



CT

## IAC CT Guidance for Radiation Protection Survey and Dose Assessment *Guidance Document*

1. **Radiation Protection Surveys (RPS)** must be performed upon installation of new equipment, or after major changes in room configuration, equipment location, or usage of areas adjacent to the CT scanner. These are typically done upon acceptance, and are not required annually thereafter. Hence, it may be necessary to locate the original acceptance test report of the CT scanner to find the RPS. IAC CT requires that a RPS be submitted, to demonstrate that the safety of the installation and the surrounding areas has been assessed. A complete RPS must include:
  - a. A sketch showing the layout of the equipment in the room, and identifying the surrounding areas (e.g., toilet, corridor, outside wall, exam room, office, etc.).
  - b. Measurements of exposure (or exposure rate) obtained with an appropriately sensitive radiation measurement system
  - c. Calculations to demonstrate compliance with weekly or annual exposure limits, which must include a determination of workload, identification of occupancy of each adjacent area, and identification of the applicable exposure limit (controlled and non-controlled areas).
  - d. Note that shielding designs are not required to be submitted.
  
2. **CT Dosimetry Reports** for all scanners, including volume CT (VCT) or conebeam CT (CBCT) scanners, must include:
  - a. Measurements of exposure, and calculations of dose or dose index (or other appropriate dosimetry metric) which include comparison with some applicable reference standard, using the same units as the reference standard. The report must be clear about whether the results are acceptable, and identify corrective actions if the results are not acceptable.
  - b. Dosimetry should be in units of pitch-corrected CTDI, point dose at the central ray, or MSAD for typical clinical protocols. The clinical protocol factors must be listed.
  - c. Although CTDI is not rigorously defined for VCT or CBCT scanners, CTDI is also not rigorously defined for multislice CT scanner with beam thickness more than 1.0 cm. While imperfect, CTDI is the only metric for which reference standards currently exist. If possible, VCT or CBCT systems should be configured to use a z-axis collimation that is less than the length of the pencil chamber (if such a chamber is used). For example, temporal bone imaging protocols found on ENT scanners often meet this criterion. As new techniques for CT dosimetry are published, more rigorous methods should be used.
  - d. The report must identify the phantom and radiation detection system used.