Group D: Request 3.20

[redacted]

[Answer from TEPCO]

TEPCO use the electronic dosimeter with alarms, which are calibrated according to JIS (Japanese Industrial Standards).
Followings are the radiation response detail of the two types of electronic dosimeter used.

1. Type of Personal Dosimeter

1-1. Gamma(X) ray

1.	Radiation detected	Gamma (X) ray
2.	Energy range	50 keV to 6 MeV
3.	Detector	Silicon semiconductor
4.	Dose equivalent range	0.001 mSv to 999.999 mSv
5	Indication range	0.01 mSv to 99.99 mSv (by 0.01 mSv) 100.0mSv to 999.9mSv (by 0.1mSv) automatic changeover
6.	Accuracy of indication	±10% (0.1mSv to 999.9 mSv, Cs-137)
7.	Energy response	EP2 type ±20% (60 keV to 6 MeV, Cs-137) ±30% (50 keV to 6 MeV, Cs-137)
8.	Angular response	AP1 type ±20% (Up to ±60 degree, vertical and horizontal, Cs-137) ±50% (Up to ±60 degree, vertical and horizontal, Am-241)
9.	Linearity for wide range of dose rate	R1 type ±20% (0.1 mSv/h to 1 Sv/h: 1 mSv/h basis)

1-2. Beta ray

1.	Radiation detected	Beta ray
2.	Energy range	300 keV to 2.3 MeV
3.	Detector	Silicon semiconductor
4.	Dose equivalent range	0.001 mSv to 999.999 mSv
5	Indication range	0.01 mSv to 99.99 mSv (by 0.01 mSv) 100.0mSv to 999.9mSv (by 0.1mSv)

		automatic changeover
6.	Accuracy of indication	±10% (0.1mSv to 999.9 mSv, Sr-90-Y-137)
7.	Energy response	EB1 type ±30% (500 keV to 2.3 MeV, Sr-90-Y)
8.	Angular response	AB2 type ±50% (Up to ±60 degree, vertical and horizontal, Sr-90-Y)
9.	Linearity for wide range of dose rate	R1 type ±20% (0.1 mSv/h to 1 Sv/h: 1 mSv/h basis)

2. Calibration

Calibration for Gamma ray have been carried out with Cs-137 and for Beta ray, Sr-90 and Y-90.

3. Technical standards

JIS-Z-4312 ("Direct reading personal dose equivalent (rate) meters and monitors for X, gamma, beta and neutron radiations") which the Corresponding International Standards are IEC-61525 (MOD) and 61526 (MOD).
For more information, see attached file [JIS-Z4312_2002.pdf].

JIS-Z-4511 ("Methods of calibration for exposure meters, air kerma meters, air absorbed dose meters and dose-equivalent meters") which the Reference International Standards are ISO-4037-1 and -3.
For more information, see attached file [JIS-Z4511_2005.pdf].