CREW ACTIVE DOSIMETER

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CREW ACTIVE DOSIMETER

• It is an active device based on an 18 mm x 18 mm 500 μm thick solid state detector.

• It provides, as a function of time:

  (1) Absorbed accumulated total dose (D)
  (2) Absorbed dose rate
  (3) Energy Deposition Spectrum
  (4) Dose Equivalent (H) = Q X D

• Current design is battery powered using a stack of lithium cells. Goal is twenty-eight days of operation. Data are stored on a 4-MB flash memory and read-out after the flight.

• Has visual display to read-out the time and dose.

• It is small and light weight.

  Length = 8 cm
  Width = 4 cm
  Height = 1.8 cm
  Weight = 80 gms
• It can be worn by the crew and provide real-time radiation data.

• The dosimeter can be modified to operate off the space suit power with a corresponding decrease in size and weight.

• The dosimeter provides data communication currently via NIO bus that can be easily modified to provide communication via RS232 port.
CURRENT STATUS

• A prototype unit without communication or spectral capability was flown on STS-91 in 1997.

• A Prototype of the new device is nearing completion.

• Testing with proton beam was done at Texas A&M cyclotron (55 and 30 MeV protons) on December 13-14, 1999.

• If support can be found, it will be tested at both the Loma Linda University proton facility and BNL.

• Possible Shuttle mid-deck flight test of one of these units in the first half of 2001.