Philippine Nuclear Research Institute
Nuclear Services Division
RADIATION PROTECTION SERVICES

Supplementary Document for the Calibration of Radiation Monitoring Instruments

The response of a radiation monitoring instrument refers to its indication or readings relative to a known radiation field exposed in terms of specific quantity. The response directly relates how accurate and reliable the measurements of an instrument are. An instrument with good response is crucial in ensuring the reliability of radiation monitoring, which is an essential component of a radiation safety program.

Per the international standard of radiation measurements, the **Recommended Response Limit (RRL)** for each type of instrument is as below:

Type of Instrument	Recommended Response Limit (RRL)	Equivalent Calibration Factor (CF)	Equivalent Conversion Coefficient* (CC)
Survey meter (SM)	0.80 to 1.20	0.83 to 1.25	8.50 to 12.75
Personal Dosimeter (PD) (e.g. pendose, EPD)	0.85 to 1.15	0.87 to 1.18	9.03 to 12.22

*For instruments with units in terms of Roentgen (R)

It is recommended that the instrument's response, during calibration, is within the RRL. This is to help ensure that measurement of radiation levels in the workplace are accurate. In case the response of an instrument falls outside the RRL, i.e. below or above RRL, the instrument may be defective and may require maintenance or repair. The accuracy of measurements, which are necessary for ensuring safety in the working environment where radiation exposure is a concern, may also be compromised.

The Calibration Certificates provided to the customers now indicate whether the instrument response is within the RRL. Once the Certificates are received, customers are advised to refer to this result in calibration. If the response is Below or Above the RRL, the reliability of the results of radiation monitoring may be affected. In order to have more confidence in the performance of the instruments, it is recommended to have the instruments checked, repaired, and/or recalibrated as necessary so that its response is within the limits.