

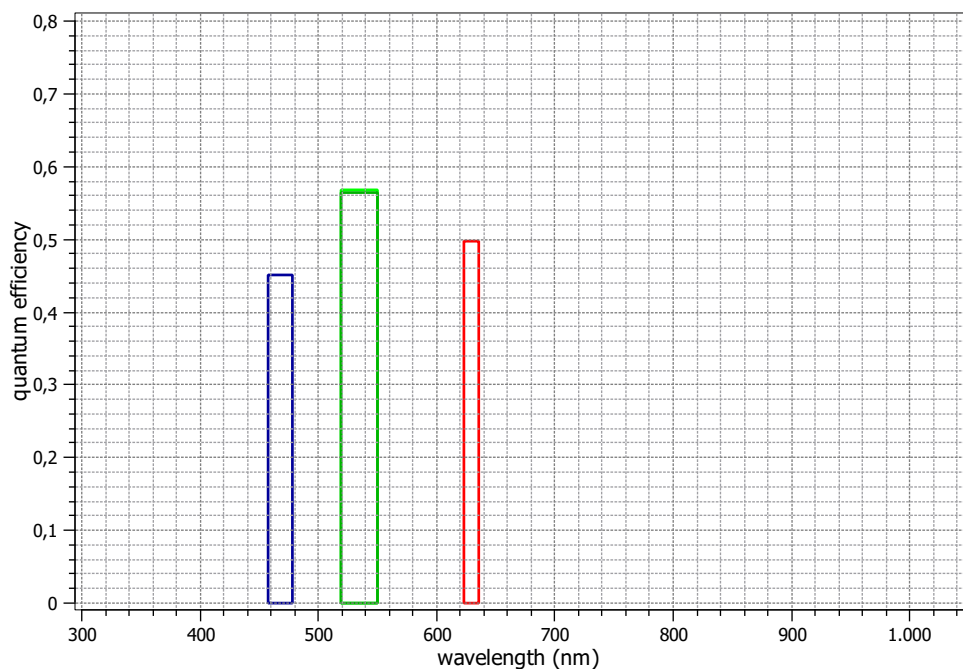
## EMVA 1288 Data Sheet m0529

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

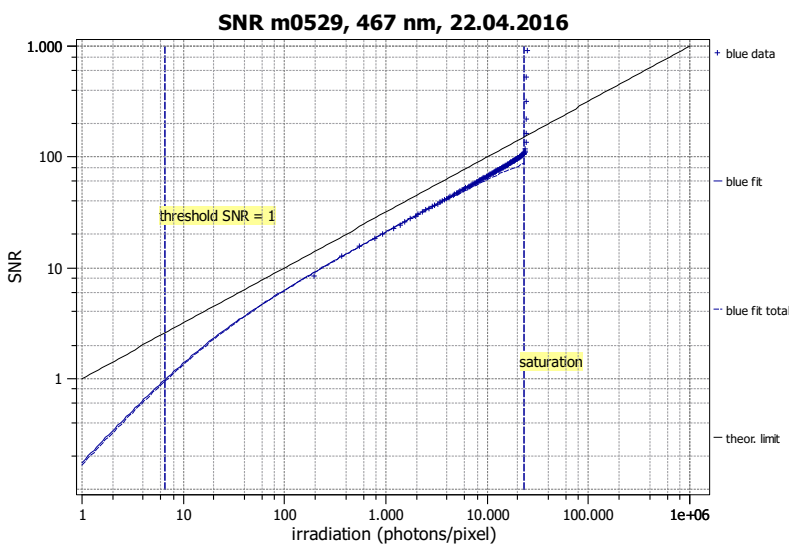
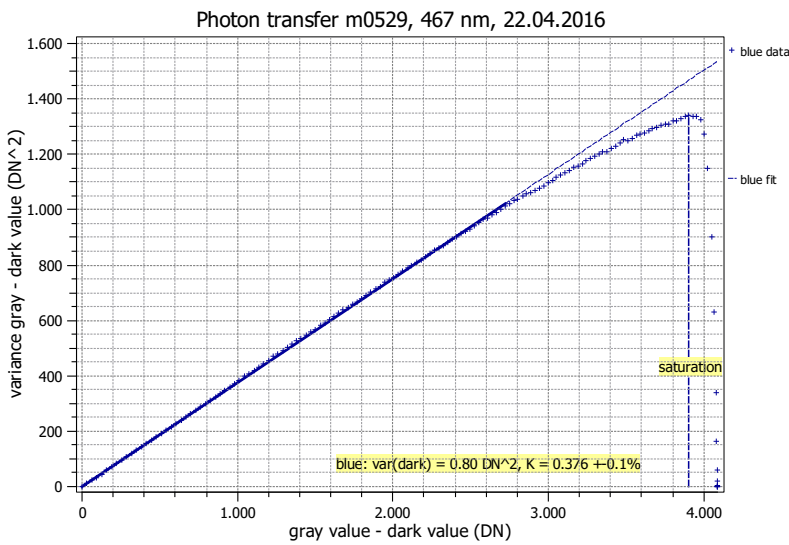
Vendor	MATRIX VISION
Model	mvBlueCOUGAR-XD104hC
Serial number	GX202287
Sensor diagonal	8.89 mm
Lens category	C-Mount
Resolution	2064 × 1544, 12 bit
Pixel size	3.45 μm × 3.45 μm
Sensor	IMX252
Sensor type	CMOS
Shutter type	Global
Overlap capabilities	Overlapping
Maximum frame rate	49.5 Hz
Interface type	GigE 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 / 0.1
<b>Operation point 2, (page ??)</b>	
Wavelength centroid	534.2 nm
Wavelength FWHM	30.9 nm
Gain, black-level	0dB / 0.1
<b>Operation point 3, (page ??)</b>	
Wavelength centroid	629.5 nm
Wavelength FWHM	13.1 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	26.0°C
Exposure time	16.00 ms	Camera body temperature	45.9°C
Frame rate	37.4 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	467 nm, 20.5 nm



### Quantum efficiency

$\eta$  45.1%

### Overall system gain

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

$1/K$  2.660 e<sup>-</sup>/DN

### Temporal dark noise & DSNU

$\sigma_{y,dark}$  0.89 DN

DSNU<sub>1288</sub> 0.31 DN

$\sigma_d$  2.25 e<sup>-</sup>

DSNU<sub>1288</sub> 0.84 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> 0.60 %

### Nonlinearity

LE 0.37%

LE<sub>min</sub> -0.33%

LE<sub>max</sub> 0.41%

### Sensitivity & saturation

$\mu_{p,min}$  6.50 p

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

$\mu_{p,sat}$  23038 p

1936 p/ $\mu\text{m}^2$

$\mu_{e,min}$  2.93 e<sup>-</sup>

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

$\mu_{e,sat}$  10390 e<sup>-</sup>

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

### Dynamic range

DR 3544

71.0 dB

11.8 bit

### Dark current

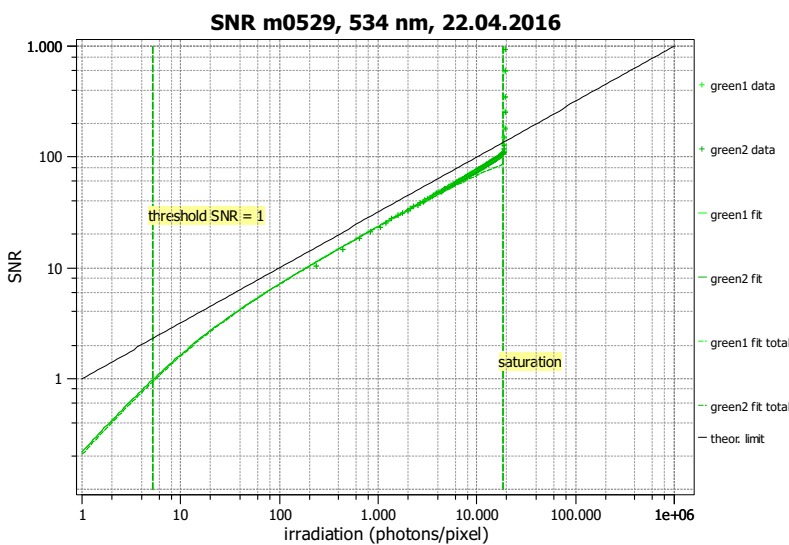
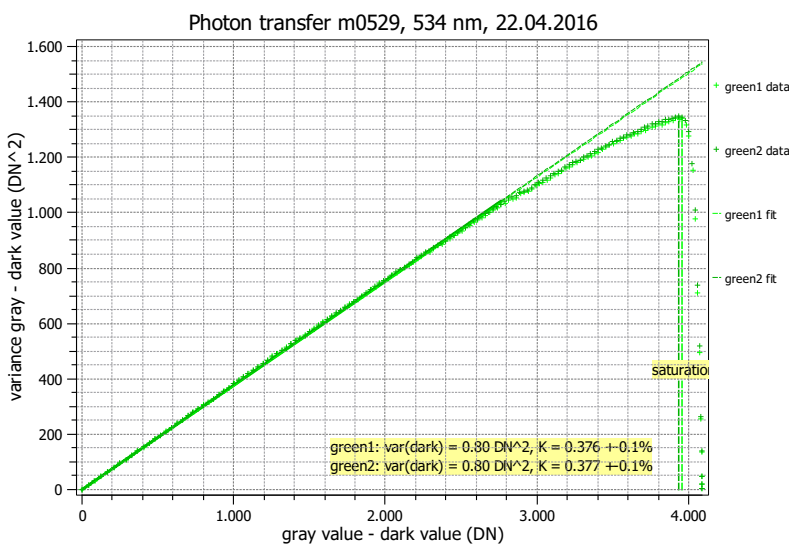
$\mu_{c,mean}$  -6.4 DN/s

$\mu_{c,mean}$  -17.0 e<sup>-</sup>/s

$\mu_{c,var}$  2.3 e<sup>-</sup>/s

## EMVA 1288 Summary Sheet for Operating Point 2

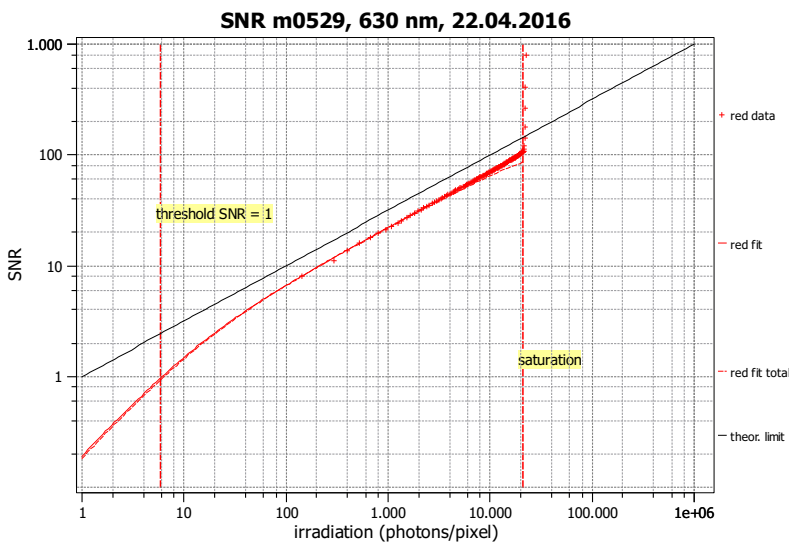
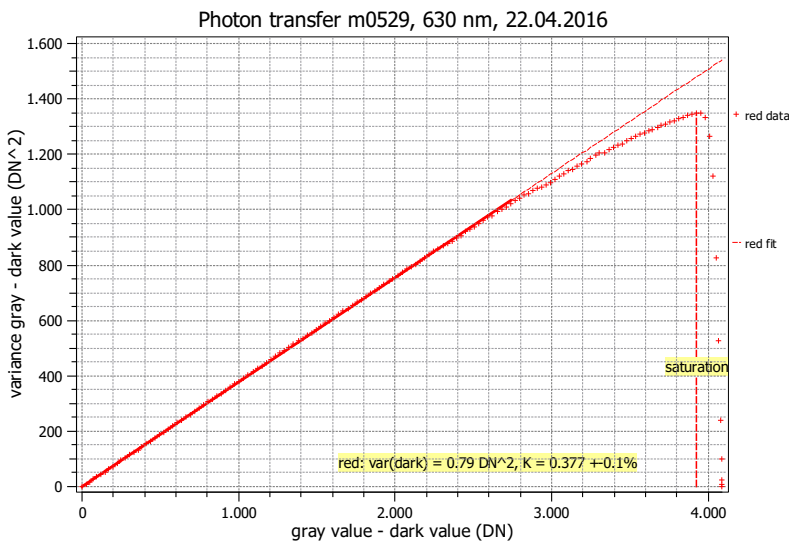
Type of data	Single	Gain, black-level	0dB / 0.1
Exposure control	By irradiance	Environmental temperature	26.0°C
Exposure time	16.00 ms	Camera body temperature	45.9°C
Frame rate	37.4 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	534 nm, 30.9 nm



<b>Quantum efficiency</b>	
$\eta$	56.8%
<b>Overall system gain</b>	
$K$	0.376 DN/e <sup>-</sup>
$1/K$	2.659 e <sup>-</sup> /DN
<b>Temporal dark noise &amp; DSNU</b>	
$\sigma_{y,dark}$	0.89 DN
DSNU <sub>1288</sub>	0.33 DN
$\sigma_d$	2.25 e <sup>-</sup>
DSNU <sub>1288</sub>	0.87 e <sup>-</sup>
<b>Signal-to-noise ratio &amp; PRNU</b>	
SNR <sub>max</sub>	103
	40.2 dB
	6.7 bit
$1/SNR_{max}$	0.97 %
PRNU <sub>1288</sub>	0.63 %
<b>Nonlinearity</b>	
LE	0.40%
LE <sub>min</sub>	-0.37%
LE <sub>max</sub>	0.42%
<b>Sensitivity &amp; saturation</b>	
$\mu_{p,min}$	5.16 p
	0.433 p/ $\mu\text{m}^2$
$\mu_{p,sat}$	18566 p
	1560 p/ $\mu\text{m}^2$
$\mu_{e,min}$	2.93 e <sup>-</sup>
	0.246 e <sup>-</sup> / $\mu\text{m}^2$
$\mu_{e,sat}$	10537 e <sup>-</sup>
	885 e <sup>-</sup> / $\mu\text{m}^2$
<b>Dynamic range</b>	
DR	3599
	71.1 dB
	11.8 bit
<b>Dark current</b>	
$\mu_{c,mean}$	-6.4 DN/s
$\mu_{c,mean}$	-17.1 e <sup>-</sup> /s
$\mu_{c,var}$	2.3 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	26.0°C
Exposure time	16.00 ms	Camera body temperature	45.9°C
Frame rate	37.4 Hz	Internal temperature(s)	—
Data transfer mode	BayerRG12	Wavelength, centr., FWHM	630 nm, 13.1 nm



### Quantum efficiency

$\eta$  49.7%

### Overall system gain

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

$1/K$  2.654 e<sup>-</sup>/DN

### Temporal dark noise & DSNU

$\sigma_{y,dark}$  0.89 DN

DSNU<sub>1288</sub> 0.32 DN

$\sigma_d$  2.24 e<sup>-</sup>

DSNU<sub>1288</sub> 0.84 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> 0.61 %

### Nonlinearity

LE 0.38%

LE<sub>min</sub> -0.45%

LE<sub>max</sub> 0.30%

### Sensitivity & saturation

$\mu_{p,min}$  5.88 p

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

$\mu_{p,sat}$  21066 p

1770 p/ $\mu\text{m}^2$

$\mu_{e,min}$  2.92 e<sup>-</sup>

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

$\mu_{e,sat}$  10461 e<sup>-</sup>

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

### Dynamic range

DR 3585

71.1 dB

11.8 bit

### Dark current

$\mu_{c,mean}$  -6.5 DN/s

$\mu_{c,mean}$  -17.2 e<sup>-</sup>/s

$\mu_{c,var}$  2.3 e<sup>-</sup>/s