

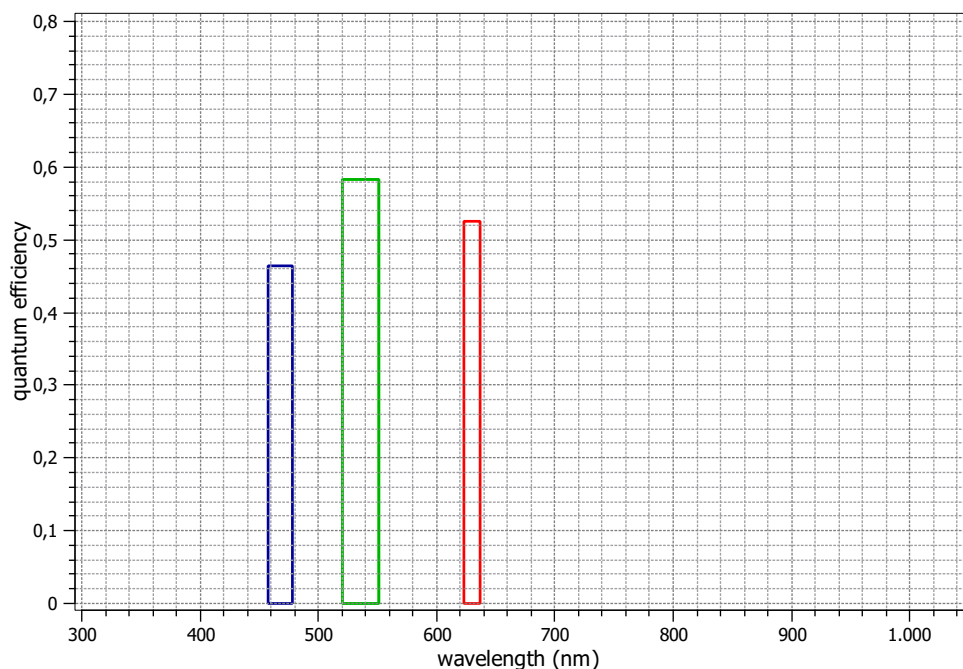
## EMVA 1288 Data Sheet m0606

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 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

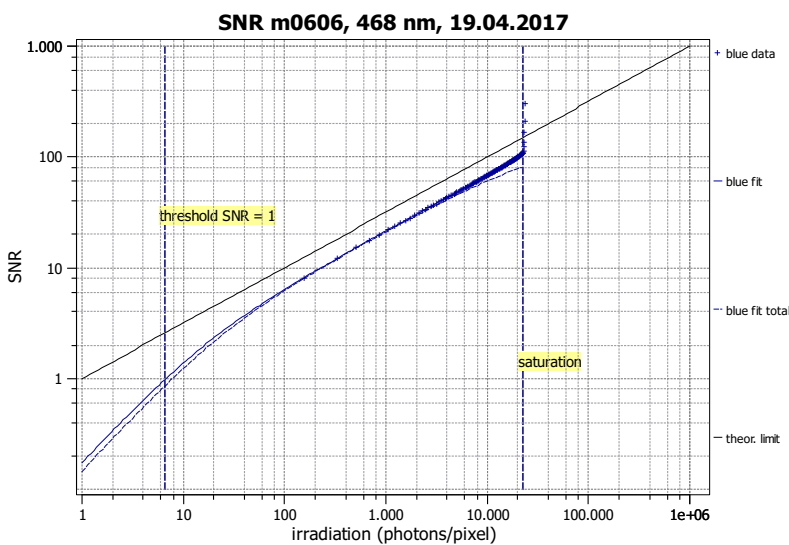
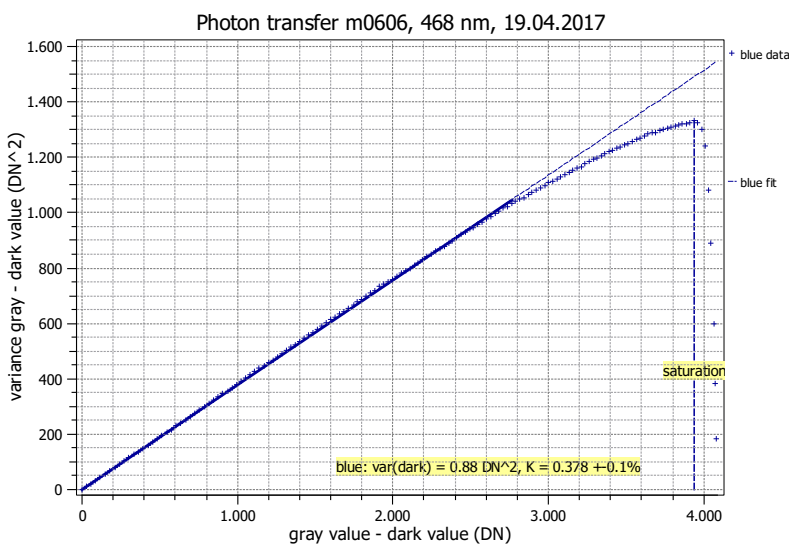
Vendor	MATRIX VISION
Model	mvBlueCOUGAR-X109bC
Serial number	GX016852
Sensor diagonal	16.00 mm
Lens category	C-Mount
Resolution	4096 × 2176, 12 bit
Pixel size	3.45 μm × 3.45 μm
Sensor	IMX267
Sensor type	CMOS
Shutter type	Global
Overlap capabilities	Overlapping
Maximum frame rate	6.6 Hz
Interface type	GigE Vision

Type of data presented	Single
<b>Operation point 1, (page 5)</b>	
Wavelength centroid	468.0 nm
Wavelength FWHM	20.0 nm
Gain, black-level	0dB / 0.1
<b>Operation point 2, (page 19)</b>	
Wavelength centroid	536.0 nm
Wavelength FWHM	31.0 nm
Gain, black-level	0dB / 0.1
<b>Operation point 3, (page 33)</b>	
Wavelength centroid	630.0 nm
Wavelength FWHM	13.0 nm
Gain, black-level	0dB / 0.1
<b>Optional data measured</b>	
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	24.8°C
Exposure time	16.00 ms	Camera body temperature	40.7°C
Frame rate	6.6 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	468 nm, 20.0 nm



### Quantum efficiency

$\eta$  46.5%

### Overall system gain

$K$  0.378 DN/e<sup>-</sup>  
 $1/K$  2.642 e<sup>-</sup>/DN

### Temporal dark noise & DSNU

$\sigma_{y,dark}$  0.94 DN  
DSNU<sub>1288</sub> 0.65 DN  
 $\sigma_d$  2.36 e<sup>-</sup>  
DSNU<sub>1288</sub> 1.71 e<sup>-</sup>

### Signal-to-noise ratio & PRNU

SNR<sub>max</sub> 102  
40.2 dB  
6.7 bit  
 $1/SNR_{max}$  0.98 %  
PRNU<sub>1288</sub> 0.76 %

### Nonlinearity

LE 0.23%  
LE<sub>min</sub> -0.32%  
LE<sub>max</sub> 0.15%

### Sensitivity & saturation

$\mu_{p,min}$  6.53 p  
0.549 p/ $\mu\text{m}^2$   
 $\mu_{p,sat}$  22458 p  
1887 p/ $\mu\text{m}^2$   
 $\mu_{e,min}$  3.03 e<sup>-</sup>  
0.255 e<sup>-</sup>/ $\mu\text{m}^2$   
 $\mu_{e,sat}$  10433 e<sup>-</sup>  
877 e<sup>-</sup>/ $\mu\text{m}^2$

### Dynamic range

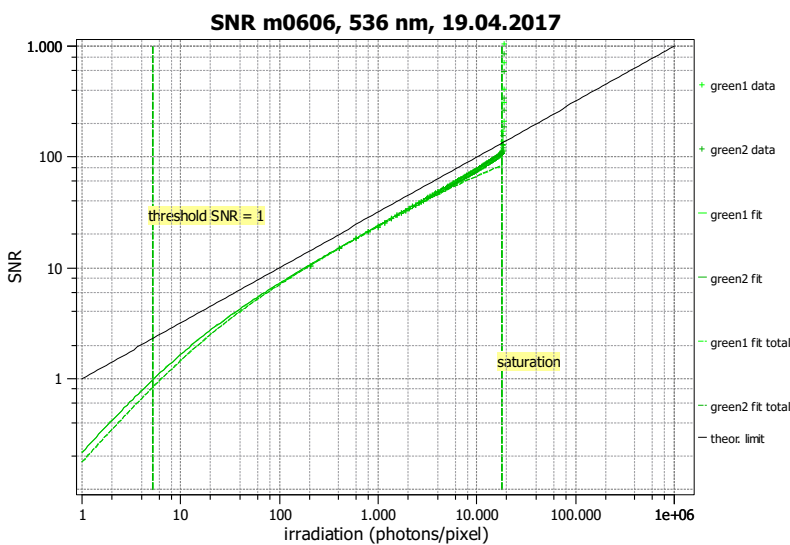
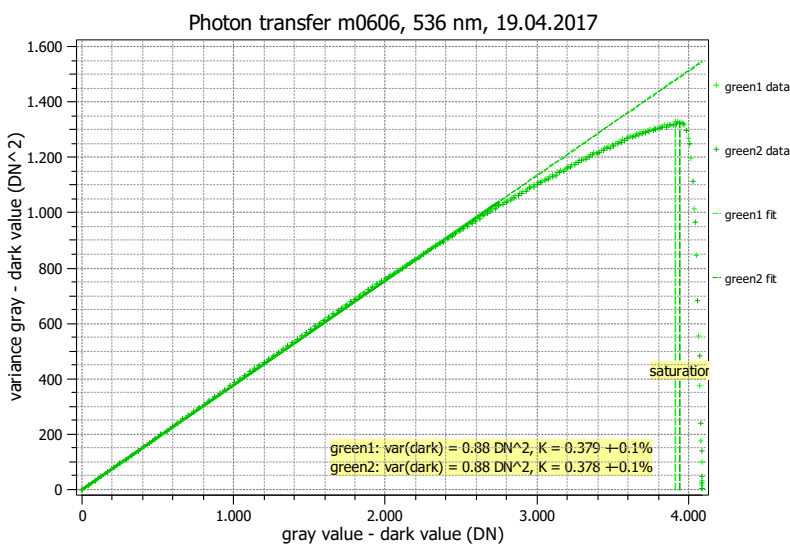
DR 3440  
70.7 dB  
11.7 bit

### Dark current

$\mu_{c,mean}$  -3.8 DN/s  
 $\mu_{c,mean}$  -10.1 e<sup>-</sup>/s  
 $\mu_{c,var}$  5.8 e<sup>-</sup>/s

## EMVA 1288 Summary Sheet for Operating Point 2

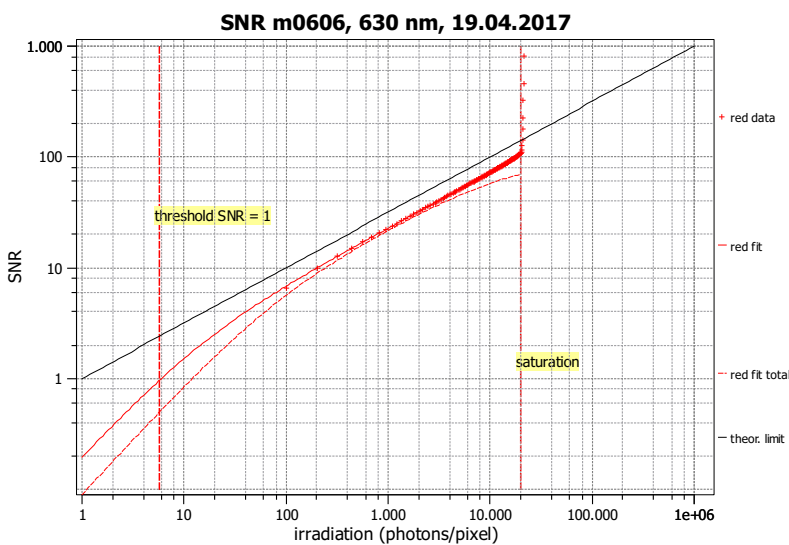
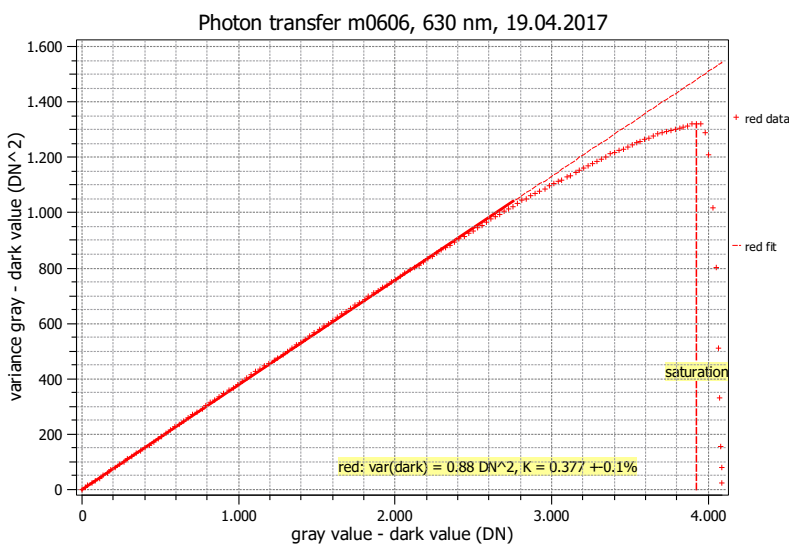
Type of data	Single	Gain, black-level	0dB / 0.1
Exposure control	By irradiance	Environmental temperature	24.8°C
Exposure time	16.00 ms	Camera body temperature	40.7°C
Frame rate	6.6 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	536 nm, 31.0 nm



<b>Quantum efficiency</b>	
$\eta$	58.3%
<b>Overall system gain</b>	
$K$	0.379 DN/e <sup>-</sup>
$1/K$	2.641 e <sup>-</sup> /DN
<b>Temporal dark noise &amp; DSNU</b>	
$\sigma_{y,dark}$	0.94 DN
DSNU <sub>1288</sub>	0.73 DN
$\sigma_d$	2.35 e <sup>-</sup>
DSNU <sub>1288</sub>	1.92 e <sup>-</sup>
<b>Signal-to-noise ratio &amp; PRNU</b>	
SNR <sub>max</sub>	102
	40.1 dB
	6.7 bit
$1/SNR_{max}$	0.98 %
PRNU <sub>1288</sub>	0.70 %
<b>Nonlinearity</b>	
LE	0.23%
LE <sub>min</sub>	-0.31%
LE <sub>max</sub>	0.16%
<b>Sensitivity &amp; saturation</b>	
$\mu_{p,min}$	5.19 p
	0.436 p/ $\mu\text{m}^2$
$\mu_{p,sat}$	17735 p
	1490 p/ $\mu\text{m}^2$
$\mu_{e,min}$	3.02 e <sup>-</sup>
	0.254 e <sup>-</sup> / $\mu\text{m}^2$
$\mu_{e,sat}$	10344 e <sup>-</sup>
	869 e <sup>-</sup> / $\mu\text{m}^2$
<b>Dynamic range</b>	
DR	3420
	70.7 dB
	11.7 bit
<b>Dark current</b>	
$\mu_{c,mean}$	-3.8 DN/s
$\mu_{c,mean}$	-10.0 e <sup>-</sup> /s
$\mu_{c,var}$	5.9 e <sup>-</sup> /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	24.8°C
Exposure time	16.00 ms	Camera body temperature	40.7°C
Frame rate	6.6 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	630 nm, 13.0 nm



### Quantum efficiency

$\eta$  52.5%

### Overall system gain

$K$  0.377 DN/e<sup>-</sup>

$1/K$  2.650 e<sup>-</sup>/DN

### Temporal dark noise & DSNU

$\sigma_{y,dark}$  0.94 DN

DSNU<sub>1288</sub> 1.96 DN

$\sigma_d$  2.37 e<sup>-</sup>

DSNU<sub>1288</sub> 5.20 e<sup>-</sup>

### Signal-to-noise ratio & PRNU

SNR<sub>max</sub> 102

40.2 dB

6.7 bit

$1/SNR_{max}$  0.98 %

PRNU<sub>1288</sub> 1.05 %

### Nonlinearity

LE 0.36%

LE<sub>min</sub> -0.51%

LE<sub>max</sub> 0.20%

### Sensitivity & saturation

$\mu_{p,min}$  5.79 p

0.486 p/ $\mu\text{m}^2$

$\mu_{p,sat}$  20013 p

1681 p/ $\mu\text{m}^2$

$\mu_{e,min}$  3.04 e<sup>-</sup>

0.255 e<sup>-</sup>/ $\mu\text{m}^2$

$\mu_{e,sat}$  10505 e<sup>-</sup>

883 e<sup>-</sup>/ $\mu\text{m}^2$

### Dynamic range

DR 3459

70.8 dB

11.8 bit

### Dark current

$\mu_{c,mean}$  -3.9 DN/s

$\mu_{c,mean}$  -10.4 e<sup>-</sup>/s

$\mu_{c,var}$  5.6 e<sup>-</sup>/s