

## Interpretation and Measurements of the DQE of Medipix 2 Systems

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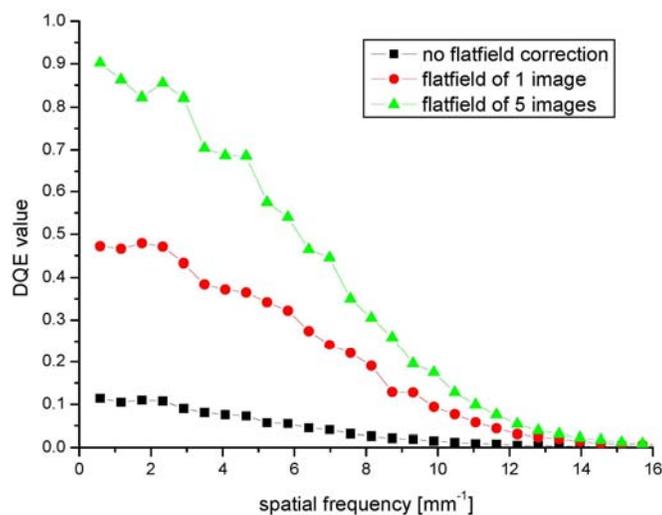
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The detective quantum efficiency (DQE) describes the signal noise added by the detector system, which is an important parameter to compare the performance of various detector systems and detector materials.

The DQE of the Medipix 2 system had been published with different interpretations by several members of the Medipix collaboration. The results of these papers will be discussed and compared to calculations of the DQE using the definition of the IEC standard [1]. In Figure 1 the DQE is plotted as a function of the spatial frequency with and without flatfield corrections. For a correction with 5 images the measured and calculated DQE is in excess of 90%. The measurements were performed with a 700  $\mu\text{m}$  thick silicon Medipix 2 system. The difference between the published values and our calculations is caused by the usage of the detectable incoming quanta as input instead of all incoming quanta.



**Figure 1:** Influence of flatfield corrections on the DQE of a Medipix 2 system with a 700  $\mu\text{m}$  thick silicon detector.

### References

- [1] - International standard IEC 62220-1  
Medical electrical equipment – Characteristics of digital X-ray imaging devices –  
Part 1: Determination of the detective quantum efficiency, 2003.
- [2] - G. Zanella and R. Zannoni, “The detective quantum efficiency of an imaging detector,”  
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