



SPIRE - ESA - COM - 000177-10



FIRST/Planck Project

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Ref. : PT-06406

Date : 17 February, 1999

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Cc : ESTEC - F. Felici, M. Anderegg, M. von Hoegen, B. Guillaume, G. Pilbratt

Cc : Instruments - A. Poglitsch, T. de Graauw, M. Griffin, B. Swinyard

Subject: FIRST/Planck - FIRST Telescope

Ref. : ESTEC fax PT-06374, dated 08.02.1999

Dear Gary,

As already announced in the ref. fax, we have asked the FIRST Instrument teams to verify the compatibility of the new telescope design (gaps and temperature difference between petals) with the operation of the instruments.

We received the below input as a first response:

- The radial gaps of the order of 2 mm thickness are considered acceptable from the point of view of missing collecting area and increase of overall emissivity. Additional effects, however, resulting from non-homogeneity of the gap, varying optical properties along the radius (e.g. from core structure), diffraction effects from edges etc. are considered a serious problem. We would ask you to propose a design that avoids such non-homogeneity.
- The temperature discontinuity between separate petal segments is considered a potentially serious problem, especially since this discontinuity will be different at different locations of the primary mirror. However, the value given to them of 0.5 K is related to the analysis presented at COI and not related to the real telescope situation in orbit. In order to evaluate the impact on scientific performance the instrument teams need a complete temperature map of the telescope as expected in orbit and we ask to provide this asap.

Best regards

T. Passvogel

ESTEC