








## 2.0 Safety Precautions

### 2.1 Radiation Safety

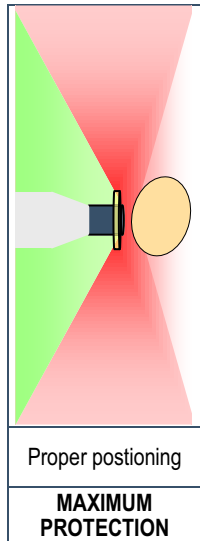
 This x-ray unit may be dangerous to operator and bystander unless safe exposure factors and operating instructions are observed.



-  Operators must follow all guidelines dictated by applicable regulations and in-house radiation protection program in regard to patients and operators who are pregnant or expect to become pregnant.
-  Operators must be fully acquainted with safety recommendations and established maximum permissible doses.
-  Optimal operator radiation backscatter protection exists when:
  - a) the operator remains within the cone-shaped backscatter protection zone immediately behind the backscatter shield,
  - b) the backscatter shield is positioned at the outer end of the collimator cone,
  - c) the patient tilts their head when needed to accommodate exposures (see section 4.7), and
  - d) the backscatter shield is close to the patient.
-  Do not enable NOMAD until patient and operator are positioned and ready for the exposure, diminishing the likelihood of interruption and preventing inadvertent exposure of anyone to x-rays.
-  Do not attempt an exposure if anyone else is in the same room unless it is necessary that the patient be accompanied by another person. That person must then stay out of the direct beam and wear protective clothing.
-  When selecting and using Position Indicating Devices (PIDs), preference should be given to models that allow the backscatter shield to remain at the outer end of the collimator cone for maximum operator protection.

# NOMAD

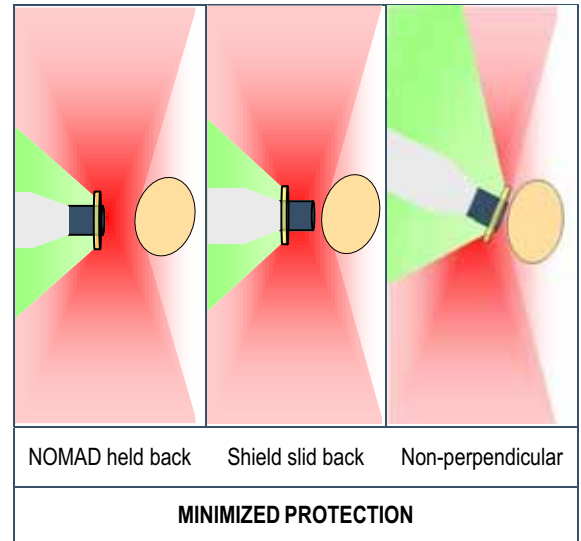
☢ An exposure can be terminated for any reason by abruptly releasing the depressed trigger (for more information see section 4.0, *Operation*).



☢ As shown in graphic representations, maximum protection (green area) from backscatter radiation (red area) exists when the NOMAD is positioned near the patient, is perpendicular to the operator (with the patient's head tilted if needed), and the backscatter shield is fully extended toward the patient.

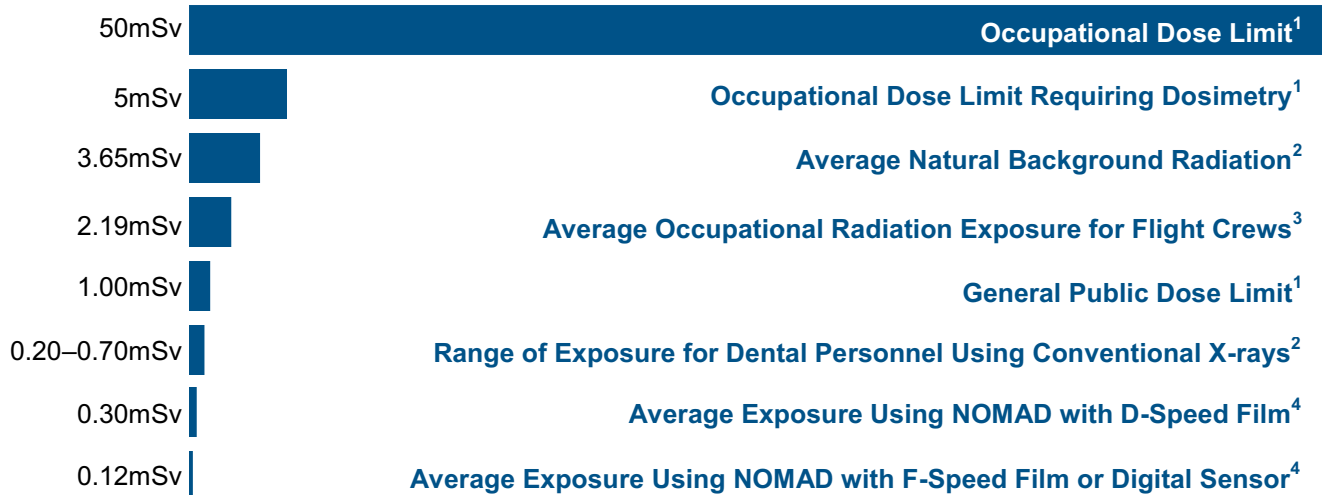
☢ Operation outside the protection zone (or with a diminished protective zone) requires proper precautions such as the use of lead aprons.

☢ **Do not operate with the backscatter shield removed!**



**NOTE:** In implementing a radiation protection program, please consult all applicable (state, provincial, and local) regulations governing radiation protection and the use of x-ray equipment, and ensure full compliance with any such regulations.

## Comparative Data for Whole Body Exposure (Annual)



1) Standards for Protection Against Radiation, 10 CFR 20 (US Federal Standards), 1994 (see also *NCRP Report No. 116*)

2) *NCRP Report No. 145* (National Council on Radiation Protection and Measurements), p7-9

3) "Estimated Cosmic Radiation Doses for Flight Personnel", Feng YJ et al, *Space Medicine and Medical Engineering*, 15(4) 2002, p265-9

4) Normalized average assumes 7,200 exposures per year, and the average length of exposure for D-speed = 0.50 seconds, F-speed = 0.25 seconds, digital sensor = 0.20 seconds