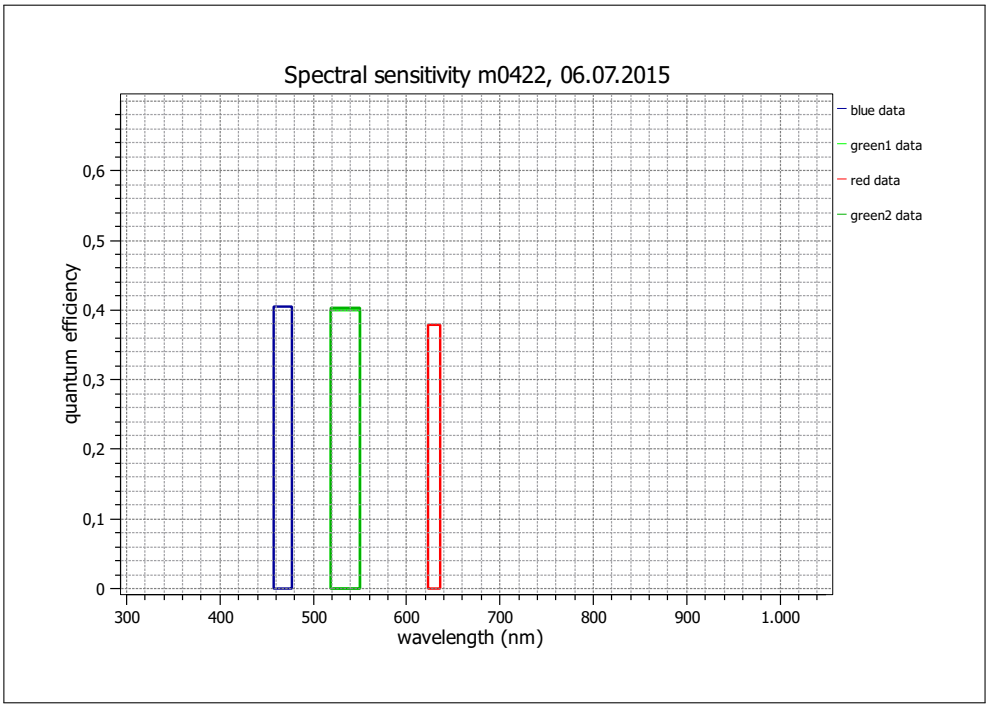
EMVA 1288 Summary Sheet

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.

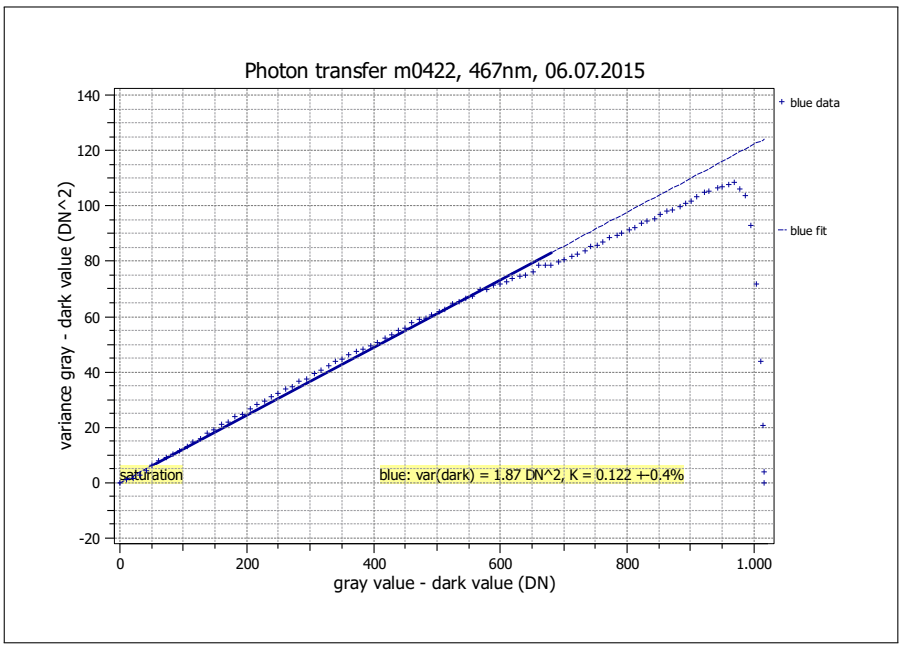
Vendor	MATRIX VISION
Model	mvBlueCOUGAR-XD104bC
Serial number	GX200162
Sensor diagonal	15.93 mm
Lens category	C-Mount
Resolution	2048 × 2048, 10 bit
Pixel size	5.50 μm × 5.50 μm
Sensor type	CMOS
Shutter type	Global
Overlap capabilities	Overlapping
Maximum frame rate	18.9 Hz
Interface type	GigE Vision

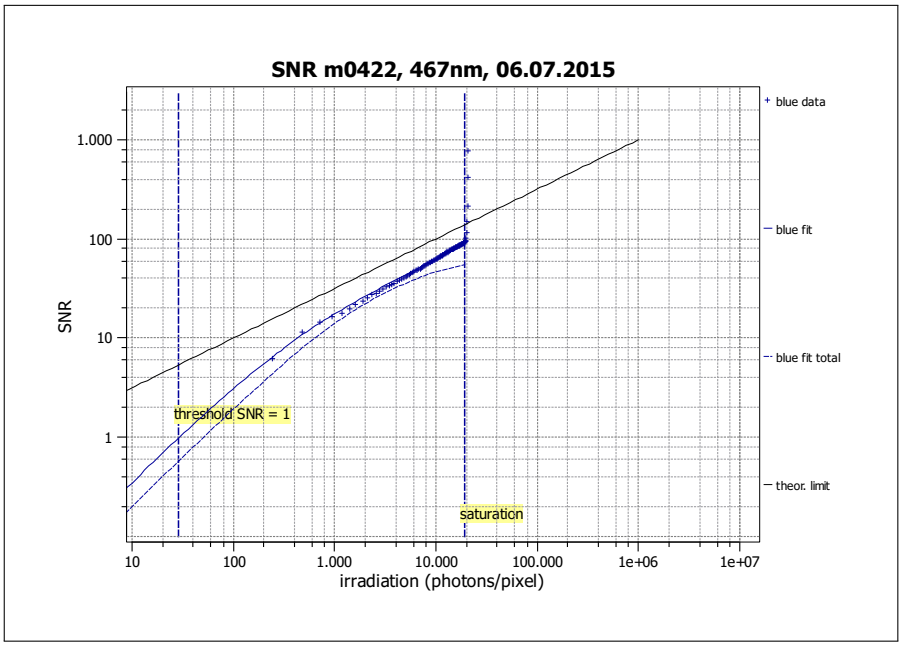
Type of data presented	Single
Operation point 1, (page 5)	
Wavelength centroid	467.3 nm
Wavelength FWHM	20.5 nm
Gain, offset	Gain = 0dB, Offset = 0.1
Operation point 2, (page 17)	
Wavelength centroid	534.2 nm
Wavelength FWHM	30.9 nm
Gain, offset	Gain = 0dB, Offset = 0.1
Operation point 3, (page 29)	
Wavelength centroid	629.5 nm
Wavelength FWHM	13.1 nm
Gain, offset	Gain = 0dB, Offset = 0.1
Optional data measured	
None	



EMVA 1288 Summary Sheet for Operating Point 1

Type of data	Single	Gain, offset	Gain = 0dB, Offset = 0.1
Exposure time	7.0 ms	Environmental temperature	28.2°C
Frame rate	0.0 Hz		
Data transfer mode	BayerGB10	Camera temperature	42.7°C
		Wavelength, centr., FWHM	467 nm, 20.5 nm

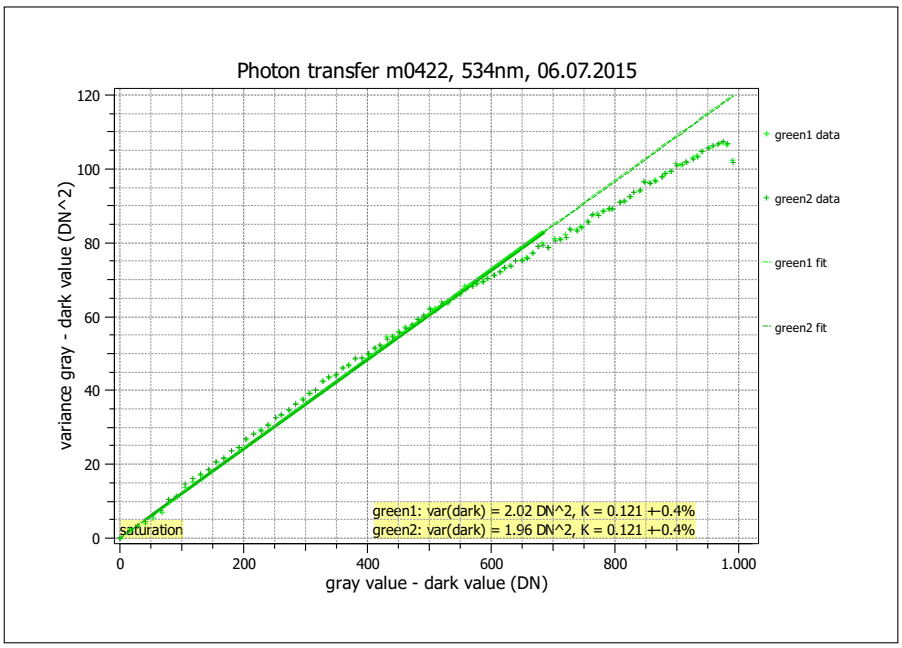


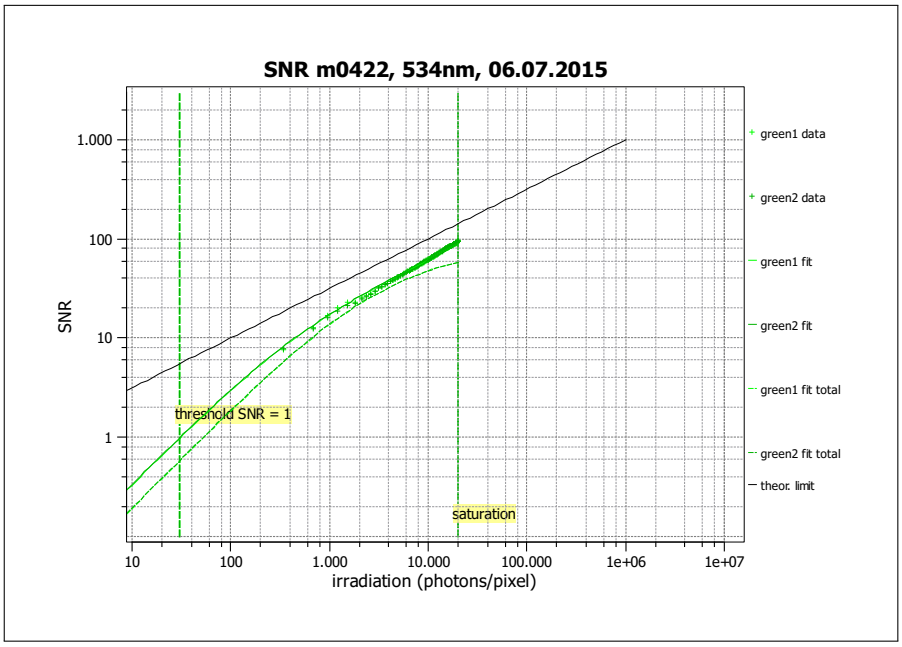


Quantum efficiency	
η	0.406
Gain	
K (DN/e)	0.122
$1/K$ (e/DN)	8.190
Dark noise & DSNU	
σ_d (DN)	1.37
σ_0 (e)	10.9
$DSNU_{1288}$ (DN)	2.02
$DSNU_{1288}$ (e)	16.53
Signal-to-noise ratio & PRNU	
SNR_{max}	88
SNR_{max} (dB)	38.9
SNR_{max} (bits)	6.5
$1/SNR_{max}$ (%)	1.13
$PRNU_{1288}$ (%)	1.392
Nonlinearity	
LE (%)	0.56
Sensitivity & saturation	
$\mu_{p,min}$ (p)	28.9
$\mu_{e,min}$ (e)	11.7
$\mu_{p,sat}$ (p)	19287
$\mu_{e,sat}$ (e)	7827
Dynamic range	
DR	668
DR (dB)	56.5
DR (bit)	9.4
Dark current	
$\mu_{c,mean}$ (DN/s)	-0.19
$\mu_{c,mean}$ (e/s)	-1.57
$\mu_{c,var}$ (e/s)	690.57

EMVA 1288 Summary Sheet for Operating Point 2

Type of data	Single	Gain, offset	Gain = 0dB, Offset = 0.1
Exposure time	7.0 ms	Environmental temperature	28.2°C
Frame rate	0.0 Hz	Camera temperature	42.7°C
Data transfer mode	BayerGB10	Wavelength, centr., FWHM	534 nm, 30.9 nm

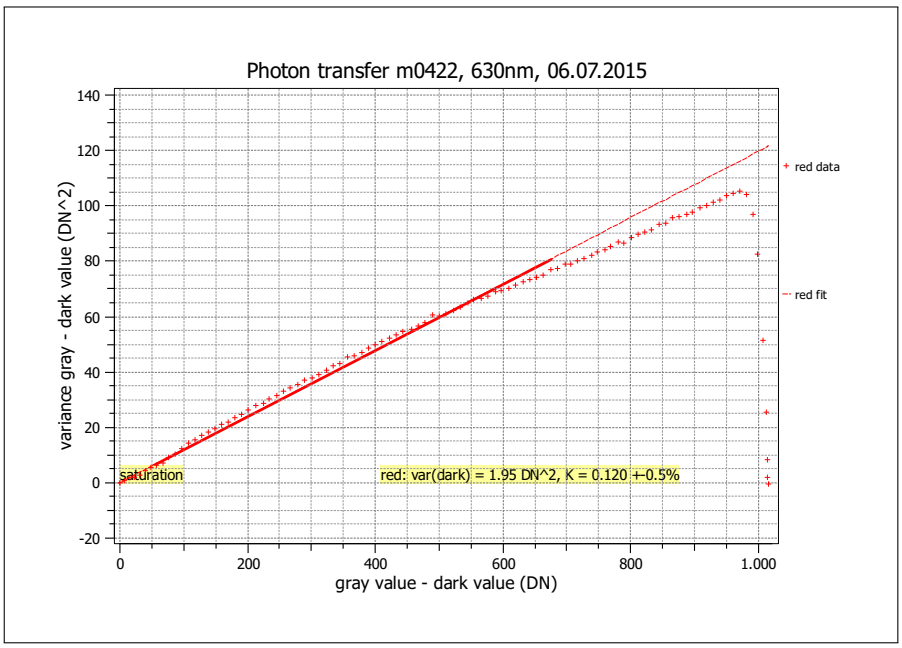


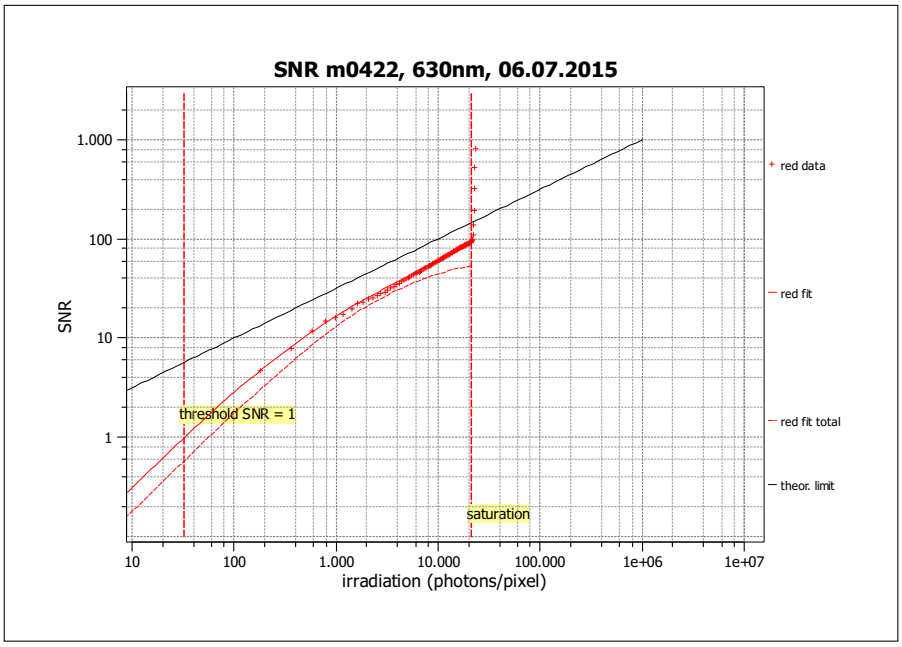


Quantum efficiency	
η	0.400
Gain	
K (DN/e)	0.121
$1/K$ (e/DN)	8.248
Dark noise & DSNU	
σ_d (DN)	1.42
σ_0 (e)	11.5
$DSNU_{1288}$ (DN)	2.06
$DSNU_{1288}$ (e)	16.96
Signal-to-noise ratio & PRNU	
SNR_{max}	89
SNR_{max} (dB)	39.0
SNR_{max} (bits)	6.5
$1/SNR_{max}$ (%)	1.12
$PRNU_{1288}$ (%)	1.284
Nonlinearity	
LE (%)	0.51
Sensitivity & saturation	
$\mu_{p,min}$ (p)	30.6
$\mu_{e,min}$ (e)	12.2
$\mu_{p,sat}$ (p)	19817
$\mu_{e,sat}$ (e)	7932
Dynamic range	
DR	649
DR (dB)	56.2
DR (bit)	9.3
Dark current	
$\mu_{c,mean}$ (DN/s)	-0.22
$\mu_{c,mean}$ (e/s)	-1.79
$\mu_{c,var}$ (e/s)	695.50

EMVA 1288 Summary Sheet for Operating Point 3

Type of data	Single	Gain, offset	Gain = 0dB, Offset = 0.1
Exposure time	7.0 ms	Environmental temperature	28.2°C
Frame rate	0.0 Hz		
Data transfer mode	BayerGB10	Camera temperature	42.7°C
		Wavelength, centr., FWHM	630 nm, 13.1 nm





Quantum efficiency	
η	0.379
Gain	
K (DN/e)	0.120
$1/K$ (e/DN)	8.358
Dark noise & DSNU	
σ_d (DN)	1.40
σ_0 (e)	11.4
$DSNU_{1288}$ (DN)	2.06
$DSNU_{1288}$ (e)	17.19
Signal-to-noise ratio & PRNU	
SNR_{max}	90
SNR_{max} (dB)	39.1
SNR_{max} (bits)	6.5
$1/SNR_{max}$ (%)	1.11
$PRNU_{1288}$ (%)	1.471
Nonlinearity	
LE (%)	0.50
Sensitivity & saturation	
$\mu_{p,min}$ (p)	32.1
$\mu_{e,min}$ (e)	12.2
$\mu_{p,sat}$ (p)	21354
$\mu_{e,sat}$ (e)	8099
Dynamic range	
DR	665
DR (dB)	56.5
DR (bit)	9.4
Dark current	
$\mu_{c,mean}$ (DN/s)	-1.04
$\mu_{c,mean}$ (e/s)	-8.71
$\mu_{c,var}$ (e/s)	716.61