

CREW ACTIVE DOSIMETER

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DBLGRM_CAD

CREW ACTIVE DOSIMETER

- IT IS ACTIVE DEVICE BASED ON A 18 MM X 18 MM 500 μ M 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 USES A STACK OF LITHIUM CELLS. IT CAN OPERATE FOR TWENTY-EIGHT DAYS ON ONE SET OF BATTERIES. DATA ARE STORED ON A 4-MB FLASH MEMORY AND READ-OUT IN FLIGHT THROUGH AN RS-232 PORT.
- HAS VISUAL DISPLAY TO READ-OUT THE TIME AND DOSE.

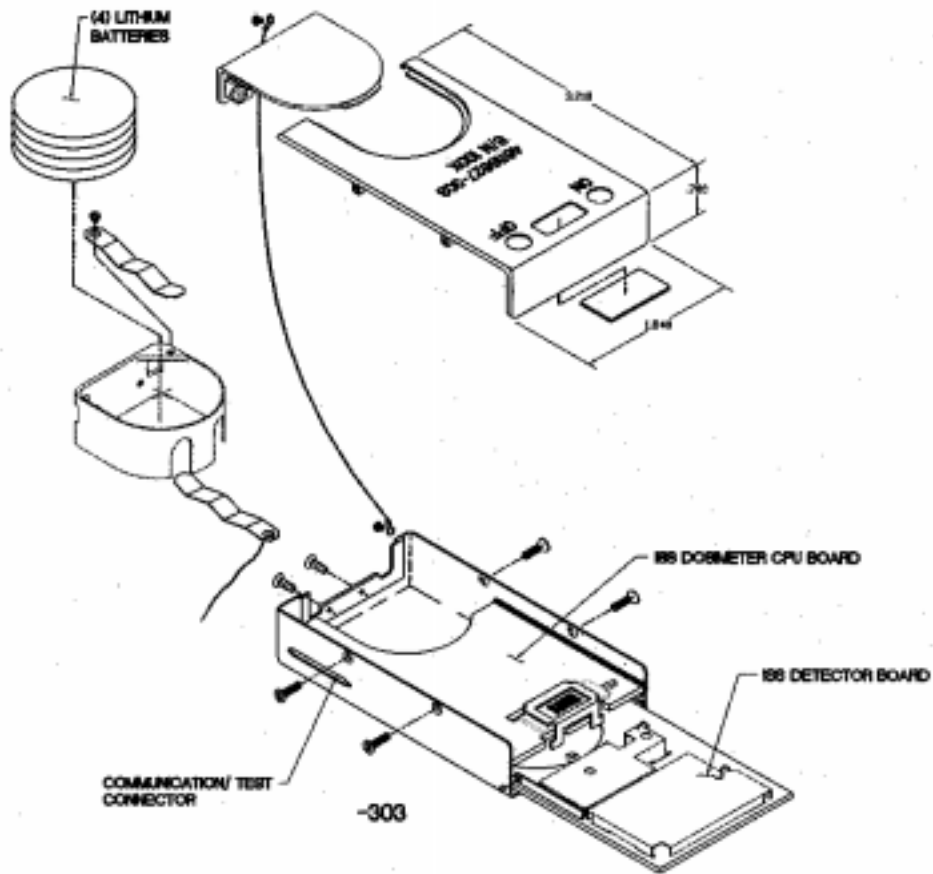
- IT CAN BE CREW WORN AND PROVIDE REAL-TIME RADIATION DATA.
- THE DOSIMETER CAN BE MODIFIED TO OPERATE OFF THE SPACE SUIT POWER WITH A CORRESPONDING DECREASE IN SIZE AND WEIGHT.

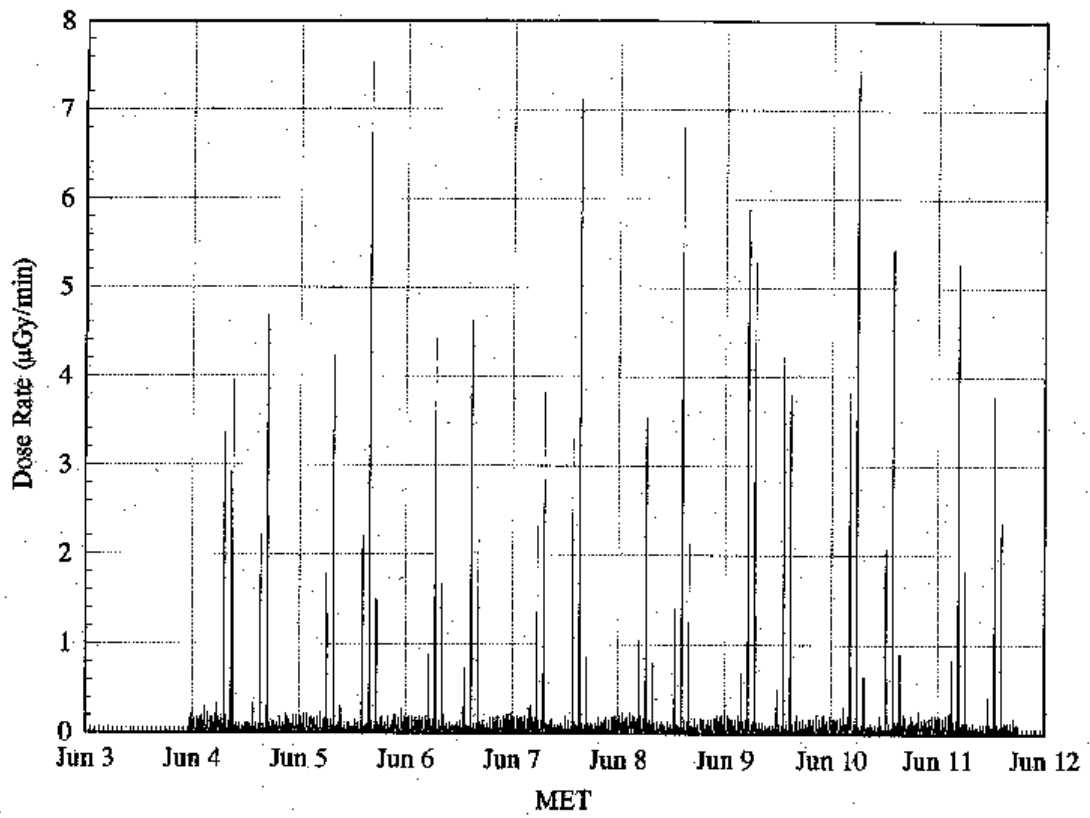
○ IT IS SMALL AND LIGHT WEIGHT.

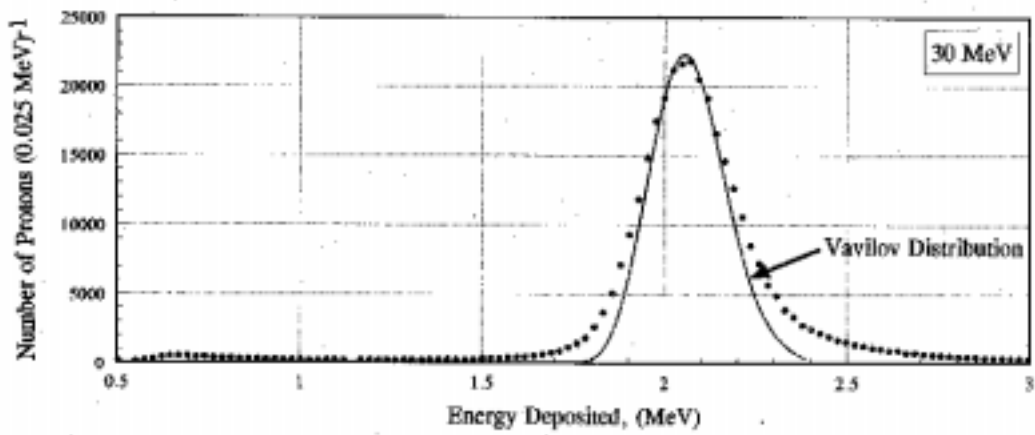
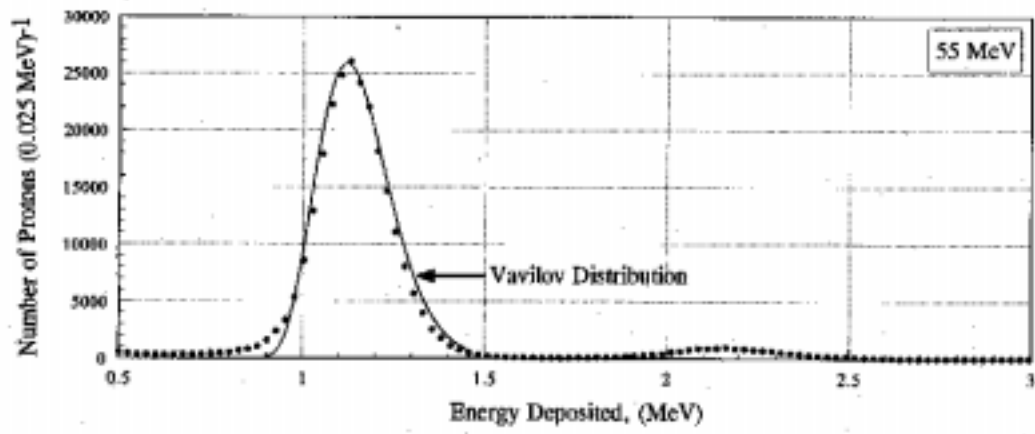
LENGTH = 8 CM WIDTH = 4.0 CM HEIGHT = 1.8 CM WEIGHT = 80 GMS

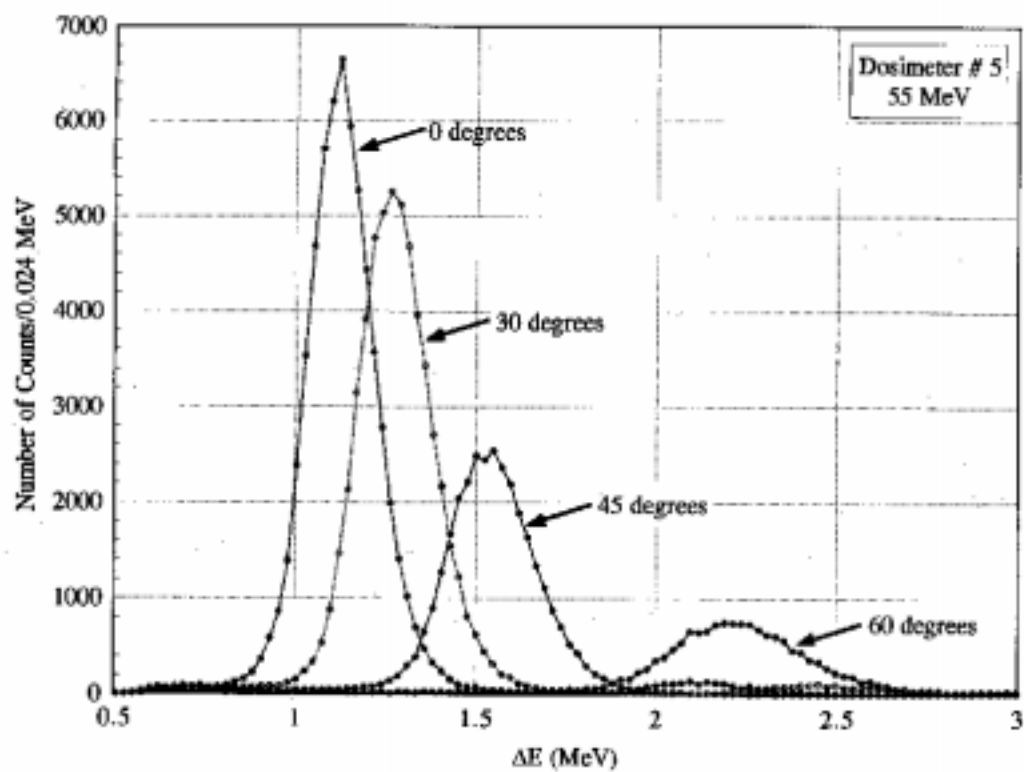
CURRENT STATUS

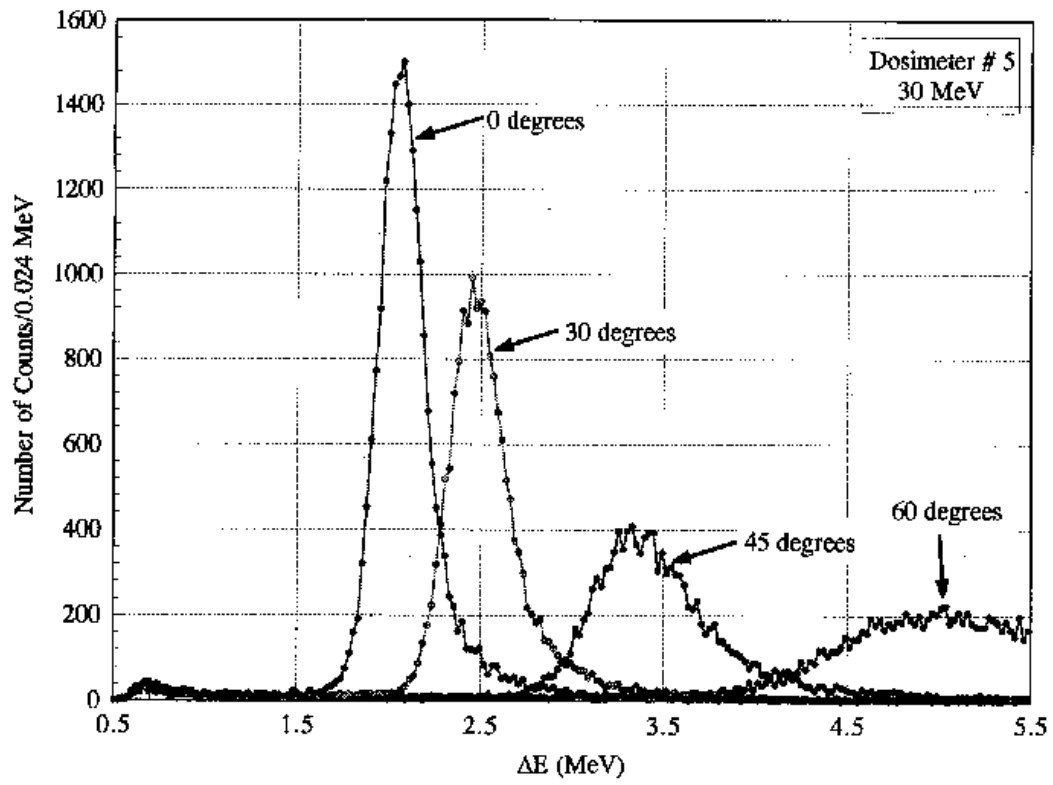
- A PROTOTYPE UNIT WITHOUT COMMUNICATION OR SPECTRAL CAPABILITY WAS FLOWN ON STS-91 IN 1997.
- PROTOTYPE OF THE NEW DEVICE IS NEARING COMPLETION. IT WILL BE FLOWN ON THE ISS IN MAY.01.
- IT WAS TESTED USING PROTON BEAM WOULD BE DONE AT TEXAS A&M CYCLOTRON (55 MEV PROTONS).
- PERFORMANCE OF THE UNIT IS BEEN COMPARED WITH DETAILED MONTE CARLO MODELS.

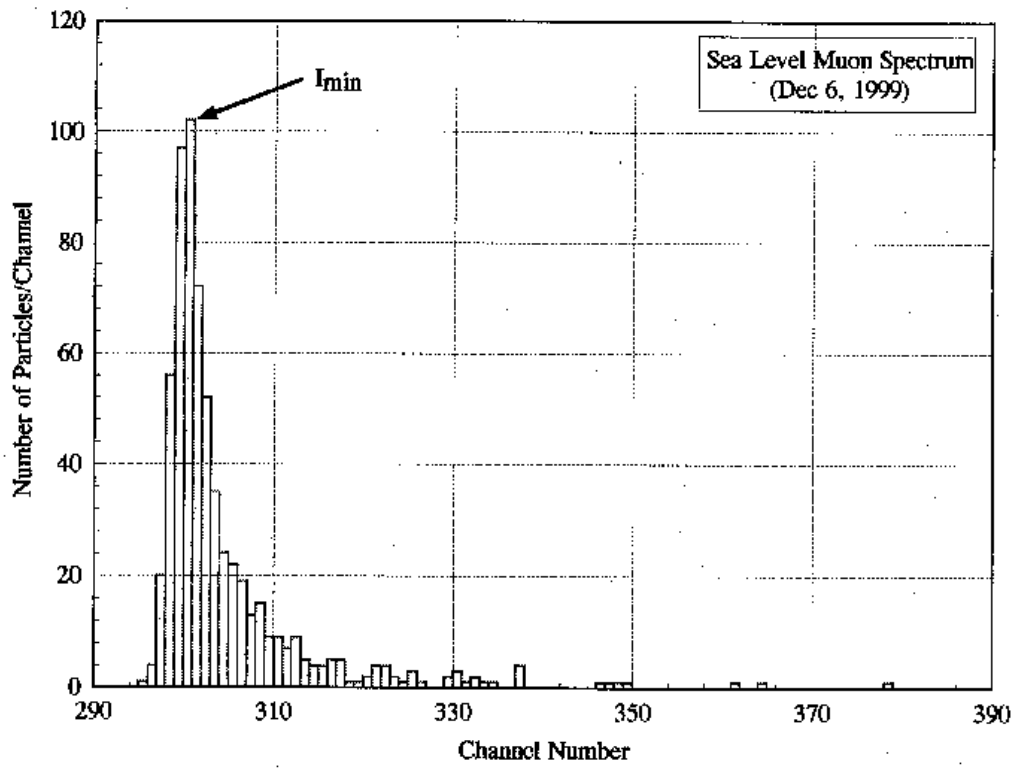


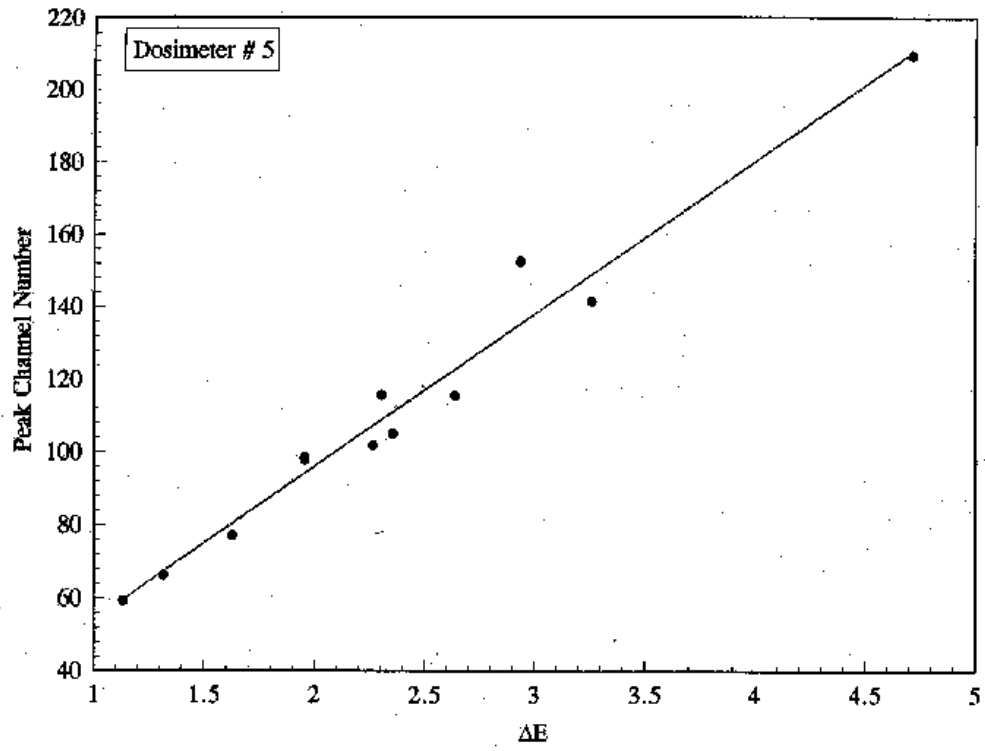












$$\text{Peak Channel} = (11.7175 \pm 5.9978) + (42.1403 \pm 2.3566) \Delta E$$

