

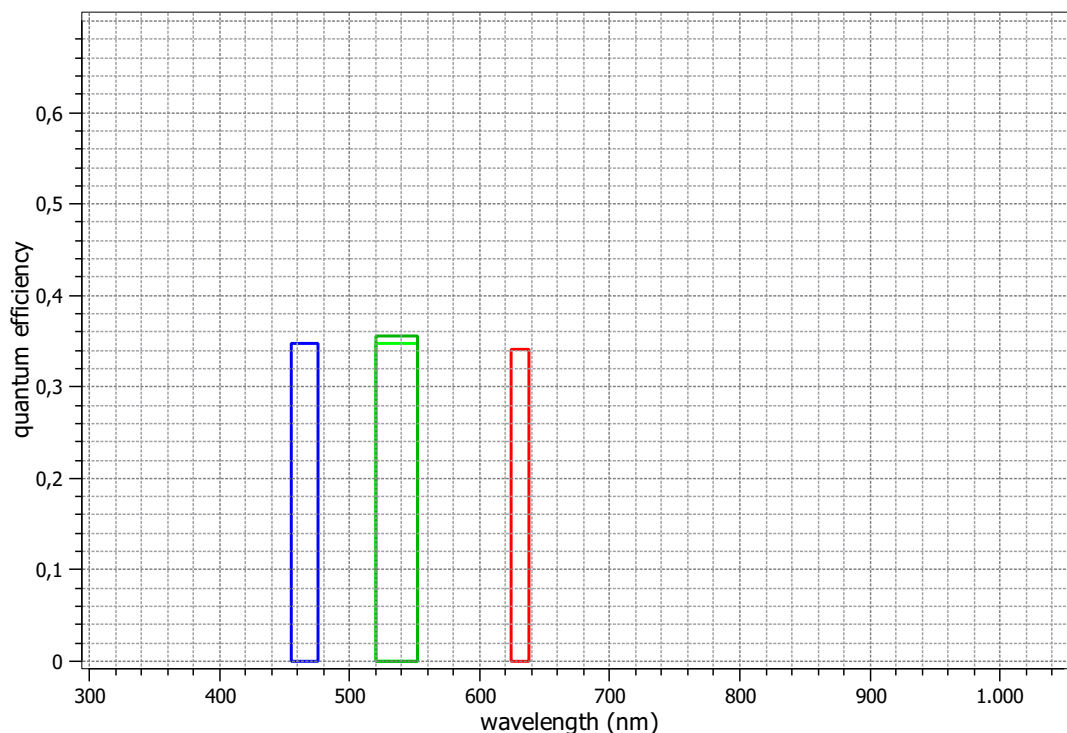
## EMVA 1288 Summary Sheet

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, 15.08.2015, SN 0001(Baumer) . 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 Technical and Application Support Center, Baumer Optronik GmbH.

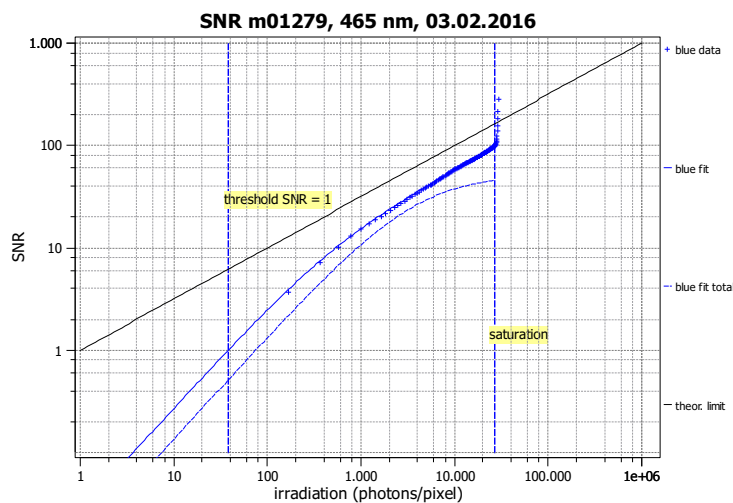
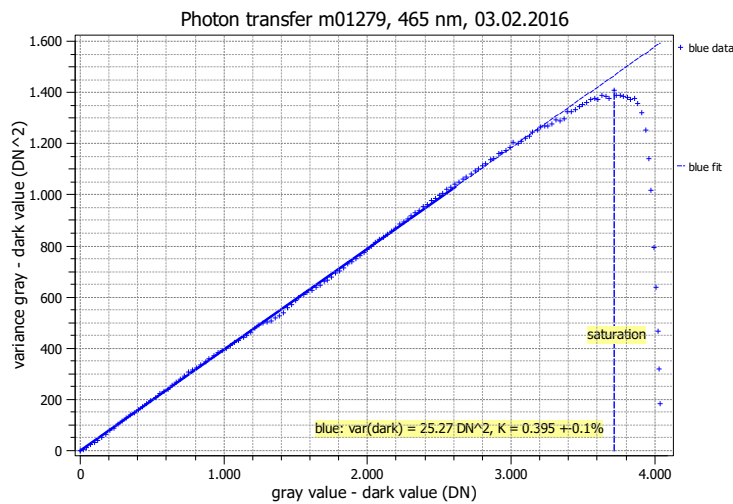
Vendor	Baumer
Model	LXG-80C
Serial number	0756165015
Sensor diagonal	23.02 mm
Lens category	F-Mount
Resolution	3360 × 2496, 12 bit
Pixel size	5.50 μm × 5.50 μm
Sensor	CMOSIS CMV8000
Sensor type	CMOS
Shutter type	Global shutter
Overlap capabilities	Overlapped
Maximum frame rate	0.0 Hz
Interface type	GEV

Type of data presented	Single
<b>Operation point 1</b>	
Wavelength centroid	465.3 nm
Wavelength FWHM	20.7 nm
Gain, offset	BlackLevel = 46
<b>Operation point 2</b>	
Wavelength centroid	535.8 nm
Wavelength FWHM	32.0 nm
Gain, offset	BlackLevel = 46
<b>Operation point 3</b>	
Wavelength centroid	631.0 nm
Wavelength FWHM	13.4 nm
Gain, offset	BlackLevel = 46
<b>Optional data measured</b>	
None	



## EMVA 1288 Summary Sheet for Operating Point 1

Type of data	Single	Gain, offset	BlackLevel = 46
Exposure time	434.00 $\mu$ s	Environmental temperature	24.9°C
Frame rate	10.0 Hz	Camera body temperature	34.2°C
Data transfer mode	BayerGB12	Intern temperature(s)	—
		Wavelength, centr., FWHM	465 nm, 20.7 nm



### Results

Quantum efficiency  $\eta$  34.7%

#### Overall system gain

$K$  0.395 DN/e<sup>-</sup>  
 $1/K$  2.535 e<sup>-</sup>/DN

#### Temporal dark noise & DSNU

$\sigma_{y,\text{dark}}$  5.03 DN  
 DSNU<sub>1288</sub> 8.77 DN  
 $\sigma_d$  12.72 e<sup>-</sup>  
 DSNU<sub>1288</sub> 22.22 e<sup>-</sup>

#### Signal-to-noise ratio & PRNU

SNR<sub>max</sub> 96  
 SNR<sub>max</sub> 39.7 dB  
 SNR<sub>max</sub> 6.6 bit  
 $1/\text{SNR}_{\text{max}}$  1.04 %  
 PRNU<sub>1288</sub> 1.90 %

#### Nonlinearity

LE (%) 0.47

#### Sensitivity & saturation

$\mu_{p,\text{min}}$  38.2 p  
 1.26 p/ $\mu$ m<sup>2</sup>  
 $\mu_{p,\text{sat}}$  26565 p  
 878 p/ $\mu$ m<sup>2</sup>  
 $\mu_{e,\text{min}}$  13.3 e<sup>-</sup>  
 0.44 e<sup>-</sup>/ $\mu$ m<sup>2</sup>  
 $\mu_{e,\text{sat}}$  9227 e<sup>-</sup>  
 305 e<sup>-</sup>/ $\mu$ m<sup>2</sup>

#### Dynamic range

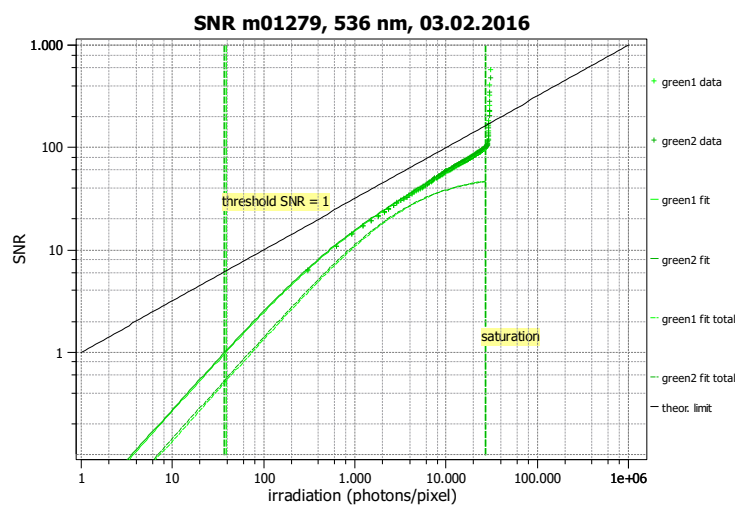
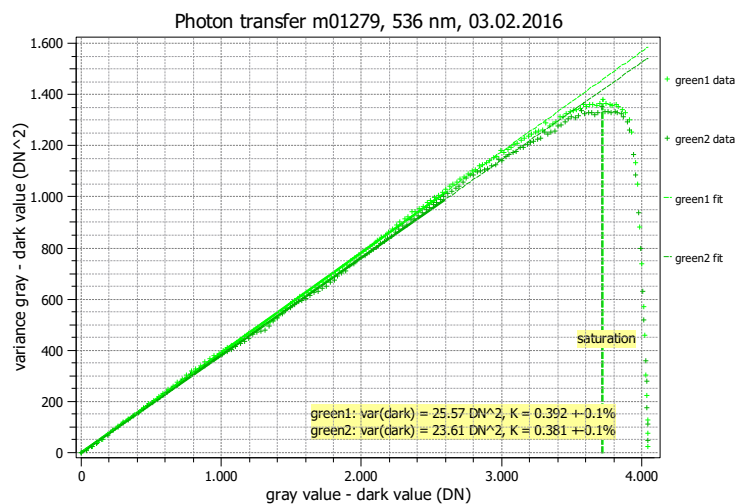
DR 696  
 DR 56.9 dB  
 DR 9.4 bit

#### Dark current

$\mu_{c,\text{mean}}$  69.7 DN/s  
 $\mu_{c,\text{mean}}$  176.6 e<sup>-</sup>/s  
 $\mu_{c,\text{var}}$  101.0 e<sup>-</sup>/s

## EMVA 1288 Summary Sheet for Operating Point 2

Type of data	Single	Gain, offset	BlackLevel = 46
Exposure time	434.00 $\mu$ s	Environmental temperature	24.9°C
Frame rate	10.0 Hz	Camera body temperature	34.2°C
Data transfer mode	BayerGB12	Intern temperature(s)	—
		Wavelength, centr., FWHM	536 nm, 32.0 nm



### Results

Quantum efficiency  $\eta$  34.7%

#### Overall system gain

$K$  0.392 DN/e<sup>-</sup>  
 $1/K$  2.551 e<sup>-</sup>/DN

#### Temporal dark noise & DSNU

$\sigma_{y,\text{dark}}$  5.06 DN  
 DSNU<sub>1288</sub> 8.62 DN  
 $\sigma_d$  12.88 e<sup>-</sup>  
 DSNU<sub>1288</sub> 21.99 e<sup>-</sup>

#### Signal-to-noise ratio & PRNU

SNR<sub>max</sub> 97  
 SNR<sub>max</sub> 39.7 dB  
 SNR<sub>max</sub> 6.6 bit  
 $1/\text{SNR}_{\text{max}}$  1.03 %  
 PRNU<sub>1288</sub> 1.84 %

#### Nonlinearity

LE (%) 0.41

#### Sensitivity & saturation

$\mu_{p,\text{min}}$  38.7 p  
 1.28 p/ $\mu$ m<sup>2</sup>  
 $\mu_{p,\text{sat}}$  27039 p  
 894 p/ $\mu$ m<sup>2</sup>  
 $\mu_{e,\text{min}}$  13.4 e<sup>-</sup>  
 0.44 e<sup>-</sup>/ $\mu$ m<sup>2</sup>  
 $\mu_{e,\text{sat}}$  9378 e<sup>-</sup>  
 310 e<sup>-</sup>/ $\mu$ m<sup>2</sup>

#### Dynamic range

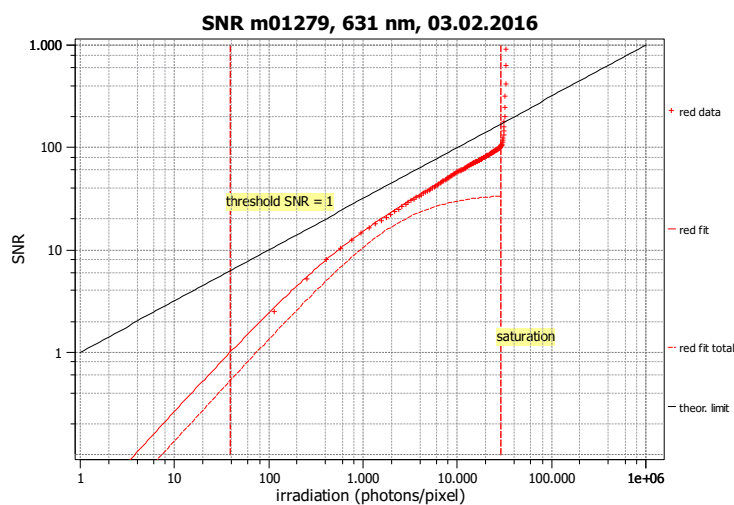
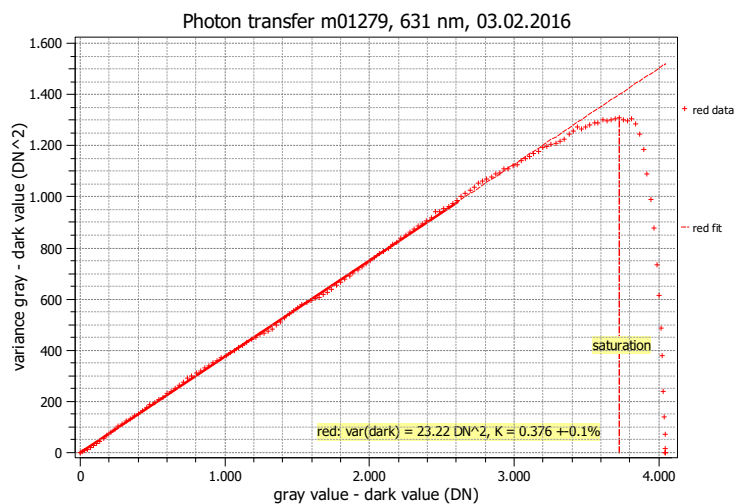
DR 699  
 DR 56.9 dB  
 DR 9.4 bit

#### Dark current

$\mu_{c,\text{mean}}$  69.8 DN/s  
 $\mu_{c,\text{mean}}$  178.1 e<sup>-</sup>/s  
 $\mu_{c,\text{var}}$  104.4 e<sup>-</sup>/s

## EMVA 1288 Summary Sheet for Operating Point 3

Type of data	Single	Gain, offset	BlackLevel = 46
Exposure time	434.00 $\mu$ s	Environmental temperature	24.9°C
Frame rate	10.0 Hz	Camera body temperature	34.2°C
Data transfer mode	BayerGB12	Intern temperature(s)	—
		Wavelength, centr., FWHM	631 nm, 13.4 nm



### Results

Quantum efficiency  $\eta$  34.2%

#### Overall system gain

$K$  0.376 DN/e<sup>-</sup>  
 $1/K$  2.663 e<sup>-</sup>/DN

#### Temporal dark noise & DSNU

$\sigma_{y,\text{dark}}$  4.82 DN  
 DSNU<sub>1288</sub> 8.02 DN  
 $\sigma_d$  12.81 e<sup>-</sup>  
 DSNU<sub>1288</sub> 21.35 e<sup>-</sup>

#### Signal-to-noise ratio & PRNU

SNR<sub>max</sub> 99  
 SNR<sub>max</sub> 39.9 dB  
 SNR<sub>max</sub> 6.6 bit  
 $1/\text{SNR}_{\text{max}}$  1.01 %  
 PRNU<sub>1288</sub> 2.78 %

#### Nonlinearity

LE (%) 0.16

#### Sensitivity & saturation

$\mu_{p,\text{min}}$  39.0 p  
 $\mu_{p,\text{sat}}$  1.29 p/ $\mu$ m<sup>2</sup>  
 $\mu_{e,\text{min}}$  28831 p  
 $\mu_{e,\text{min}}$  953 p/ $\mu$ m<sup>2</sup>  
 $\mu_{e,\text{min}}$  13.3 e<sup>-</sup>  
 $\mu_{e,\text{sat}}$  0.44 e<sup>-</sup>/ $\mu$ m<sup>2</sup>  
 $\mu_{e,\text{sat}}$  9854 e<sup>-</sup>  
 $\mu_{e,\text{sat}}$  326 e<sup>-</sup>/ $\mu$ m<sup>2</sup>

#### Dynamic range

DR 739  
 DR 57.4 dB  
 DR 9.5 bit

#### Dark current

$\mu_{c,\text{mean}}$  69.3 DN/s  
 $\mu_{c,\text{mean}}$  184.5 e<sup>-</sup>/s  
 $\mu_{c,\text{var}}$  102.2 e<sup>-</sup>/s