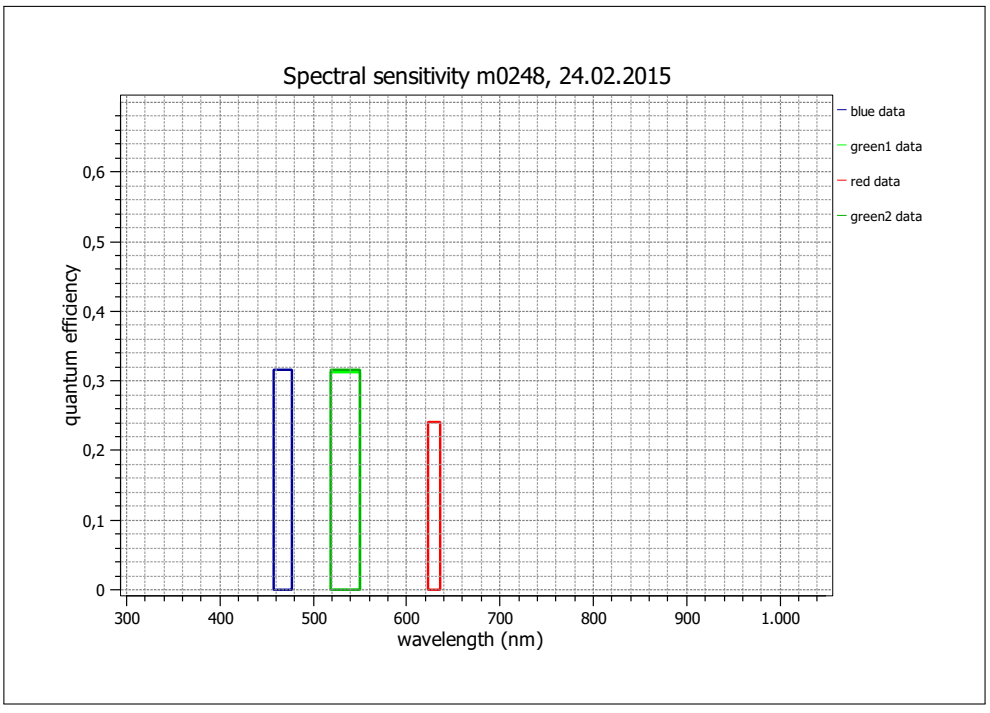
EMVA 1288 Summary Sheet

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`). The measurements were performed with an AEON ACC3 RGB Release 3, 20.01.2104, SN 0005() . The performance parameters and estimated accuracy of the measurements are described in the technical report for the instrument, its calibration in the corresponding calibration report.

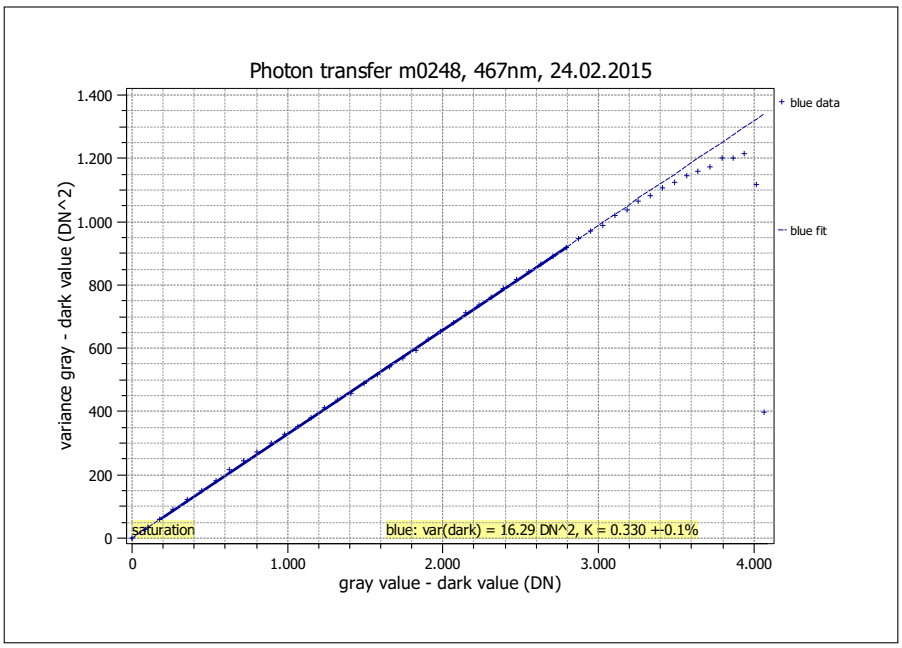
Vendor	MATRIX VISION
Model	mvBlueCOUGAR-X123C
Serial number	GX008913
Sensor diagonal	7.92 mm
Lens category	C-Mount
Resolution	1360 × 1024, 12 bit
Pixel size	4.65 μm × 4.65 μm
Sensor type	CCD
Readout type	Progressive
Transfer type	Interline
Maximum frame rate	15.2 Hz
Interface type	GigE Vision

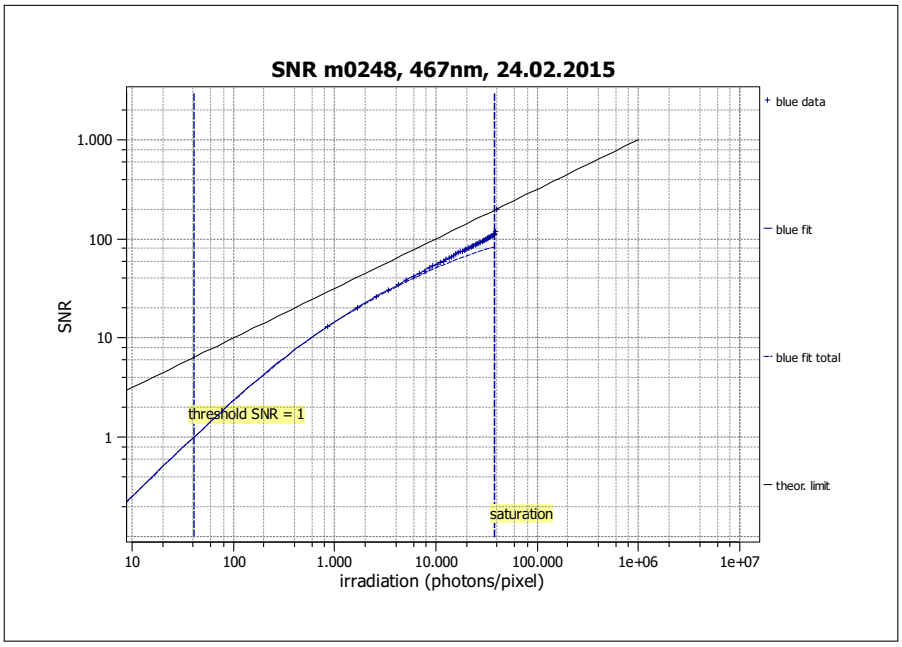
Type of data presented	Single
Operation point 1, (page 5)	
Wavelength centroid	467.3 nm
Wavelength FWHM	20.5 nm
Gain, offset	Gain = -3dB, Offset = 0.3
Operation point 2, (page 15)	
Wavelength centroid	534.2 nm
Wavelength FWHM	30.9 nm
Gain, offset	Gain = -3dB, Offset = 0.3
Operation point 3, (page 25)	
Wavelength centroid	629.5 nm
Wavelength FWHM	13.1 nm
Gain, offset	Gain = -3dB, Offset = 0.3
Optional data measured	
None	



EMVA 1288 Summary Sheet for Operating Point 1

Type of data	Single	Gain, offset	Gain = -3dB, Offset = 0.3
Exposure time	1.0 ms	Environmental temperature	24.6°C
Frame rate	0.0 Hz		
Data transfer mode	BayerRG12	Camera temperature	39.5°C
		Wavelength, centr., FWHM	467 nm, 20.5 nm

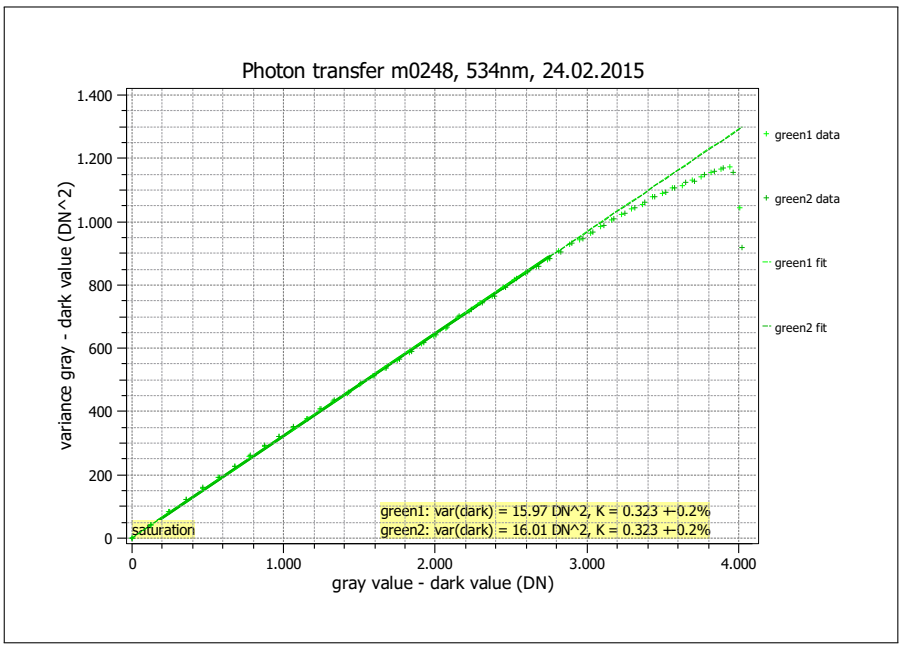


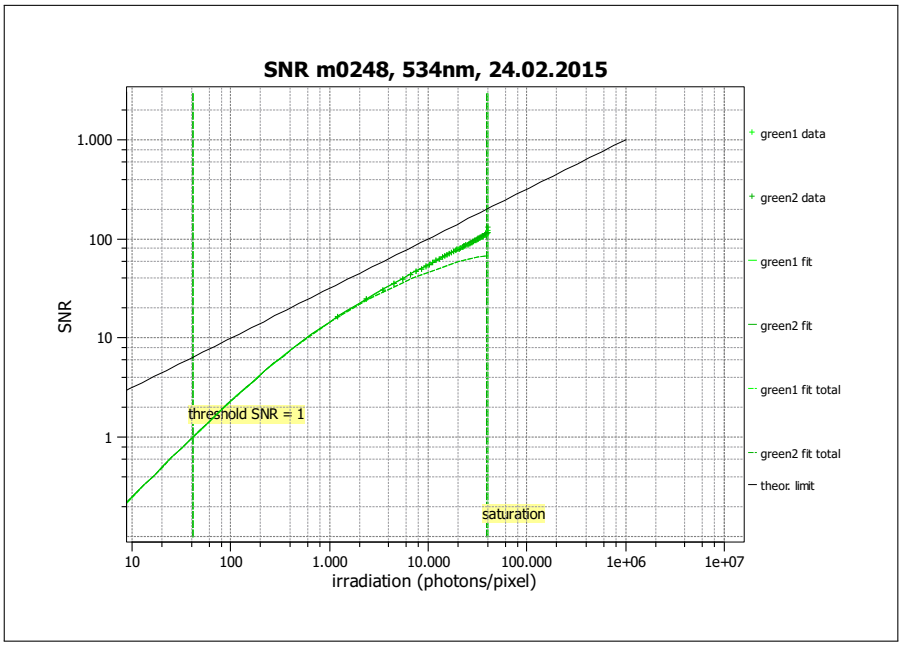


Quantum efficiency	
η	0.316
Gain	
K (DN/e)	0.330
$1/K$ (e/DN)	3.035
Dark noise & DSNU	
σ_d (DN)	4.04
σ_0 (e)	12.2
$DSNU_{1288}$ (DN)	0.47
$DSNU_{1288}$ (e)	1.44
Signal-to-noise ratio & PRNU	
SNR_{max}	110
SNR_{max} (dB)	40.8
SNR_{max} (bits)	6.8
$1/SNR_{max}$ (%)	0.91
$PRNU_{1288}$ (%)	0.766
Nonlinearity	
LE (%)	0.20
Sensitivity & saturation	
$\mu_{p,min}$ (p)	40.4
$\mu_{e,min}$ (e)	12.8
$\mu_{p,sat}$ (p)	38168
$\mu_{e,sat}$ (e)	12056
Dynamic range	
DR	945
DR (dB)	59.5
DR (bit)	9.9
Dark current	
$\mu_{c,mean}$ (DN/s)	—
$\mu_{c,mean}$ (e/s)	—
$\mu_{c,var}$ (e/s)	—

EMVA 1288 Summary Sheet for Operating Point 2

Type of data	Single	Gain, offset	Gain = -3dB, Offset = 0.3
Exposure time	1.0 ms	Environmental temperature	24.6°C
Frame rate	0.0 Hz		
Data transfer mode	BayerRG12	Camera temperature	39.5°C
		Wavelength, centr., FWHM	534 nm, 30.9 nm

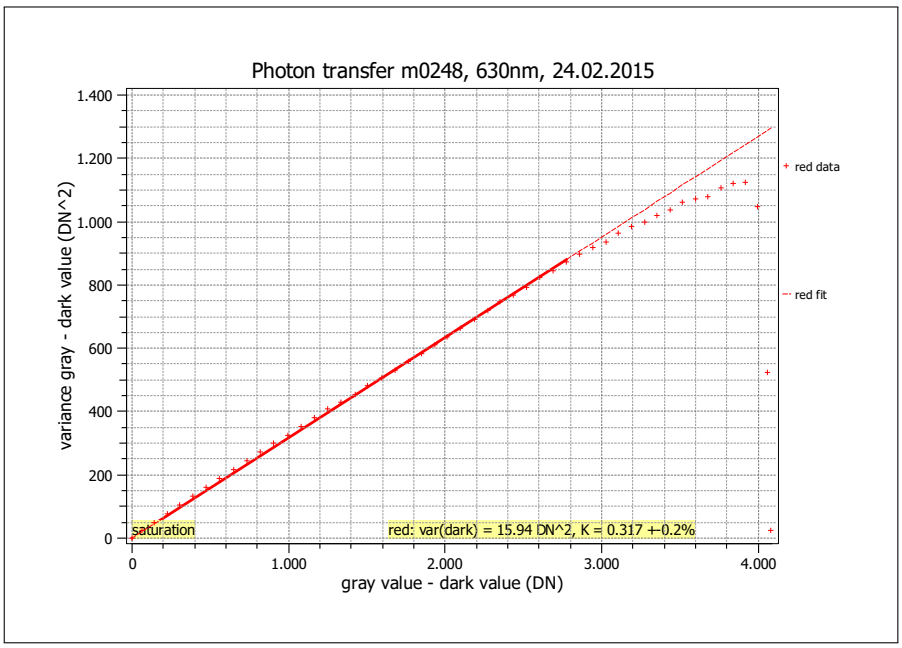


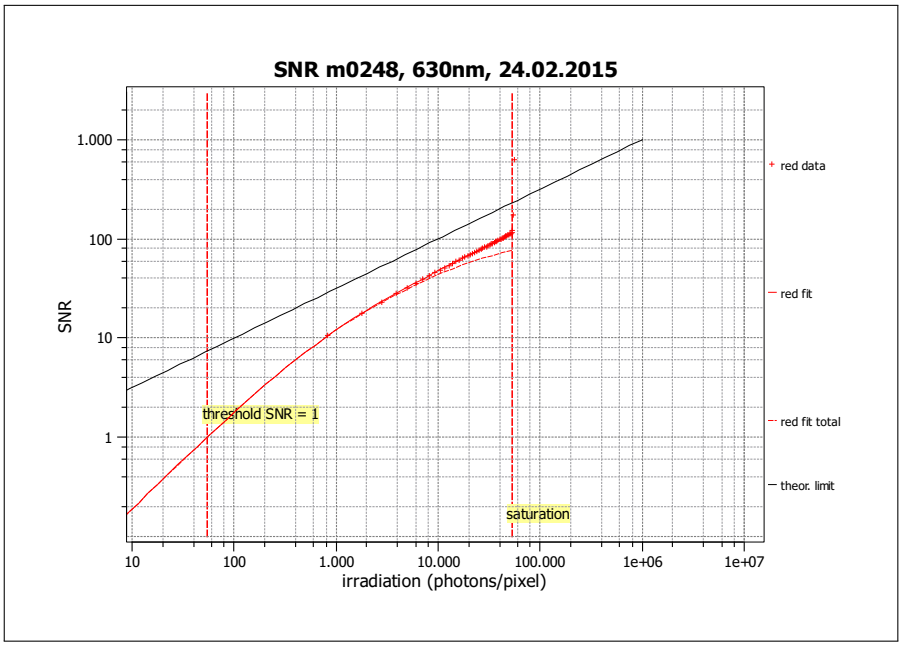


Quantum efficiency	
η	0.313
Gain	
K (DN/e)	0.323
$1/K$ (e/DN)	3.094
Dark noise & DSNU	
σ_d (DN)	4.00
σ_0 (e)	12.3
$DSNU_{1288}$ (DN)	0.37
$DSNU_{1288}$ (e)	1.13
Signal-to-noise ratio & PRNU	
SNR_{max}	112
SNR_{max} (dB)	41.0
SNR_{max} (bits)	6.8
$1/SNR_{max}$ (%)	0.90
$PRNU_{1288}$ (%)	1.159
Nonlinearity	
LE (%)	0.50
Sensitivity & saturation	
$\mu_{p,min}$ (p)	41.1
$\mu_{e,min}$ (e)	12.9
$\mu_{p,sat}$ (p)	39779
$\mu_{e,sat}$ (e)	12464
Dynamic range	
DR	968
DR (dB)	59.7
DR (bit)	9.9
Dark current	
$\mu_{c,mean}$ (DN/s)	—
$\mu_{c,mean}$ (e/s)	—
$\mu_{c,var}$ (e/s)	—

EMVA 1288 Summary Sheet for Operating Point 3

Type of data	Single	Gain, offset	Gain = -3dB, Offset = 0.3
Exposure time	1.0 ms	Environmental temperature	24.6°C
Frame rate	0.0 Hz		
Data transfer mode	BayerRG12	Camera temperature	39.5°C
		Wavelength, centr., FWHM	630 nm, 13.1 nm





Quantum efficiency	
η	0.242
Gain	
K (DN/e)	0.317
$1/K$ (e/DN)	3.153
Dark noise & DSNU	
σ_d (DN)	3.99
σ_0 (e)	12.6
$DSNU_{1288}$ (DN)	0.38
$DSNU_{1288}$ (e)	1.18
Signal-to-noise ratio & PRNU	
SNR_{max}	113
SNR_{max} (dB)	41.0
SNR_{max} (bits)	6.8
$1/SNR_{max}$ (%)	0.89
$PRNU_{1288}$ (%)	0.952
Nonlinearity	
LE (%)	0.64
Sensitivity & saturation	
$\mu_{p,min}$ (p)	54.2
$\mu_{e,min}$ (e)	13.1
$\mu_{p,sat}$ (p)	52603
$\mu_{e,sat}$ (e)	12712
Dynamic range	
DR	971
DR (dB)	59.7
DR (bit)	9.9
Dark current	
$\mu_{c,mean}$ (DN/s)	—
$\mu_{c,mean}$ (e/s)	—
$\mu_{c,var}$ (e/s)	—