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K019/PC

Shield Thickness Calculation Program for Space Vehicle

The **K019/PC** code computes the total material thickness from arbitrary dose points located in the midst of shielding geometric that can be described by multiples of the geometrical solids hexahedrons, cylinders, spheres, hemispheres, and cones. Thicknesses are added cumulatively along each radial from each point in terms of equivalent base material thicknesses. The radials about each point are chosen such that they are located in the center of equally sized solid angles. There may be a choice of 80, 320, 720 or 1280 solid angles about each point. Up to six phantom men may be considered by use of internally stored coordinates and may be positioned in any orientation. The arms and legs of each phantom may be independently moved. Thicknesses are written on an output tape for convenience of input to Program K019, which utilizes the cumulative equivalent base materials thickness data to compute proton doses at the selected point.

In **K019/PC** code shield thickness information is computed for use as input to codes, which compute proton doses at points interior to an occupied spacecraft with complex shield geometry. For each detection point considered, the shield thicknesses computed are along rays emanating outward from the point, so that, in effect, all possible directions from which penetrating radiation could come are considered.

The thickness of shield material (in inches) along each ray is determined and expressed in terms of thickness (in g/cm**2) of some standard material such as aluminum. The total equivalent shield thickness (g/cm**2) along each ray is the output of the program. This information is output for each detector point considered.

We at **Galaxy Advanced Engineering, Inc. (GAE)**. have taken the steps to produced the PC version of **K019/PC**. Currently the program is operating on PC or 100% compatibles with 387 math-coprocessor under PC/DOS or MS/Windows95/98/2000/XP/ME and NT operating system. The PC version has the same capability as Cray version. For more detail information how to obtain the PC version of the code please contact GAE at 650 740-3244