EMVA 1288 Datasheet

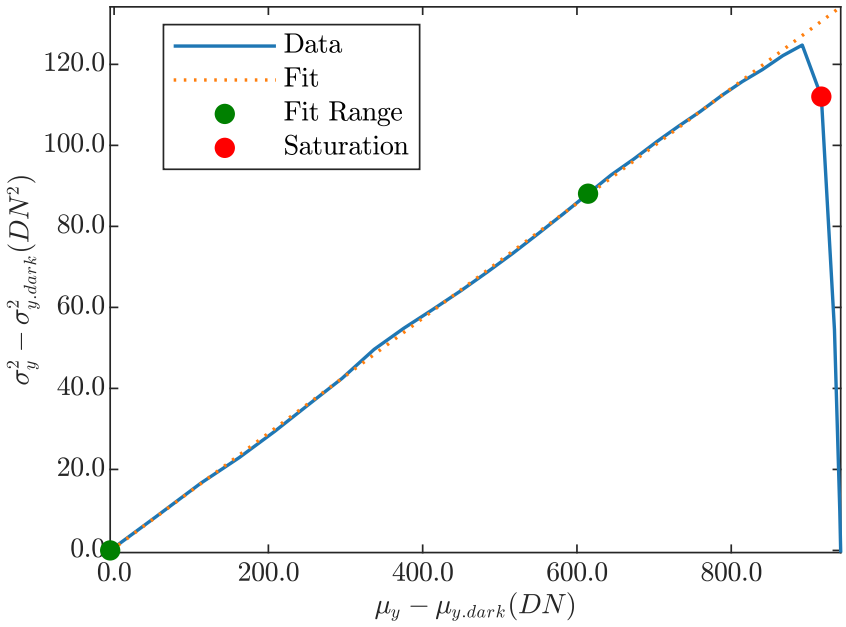
This datasheet describes the specification according to the standard 1288 Standard for Characterization and Presentation of Specification Data for Image Sensors and Cameras of European Machine Vision Association (EMVA) (See www.standard1288.org).

Vendor	KAYA Instruments	Sensor diagonal	15.2mm
Model	Iron2518HS-M	Sensor	GMAX2518
Camera type	Monochrome	Sensor type	CMOS
Date	28-Feb-2023 14:38:49	Shutter type	Global
Data type	Single	Overlap capabilities	Overlapping
Sensor type	CMOS	Frame rate	100 Hz
Lens category	C-Mount	Exposure control	by irradiance
Resolution	4504 x 4096 ,10 bits	Exposure time	2250.125 μs
Pixel size	2.5μm x 2.5μm	Illumination	Variable with constant exposure time
Maximum readout rate	139 fps	Irradiation Steps	50
Dark current compensation	No	Irradiation calibration accuracy	-
Interface type	CXP-12	Irradiation measurement error	-
Serial number	2305073	Standart version	4.0 Linear
Firmware version	2.2.2-2023.2.27	Light source	Integrating Sphere

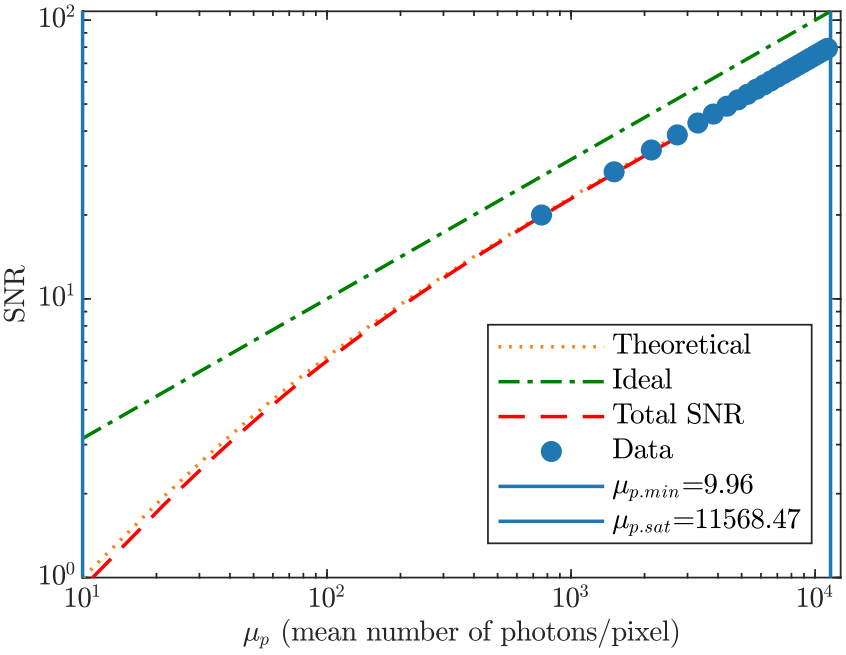
Summary Sheet for Operation Point 1 at a Wavelength of 520 nm

Camera setting		Operation point parameters	
Gain	1.75	Environmental temperature	23.12
Black level	-500	Camera body temperature	42.93
		Sensor temperature	49
		Processor temperature	50

Photon Transfer



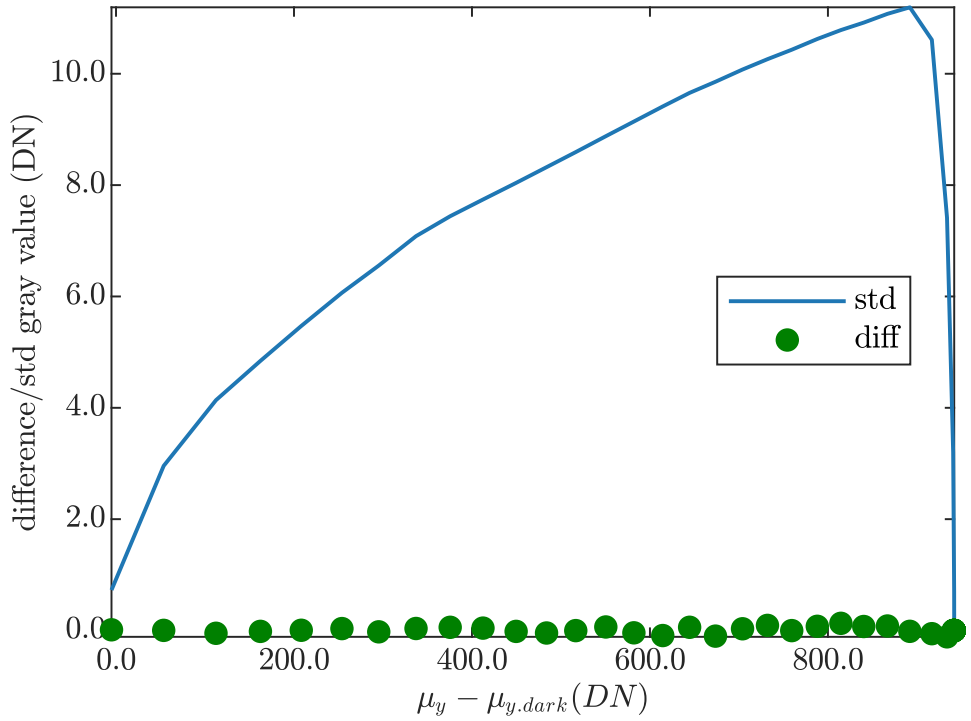
Signal-to-Noise Ratio



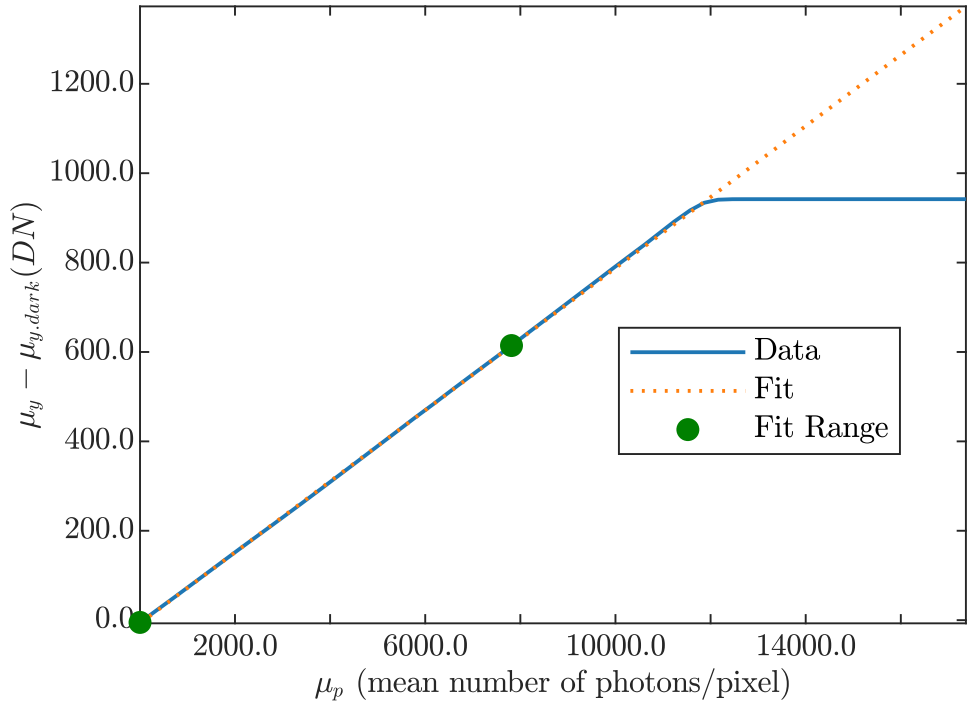
Performance

Quantum efficiency		
η	56.0209	%
System gain		
K	0.14189	DN/e^-
1/K	7.0476	e^-/DN
Temporal dark noise		
σ_d	4.6564	e^-
$\sigma_{y.dark}$	0.72102	DN
Signal-to-noise ratio		
SNR_{max}	80.5031	
	38.1163	dB
	6.331	bit
$1/SNR_{max}$	1.2422	%
Absolute sensitivity threshold		
$\mu_{e.min}$	5.5814	e^-
$\mu_{e.min.area}$	0.89303	$e^-/\mu m^2$
Saturation capacity		
$\mu_{e.sat}$	6480.7545	e^-
$\mu_{e.sat.area}$	1036.9207	$e^-/\mu m^2$
Dynamic range		
DR	1161.131	
	61.2976	dB
	10.1813	bit
Spatial nonuniformities		
$DSNU_{1288}$	2.3442	e^-
$DSNU_{1288.col}$	0.86494	e^-
$DSNU_{1288.row}$	0.79898	e^-
$DSNU_{1288.pix}$	2.027	e^-
$PRNU_{1288}$	0.5071	%
$PRNU_{1288.col}$	0.16378	%
$PRNU_{1288.row}$	0.08269	%
$PRNU_{1288.pix}$	0.47275	%
Linearity error		
LE	0.0031099	%
Dark current		
$\mu_{I.mean}$	1989.4645	e^-/s
$\mu_{I.var}$	6.3279	e^-/s

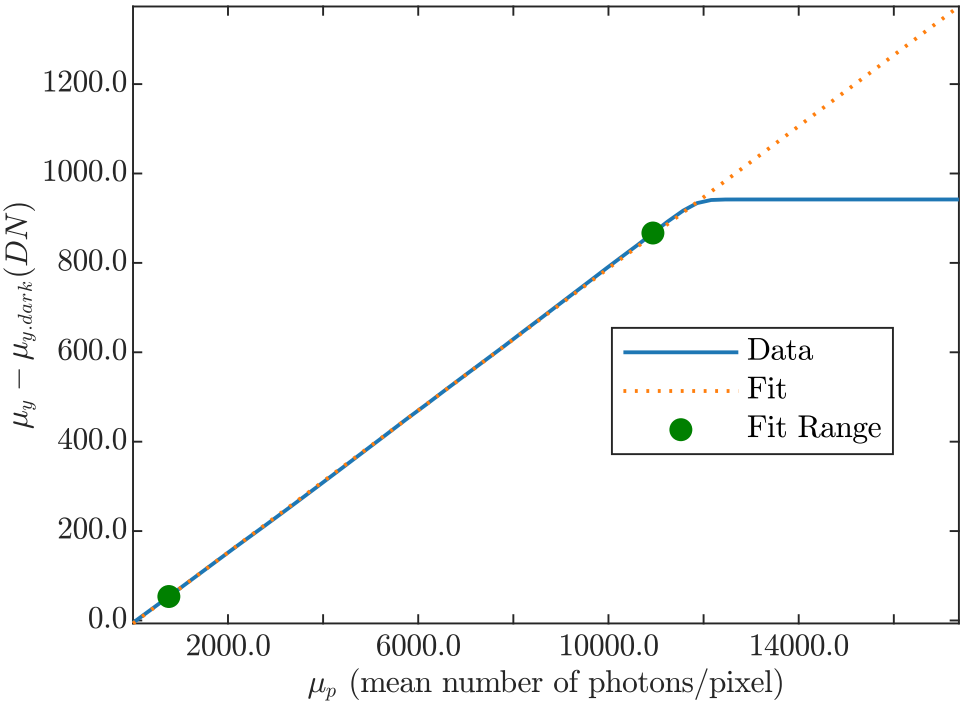
Stability check



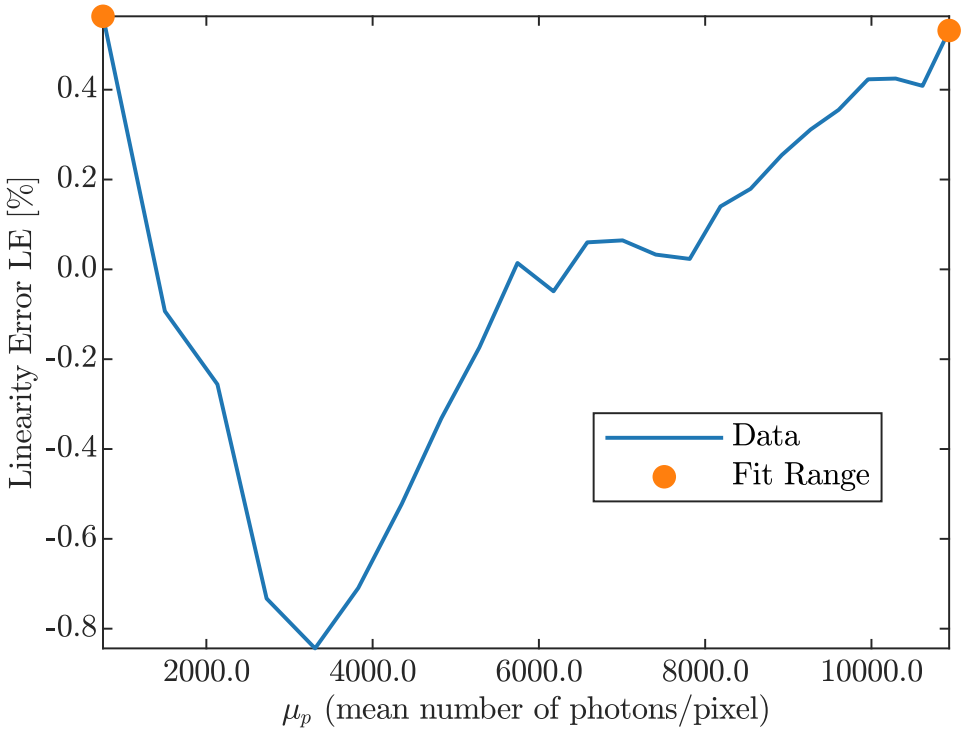
Sensitivity



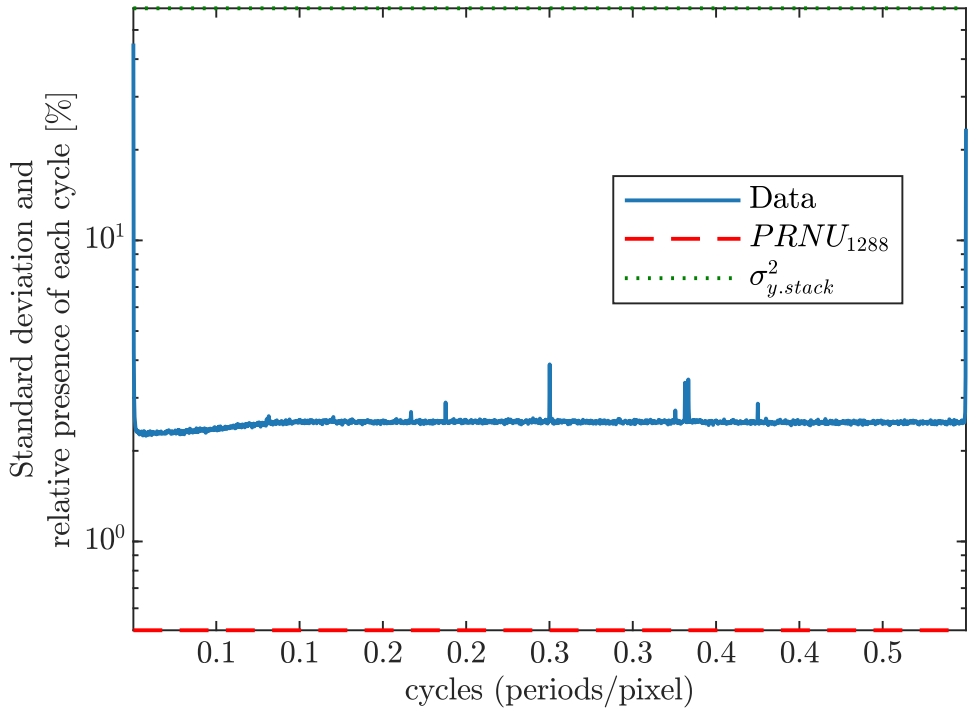
Linearity


1200.0
1000.0
800.0
600.0
400.0
200.0
0.0
2000.0
6000.0
10000.0
14000.0
$\mu_y - \mu_{y.dark}(DN)$
μ_p (mean number of photons/pixel)
Data
Fit
Fit Range

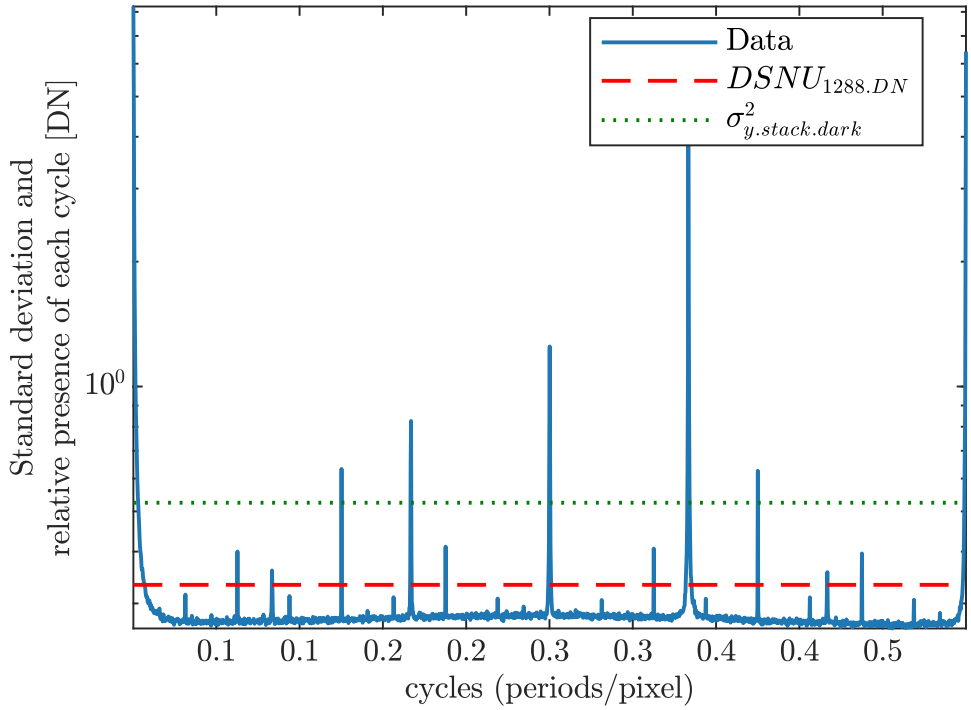
Deviation Linearity



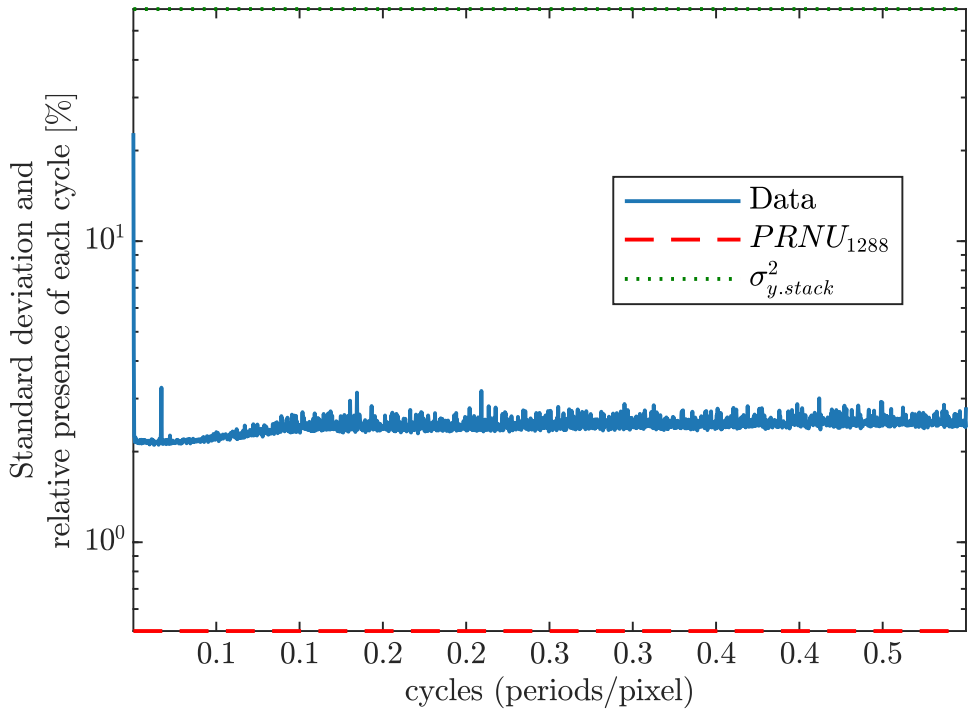
Horizontal Spectrogram PRNU



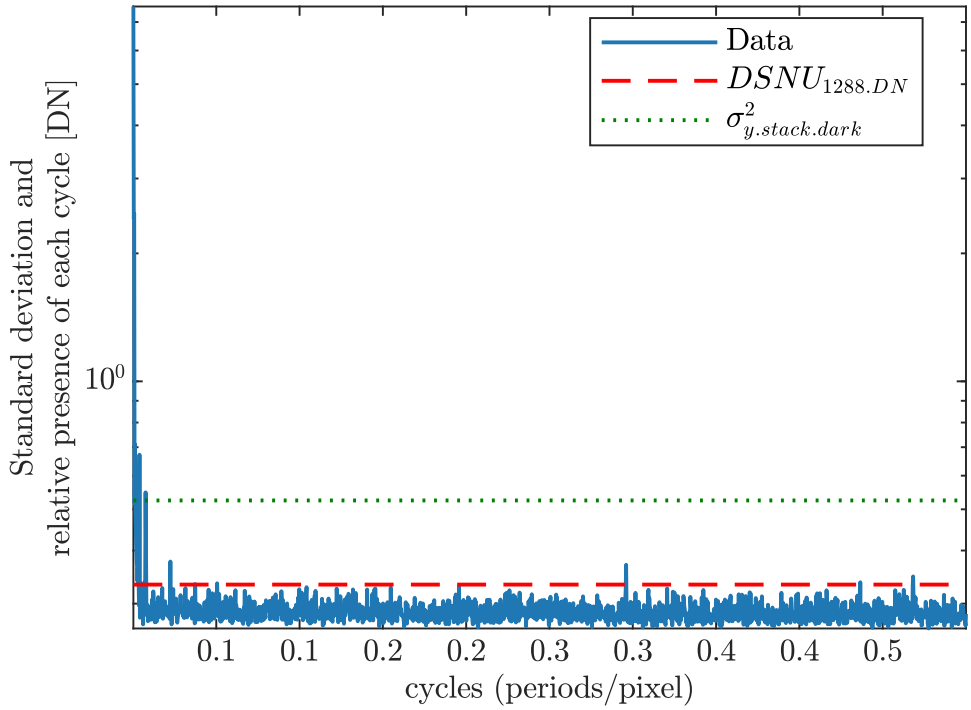
Horizontal Spectrogram DSNU



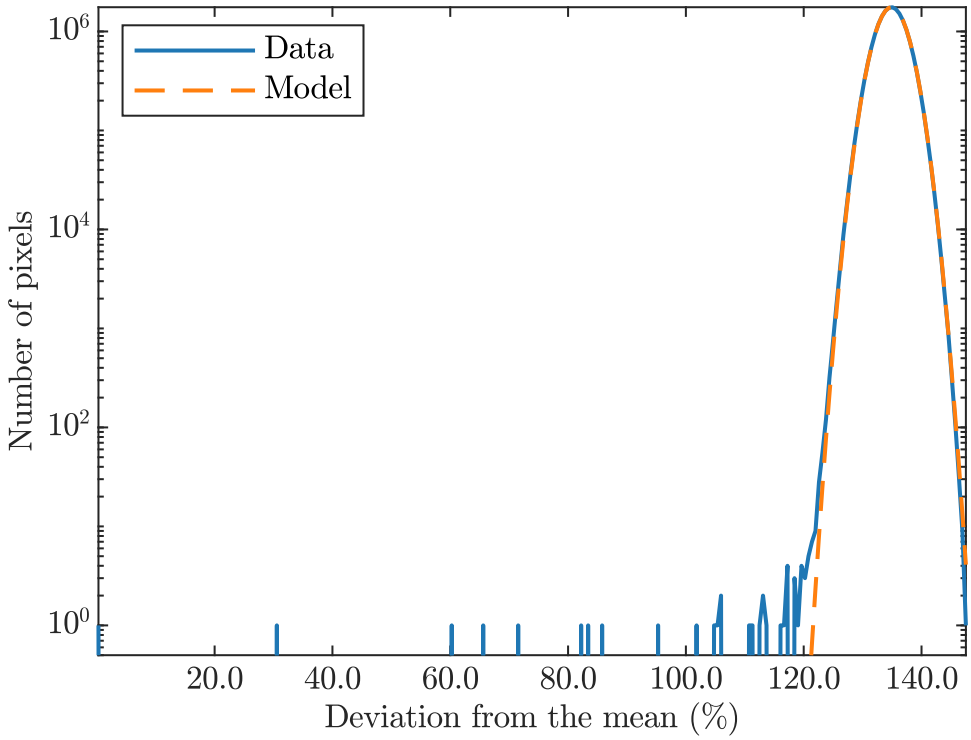
Vertical Spectrogram PRNU



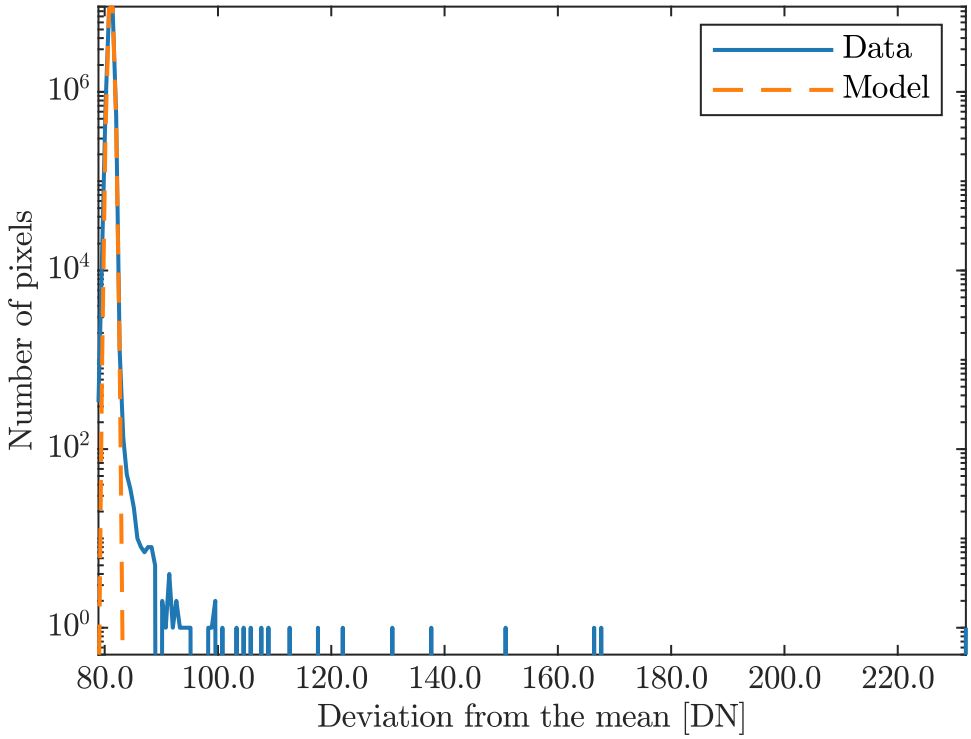
Vertical Spectrogram DSNU



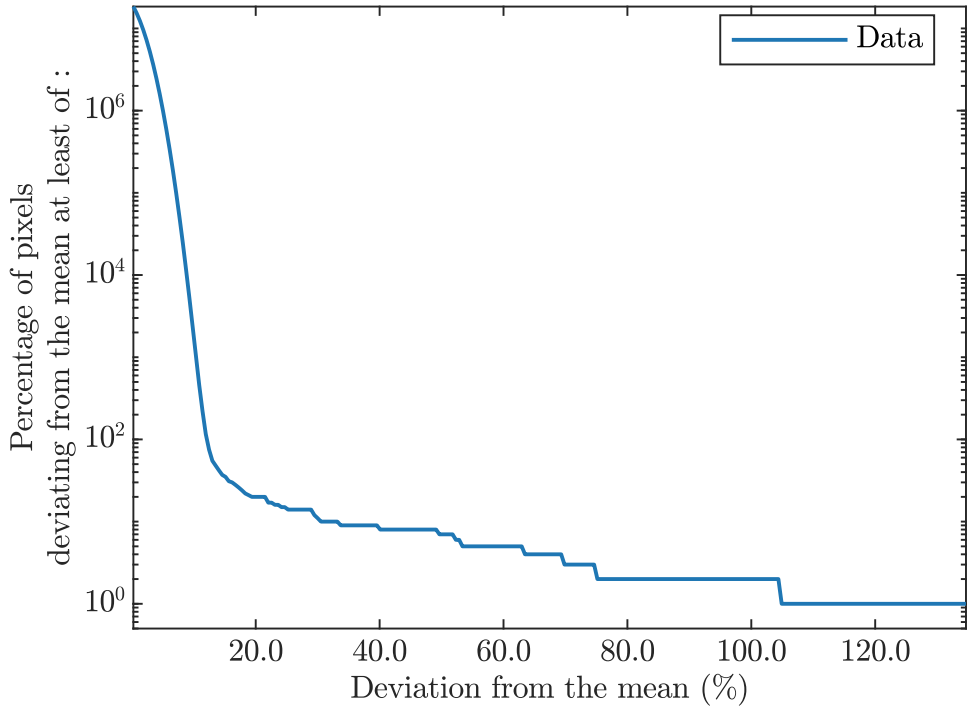
Logarithmic Histogram PRNU



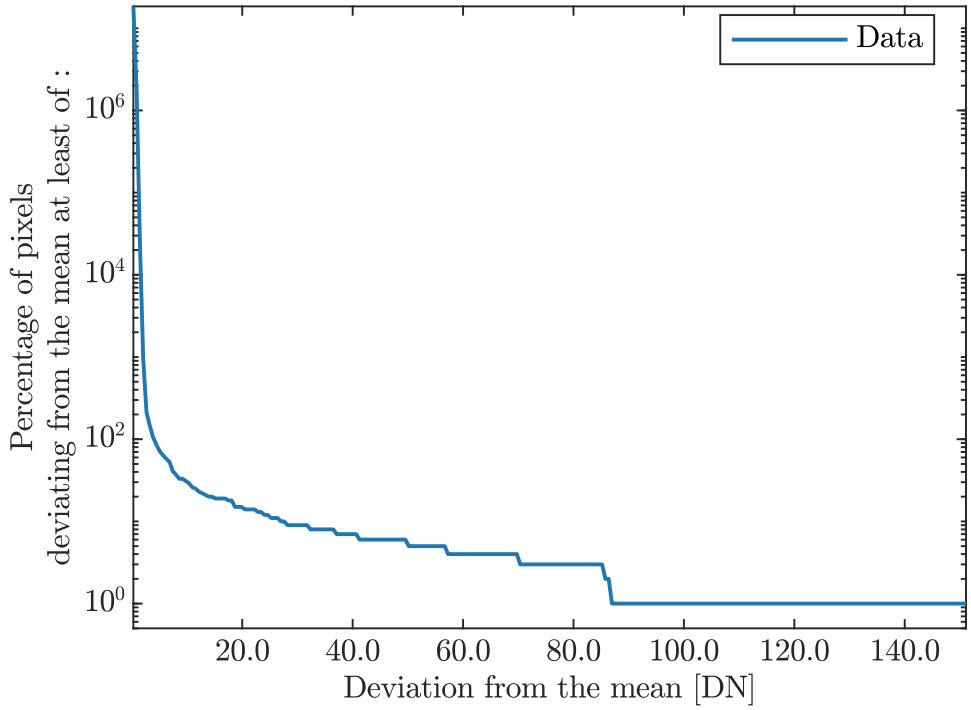
Logarithmic Histogram DSNU



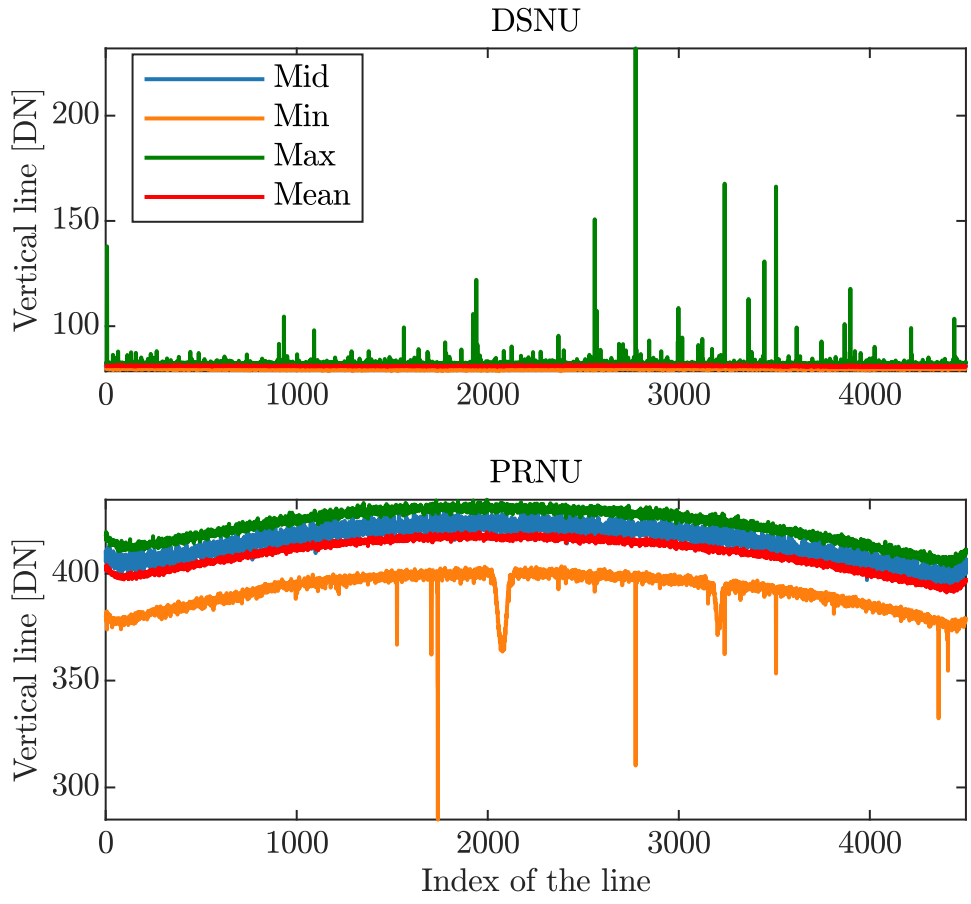
Accumulated Log Histogram PRNU



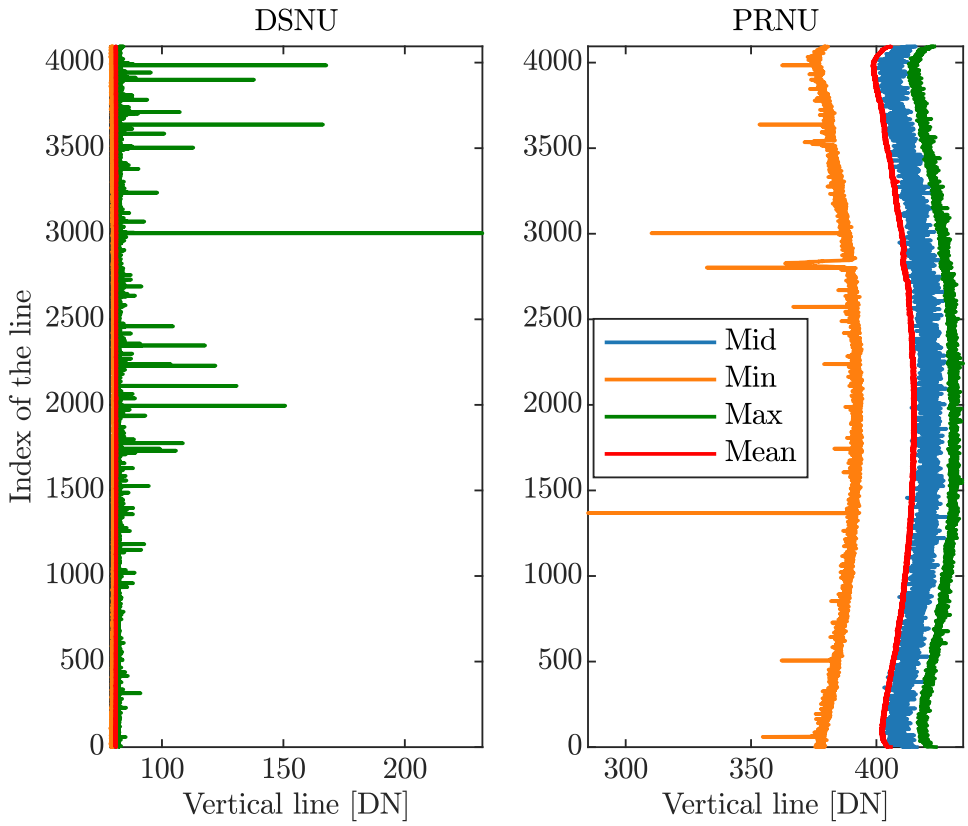
Accumulated Log Histogram DSNU



Horizontal Profile

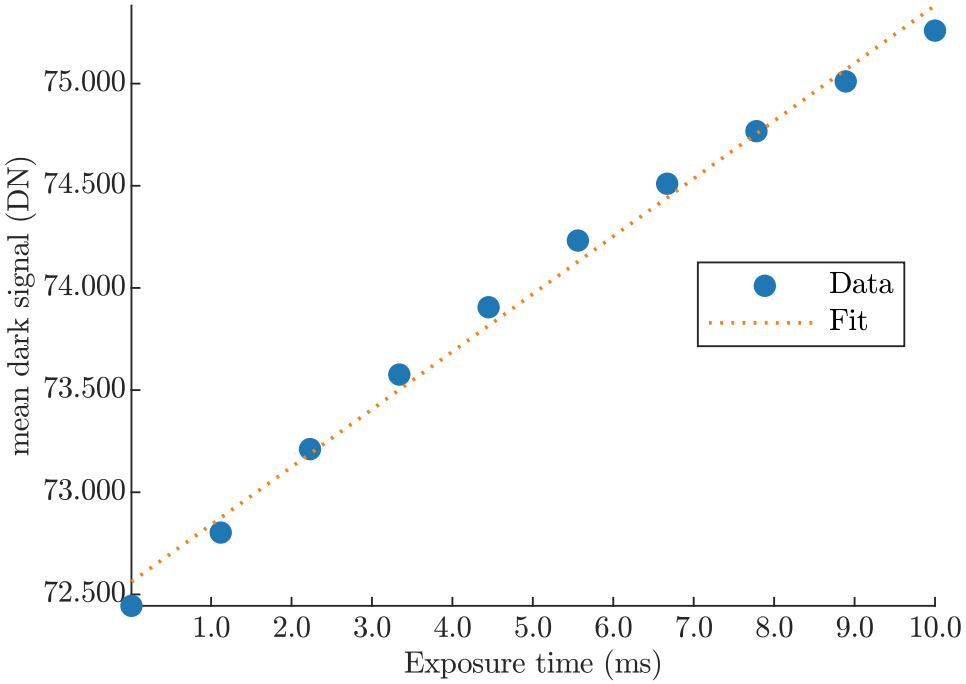


Vertical Profile



Dark Current

Dark Current from Mean



Dark Current from Variance