

Hardware Description

The Lysogenic Bacteria Experiment Packages are designed to grow replicate 1.2 ml cultures of two strains of lysogenic bacteria (*Escherichia coli* and *Salmonella typhimurium*P-22), without radiation and irradiated at three dose levels of gamma from ^{85}Sr . Sets of four special packages include a total of 96 bacteria growth chambers. Three contoured packages of sixteen chambers, 1.2–1.8 ml each, receive, respectively, mean total dose exposures of 265, 645, and 1,630 r. A fourth package of 48 chambers, 1.2 ml each, is for nonirradiated chambers. The packages are fabricated to conform to isodose lines at an appropriate distance from the point ^{85}Sr source. The chambers are sealed with nylon machine screws and silicone O-rings.

For loading, a single clone of each bacteria is grown overnight, and the resulting cultures are diluted to a final concentration of 120 cells/ml for *S. typhimurium* and 187 cells/ml for *E. coli*. Cultures are maintained in suspension in spinner flasks over ice throughout loading into experiment packages, in order to impose a two-hour lag time prior to the start of cell growth. *S. typhimurium* cultures are loaded into the top series of chambers, and *E. coli* are loaded into the chambers on the lower side of the package. Samples are made at the start and completion of loading procedures to confirm that no growth has occurred. Packages are kept on ice until mated with the spacecraft. LiF dosimeters are included in each package.

Specifications

Dimensions:	1.2 to 1.8 ml (chambers)
Weight:	Unknown
Power:	None
Chamber Capacity:	1.4 ± 0.3 ml

Data Acquisition

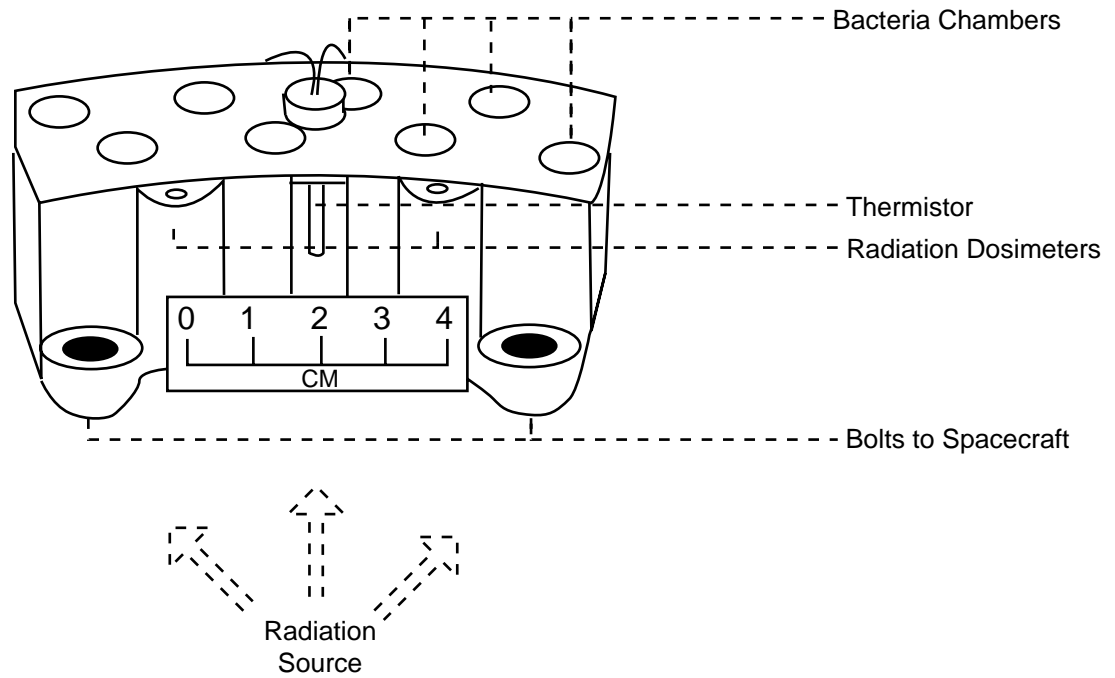
Radiation data

Related Ground-Based Hardware

None

Publications

- Mattoni, R.H.T.: Spaceflight Effects and Gamma Radiation Interaction on Growth and Induction of Lysogenic Bacteria. *Bioscience*. Vol. 18 (No. 106): 602-608, December 1969.
- *Biosatellite Project Historical Summary Report*. NASA-Ames Research Center. J.W. Dyer, ed. December 1969.



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