Calibration and performances of the Planck/HFI flight model instrument

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The ESA Planck cosmological mission will survey the whole sky with an unprecedented combination of frequency coverage, angular resolution, and sensitivity. The HFI instrument will cover the 100 GHz to 1000 GHz range in 6 photometric bands, and include the detection of polarisation for the 4 lower frequency bands. The observation strategy of this mission requires a flat detection noise spectrum over the very large range of time frequencies [0.01Hz-100Hz].
The instrument flight model is calibrated in the facility of the Institut d'Astrophysique Spatiale in Orsay. A dedicated cryogenic simulator was developped for this characterisation. Detectors performances under the range of expected flight conditions, spectral response, polarisation performances, thermal and electrical behaviors, are studied in this facility. We present the results of the calibration campaign and the expected performances for the mission. Planck will be placed in a L2 orbit in 2008 by an Ariane V launcher, shared with the Herschel submillimeter observatory.