

**EMVA 1288 Datasheet**

This datasheet describes the specification according to the standard 1288 Standard for Characterization and Presentation of Specification Data for Image Sensors and Cameras of European Machine Vision Association (EMVA) (See [www.standard1288.org](http://www.standard1288.org)).

<i>Vendor</i>	Lucid Vision Labs	<i>Pixel size</i>	4.00x4.00 $\mu\text{m}$
<i>Model</i>	TRT024G-C	<i>Shutter type</i>	Global
<i>Data type</i>	Single camera	<i>Interface type</i>	2.5GBASE-T / 1000BASE-T M12 (8-Pin X-Coded), PoE
<i>Sensor</i>	Gpixel GMAX4002	<i>Framerate</i>	107.2 FPS @ 2.4 MP
<i>Sensor type</i>	CMOS	<i>Light source</i>	LED, integrating sphere
<i>Diagonal</i>	9.5 mm (Type 1/1.7")	<i>Irradiation calibration accuracy</i>	$\pm 3\%$ (440 – 980nm)
<i>Lens category</i>	C-Mount	<i>Standard version</i>	3.1
<i>Resolution</i>	2048x1200 pixels		

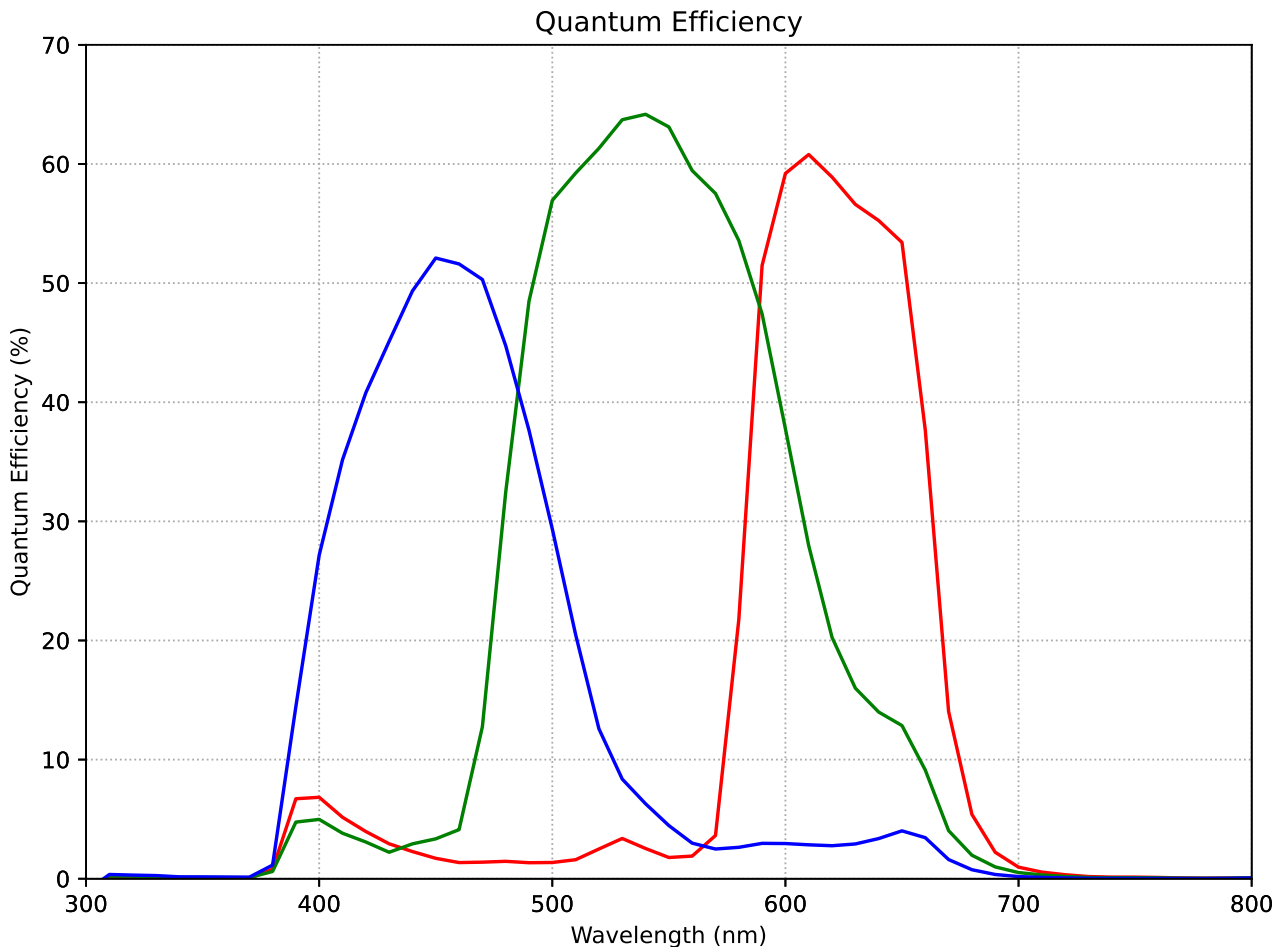
Operation Point: Green LED (Page ??)

**Camera setting**

<i>Gain</i>	0.0 dB
<i>Black level</i>	1.0%
<i>Bit depth</i>	12 bits

**Operation point parameters**

<i>Illumination</i>	Constant with variable exposure time
<i>Irradiation steps</i>	50
<i>Wavelength</i>	527.5 nm



Summary sheet for Operation Point: **Green LED** (@527.5 nm wavelength)

**Camera setting**

Gain	0.0 dB
Black level	1.0%
Bit depth	12 bits

**Operation point parameters**

Illumination	Constant with variable exposure time
Irradiation steps	50
Wavelength	527.5 nm

**Performance**

**Quantum efficiency**

$\eta$  63.00 %

**System gain**

K 0.377 DN/e<sup>-</sup>  
1/K 2.655 e<sup>-</sup>/DN

**Temporal dark noise**

$\sigma_d$  4.772 e<sup>-</sup>  
 $\sigma_{y.dark}$  1.821 DN

**Signal-to-Noise Ratio**

$SNR_{max}$  101  
40.12 dB  
6.7 bit  
 $SNR_{max}^{-1}$  0.987 %

**Absolute sensitivity threshold**

$\mu_{p.min}$  8.466 p  
 $\mu_{p.min.area}$  0.529 p/ $\mu m^2$   
 $\mu_{e.min}$  5.333 e<sup>-</sup>  
 $\mu_{e.min.area}$  0.333 e<sup>-</sup>/ $\mu m^2$

**Saturation Capacity**

$\mu_{p.sat}$  16304 p  
 $\mu_{p.sat.area}$  1019 p/ $\mu m^2$   
 $\mu_{e.sat}$  10271 e<sup>-</sup>  
 $\mu_{e.sat.area}$  642 e<sup>-</sup>/ $\mu m^2$

**Dynamic Range**

DR 1926  
65.7 dB  
10.9 bit

**Spatial Nonuniformities**

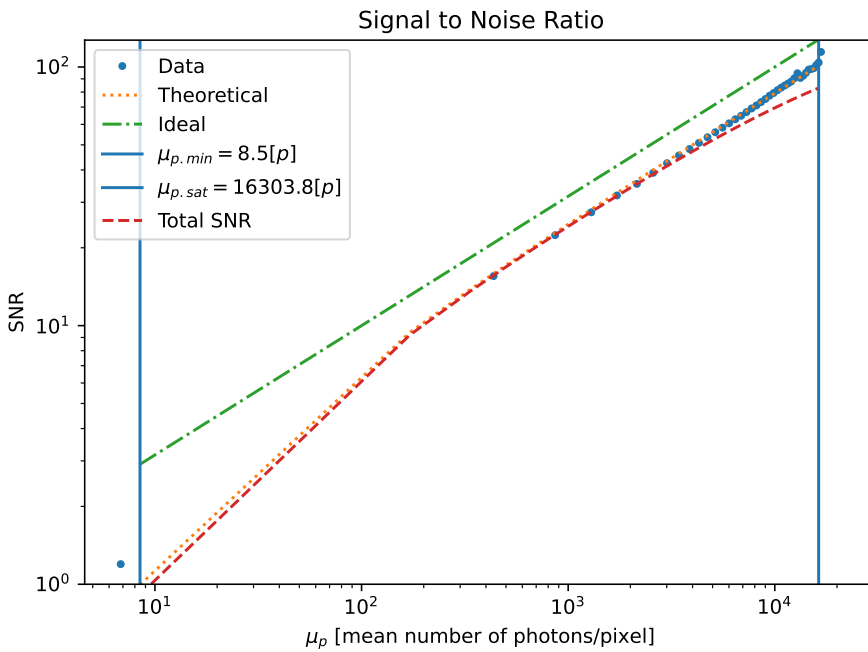
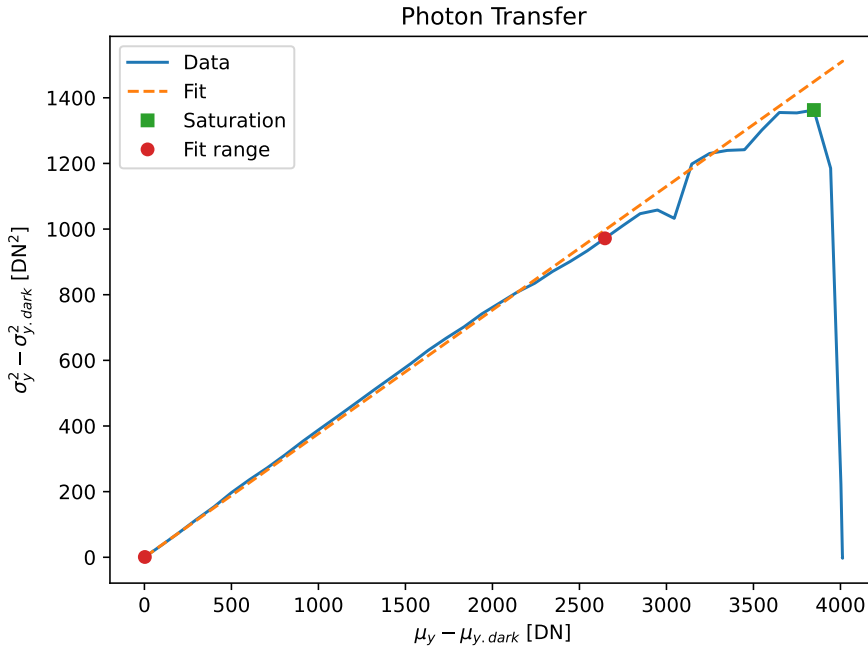
$DSNU_{1288}$  2.4 e<sup>-</sup>  
0.9 DN  
 $PRNU_{1288}$  0.7 %

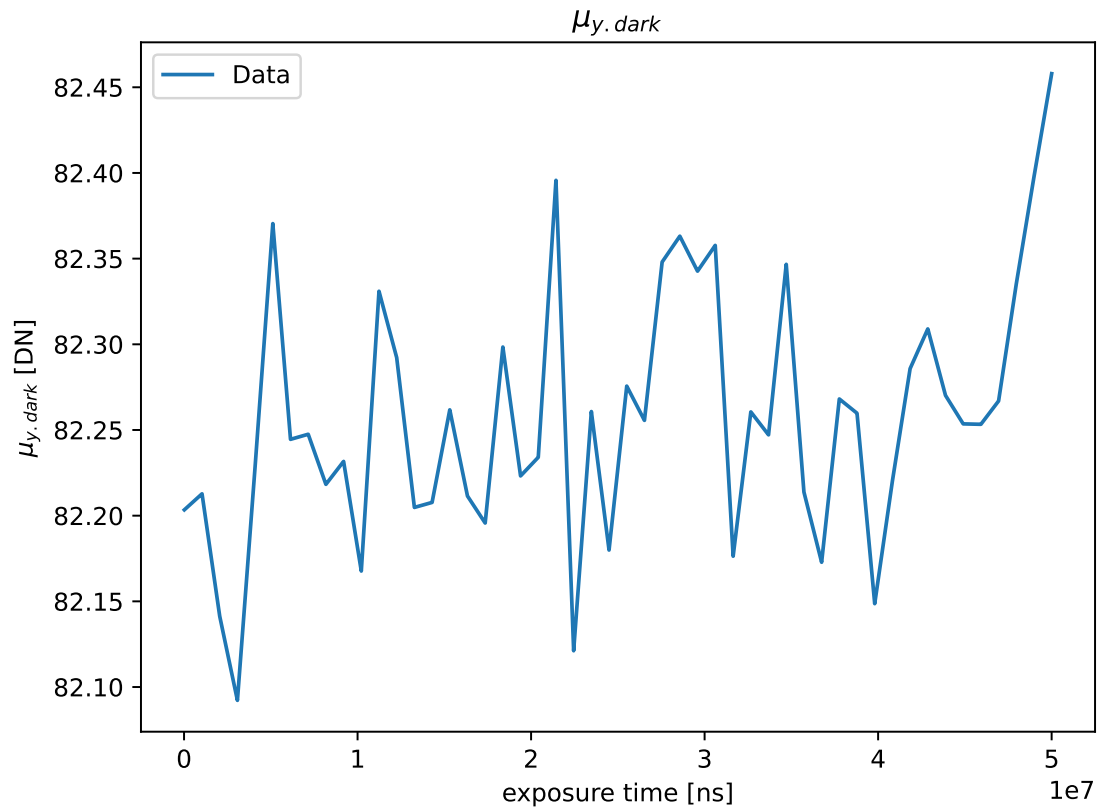
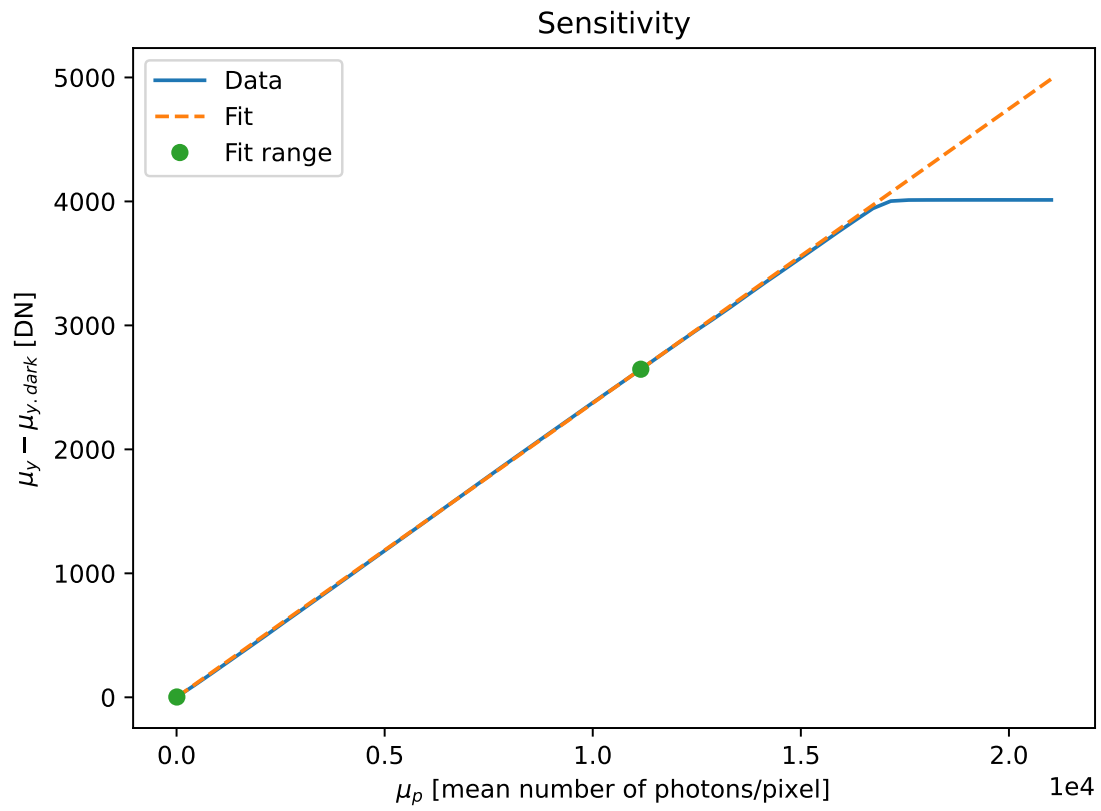
**Linearity error**

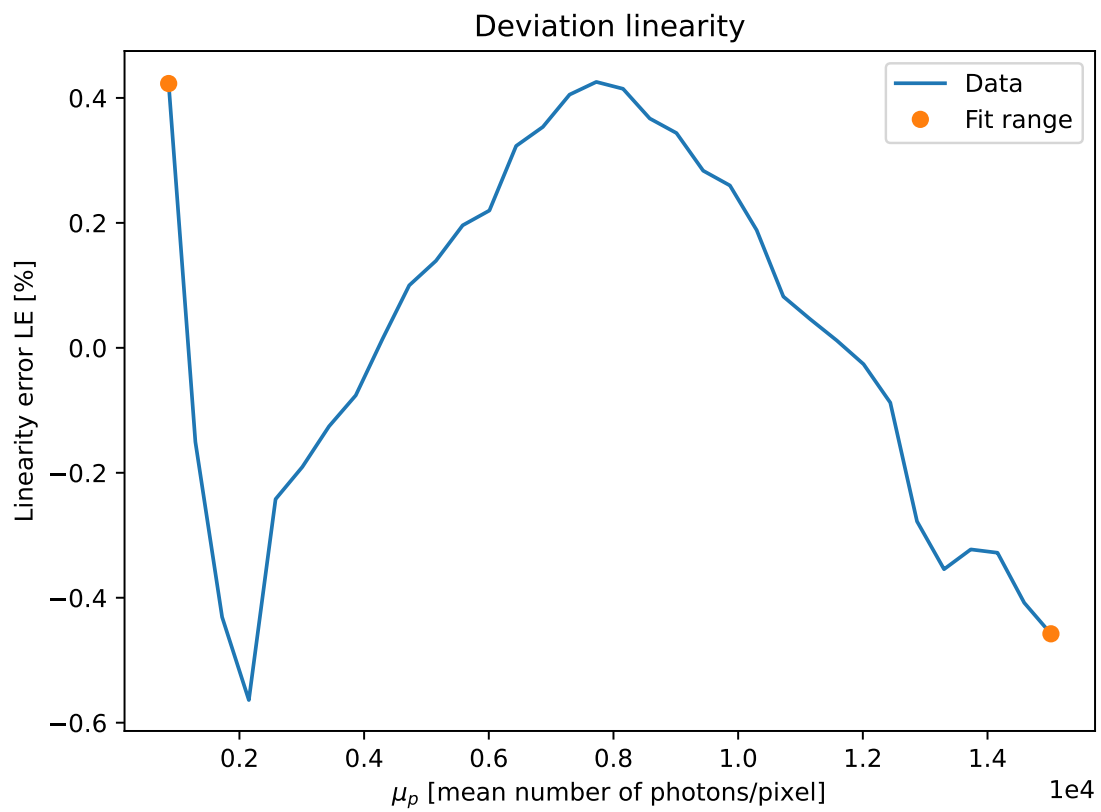
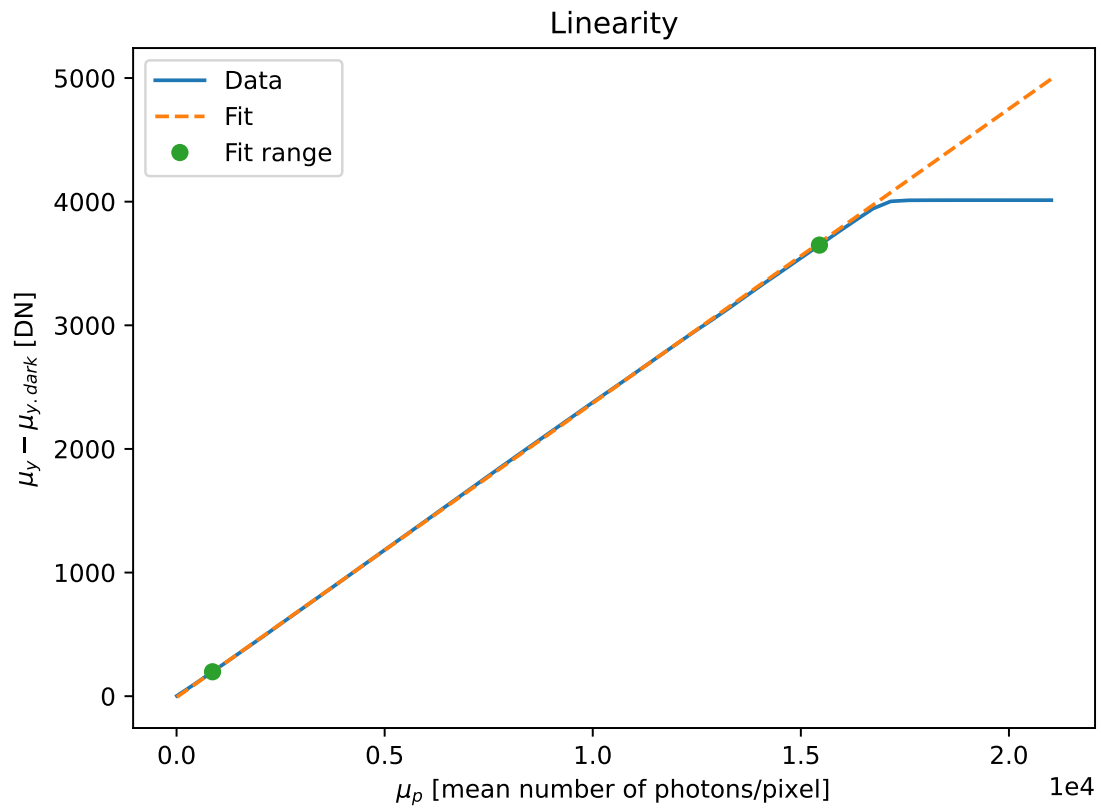
$LE_{min}$  -0.564 %  
 $LE_{max}$  0.426 %

**Dark current**

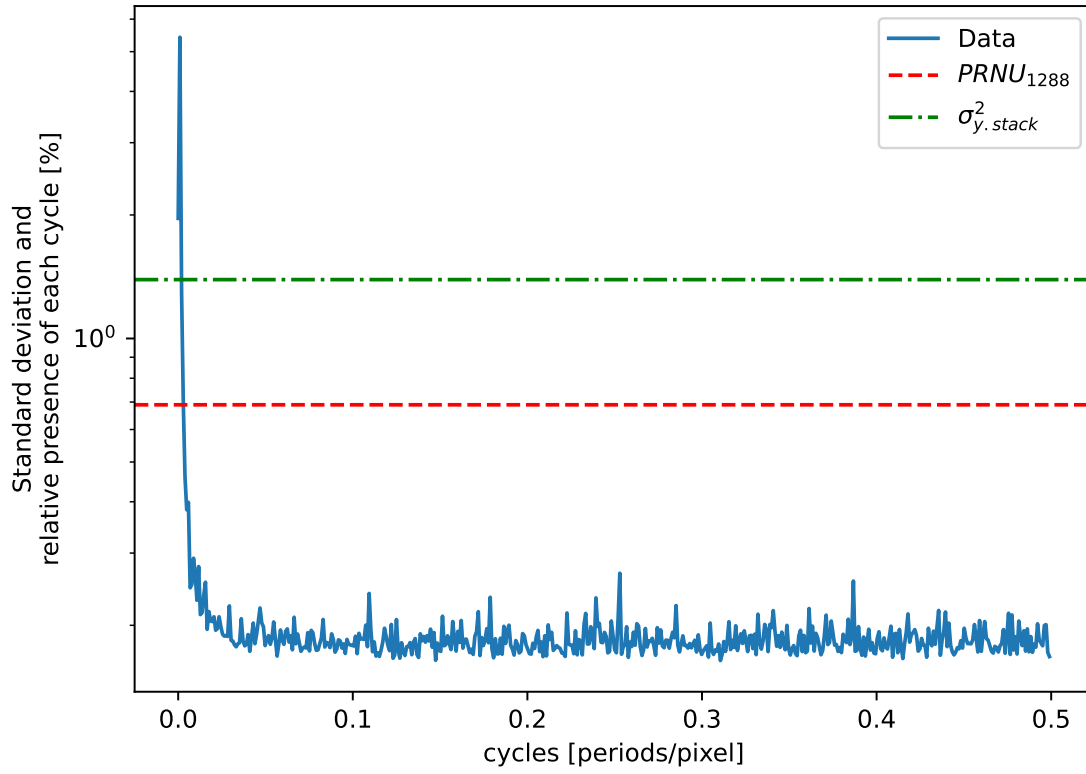
$\mu_{I.mean}$  5.021 e<sup>-</sup>/s  
1.891 DN/s  
 $\mu_{I.var}$  2.407 e<sup>-</sup>/s  
0.907 DN/s



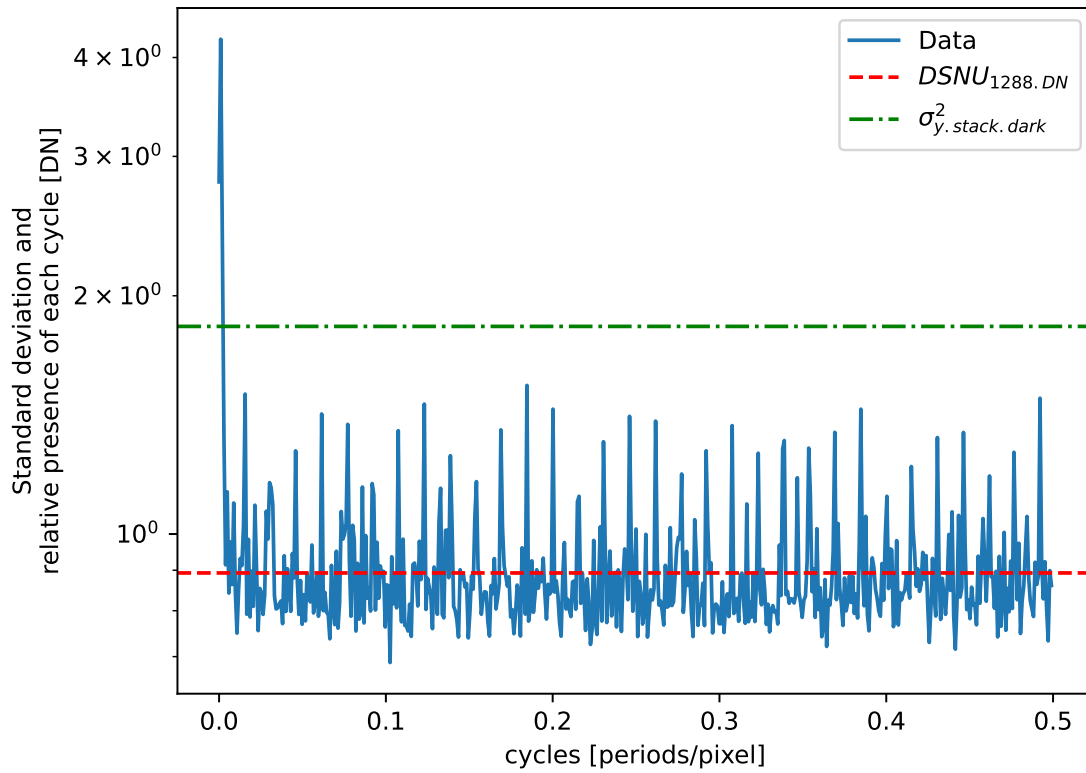




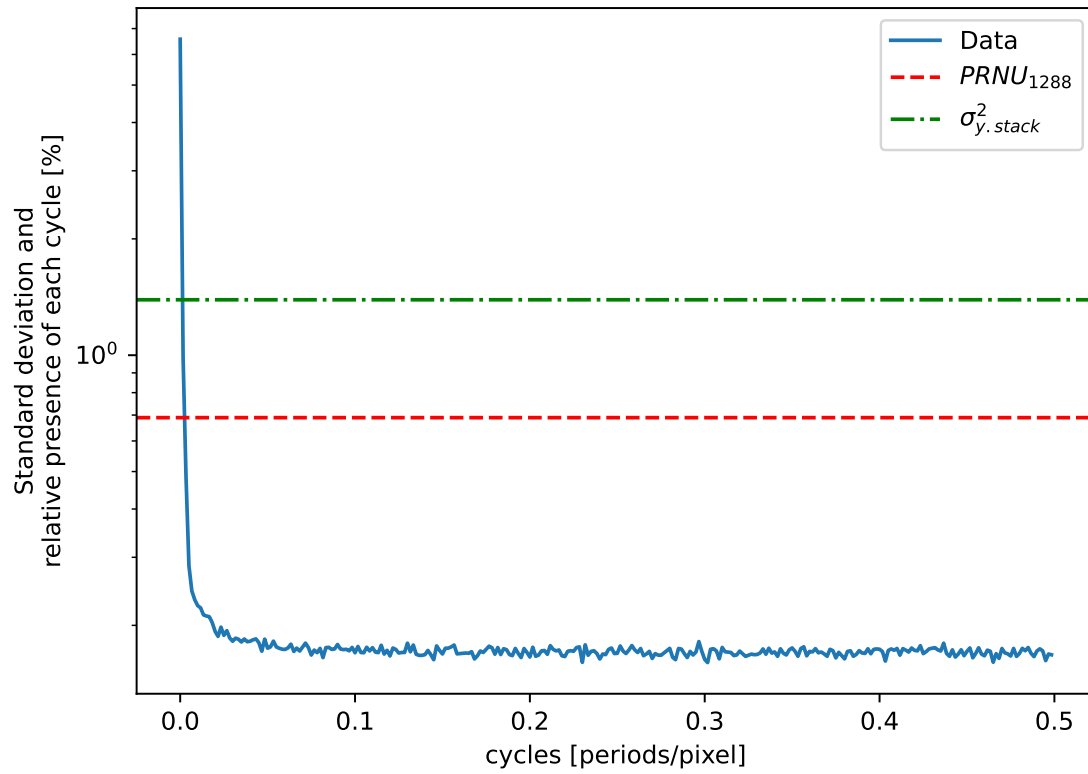
Horizontal spectrogram PRNU



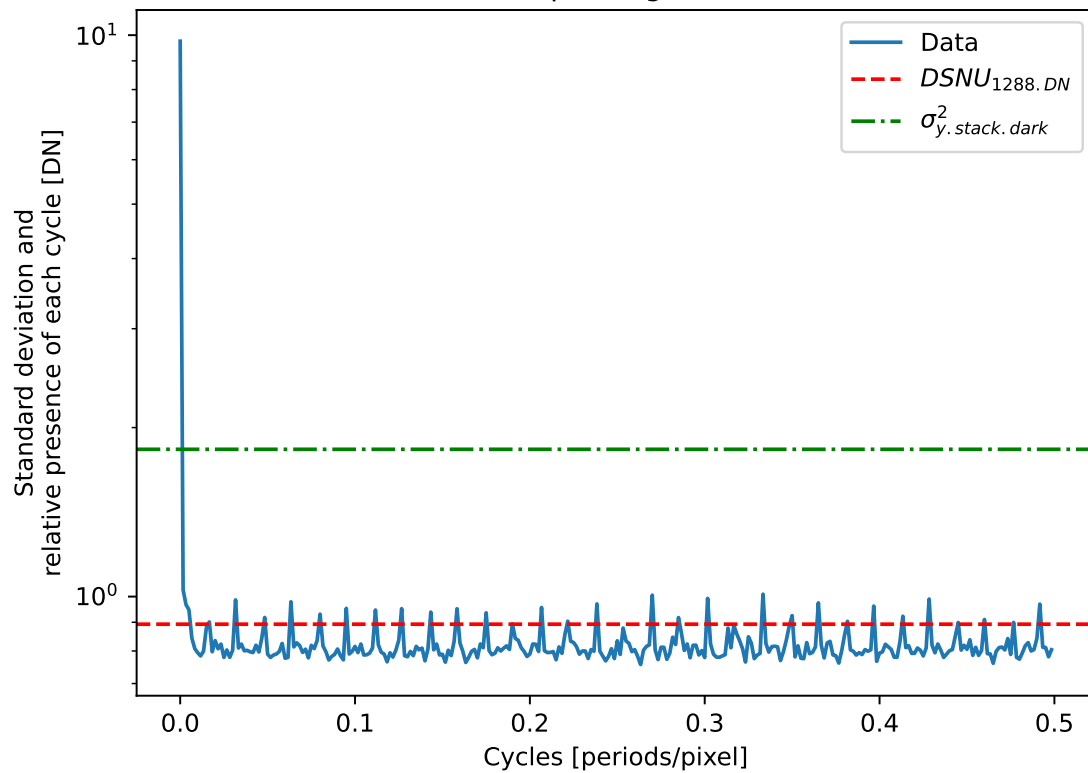
Horizontal spectrogram DSNU

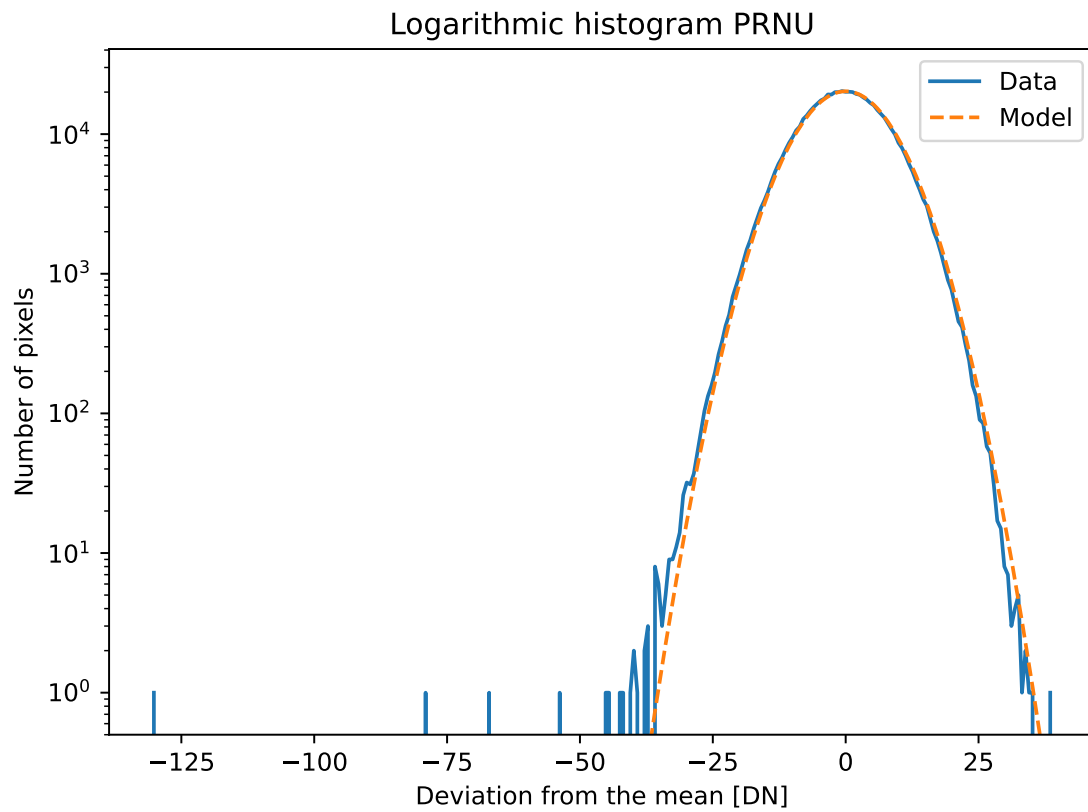
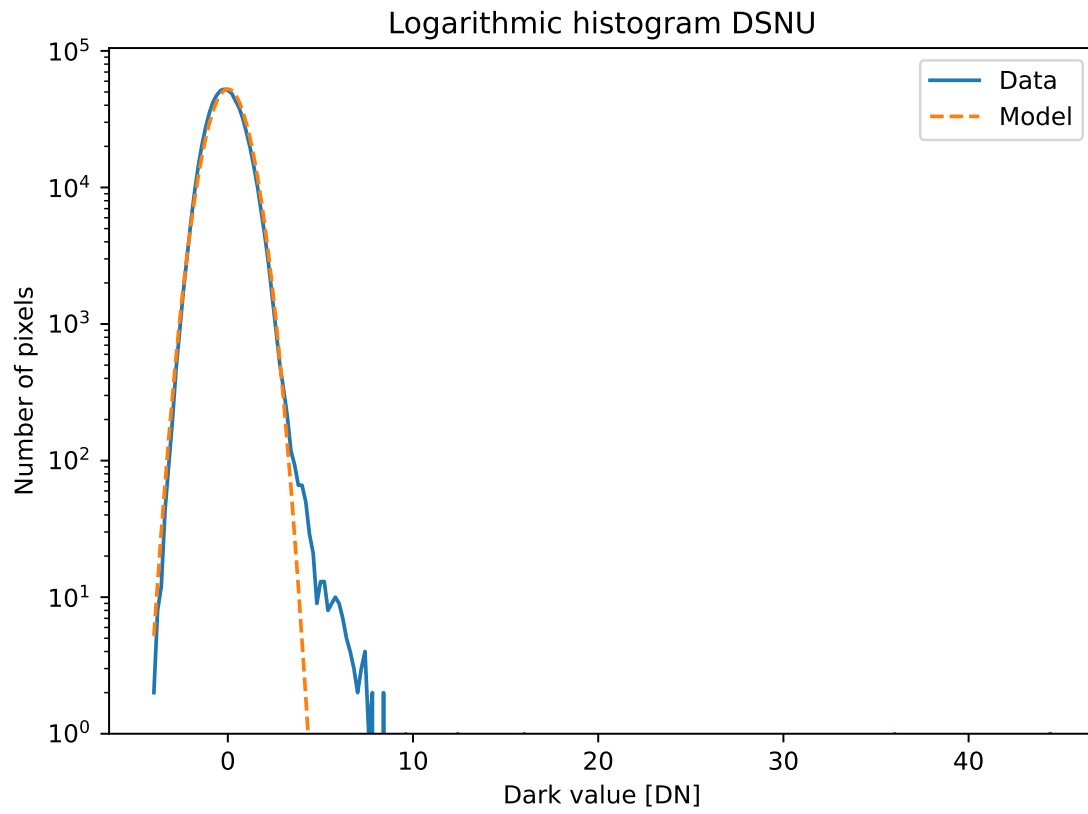


Vertical spectrogram PRNU

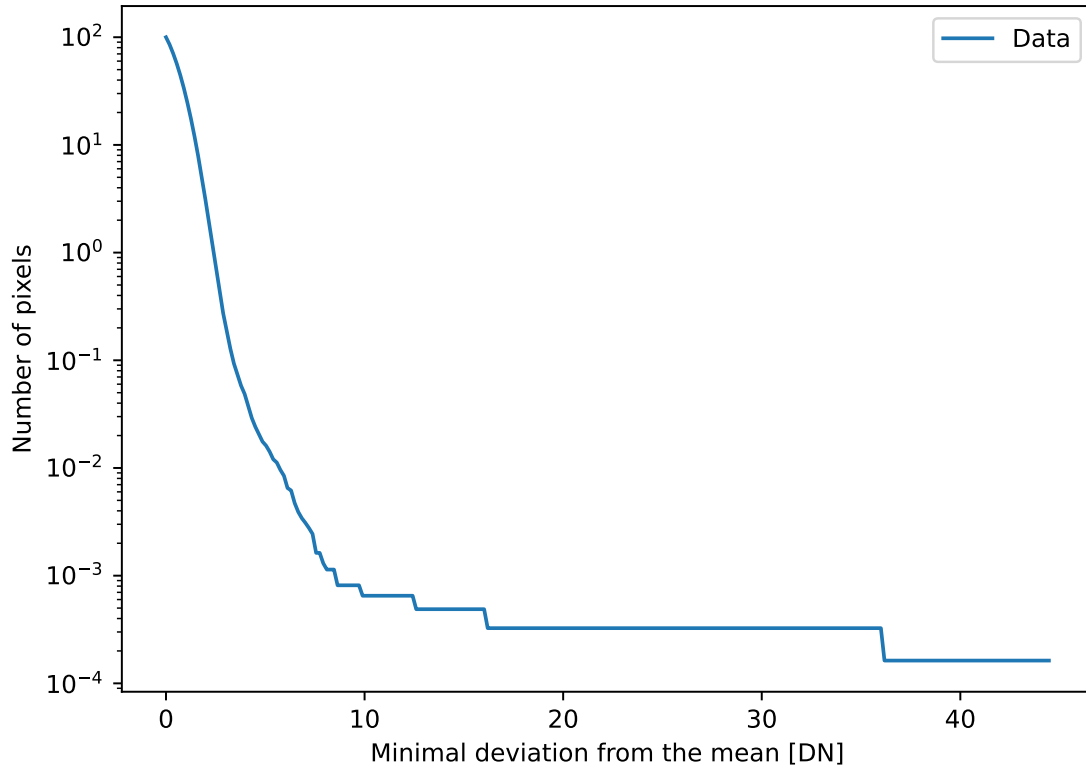


Vertical spectrogram DSNU





Accumulated log histogram DSNU



Accumulated log histogram PRNU

