

# Guidance for testing of Electronic Personal Dosemeters (EPD's)



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IEC 61526 Second edition 2005 - 02

Radiation protection instrumentation -

Measurement of personal dose equivalents

$H_p(10)$  and  $H_p(0,07)$  for X, gamma, neutron  
and beta radiations -

Direct reading personal dose equivalent meters and monitors

- Bleepers
- Simple instruments - No alarms, no energy thresholds  
Alarms, no energy thresholds
- Clever instruments - Multiple alarms, several energy thresholds, Beta capability, Neutron capability

- A) Dose response at low dose rate
- B) Dose response at high dose rate - at a rate in excess of that which it could reasonably encounter in practice - at a minimum of 10 mSv/h
- C) Dose rate response at a low dose rate (if applicable)
- D) Dose rate response at high dose rate - at a rate in excess of that which it could reasonably encounter in practice - at a minimum of 10 mSv/h

- E) Background accumulation over a minimum period of 12 hours
- F) Response at or below the minimum energy of interest
- G) Directional dependence
- H) Confirmation of Beta and/or Neutron response ( if applicable)
- I) Alarm(s) function ( if applicable)

# Bleepers

## Periodic and **Test before first use**



C) Dose rate response at a low dose rate

D) Dose rate response at high dose rate

E) Background accumulation over a minimum period of 12 hours

F) Response at or below the minimum energy of interest

**G) Directional dependence**

# Simple instruments: no alarms

## Periodic and **Test before first use**



- A) Dose response at low dose rate
- B) Dose response at high dose rate
- C) Dose rate response at a low dose rate\*
- D) Dose rate response at high dose rate\*
- E) Background accumulation over a minimum period of 12 hours
- F) Response at or below the minimum energy of interest
- G) **Directional dependence**

\* If applicable

# Simple instruments: alarms

## Periodic and **Test before first use**



- A) Dose response at low dose rate
- B) Dose response at high dose rate
- C) Dose rate response at a low dose rate\*
- D) Dose rate response at high dose rate\*
- E) Background accumulation over a minimum period of 12 hours
- F) Response at or below the minimum energy of interest
- G) Directional dependence**
- I) Alarm function
- \* If applicable

# Clever instruments

## Periodic and **Test before first use**



- A) Dose response at low dose rate
- B) Dose response at high dose rate
- C) Dose rate response at a low dose rate
- D) Dose rate response at high dose rate
- E) Background accumulation over a minimum period of 12 hours
- F) Response at or below the minimum energy of interest
- G) Directional dependence**
- H) Beta and/or Neutron function
- I) Alarm function

- Follow GPG14 format
- Note regarding self-tests - Be aware of limitations
- Alert users to potential problems with digital displays
- Define Alarm - can be audible or visual
- Considered combining tests after careful consideration and full understanding of the EPD under test.
- On/Off phantom ratios very useful - ask the manufacturers
- Range of tests can be reduced if a valid justification is given (use)