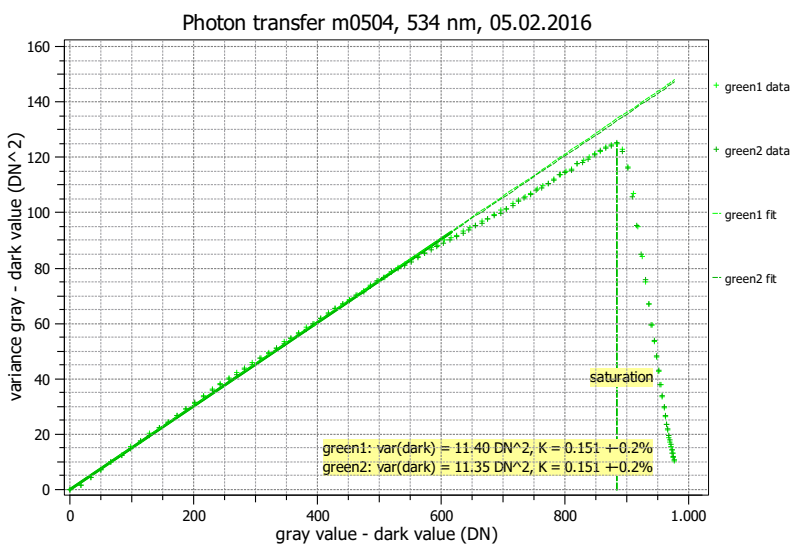
DR 254  
 48.1 dB  
 8.0 bit

### Dark current

$\mu_{c,\text{mean}}$  683.2 DN/s  
 $\mu_{c,\text{mean}}$  4485.5 e<sup>-</sup>/s  
 $\mu_{c,\text{var}}$  2643.5 e<sup>-</sup>/s

## EMVA 1288 Summary Sheet for Operating Point 2

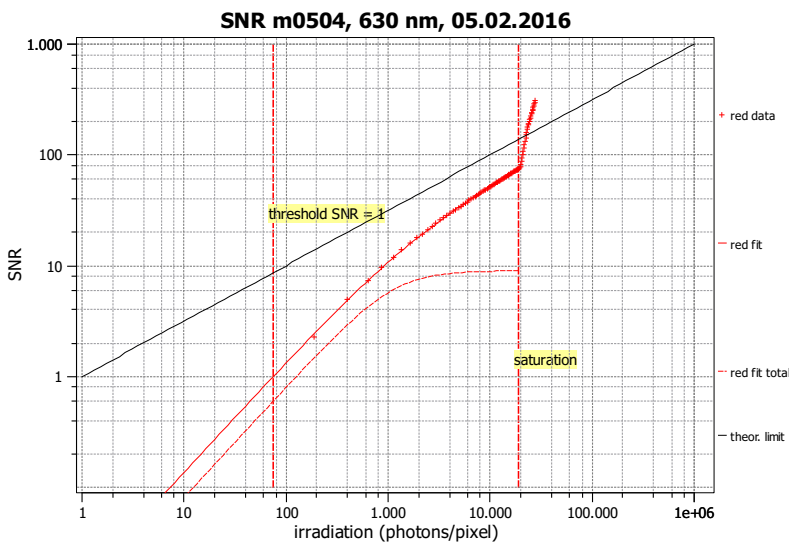
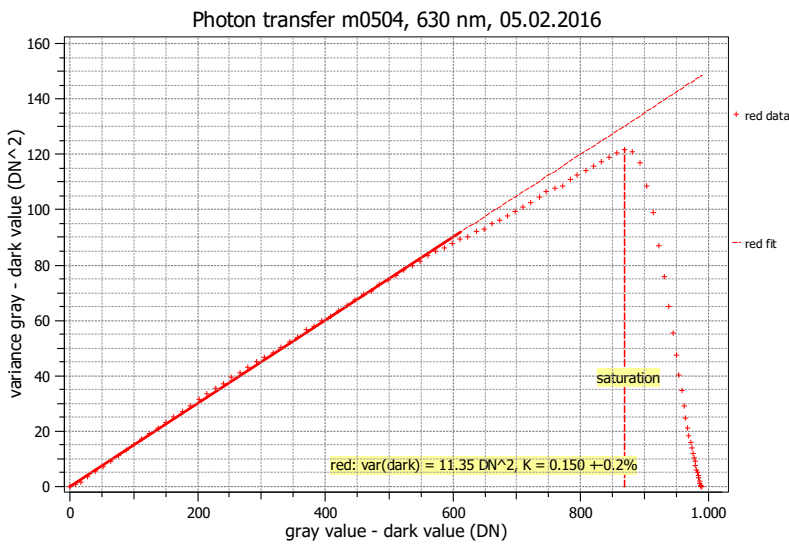
Type of data	Single	Gain, black-level	0dB, 34.0
Exposure control	By irradiance	Environmental temperature	28.1°C
Exposure time	14.00 ms	Camera body temperature	35.1°C
Frame rate	60.0 Hz	Internal temperature(s)	—
Data transfer mode	BayerGR10	Wavelength, centr., FWHM	534 nm, 30.9 nm



<b>Quantum efficiency</b>	
$\eta$	31.6%
<b>Overall system gain</b>	
$K$	0.151 DN/e <sup>-</sup>
$1/K$	6.606 e <sup>-</sup> /DN
<b>Temporal dark noise &amp; DSNU</b>	
$\sigma_{y,dark}$	3.38 DN
DSNU <sub>1288</sub>	4.57 DN
$\sigma_d$	22.22 e <sup>-</sup>
DSNU <sub>1288</sub>	30.16 e <sup>-</sup>
<b>Signal-to-noise ratio &amp; PRNU</b>	
SNR <sub>max</sub>	77
	37.7 dB
	6.3 bit
$1/SNR_{max}$	1.30 %
PRNU <sub>1288</sub>	11.16 %
<b>Nonlinearity</b>	
LE	0.63%
LE <sub>min</sub>	-0.66%
LE <sub>max</sub>	0.59%
<b>Sensitivity &amp; saturation</b>	
$\mu_{p,min}$	72.3 p
	3.57 p/ $\mu m^2$
$\mu_{p,sat}$	18847 p
	931 p/ $\mu m^2$
$\mu_{e,min}$	22.8 e <sup>-</sup>
	1.13 e <sup>-</sup> / $\mu m^2$
$\mu_{e,sat}$	5949 e <sup>-</sup>
	294 e <sup>-</sup> / $\mu m^2$
<b>Dynamic range</b>	
DR	261
	48.3 dB
	8.0 bit
<b>Dark current</b>	
$\mu_{c,mean}$	682.6 DN/s
$\mu_{c,mean}$	4509.1 e <sup>-</sup> /s
$\mu_{c,var}$	2751.1 e <sup>-</sup> /s

## EMVA 1288 Summary Sheet for Operating Point 3

Type of data	Single	Gain, black-level	0dB, 34.0
Exposure control	By irradiance	Environmental temperature	28.1°C
Exposure time	14.00 ms	Camera body temperature	35.1°C
Frame rate	60.0 Hz	Internal temperature(s)	—
Data transfer mode	BayerGR10	Wavelength, centr., FWHM	630 nm, 13.1 nm



### Quantum efficiency

$\eta$  30.9%

### Overall system gain

$K$  0.150 DN/e<sup>-</sup>  
 $1/K$  6.668 e<sup>-</sup>/DN

### Temporal dark noise & DSNU

$\sigma_{y,\text{dark}}$  3.37 DN  
 DSNU<sub>1288</sub> 4.59 DN  
 $\sigma_d$  22.38 e<sup>-</sup>  
 DSNU<sub>1288</sub> 30.63 e<sup>-</sup>

### Signal-to-noise ratio & PRNU

SNR<sub>max</sub> 77  
 37.7 dB  
 6.3 bit  
 $1/\text{SNR}_{\text{max}}$  1.30 %  
 PRNU<sub>1288</sub> 11.03 %

### Nonlinearity

LE 0.86%  
 LE<sub>min</sub> -1.09%  
 LE<sub>max</sub> 0.63%

### Sensitivity & saturation

$\mu_{p,\text{min}}$  74.4 p  
 3.67 p/μm<sup>2</sup>  
 $\mu_{p,\text{sat}}$  19180 p  
 947 p/μm<sup>2</sup>  
 $\mu_{e,\text{min}}$  23.0 e<sup>-</sup>  
 1.13 e<sup>-</sup>/μm<sup>2</sup>  
 $\mu_{e,\text{sat}}$  5925 e<sup>-</sup>  
 293 e<sup>-</sup>/μm<sup>2</sup>

### Dynamic range

DR 258  
 48.2 dB  
 8.0 bit

### Dark current

$\mu_{c,\text{mean}}$  683.9 DN/s  
 $\mu_{c,\text{mean}}$  4560.0 e<sup>-</sup>/s  
 $\mu_{c,\text{var}}$  2742.5 e<sup>-</sup>/s