

THE DEVELOPMENT OF ENERGY COMPENSATED GEIGER MULLER DETECTORS.  
FOR THE QUANTITY AMBIENT DOSE EQUIVALENT

David Barclay,  
Mullard Ltd  
New Road, Mitcham, Surrey CR4 4XY, UK

and

P.H. Burgess  
National Radiological Protection Board

ABSTRACT

Many national authorities are considering the adoption of the dose-equivalent quantities proposed in ICRU publication 39. Two of these, ambient and directional dose equivalent, are appropriate for use in survey instruments. Energy-compensated Geiger Muller detectors have been designed to measure the quantity ambient dose equivalent over the energy range 40 keV to 1.25 MeV. These detectors complement existing exposure measuring devices. The general principles of design, materials and construction are described for four types, which cover in total the dose rate range from  $1 \mu\text{Sv h}^{-1}$  to  $10 \text{ Sv h}^{-1}$ .