

XMM-Newton CCF Release Note

XMM-CCF-REL-63

XRT PSF Parameterization for RGS

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1 CCF components

| Name of CCF | VALDATE | List of Blocks changed | CAL VERSION | XSCS flag |
|----------------|---------------------|------------------------|----------------------|-----------|
| XRT1_XPSF_0004 | 2000-01-13T00:00:00 | BETAPSF | xmmsas_20001207_0215 | NO |
| XRT2_XPSF_0004 | 2000-01-13T00:00:00 | BETAPSF | xmmsas_20001207_0215 | NO |

2 Changes

The table BETAPSF was changed to contain the parameterization of the PSF by A. Rasmussen [1].

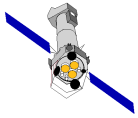
3 Scientific Impact of this Update

The mirror PSF is part of the convolution to derive the LSF of RGS. Only the distribution along the RGS dispersion direction is used.

This parameterization, which was derived from EPIC data, was used for the optimization of the RGA parameters to improve the deescription of the RGS LSF.

4 Estimated Scientific Quality

This change, together with the updates of RGS_LINESPREADFUNC bring the modelling of the RGS in line with the best current knowlegde.



This should cure the problem of the LSF of being too narrow, as being previously derived by `rgsrmfgen`. It was found that when using the response matrix from `rgsrmfgen`, due to the narrow SAS LSF the superposition of all modeled wings is not sufficient to describe the pseudo-continuum created by the true data superposition of the wings. Also near a bright line, there are more points close to the “background” than in the line, therefore the fitting procedure tries to put the model within the error bars of these points (the surrounding continuum has a larger weight than the line). These two effects force the fitting program to add a featureless continuum, basically a high-T component.

References

- [1] A. Rasmussen. *Tuning and Assessment of the RGS LSF model appropriate for Response Matrix Generation*. RGS-COL-CAL-01002, Columbia, March 2001. http://xmm.astro.columbia.edu/cal_files/cal01002.ps.