Temporal variation of the energy response

determined with the internal calibration source @ Al-K and Mn-K for the FF and eFF mode

Charge transfer inefficiency (CTI)

Energy resolution (FWHM)

Peak positions
Full Frame Mode

CTI @ Mn-K: Q0 & Q1

Temporal variation of the energy response

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Full Frame Mode

CTI @ Mn-K: Q2 & Q3

Temporal variation of the energy response

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Full Frame Mode

CTI @Mn-K: Quadrant 0

\[
\frac{d\text{CTI}}{dt} = + (1.3 \pm 0.0) \cdot 10^{-5} \text{ yr}^{-1}
\]

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Temporal variation of the energy response

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CTI (t) = a + b \cdot t + c \cdot t^2

a = + (4.1 \pm 0.0) \cdot 10^{-4}
b = + (1.8 \pm 0.2) \cdot 10^{-5} \text{ yr}^{-1}
c = - (1.6 \pm 0.7) \cdot 10^{-6} \text{ yr}^{-2}

Temporal variation of the energy response
Full Frame Mode

CTI @ Al-K: Q0 & Q1

Temporal variation of the energy response
Full Frame Mode

CTI @ Al-K: Q2 & Q3

Temporal variation of the energy response
Full Frame Mode

**CTI @ Al-K: Quadrant 0**

\[ \frac{d \text{CTI}}{dt} = + (0.8 \pm 0.2) \times 10^{-5} \text{ yr}^{-1} \]

Temporal variation of the energy response
CTI \( (t) = a + bt + ct^2 \)

- \( a = + (6.6 \pm 0.0) \cdot 10^{-4} \)
- \( b = + (1.6 \pm 0.6) \cdot 10^{-5} \text{ yr}^{-1} \)
- \( c = - (2.2 \pm 1.8) \cdot 10^{-6} \text{ yr}^{-2} \)
Extended Full Frame Mode

CTI @Mn-K: Quadrant 0

\[
d \frac{\text{CTI}}{dt} = + (1.2 \pm 0.1) \cdot 10^{-5} \text{ yr}^{-1}
\]

Temporal variation of the energy response
Extended Full Frame Mode

CTI @Mn-K: Quadrant 0

CTI (t) = a + b t + c t^2

Quadrant 0

a = + (4.1 +/- 0.0) \cdot 10^{-4}
b = + (1.5 +/- 0.6) \cdot 10^{-5} \text{ yr}^{-1}
c = - (1.2 +/- 1.7) \cdot 10^{-6} \text{ yr}^{-2}

Temporal variation of the energy response

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**FF and eFF Mode**

**CTI @Mn-K: Quadrant 0**

\[ CTI(t) = a + b t + c t^2 \]

- **Q0**
  - \( a = + (4.1 \pm 0.0) \times 10^{-4} \)
  - \( b = + (1.5 \pm 0.6) \times 10^{-5} \text{ yr}^{-1} \)
  - \( c = - (1.2 \pm 0.7) \times 10^{-6} \text{ yr}^{-2} \)

**Temporal variation of the energy response**
Full Frame Mode
Peak position @ Al-K: Q0 & Q1

Temporal variation of the energy response
Full Frame Mode

Peak position @ Al-K: Q2 & Q3

Temporal variation of the energy response
Full Frame Mode

Peak position @ Mn-K: Q0 & Q1

Temporal variation of the energy response
Full Frame Mode

Peak position @ Mn-K: Q2 & Q3

Temporal variation of the energy response
Extended Full Frame Mode
Peak position @ Al-K: Q0 & Q1

Temporal variation of the energy response
Extended Full Frame Mode
Peak position @ Al-K: Q2 & Q3

Temporal variation of the energy response
Extended Full Frame Mode

Peak position @ Mn-K: Q0 & Q1
Extended Full Frame Mode

Peak position @ Mn-K: Q2 & Q3

Temporal variation of the energy response
Full Frame Mode

Energy resolution @ Al-K: Q0 & Q1

Temporal variation of the energy response
Full Frame Mode
Energy resolution @ Al-K: Q2 & Q3

Temporal variation of the energy response
Full Frame Mode

Energy resolution @ Al-K: Quadrant 0

Quadrant 0

d FWHM / dt = + (0.03 +/- 0.03) adu / yr

Temporal variation of the energy response
Full Frame Mode
Energy resolution @ Mn-K: Q0 & Q1

Temporal variation of the energy response  
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Full Frame Mode

Energy resolution @ Mn-K: Q2 & Q3

Temporal variation of the energy response
Full Frame Mode

Energy resolution @Mn-K: Quadrant 0

Temporal variation of the energy response

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Extended Full Frame Mode

Energy resolution @ Al-K: Q0 & Q1

Temporal variation of the energy response
Extended Full Frame Mode

Energy resolution @ Al-K: Q2 & Q3

Temporal variation of the energy response
Extended Full Frame Mode

Energy resolution @ Al-K: Quadrant 0

Temporal variation of the energy response
Extended Full Frame Mode
Energy resolution @ Mn-K: Q0 & Q1

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Temporal variation of the energy response
Saclay/France, 2003 Sept 24-25
Extended Full Frame Mode

Energy resolution @ Mn-K: Q2 & Q3

Temporal variation of the energy response

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Saclay/France, 2003 Sept 24-25
Extended Full Frame Mode

Energy resolution @ Mn-K: Quadrant 0

\[
\frac{d \text{ FWHM}}{d t} = + (0.39 \pm 0.05) \text{ adu/yr}
\]

Temporal variation of the energy response

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Saclay/France, 2003 Sept 24-25
FF and eFF Mode

Energy resolution @Mn-K: Quadrant 0

Temporal variation of the energy response