

Teledyne Detector Characterization for estimation hw capabilities with the aspect of use in CT (hw binning1)



user

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Глава 1. ROI stat

Таблица 1.1. Configuration

SDD	347 mm
HV	130 kV
Current	50 mkA
Exposure	200 ms
ROI shots number	1000
FFC avg	150
ROI size	100x100

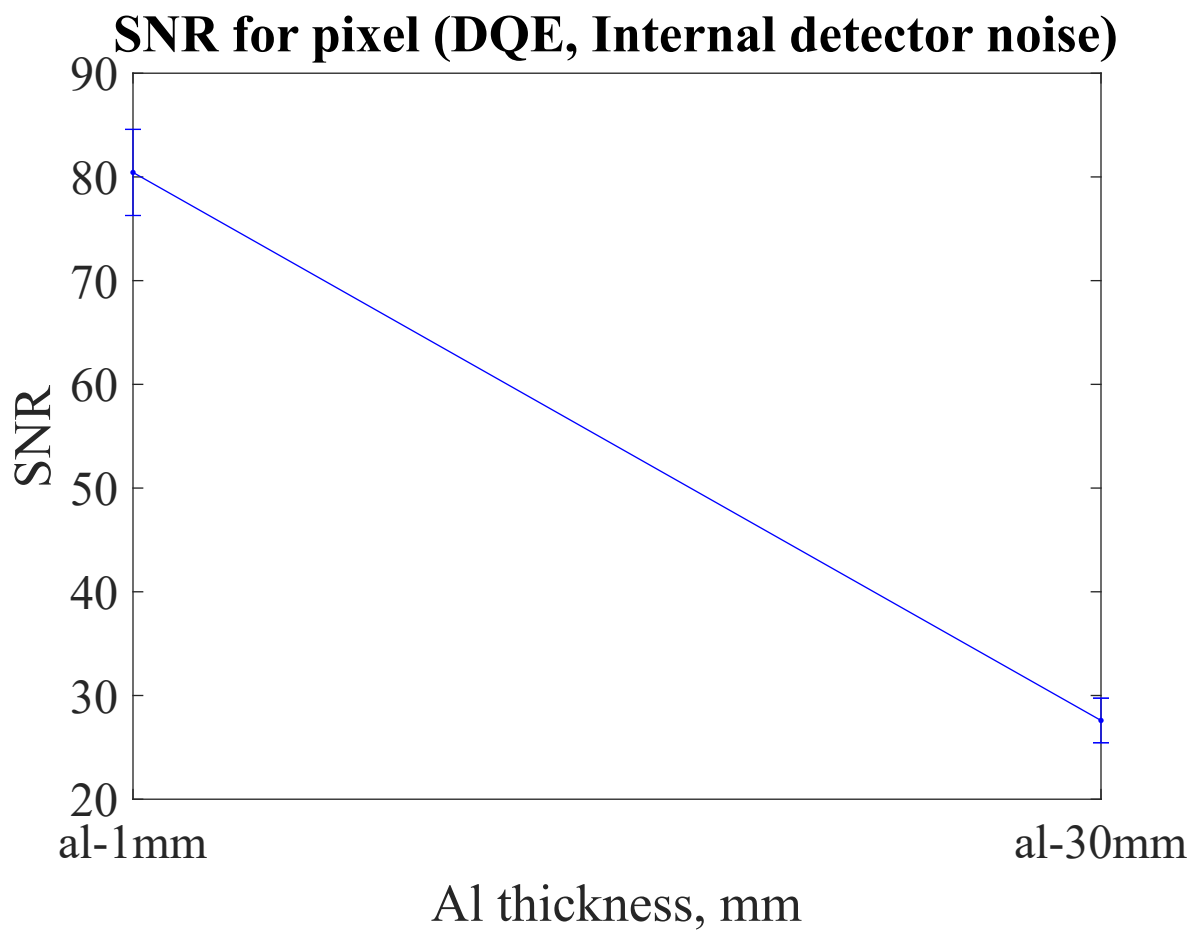


Рисунок 1.1. SNR is calculated as division of the signal by its deviation. In the same conditions can be compared with other detectors.

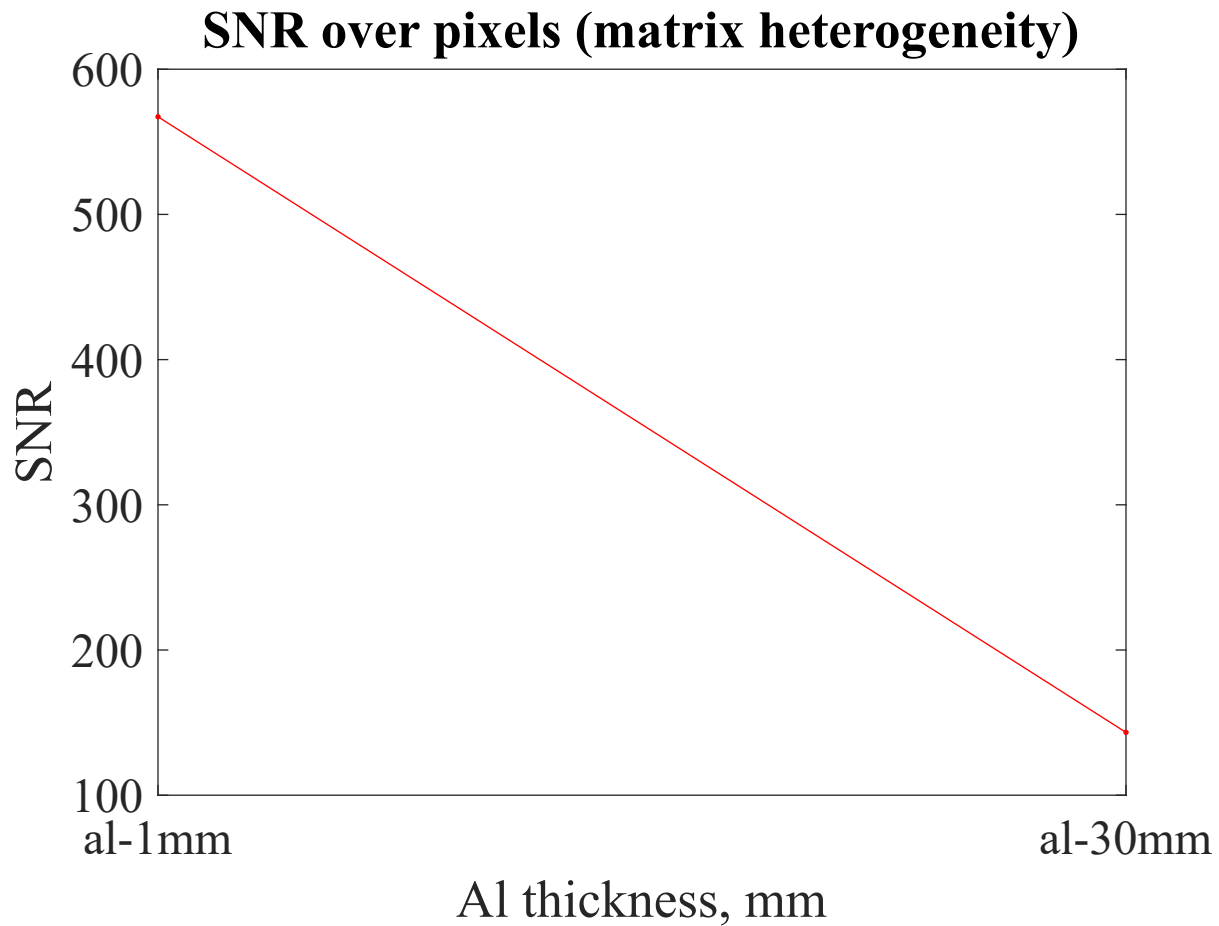


Рисунок 1.2. One of the most important characteristic for CT. It estimates fundamental detector heterogeneity over pixels. Its impossible to get CT image with noise less than this characteristic, because averaging doesnt effect on it. The calculation process involves gathering huge statistics such that poisson noise implied not affecting the result. Then STD over pixels is calculated using the same spectrum conditions for them.

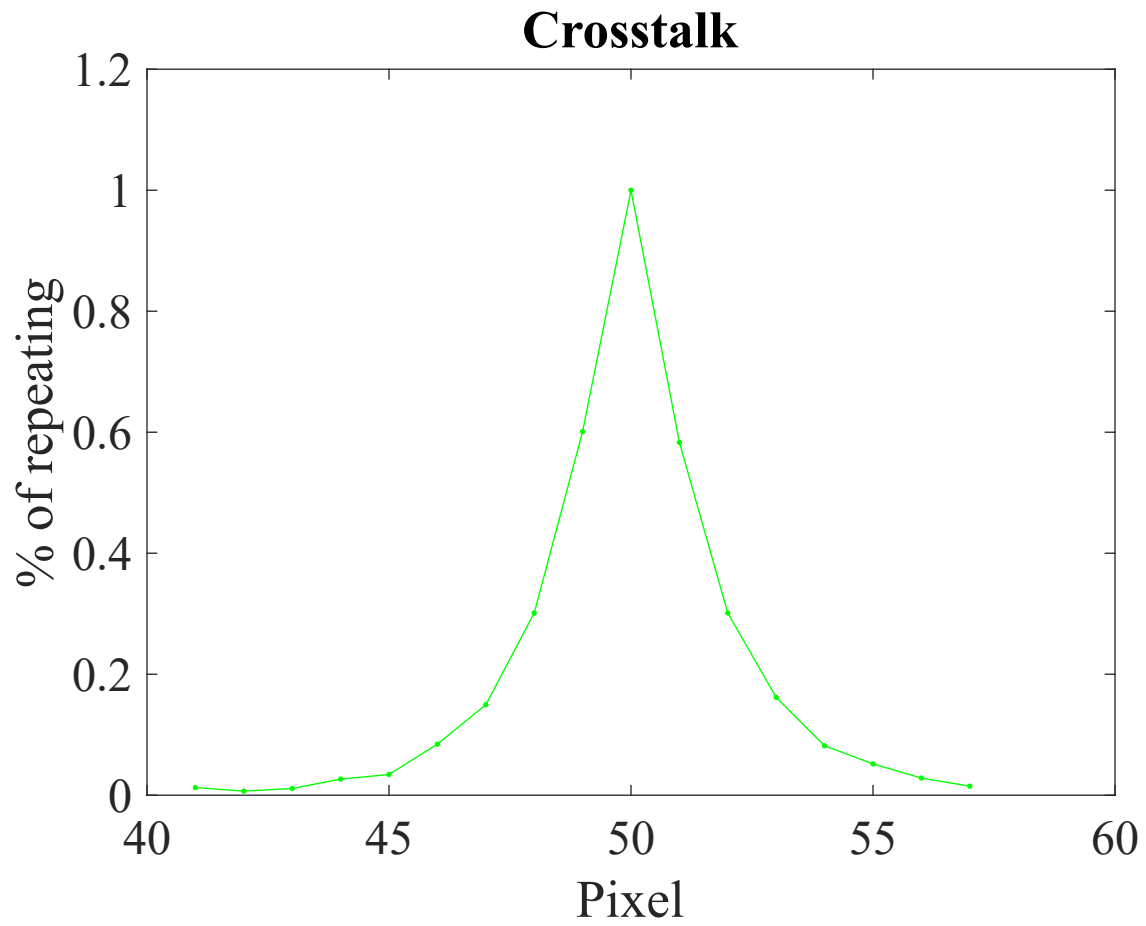


Рисунок 1.3. Crosstalk is calculated by stat analyse. It effects on binning effeciency as well as on spatial resolution.

Глава 2. Full frame stat

Таблица 2.1. Configuration

SDD	347 mm
HV	130 kV
Current	50 mkA
Exposure	700 ms
Avg	30
FFC avg	150

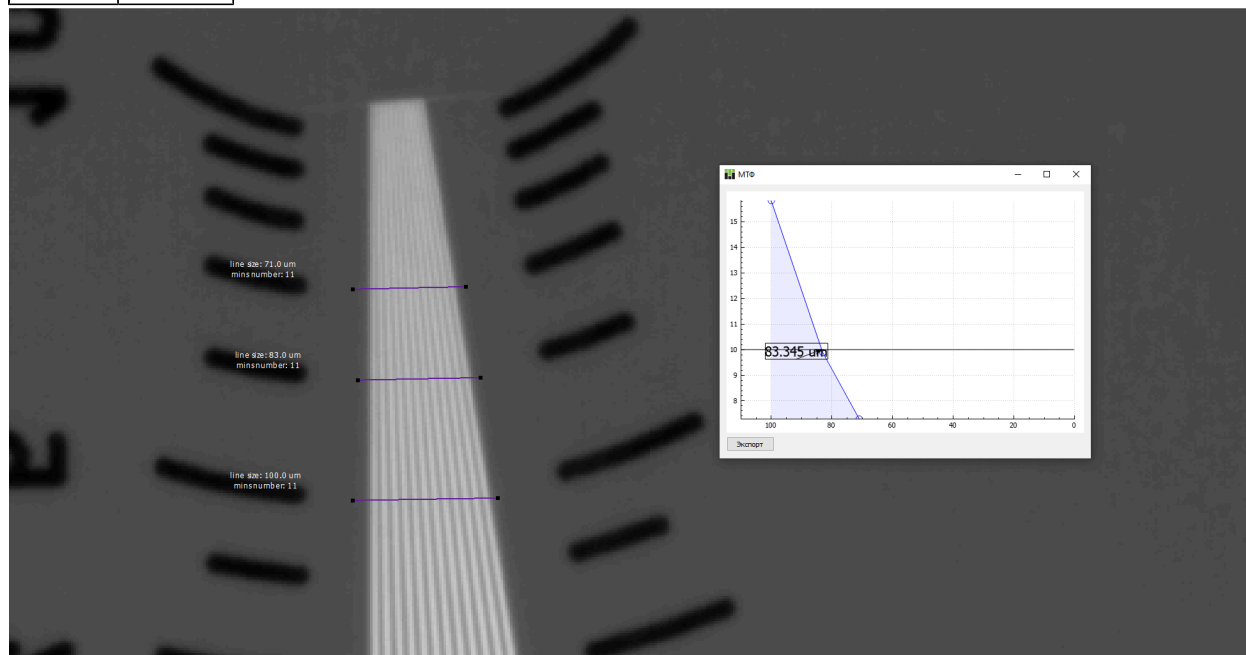
Таблица 2.2. Full frame stats

Dead pixels (<0.5mean)	10 (0.0003 %)
Hot pixels (>1.5mean)	0 (0.0000 %)
Heterogeneous pixels (>0.1meanR)	0 (0.0000 %)
Instability pixels (>0.02 dev/mean)	18 (0.0006 %)
Instability pixels x2 current test (>0.02 change)	427439 (14.2708 %)

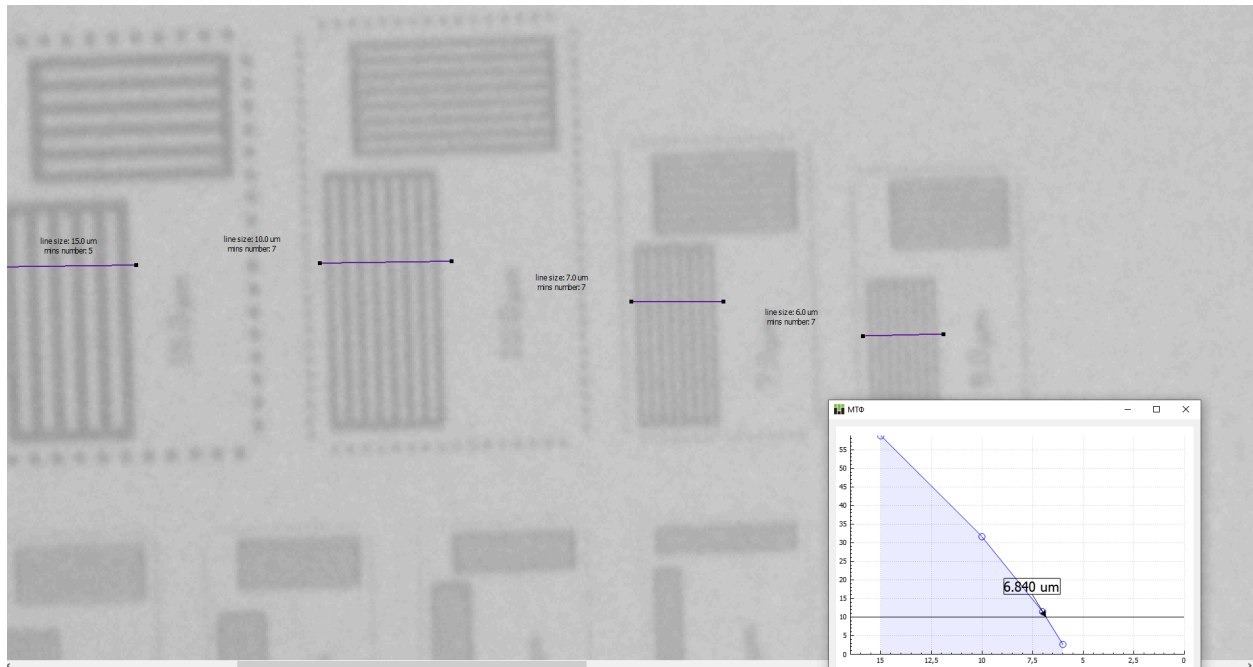
Глава 3. Resolution

Таблица 3.1. Configuration

SDD	347 mm
HV	130 kV
Current	50 mkA
Focus	8um



M1



M23

Таблица 3.2. Resolution

Magnification 1	83.34 um
Magnification 23	6.84 um