

The analysis of affections to the cold space calibration source for CE-1 payload Microwave Detector

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ChangE-1 (CE-1) will be the first satellite of China in lunar orbit. Its Microwave Detector makes real-time and cyclical calibration through high and low temperature points. The low brightness temperature calibration source, which is satellite-borne, is called “cold space calibration source”. It comes of radiant brightness temperature from cosmic background that will be detected via calibration antenna. As the direction of the calibration antenna is towards the satellite orbit tangent, solar radiations and the ones from other galaxies will affect the cold space calibration source in some periods.

It is important to analyze radiant affections to the cold space calibration source from the outside, because the accuracy of the cold space calibration source is the key to system accurate calibration. In this paper, we analyze several primary outside radiances such as solar radiance affecting the cold space calibration source and discuss the affections to the observation data and system calibration. The results provide important theoretical foundation and reference to real-time calibration of CE-1 Microwave Detector for launch.