

# XMM-Newton CCF Release Note

XMM-CCF-REL-144

## PSF of the X-ray telescopes

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### 1 CCF components

Name of CCF	VALDATE	List of Blocks changed	XSCS flag
XRT1_XPSF_0006.CCF	2000-01-01	SINGLE_GAUSS_PARAMS, TRIPLE_GAUSS_PARAMS, KING_PARAMS	NO
XRT2_XPSF_0006.CCF	2000-01-01	SINGLE_GAUSS_PARAMS, TRIPLE_GAUSS_PARAMS, KING_PARAMS	NO
XRT3_XPSF_0005.CCF	2000-01-01	SINGLE_GAUSS_PARAMS, TRIPLE_GAUSS_PARAMS, KING_PARAMS	NO

### 2 Changes

The header keyword THET\_MAX has been changed in the single gaussian, triple gaussian and King profile models to be 20 arcminutes. This extends the validity of these functions to cover the entire field of view for the three cameras.

### 3 Scientific Impact of this Update

There is no real scientific impact of this update. The SAS users have expressed a general disquiet about the number of non-obvious warning messages produced while running the software. In particular, messages about the validity range of the chosen PSF not covering the off-axis angle of the users source have caused confusion (CF SPR-1870). This change addresses that issue by removing the warning message for the Low, HIGH and Extended mode PSF or encircled energy corrections.

In reality the quality of the PSF described by these functions does depend on the off-axis angle but it is a more continuous relationship than a simple, "good within n arcminutes"

can express. The quality of the PSF calibration should be expressed quantitatively in the calibration handbook [1] and associated documentation.

## **4 Estimated Scientific Quality**

## **5 Expected Updates**

A similar review may be necessary for the energy range which these CCFs are said to be valid for.

## **6 Test procedures and results**

The CCFs were checked in *calview* to ensure that sources at off-axis angles of 16 arcminutes do not cause a warning to be issued.

### **References**

[1] C. Erd, P. Gondoin, D. Lumb, R. Much, U. Lammers, G. Vacanti and Richard Saxton. *Calibration Access and Data Handbook. XMM-PS-GM-20, issue 2.2.*