

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).

Vendor	KAYA Instruments	Sensor diagonal	36.65mm
Model	Iron3265HS-C	Sensor	GMAX3265
Camera type	Color	Sensor type	CMOS
Date	11-Oct-2022 11:28:39	Shutter type	Global
Data type	Single	Overlap capabilities	Overlapping
Sensor type	CMOS	Frame rate	23 Hz
Lens category	F-Mount	Exposure control	by irradiance
Resolution	9344 x 7000 ,10 bits	Exposure time	11000.133 μ s
Pixel size	3.2 μ m x 3.2 μ m	Illumination	Variable with constant exposure time
Maximum readout rate	31 fps	Irradiation Steps	50
Dark current compensation	No	Irradiation calibration accuracy	-
Interface type	CXP-12	Irradiation measurement error	-
Serial number	3221029	Standart version	4.0 Linear
Firmware version	3.2.0-2022.10.3	Light source	Integrating Sphere

International Distributor

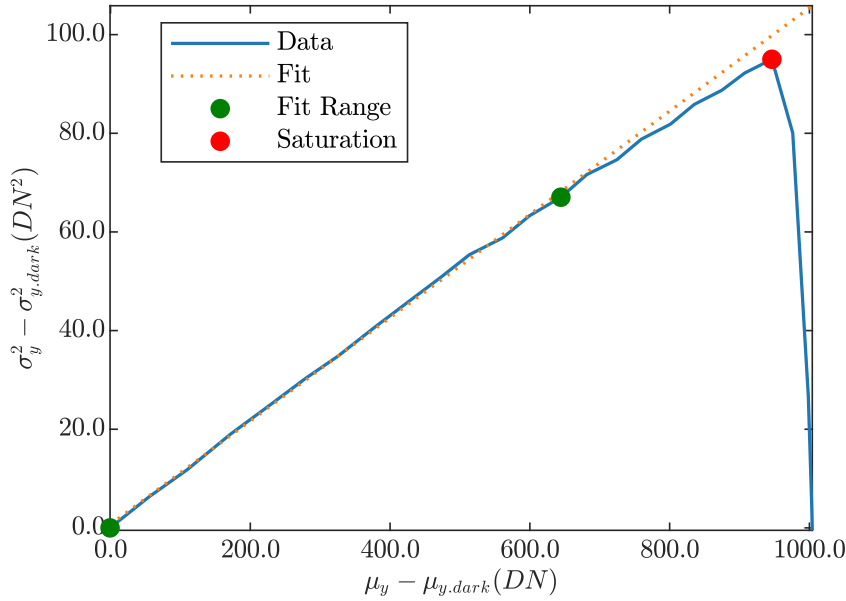


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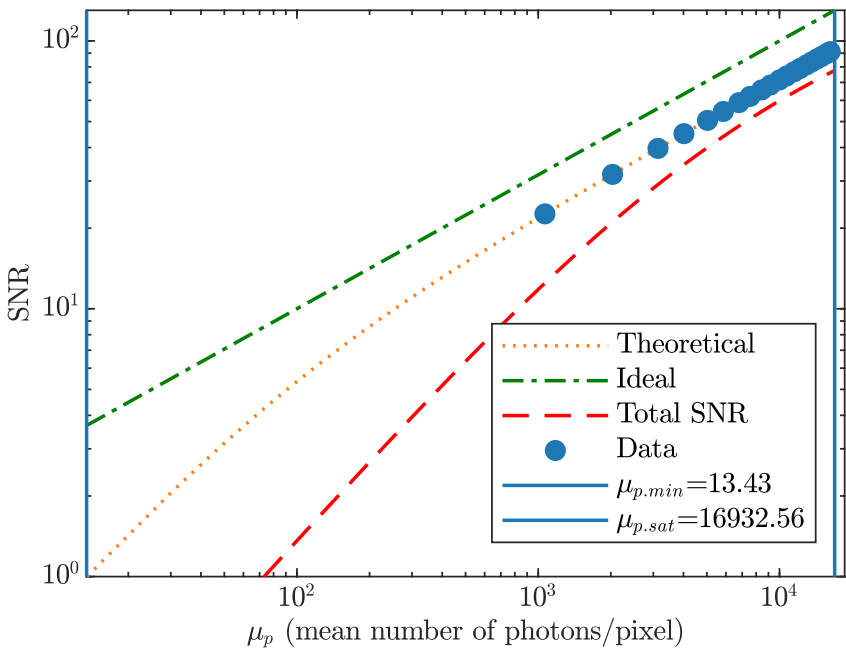
Summary Sheet for Operation Point 1 at a Wavelength of 520 nm

Camera setting		Operation point parameters	
Gain	1.25	Environmental temperature	27.5
Black level	-736	Camera body temperature	36.68
		Sensor temperature	49.606
		Processor temperature	59

Photon Transfer

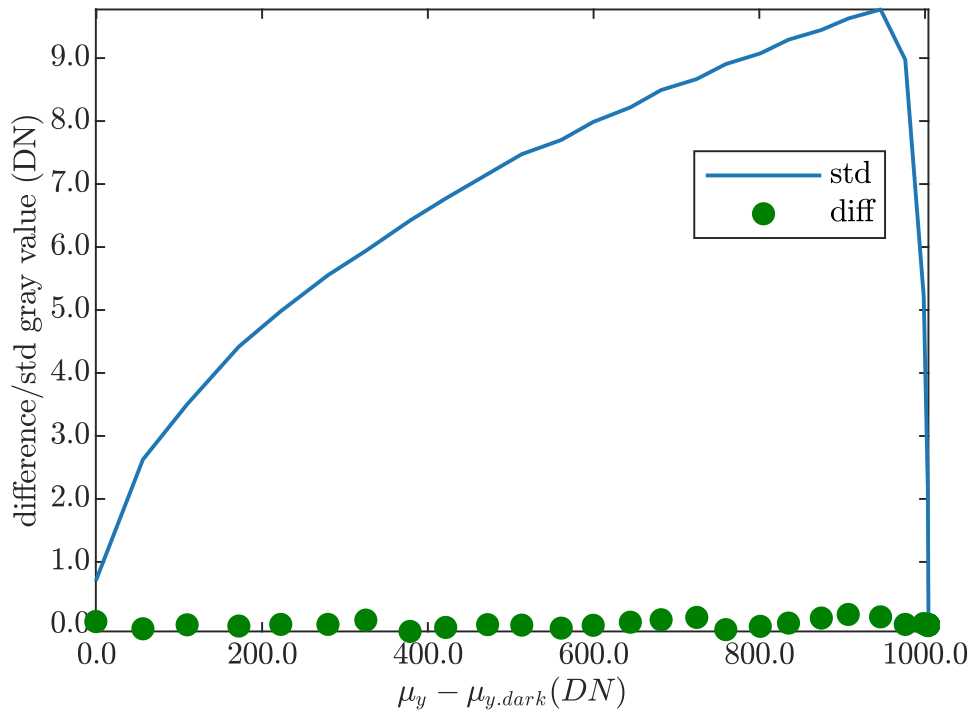


Signal-to-Noise Ratio

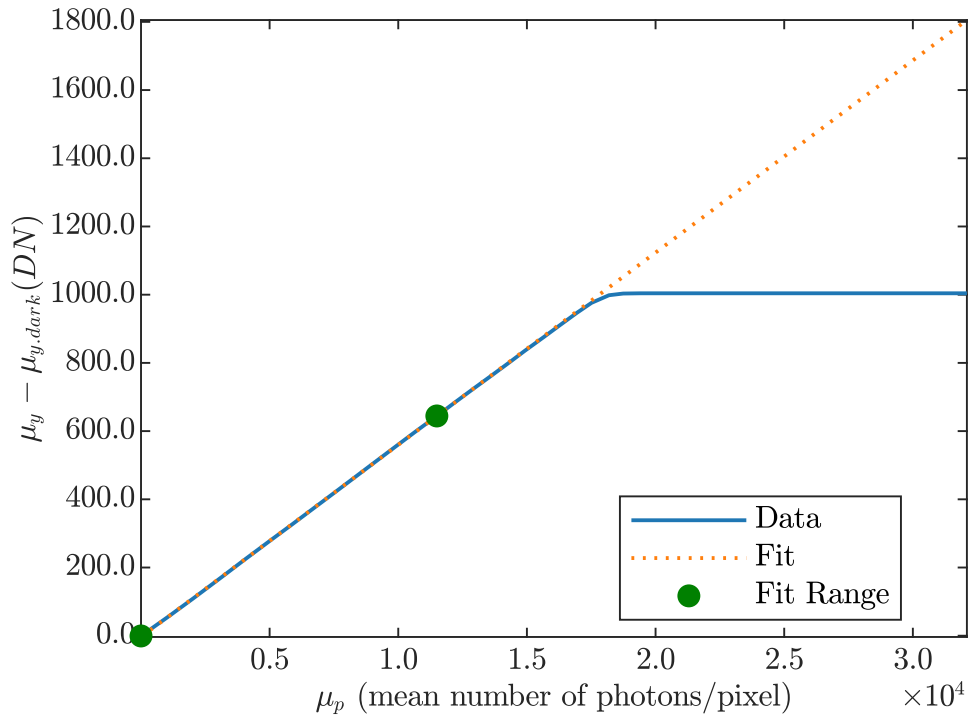


Performance		
Quantum efficiency		
η	51.5306	%
System gain		
K	0.10845	DN/e ⁻
1/K	9.2212	e ⁻ /DN
Temporal dark noise		
σ_d	5.8452	e ⁻
$\sigma_{y.dark}$	0.69652	DN
Signal-to-noise ratio		
SNR _{max}	93.4102	
	39.4079	dB
	6.5455	bit
1/SNR _{max}	1.0705	%
Absolute sensitivity threshold		
$\mu_{e.min}$	6.9228	e ⁻
$\mu_{e.min.area}$	0.67605	e ⁻ /μm ²
Saturation capacity		
$\mu_{e.sat}$	8725.4575	e ⁻
$\mu_{e.sat.area}$	852.0955	e ⁻ /μm ²
Dynamic range		
DR	1260.4002	
	62.0102	dB
	10.2997	bit
Spatial nonuniformities		
DSNU ₁₂₈₈	36.6198	e ⁻
DSNU _{1288.col}	31.3528	e ⁻
DSNU _{1288.row}	16.3726	e ⁻
DSNU _{1288.pix}	9.4839	e ⁻
PRNU ₁₂₈₈	0.57914	%
PRNU _{1288.col}	0.34637	%
PRNU _{1288.row}	0.048551	%
PRNU _{1288.pix}	0.4616	%
Linearity error		
LE	0.0013148	%
Dark current		
$\mu_{l.mean}$	NaN	e ⁻ /s
$\mu_{l.var}$	3312.7437	e ⁻ /s

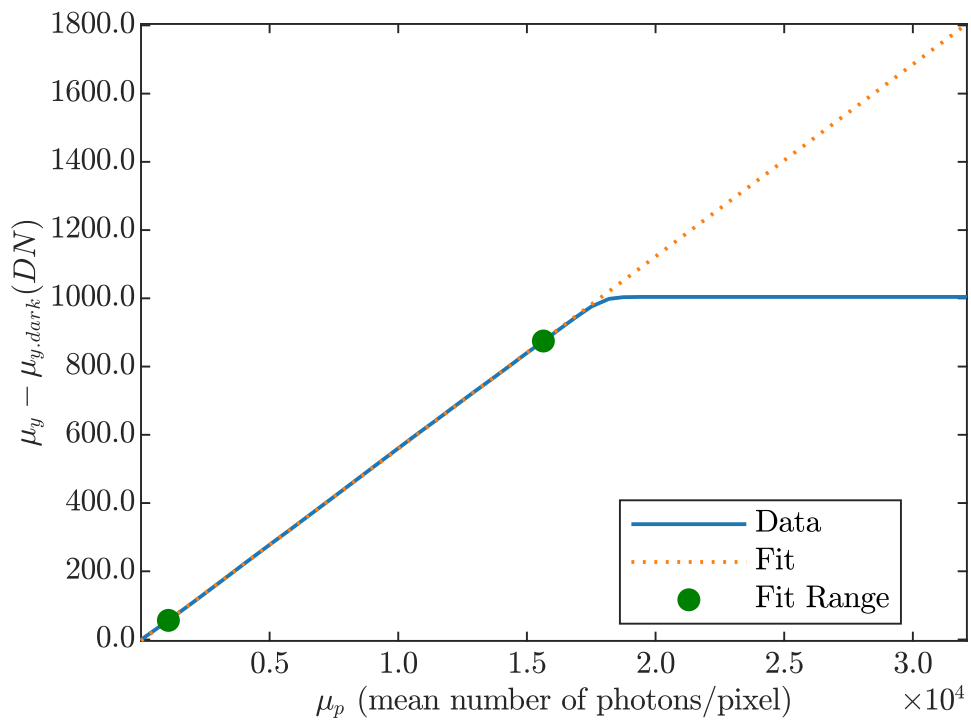
Stability check



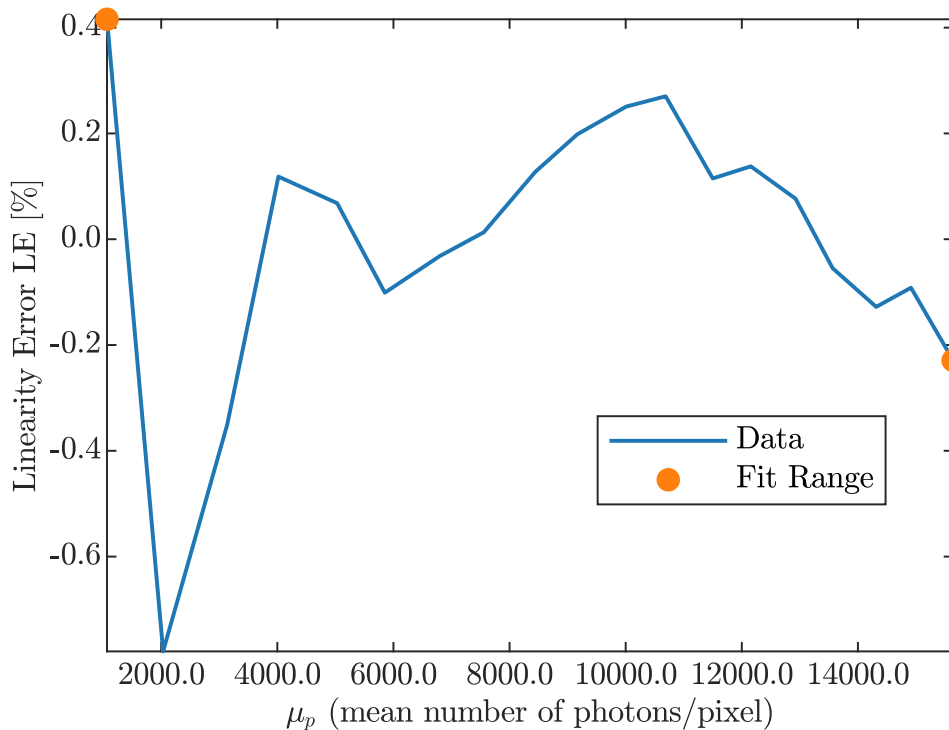
Sensitivity



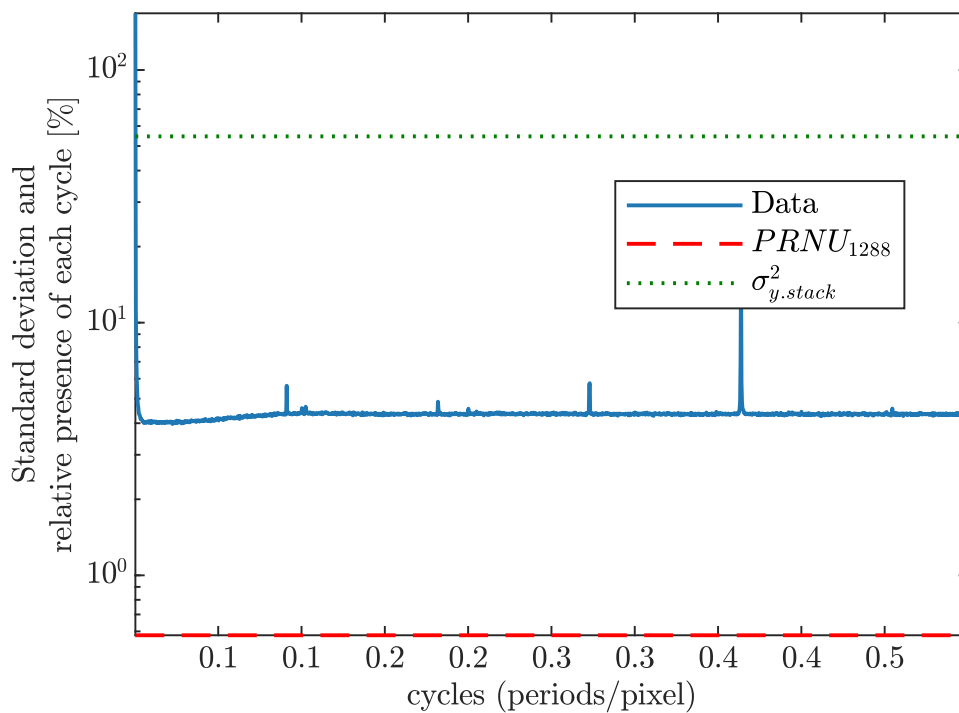
Linearity



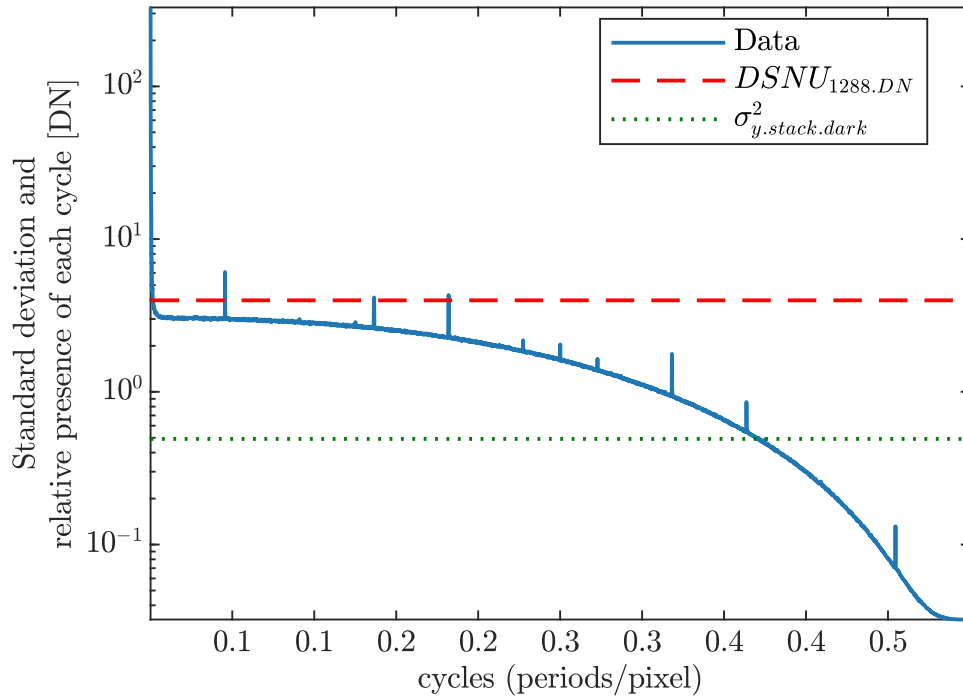
Deviation Linearity



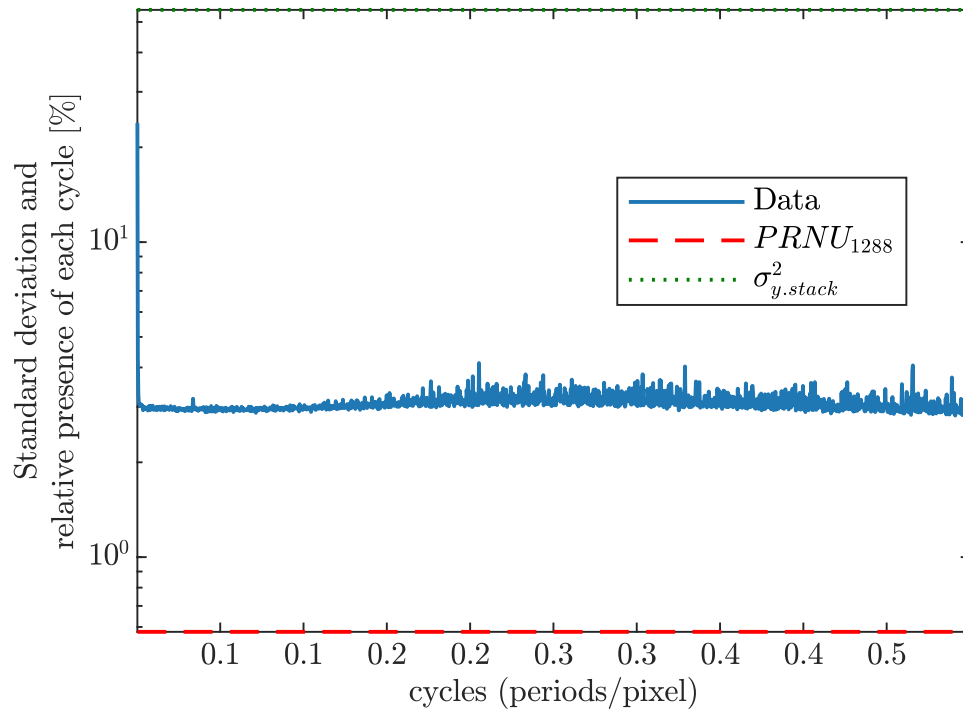
Horizontal Spectrogram PRNU



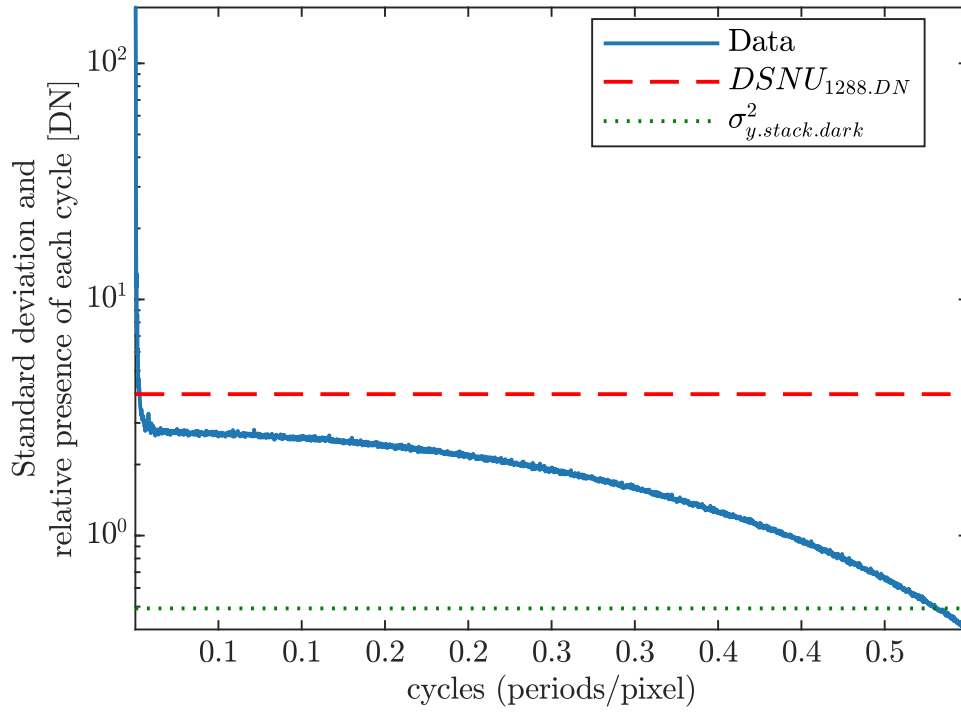
Horizontal Spectrogram DSNU



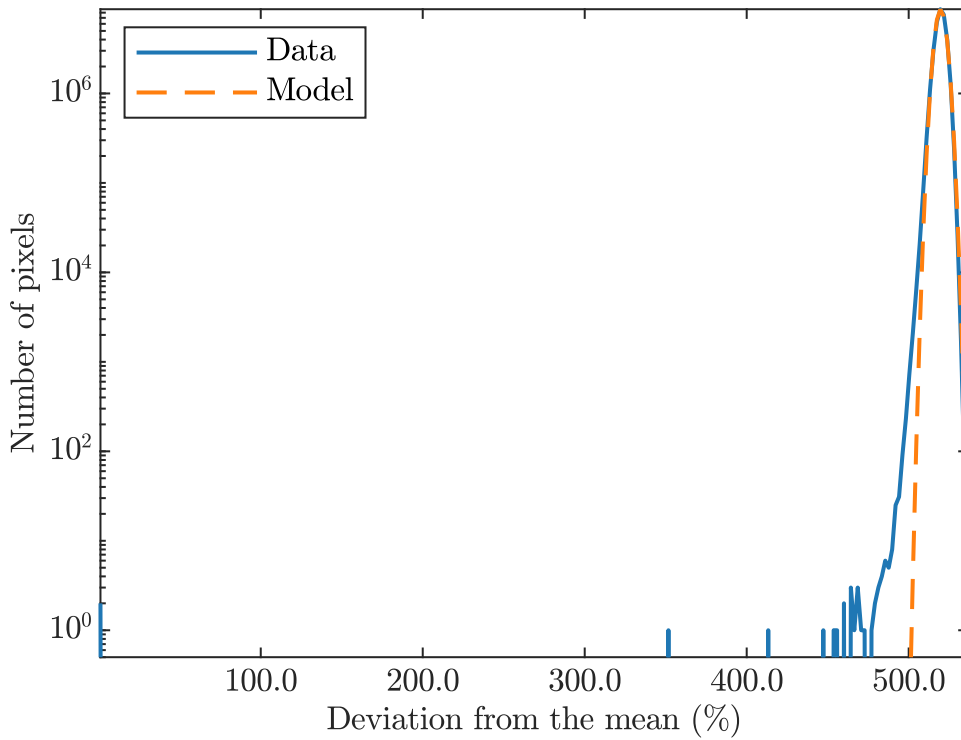
Vertical Spectrogram PRNU



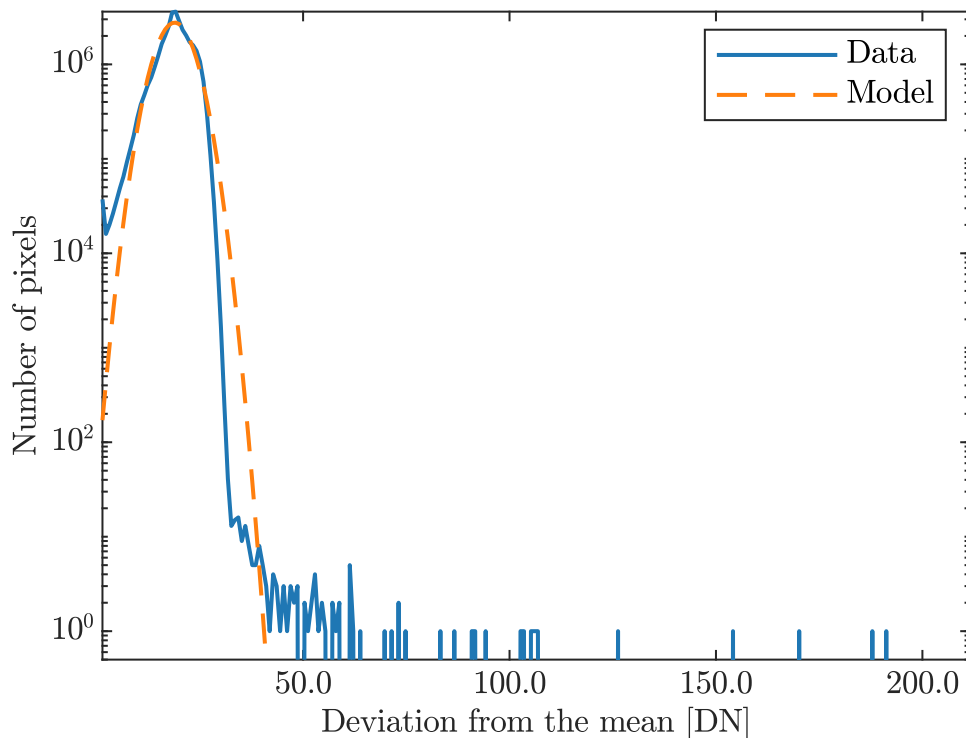
Vertical Spectrogram DSNU



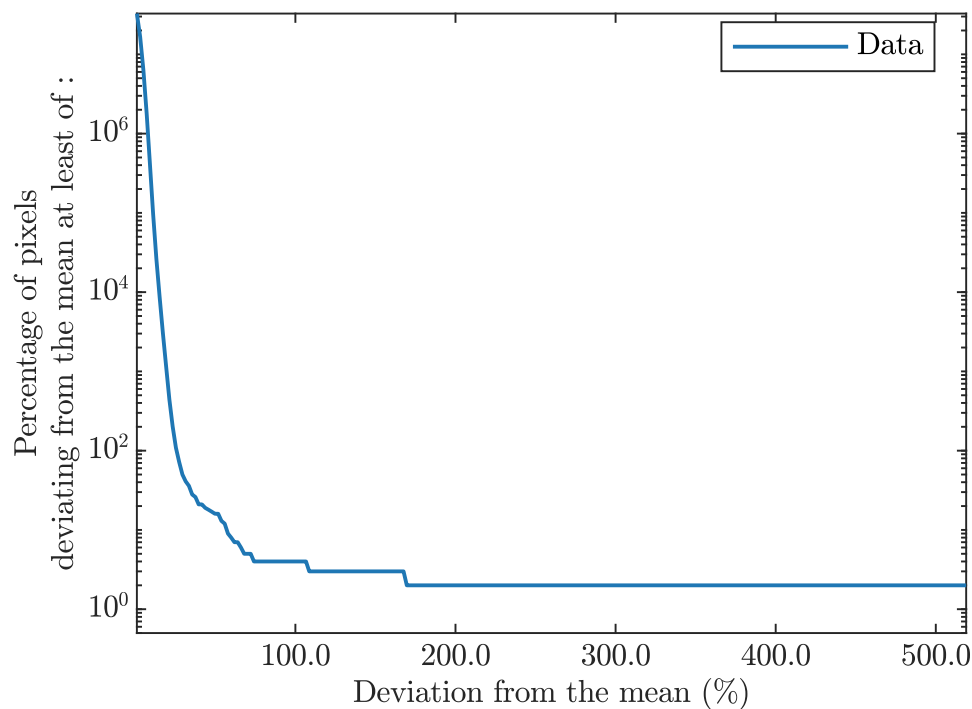
Logarithmic Histogram PRNU



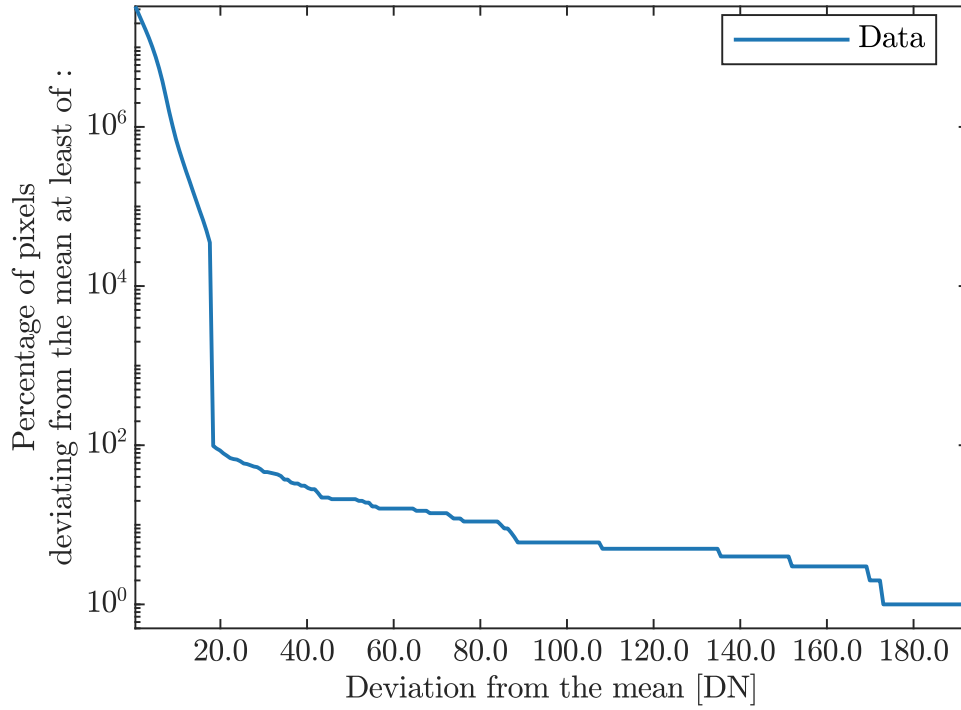
Logarithmic Histogram DSNU



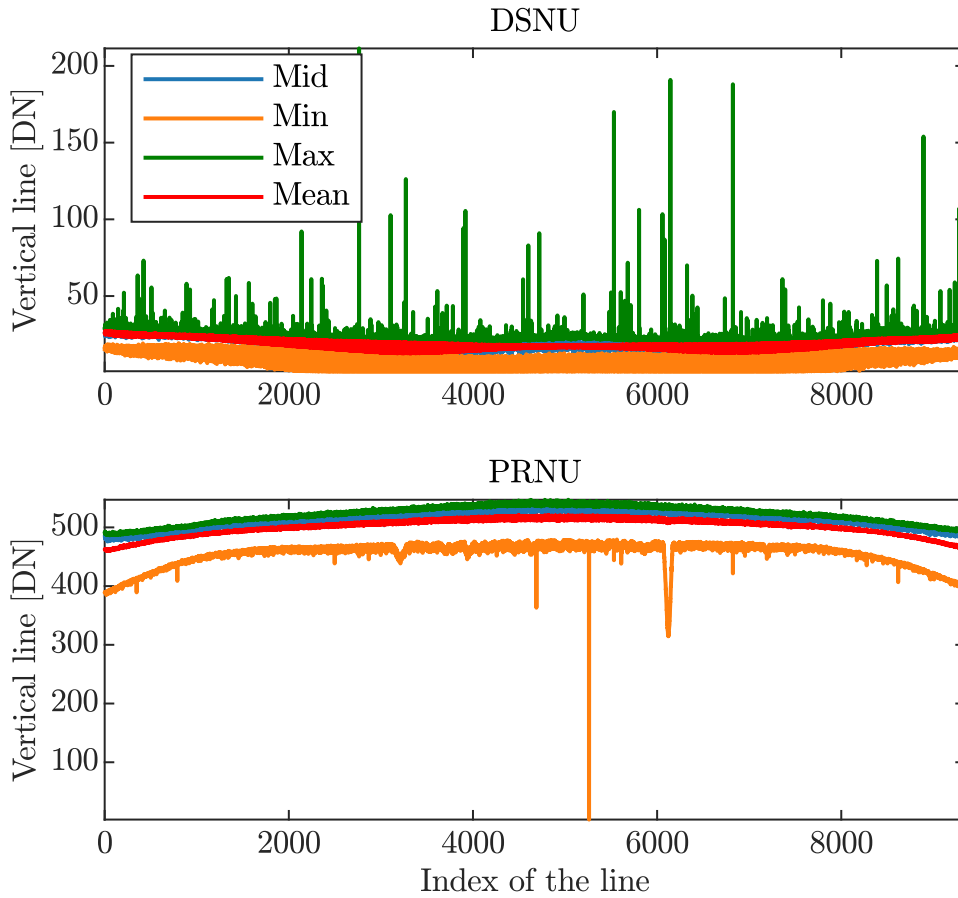
Accumulated Log Histogram PRNU



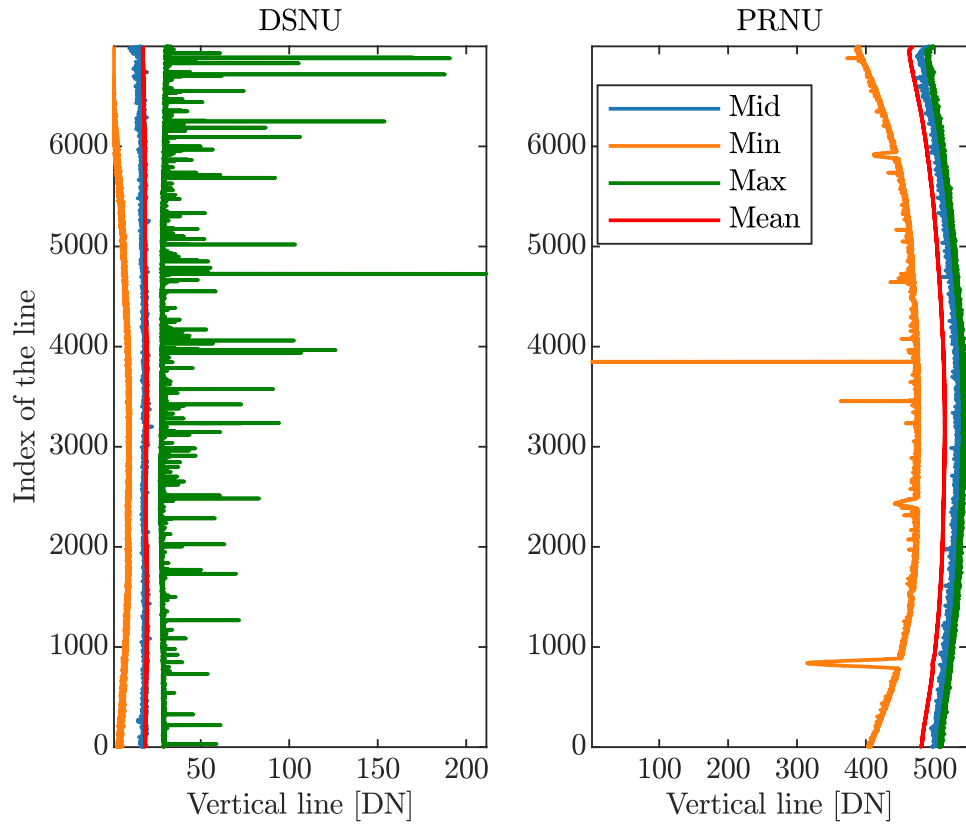
Accumulated Log Histogram DSNU



Horizontal Profile



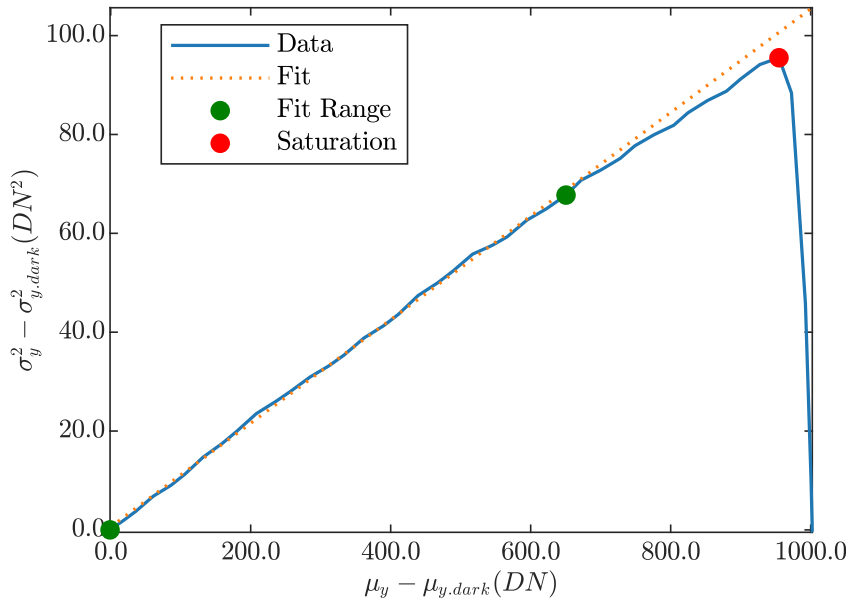
Vertical Profile



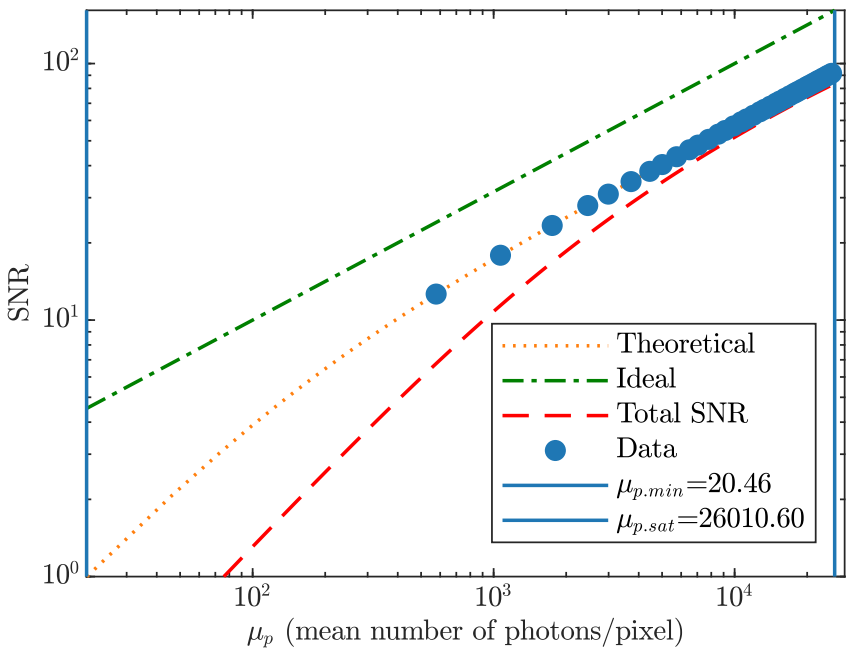
Summary Sheet for Operation Point 2 at a Wavelength of 632 nm

Camera setting		Operation point parameters	
Gain	1.25	Environmental temperature	28
Black level	-736	Camera body temperature	36.37
		Sensor temperature	49.071
		Processor temperature	57

Photon Transfer



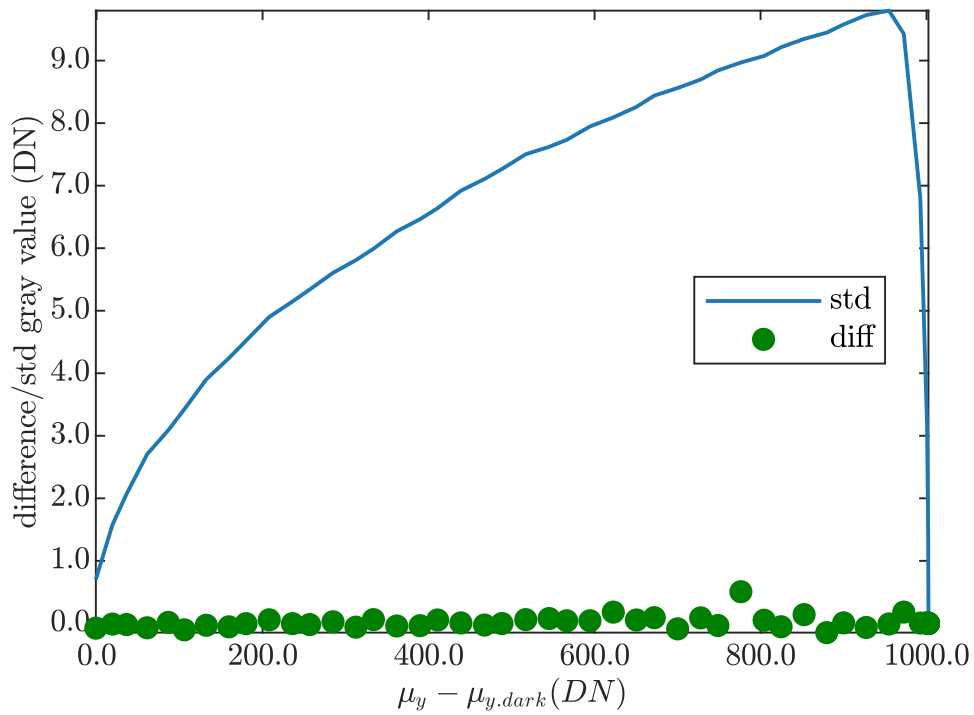
Signal-to-Noise Ratio



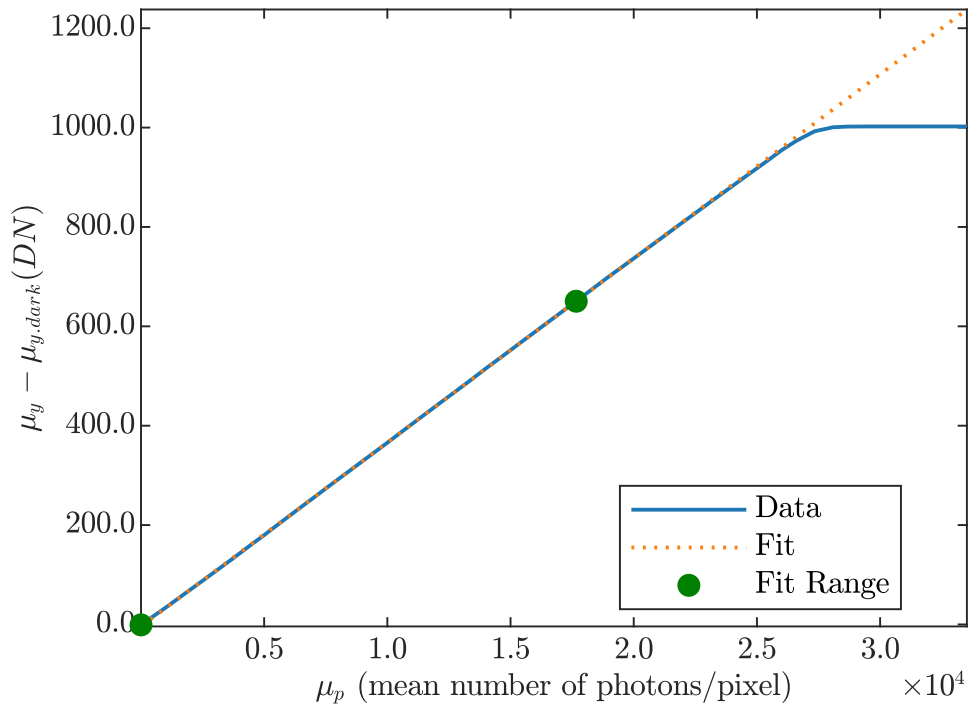
Performance

Quantum efficiency		
η	33.3631	%
System gain		
K	0.11008	DN/e ⁻
1/K	9.0841	e ⁻ /DN
Temporal dark noise		
σ_d	5.7583	e ⁻
$\sigma_{y,dark}$	0.69652	DN
Signal-to-noise ratio		
SNR _{max}	93.1554	
	39.3842	dB
	6.5416	bit
1/SNR _{max}	1.0735	%
Absolute sensitivity threshold		
$\mu_{e,min}$	6.8273	e ⁻
$\mu_{e,min,area}$	0.66673	e ⁻ /μm ²
Saturation capacity		
$\mu_{e,sat}$	8677.9341	e ⁻
$\mu_{e,sat,area}$	847.4545	e ⁻ /μm ²
Dynamic range		
DR	1271.069	
	62.0834	dB
	10.3118	bit
Spatial nonuniformities		
DSNU ₁₂₈₈	24.0234	e ⁻
DSNU _{1288,col}	21.8799	e ⁻
DSNU _{1288,row}	4.4913	e ⁻
DSNU _{1288,pix}	8.8443	e ⁻
PRNU ₁₂₈₈	0.44756	%
PRNU _{1288,col}	0.1509	%
PRNU _{1288,row}	0.059092	%
PRNU _{1288,pix}	0.41719	%
Linearity error		
LE	0.0015789	%
Dark current		
$\mu_{l,mean}$	NaN	e ⁻ /s
$\mu_{l,var}$	3312.7437	e ⁻ /s

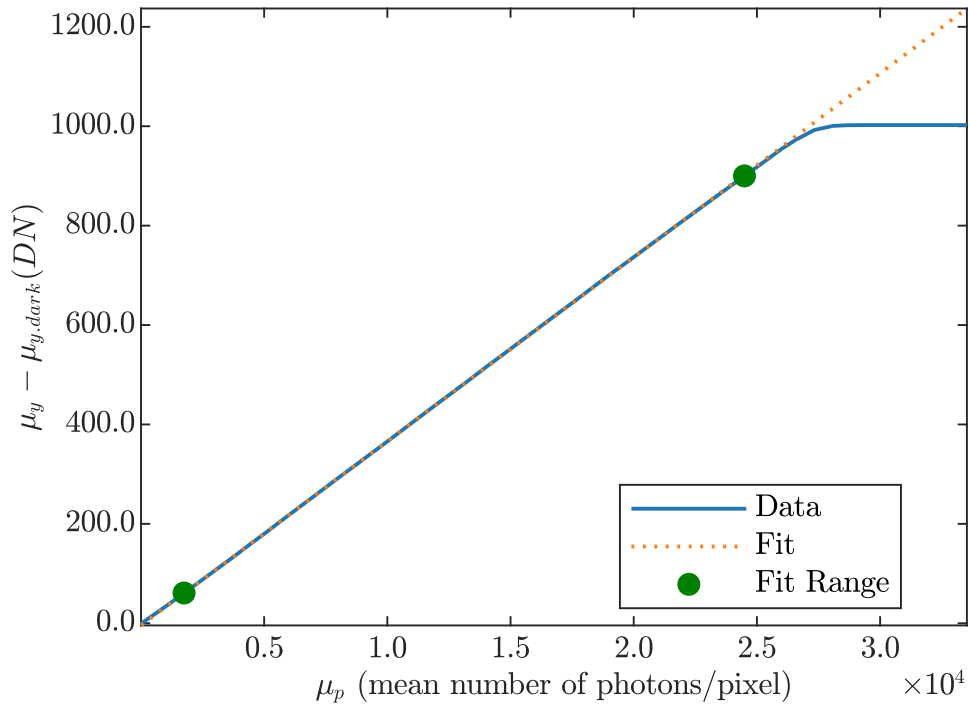
Stability check



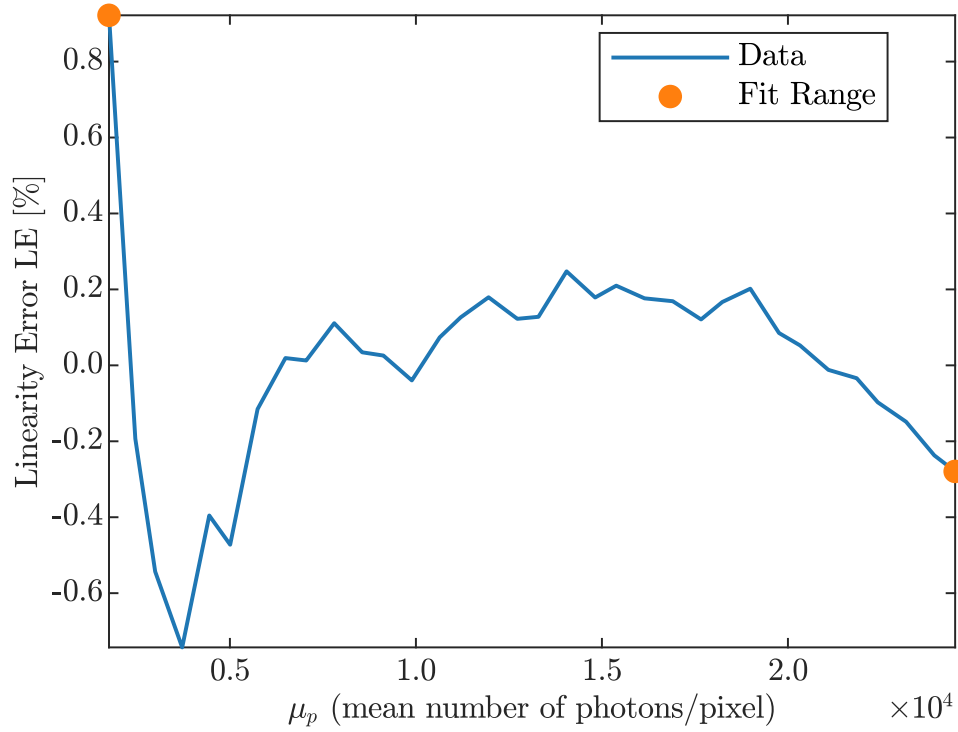
Sensitivity



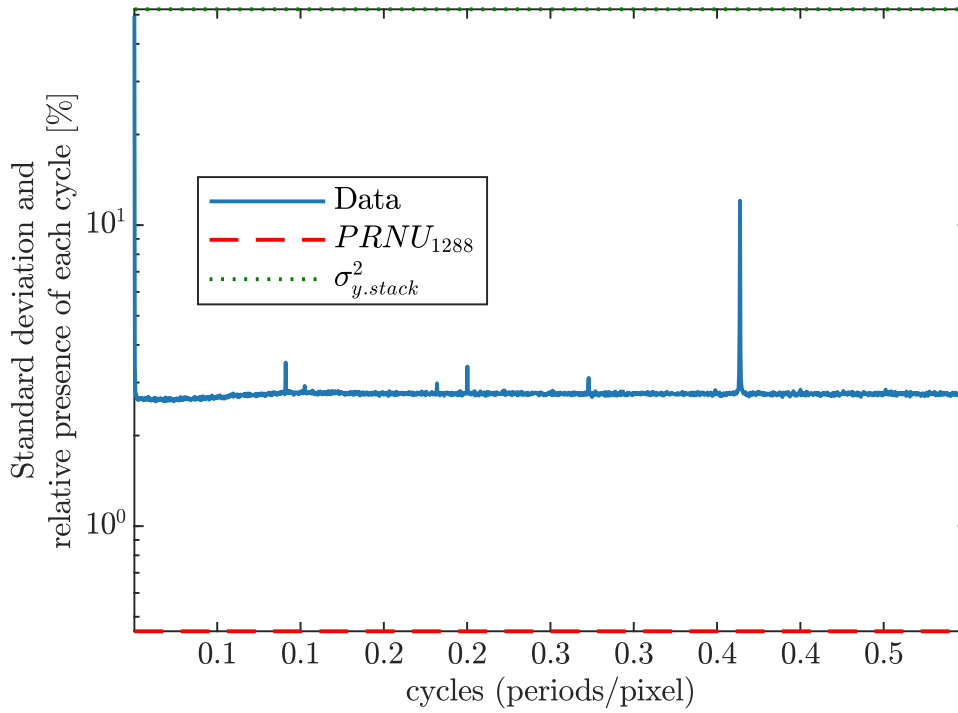
Linearity



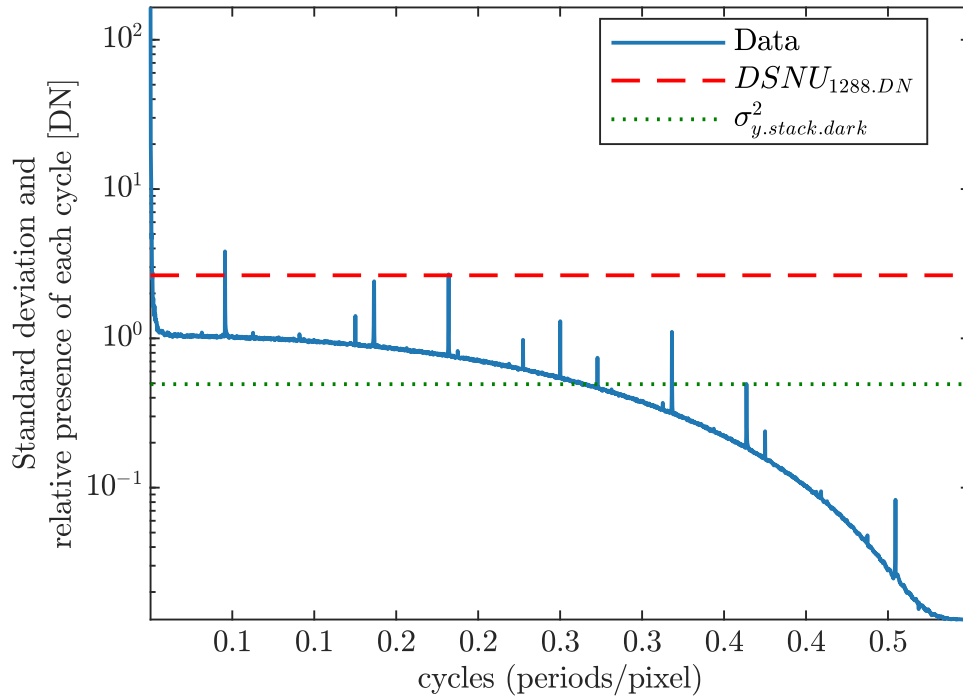
Deviation Linearity



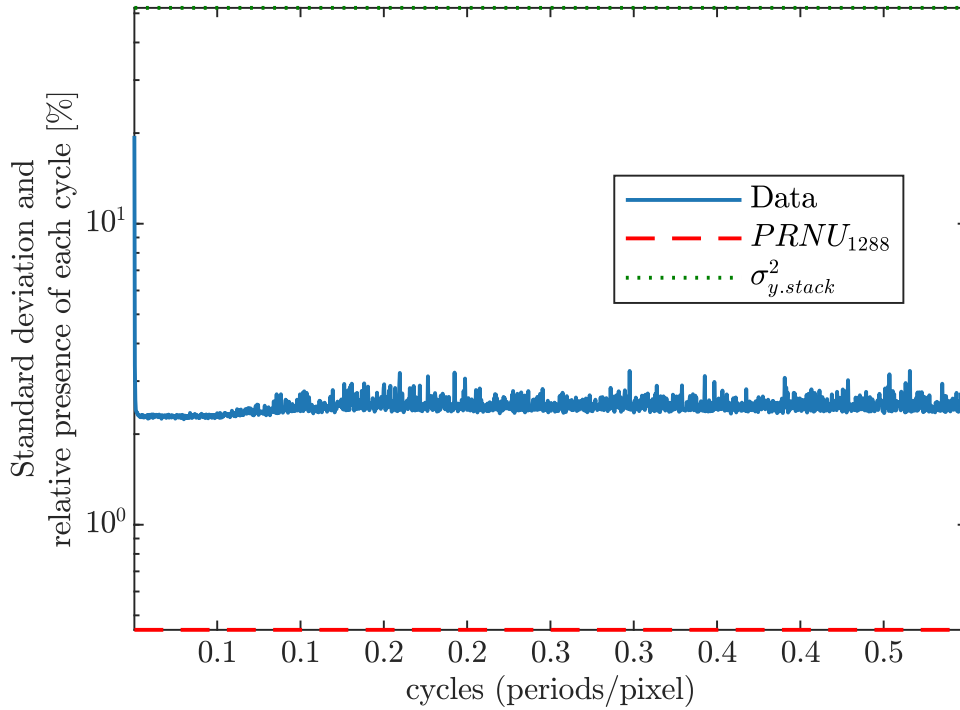
Horizontal Spectrogram PRNU



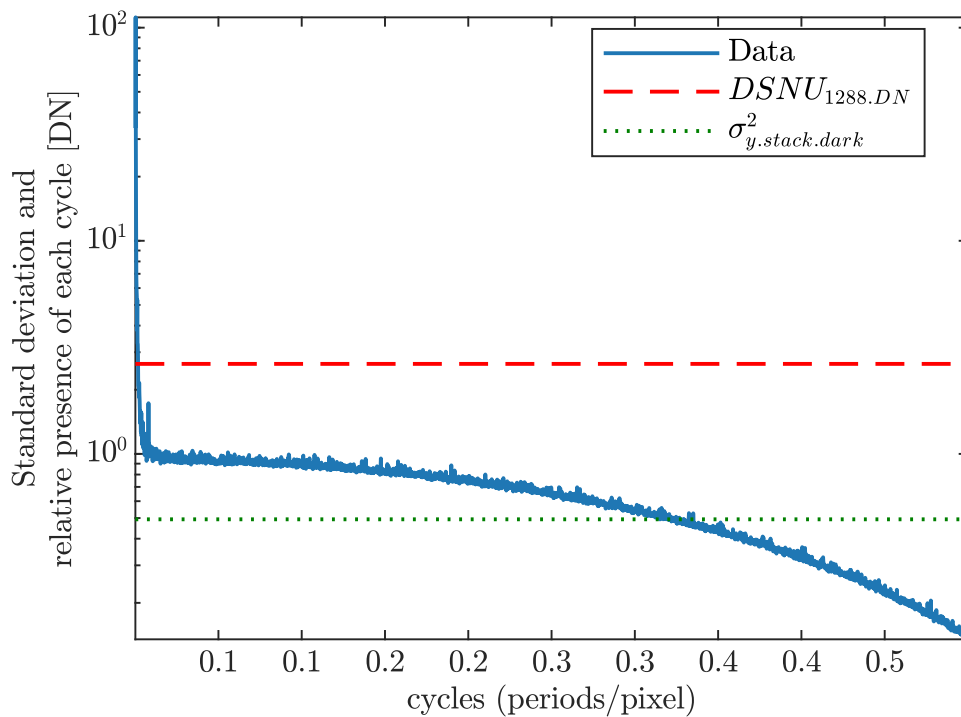
Horizontal Spectrogram DSNU



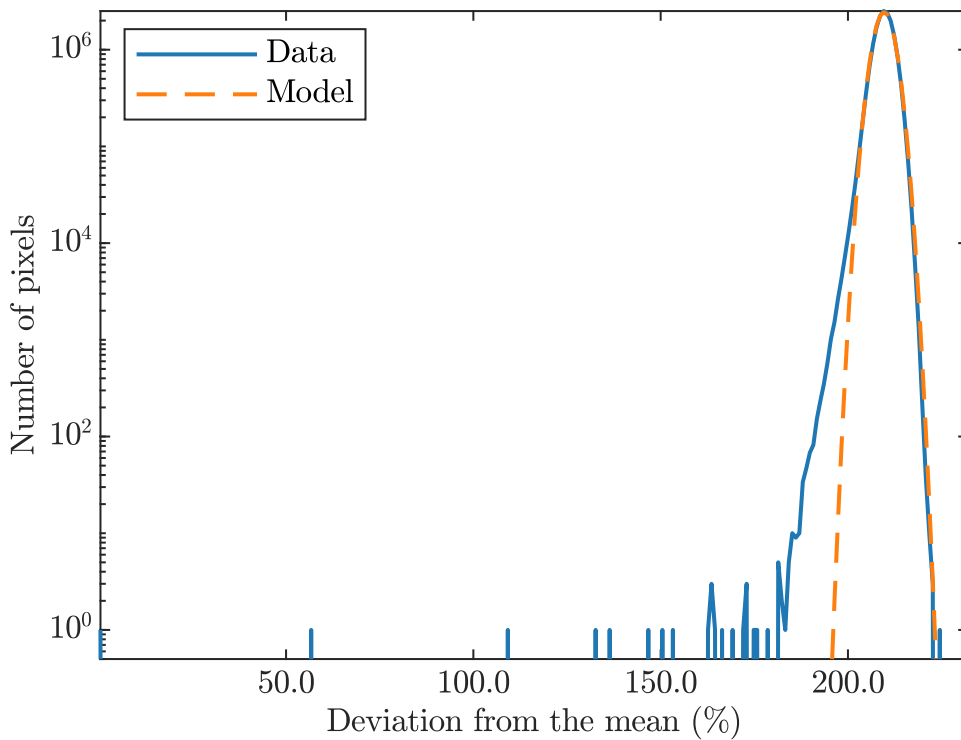
Vertical Spectrogram PRNU



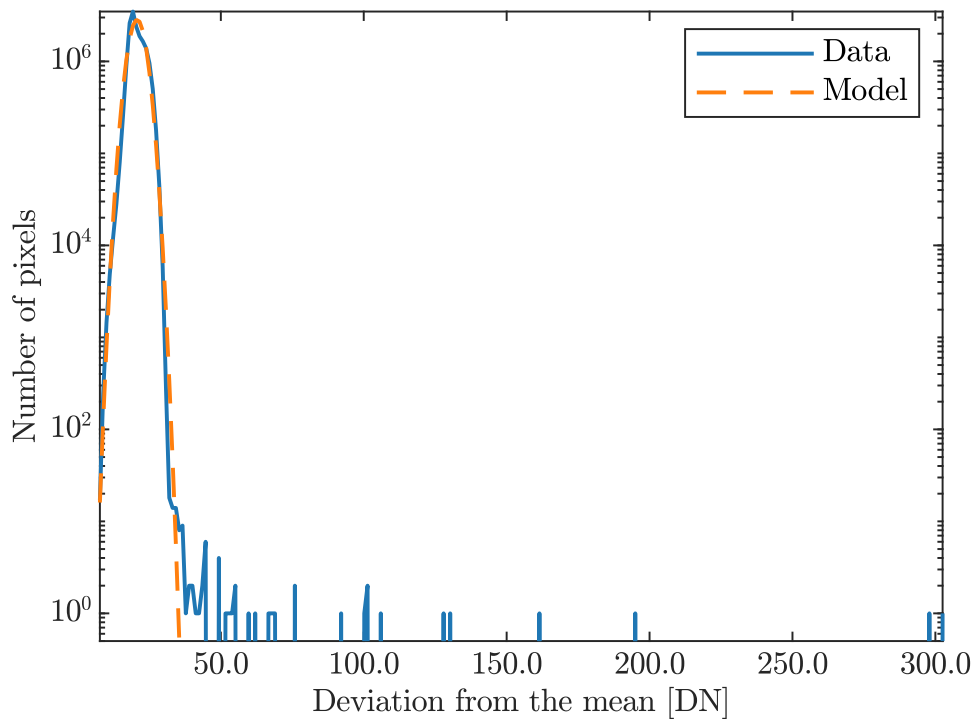
Vertical Spectrogram DSNU



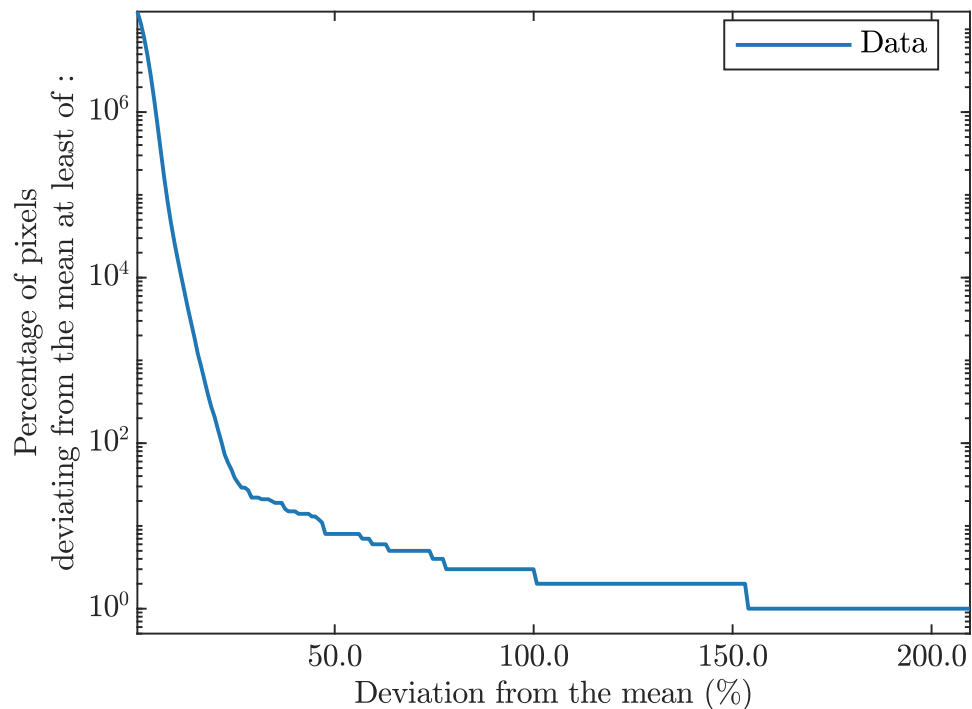
Logarithmic Histogram PRNU



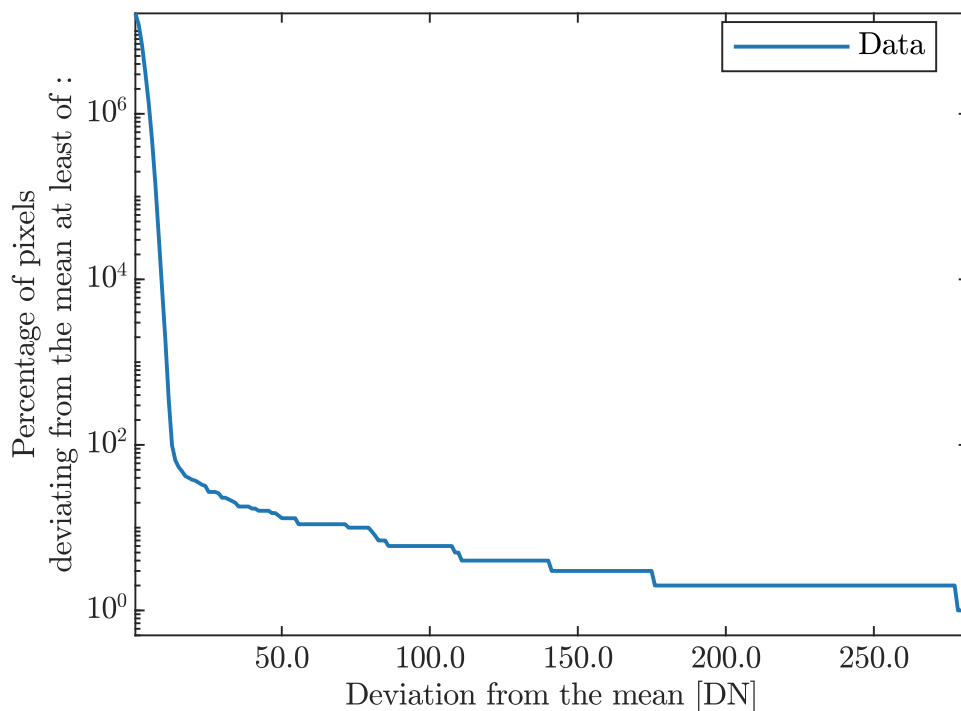
Logarithmic Histogram DSNU



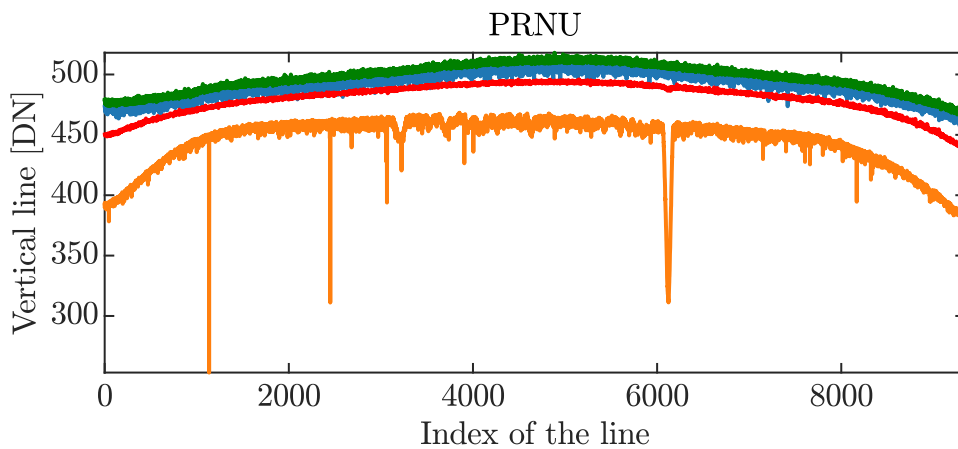
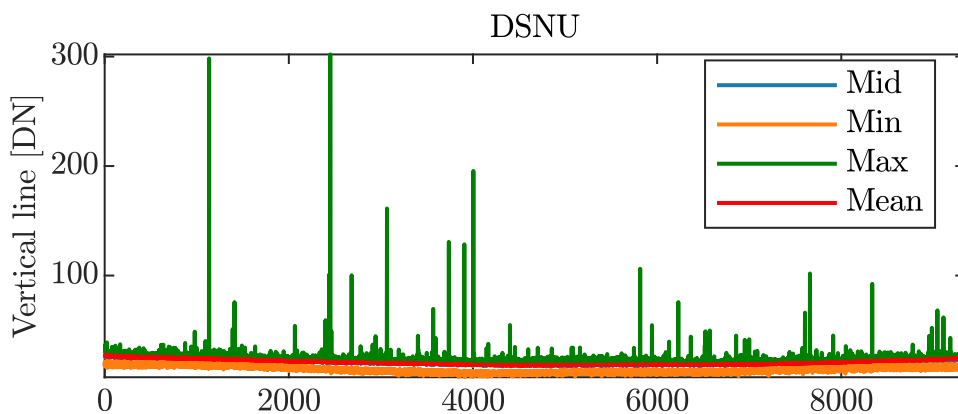
Accumulated Log Histogram PRNU



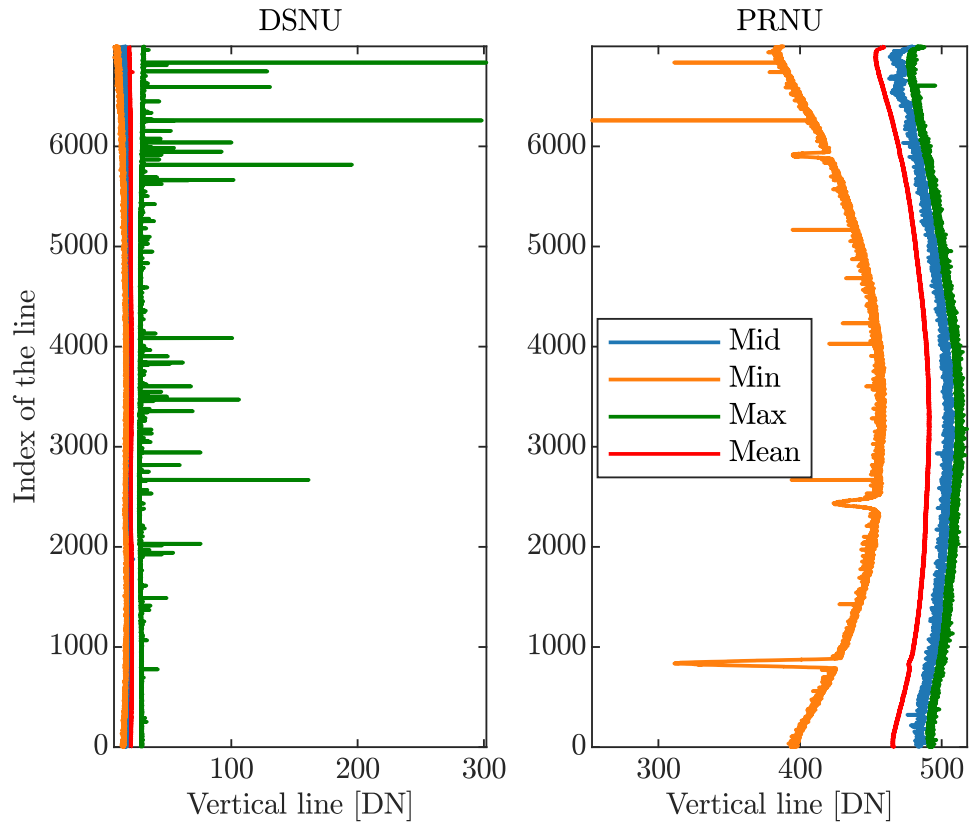
Accumulated Log Histogram DSNU



Horizontal Profile



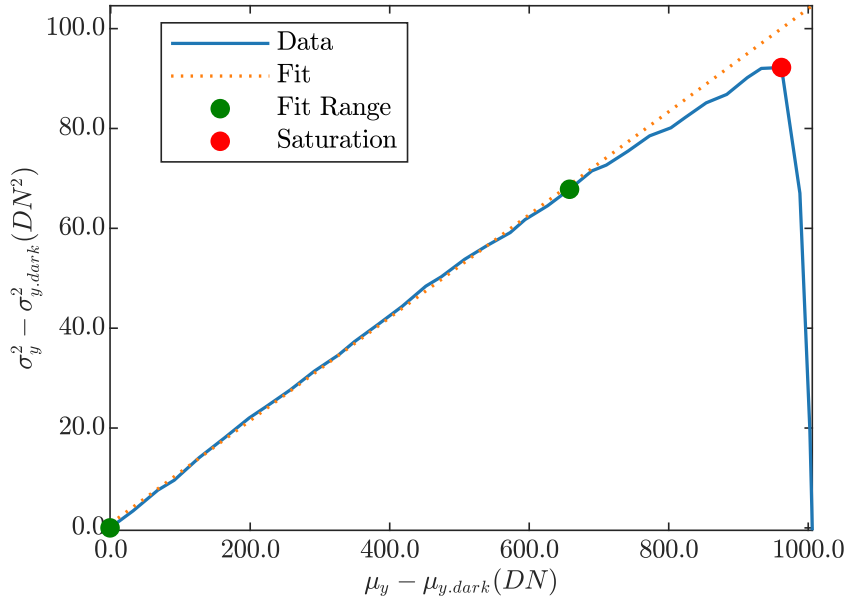
Vertical Profile



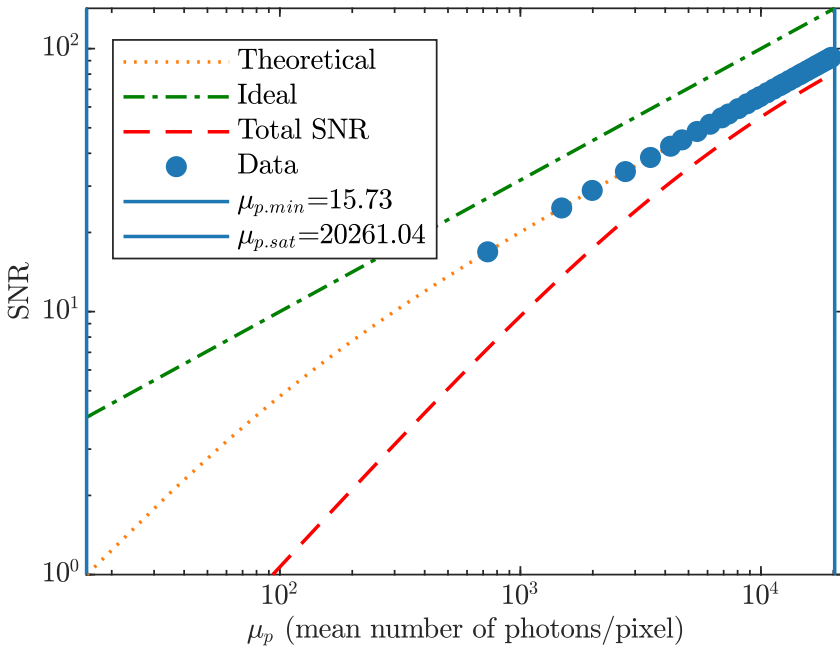
Summary Sheet for Operation Point 3 at a Wavelength of 448 nm

Camera setting		Operation point parameters	
Gain	1.25	Environmental temperature	28.25
Black level	-736	Camera body temperature	36.43
		Sensor temperature	49.53
		Processor temperature	58

Photon Transfer



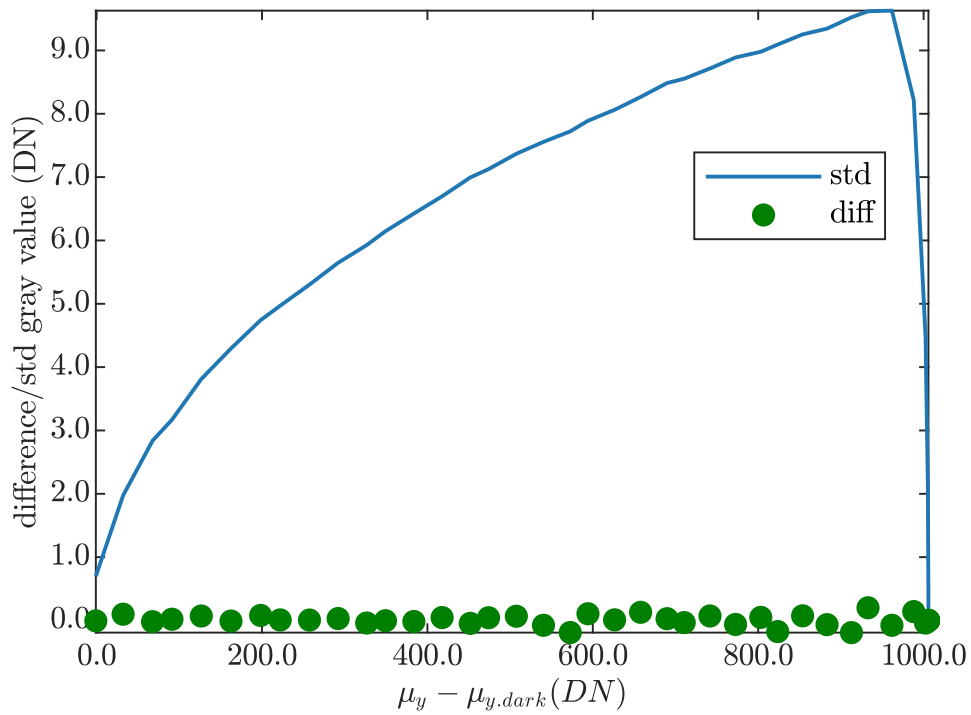
Signal-to-Noise Ratio



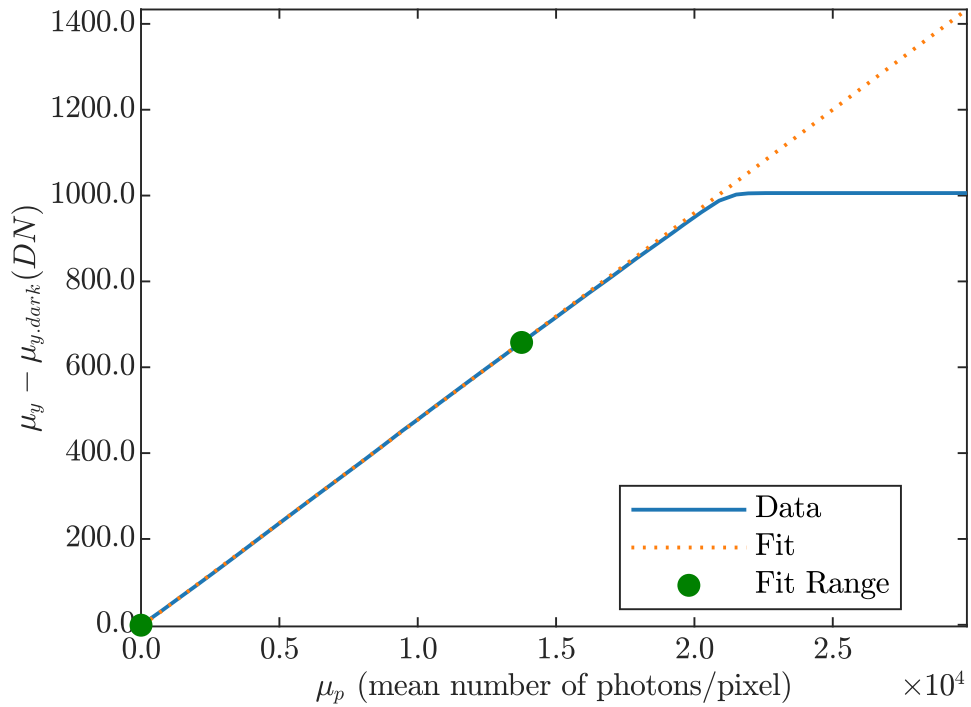
Performance

Quantum efficiency		
η	43.9503	%
System gain		
K	0.10864	DN/e ⁻
1/K	9.2048	e ⁻ /DN
Temporal dark noise		
σ_d	5.8348	e ⁻
$\sigma_{y, \text{dark}}$	0.69652	DN
Signal-to-noise ratio		
SNR _{max}	94.3651	
	39.4962	dB
	6.5602	bit
1/SNR _{max}	1.0597	%
Absolute sensitivity threshold		
$\mu_{e, \text{min}}$	6.9113	e ⁻
$\mu_{e, \text{min, area}}$	0.67493	e ⁻ /μm ²
Saturation capacity		
$\mu_{e, \text{sat}}$	8904.7809	e ⁻
$\mu_{e, \text{sat, area}}$	869.6075	e ⁻ /μm ²
Dynamic range		
DR	1288.4317	
	62.2012	dB
	10.3314	bit
Spatial nonuniformities		
DSNU ₁₂₈₈	40.0743	e ⁻
DSNU _{1288, col}	31.501	e ⁻
DSNU _{1288, row}	6.4771	e ⁻
DSNU _{1288, pix}	23.9099	e ⁻
PRNU ₁₂₈₈	0.43289	%
PRNU _{1288, col}	0.14309	%
PRNU _{1288, row}	0.065382	%
PRNU _{1288, pix}	0.4033	%
Linearity error		
LE	0.0021116	%
Dark current		
$\mu_{l, \text{mean}}$	NaN	e ⁻ /s
$\mu_{l, \text{var}}$	3312.7437	e ⁻ /s

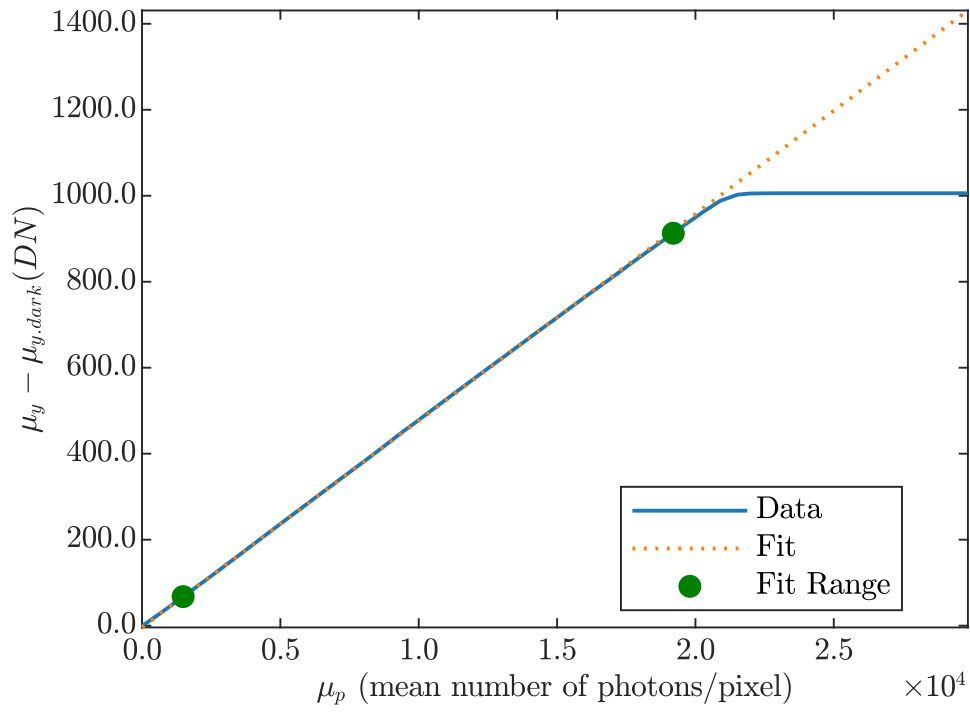
Stability check



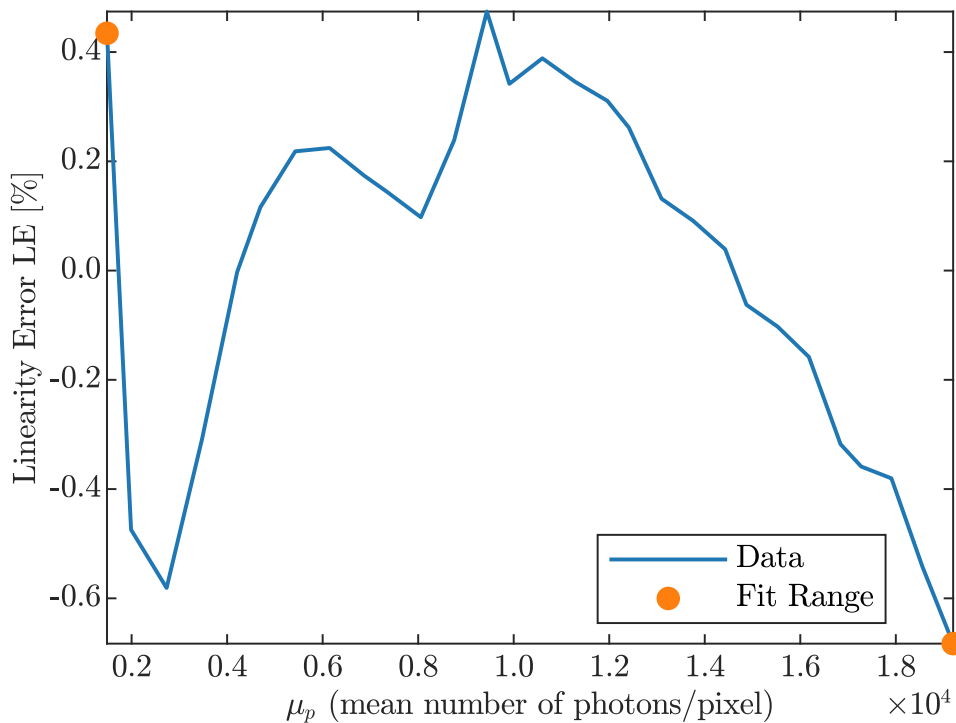
Sensitivity



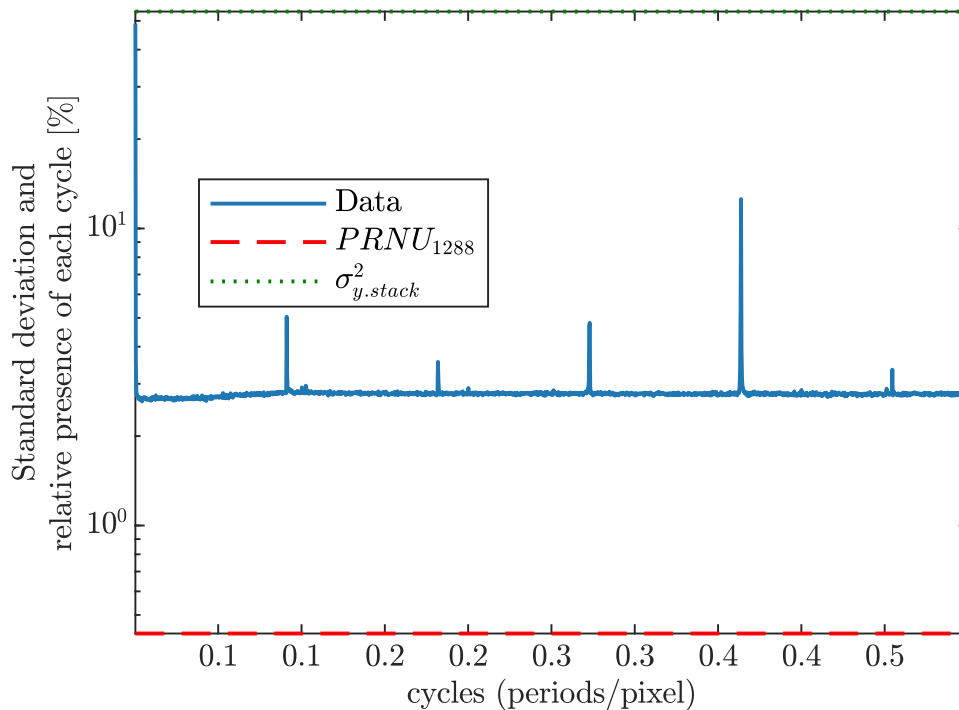
Linearity



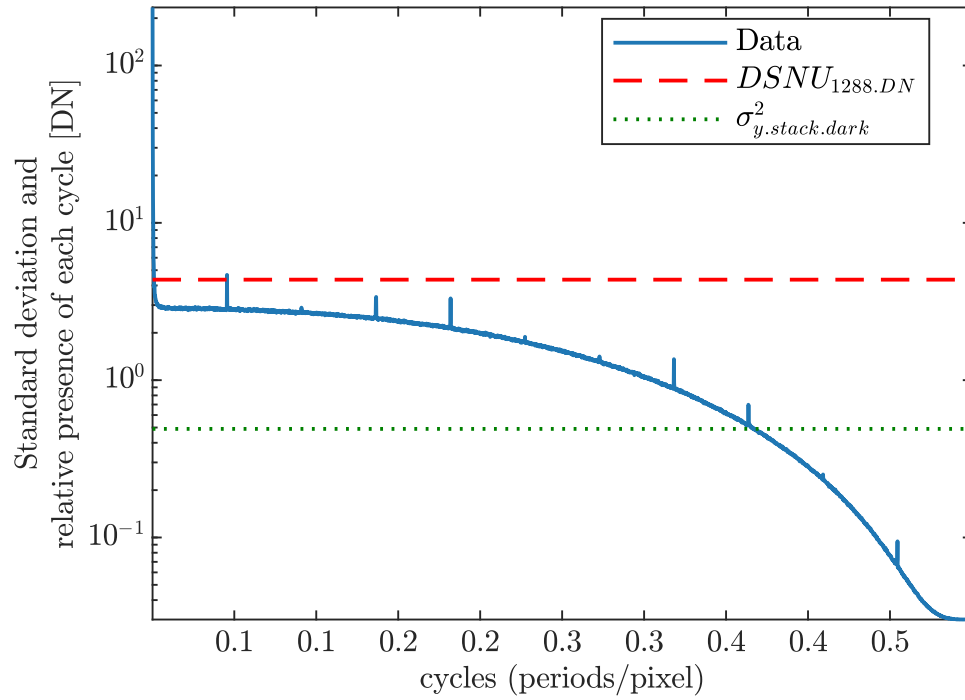
Deviation Linearity



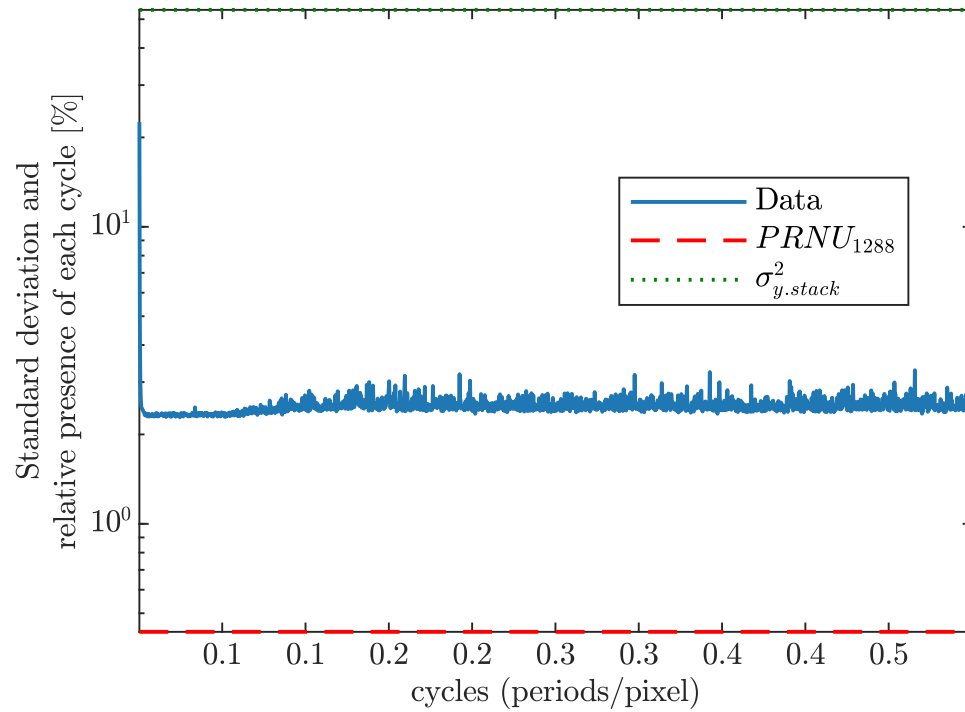
Horizontal Spectrogram PRNU



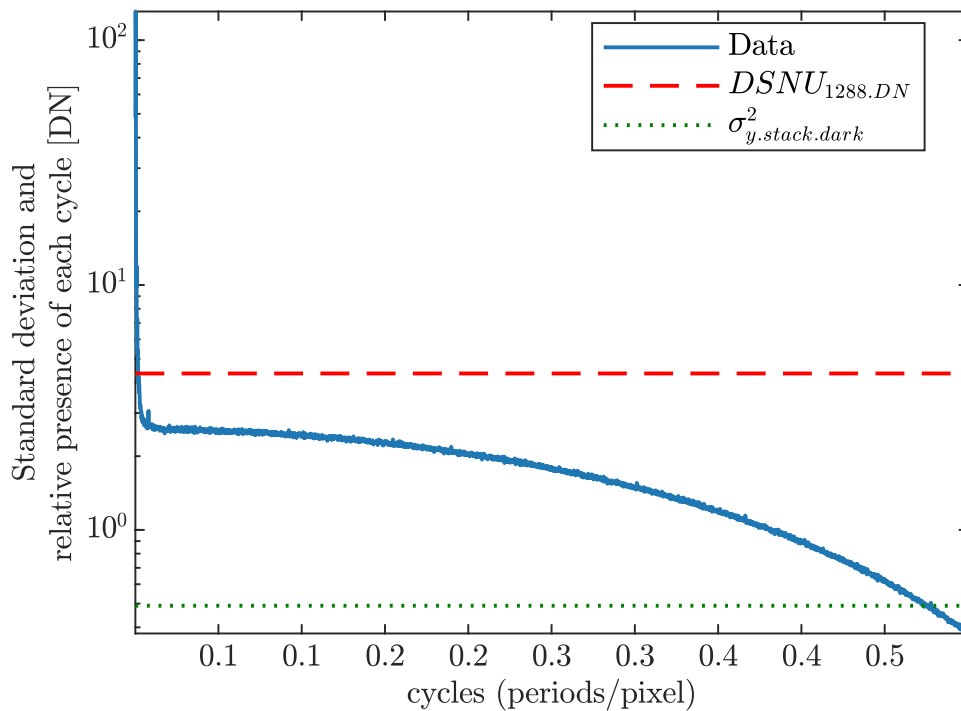
Horizontal Spectrogram DSNU



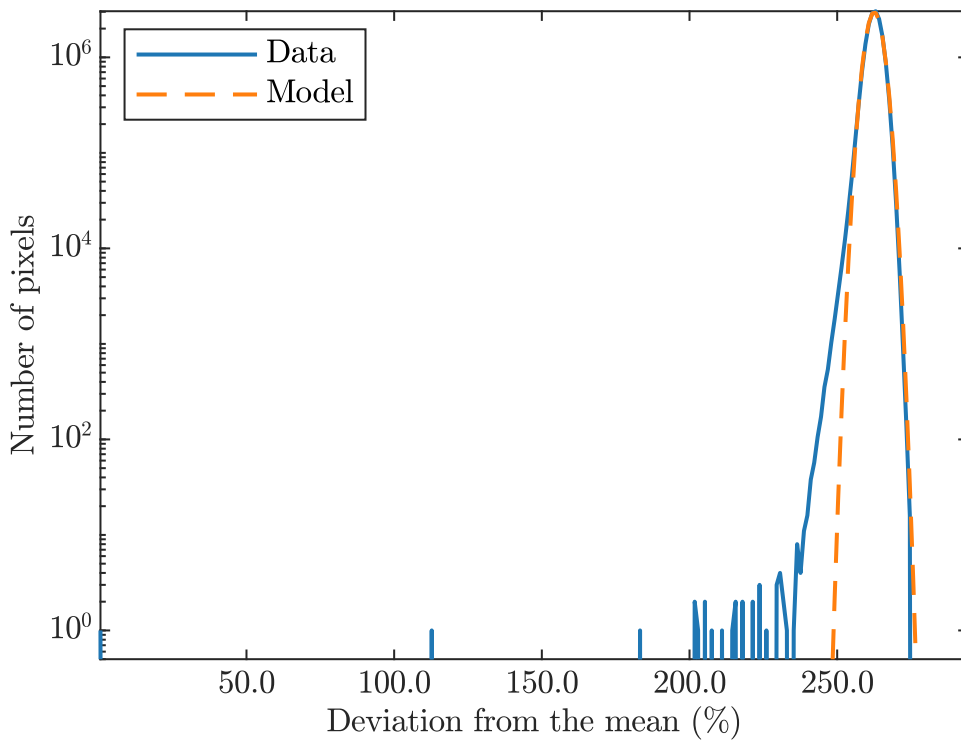
Vertical Spectrogram PRNU



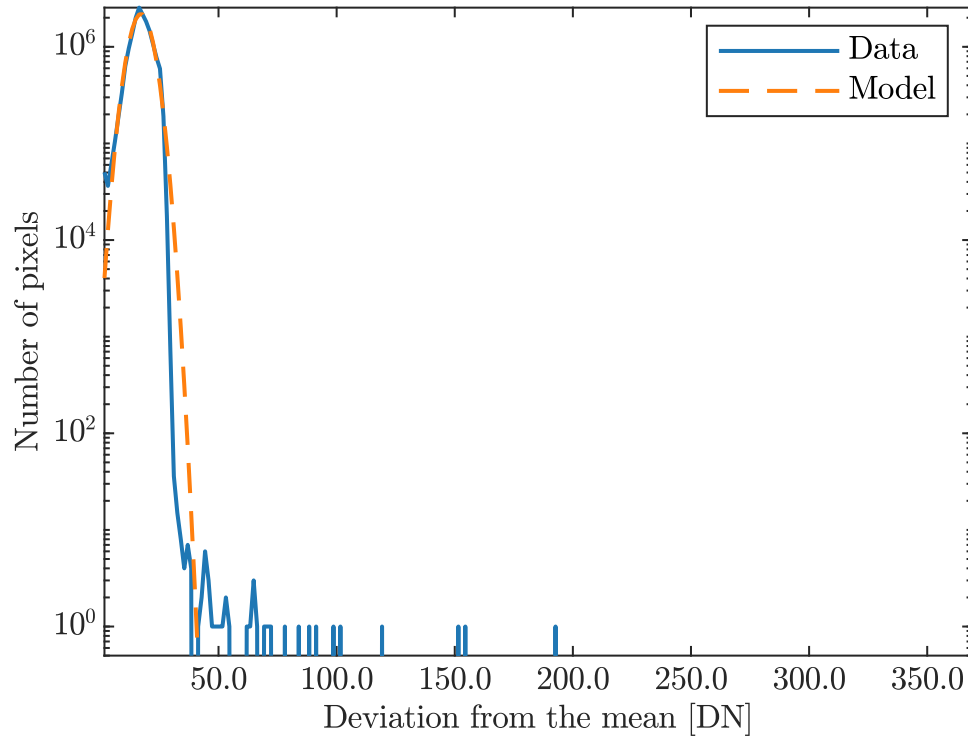
Vertical Spectrogram DSNU



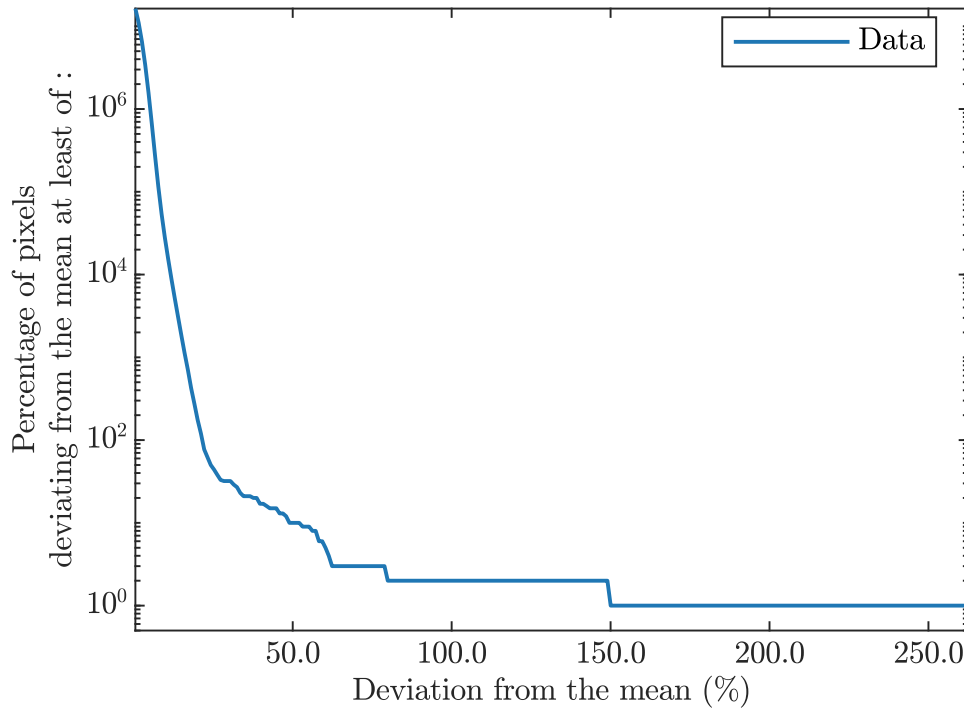
Logarithmic Histogram PRNU



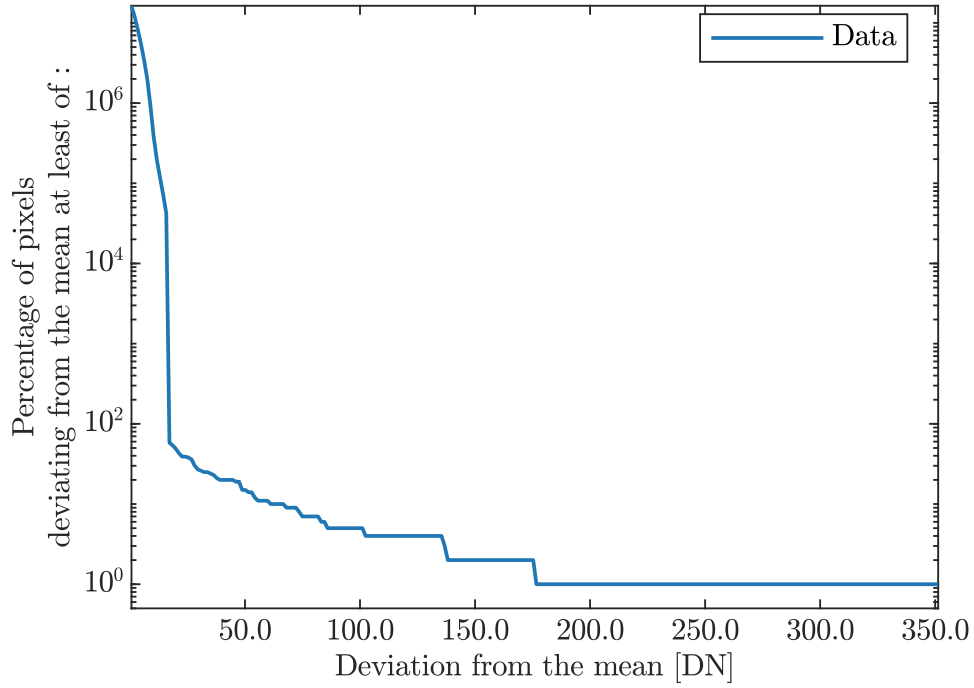
Logarithmic Histogram DSNU



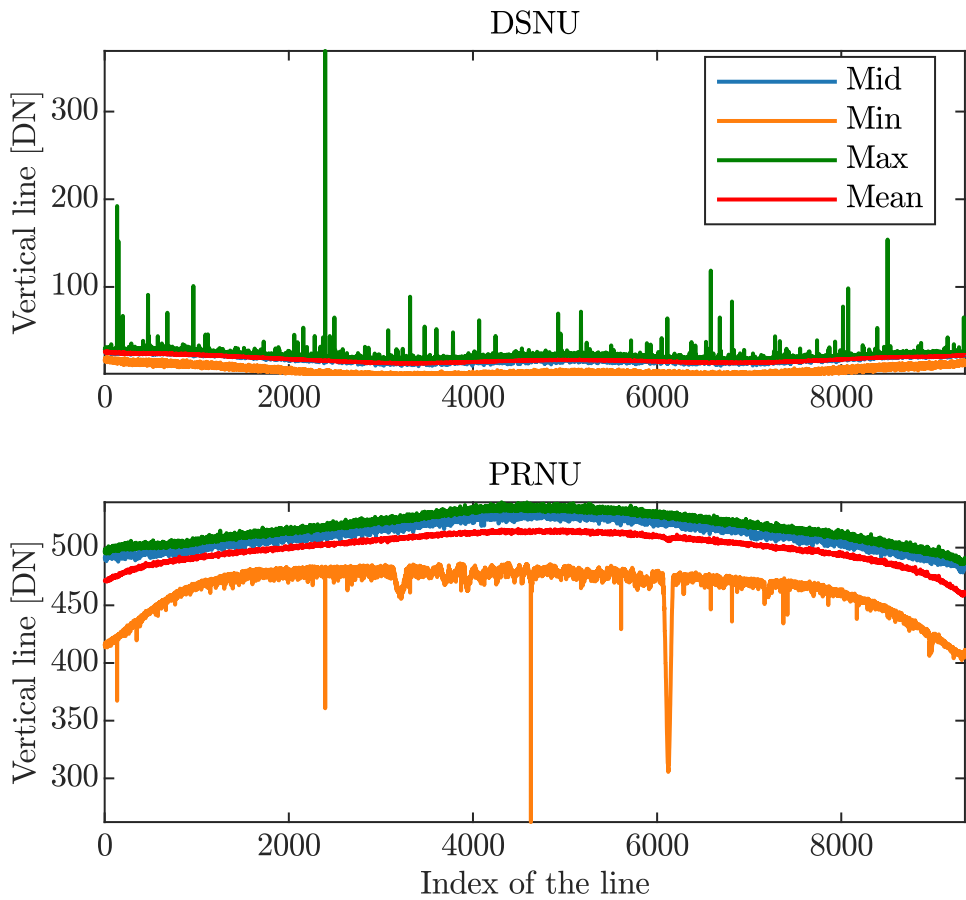
Accumulated Log Histogram PRNU



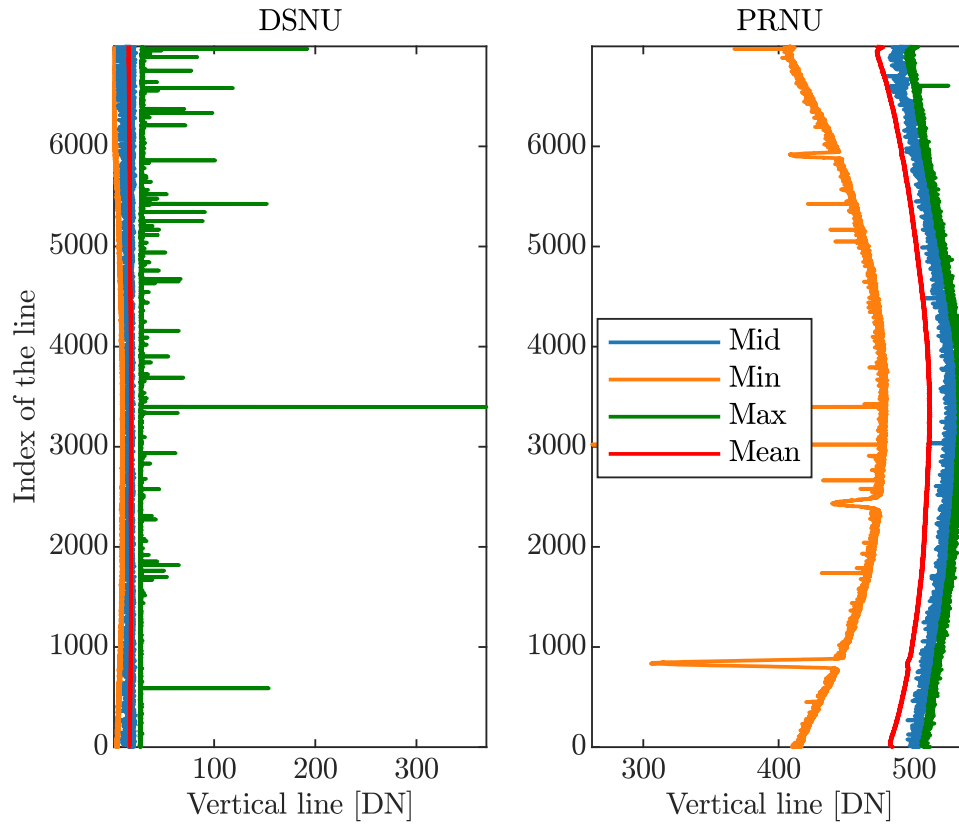
Accumulated Log Histogram DSNU



Horizontal Profile

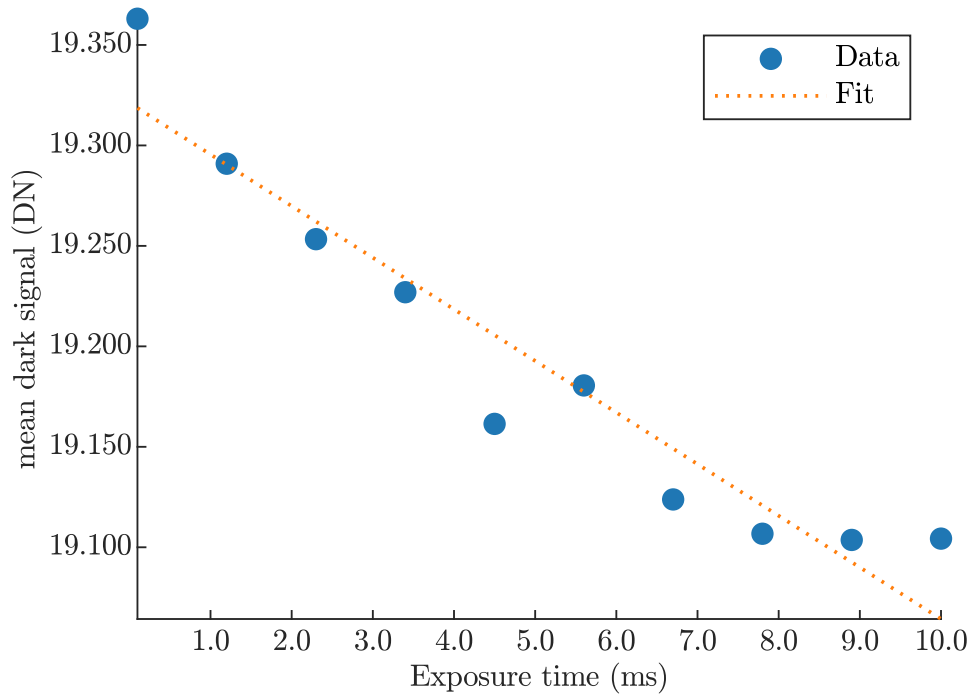


Vertical Profile

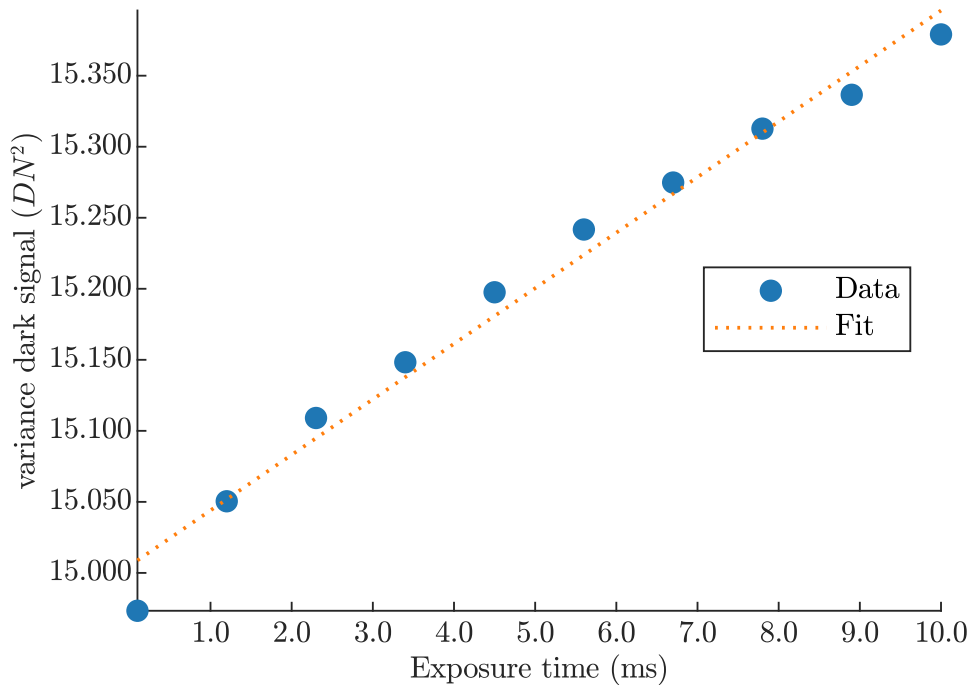


Dark Current

Dark Current from Mean



Dark Current from Variance



International Distributor



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