

Estimated Instrument Performance Goals

| | | | | | | | | | |
|---|--|-----|-----|---|-----|-----|------|-----|------|
| Telescope | 1.5 m (proj. aperture) aplanatic; shared focal plane; system emissivity 1% | | | | | | | | |
| | Viewing direction offset 85° from spin axis; Field of View 8° | | | | | | | | |
| Instrument | LFI | | | HFI | | | | | |
| Center Freq. (GHz) | 30 | 44 | 70 | 100 | 143 | 217 | 353 | 545 | 857 |
| Detector Technology | HEMT LNA arrays | | | Bolometer arrays | | | | | |
| Detector Temperature | ~20 K | | | 0.1 K | | | | | |
| Cooling Requirements | H ₂ sorption cooler | | | H ₂ sorption + 4 K J-T stage + Dilution cooler | | | | | |
| Number of Unpol. Detectors | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 4 |
| Number of Linearly Polarised Detectors | 4 | 6 | 12 | 8 | 8 | 8 | 8 | 0 | 0 |
| Angular Resolution (FWHM, arcmin) | 33 | 24 | 14 | 9.5 | 7.1 | 5 | 5 | 5 | 5 |
| Bandwidth (GHz) | 6 | 8.8 | 14 | 33 | 47 | 72 | 116 | 180 | 283 |
| Average $\Delta T/T_I^*$ per pixel [#] | 2.0 | 2.7 | 4.7 | 2.5 | 2.2 | 4.8 | 14.7 | 147 | 6700 |
| Average $\Delta T/T_{U,Q}^*$ per pixel [#] | 2.8 | 3.9 | 6.7 | 4.0 | 4.2 | 9.8 | 29.8 | | |
| * Sensitivity (1σ) to intensity (Stokes I) fluctuations observed on the sky, in thermodynamic temperature ($\times 10^{-6}$) units, relative to the average temperature of the CMB (2.73 K), achievable after two sky surveys (14 months). | | | | | | | | | |
| [#] A pixel is a square whose side is the FWHM extent of the beam. | | | | | | | | | |
| * Sensitivity (1σ) to polarised intensity (Stokes U and Q) fluctuations observed on the sky, in thermodynamic temperature ($\times 10^{-6}$) units, relative to the average temperature of the CMB (2.73 K), achievable after two sky surveys (14 months). | | | | | | | | | |