

The PICsIT high-energy detector of IBIS: Calibration of the Engineering Model

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IBIS is the gamma-ray imaging telescope onboard the ESA satellite INTEGRAL which will be launched in 2001. PICsIT, the high energy (140 keV - 10 MeV) detector of IBIS, consists of a 64×64 unit array. Each detection unit is a 0.8 cm^2 3 cm thick CsI(Tl) crystal coupled with a photodiode. The engineering model (EM) of PICsIT has now been calibrated, tested and integrated in IBIS for delivery to ESA. The calibration of PICsIT EM has allowed for the first time its scientific qualification in terms of: energy threshold, linearity, energy resolution and photopeak efficiency (for different multiplicity events). The spatial disuniformity of the detection plane and the efficiency in the reconstruction of incident pixel for multiple events has also been calculated.