

WAC 246-225A-010 Definitions. The definitions in this section apply throughout this chapter unless the context clearly requires otherwise.

(1) "Artifact" means an undesirable optical density or blemish on a radiographic image that detracts from the diagnostic information.

(2) "Barrier" (see "protective barrier").

(3) "Beam" (see "X-ray").

(4) "Beam-limiting device," sometimes called a collimator or cone, means a device that controls the size of the X-ray field.

(5) "Cephalometric" means X-ray imaging specific to the human head and jaw.

(6) "Control panel" means the part of the X-ray system where the switches, knobs, pushbuttons, and other hardware necessary to operate the X-ray system are located.

(7) "CR (computed radiography)" means creating an X-ray image using plates consisting of a special phosphor that when exposed to radiation and then processed by a scanner, provides the information to a computer for display and manipulation.

(8) "CT (computed tomography)" means creating a cross-sectional X-ray image generated by an X-ray source and detector moving around the patient's body.

(9) "Dead-man button" means an X-ray exposure button designed so that it can only be operated by continuous pressure on the button by the operator, and when released before the preset exposure time will stop the exposure.

(10) "Department" means the department of health, which is the state radiation control agency under chapter 70A.388 RCW.

(11) "Detector" means a device capable of receiving and recording an X-ray image.

(12) "Diagnostic source assembly" means the combination of the tube housing assembly and the collimator.

(13) "Direct scattered radiation" means radiation discharged in a straight line from the object being radiographed.

(14) "DR (direct digital radiography)" means creating an X-ray image by sending signals directly from a solid state detector to a computer for display and manipulation.

(15) "Exposure," as the context implies, means:

(a) The number of electrons, measured in coulombs per kilogram of air, released through the ionization of air molecules by electromagnetic radiation; or

(b) An occupational worker or patient being subjected to radiation either directly or indirectly.

(16) "Extra-oral radiography" means creating a film or digital X-ray image on an image receptor placed outside the mouth. Examples include panoramic and cephalometric X-rays.

(17) "Filter" means material, such as copper or aluminum, placed in the useful beam of the X-ray to block selected energies, and in a safelight to block light that could fog the X-ray film.

(18) "Floor plan" means a drawing of the X-ray room, along with its dimensions, identification of adjacent areas and occupiable space above and below.

(19) "Focal spot" means the area on the anode end of the X-ray tube bombarded by the electrons accelerated from the cathode and from which the useful X-ray beam begins.

(20) "Grid" means a device placed between the patient and the image receptor in extra-oral radiography that reduces scattered radiation that would decrease the quality of the image being created.

- (21) "Hand-held" (see "X-ray system").
- (22) "Healing arts screening" means using X-ray equipment without an order by a licensed practitioner on an individual who does not have a known or diagnosed disease or symptom to learn if the individual may have an indication of ill health.
- (23) "HVL (half-value layer)" means the thickness of material that reduces the intensity of radiation to one-half of its original value.
- (24) "Image receptor" means a device that captures an X-ray beam for image processing.
- (25) "Intra-oral radiography" means creating a film or digital X-ray image on an image receptor placed inside the mouth.
- (26) "kV (kilovolt)" means the unit used to measure electrical energy.
- (27) "kVp (kilovolts peak)" means the highest possible voltage across the X-ray tube during an exposure (see also "peak tube potential").
- (28) "Leakage radiation" means radiation coming from the X-ray tube, other than the useful X-ray beam.
- (29) "Leakage technique factors" means the technique factors associated with the tube housing assembly that are used to measure leakage radiation. They are defined as the maximum rated peak tube potential and the maximum rated continuous tube current at the maximum peak tube potential.
- (30) "Licensed practitioner" means an individual licensed to practice dentistry under chapter 18.32 RCW.
- (31) "mA (milliampere)" means the unit used to measure electrical current in an X-ray tube.
- (32) "mAs (milliampere second)" means the product of the electrical current in the X-ray tube in mA and the time of exposure in seconds.
- (33) "Mobile" (see "X-ray system").
- (34) "Operator" means a person working under the direction of a licensed practitioner to operate X-ray equipment and who has been properly trained according to WAC 246-225A-020.
- (35) "Operatory" means a room in which dental health care procedures are performed.
- (36) "Peak tube potential" means the maximum voltage in the X-ray tube during an exposure.
- (37) "Portable" (see "X-ray system").
- (38) "Position-indicating device" means a device on X-ray equipment that shows where the X-ray beam will be directed and establishes the distance from the X-ray tube to the patient's body. The device may or may not incorporate or serve as a beam-limiting device.
- (39) "Primary beam" (see "useful beam").
- (40) "Primary protective barrier" means the material placed in the useful beam, beyond the patient and image receptor, to reduce remnant primary beam exposure.
- (41) "Protected area" means a space for X-ray equipment operators that is shielded so that X-ray exposures are reduced enough to meet the exposure limits of WAC 246-221-010 (Occupational dose limits for adults) and WAC 246-220-007 (Statement of philosophy). In addition, the space must have no exposure to direct scattered radiation.
- (42) "Protective apron" means a garment made of radiation absorbing materials used to reduce a person's radiation exposure.
- (43) "Protective barrier" means a structure made of radiation absorbing material used to reduce radiation exposure.

(44) "Quality assurance" means a program designed to produce high quality X-ray images at minimal cost and with minimal patient exposure to radiation.

(45) "Quick developer" means small-volume chemistry designed to process dental intra-oral film in less than a minute.

(46) "Radiation safety" means ways to protect patients and staff from unnecessary radiation exposure. Safety measures may include patient exposure reduction, image quality improvement, diagnostic imaging system quality assurance, radiation measurements, dose evaluations, compliance with state and federal regulations, and related issues.

(47) "Radiographic" means the production of an image created when an X-ray pattern exits an X-rayed object.

(48) "Radiography" means a way of creating a permanent film or digital image using X-rays.

(49) "Recording" means creating a permanent image, on film or in a computer, from an X-ray exposure.

(50) "Registrant" means the owner or controller of the radiation equipment who is responsible for the safe operation of the radiation equipment in accordance with this chapter and chapter 70A.388 RCW.

(51) "Registration" means providing required information and continuing contact with the department by any person possessing a radiation machine in accordance with chapter 246-224 WAC, Radiation protection—Radiation machine assembly and registration.

(52) "Remnant primary beam" means the part of the useful beam that completely passes through the patient and image receptor.

(53) "Ring-detector type CT" means computed tomography performed with a fan-shaped beam that generates image slices of anatomy rather than using a cone-shaped beam creating a volumetric picture.

(54) "Safelight" means a lamp with a filter that is used in an X-ray darkroom to provide enough light to see, but not enough to fog the film.

(55) "Scattered radiation" means radiation that has changed direction, or generated other radiation as it impacts or passes through matter.

(56) "Scram button" means a large, prominently displayed button, mounted in an X-ray operator's area to allow quick termination of an X-ray exposure in case of an emergency.

(57) "Secondary protective barrier" means an object or material sufficient to reduce stray radiation to the required degree as stated in chapter 246-221 WAC (Radiation protection standards).

(58) "SID (source-to-image-receptor distance)" means the distance from the focal spot in the X-ray tube to the center of the surface of the image receptor.

(59) "Source" means the focal spot of the X-ray tube.

(60) "SSD (source-to-skin distance)" means the distance between the focal spot of the X-ray tube and the nearest point on the patient's skin where the primary beam enters.

(61) "Stationary" (see "X-ray system").

(62) "Stray radiation" means the sum of leakage and scattered radiation.

(63) "Technique chart" means a written instruction or guide that X-ray equipment operators use to determine which radiation technique factors to select for each type of radiographic examination.

(64) "Technique factors" means the X-ray system settings selected for a given radiographic examination. They are specified as the peak tube potential in kVp and either:

(a) Tube current measured in mA and exposure time in seconds or pulses; or

(b) The product of tube current and exposure time expressed in mAs.

(65) "Tube" means a glass tube that produces an X-ray when high-voltage electricity is passed between the cathode at one end and the anode at the other.

(66) "Tube housing assembly" means the X-ray tube and its housing. It includes high-voltage or filament transformers and other appropriate elements when they are contained within the tube housing.

(67) "Tube housing port" means the portion of the tube housing assembly that the X-rays pass through.

(68) "Useful beam" means the radiation that passes through the tube housing port and the opening of the beam-limiting device.

(69) "Variance" means a department-authorized alternative to a requirement of this chapter.

(70) "X-ray" means a beam of ionizing radiation produced by a machine.

(71) "X-ray control" means a device that controls how much electricity enters the X-ray high-voltage generator or the X-ray tube. It includes equipment that controls the technique factors for an exposure.

(72) "X-ray equipment" means the entire X-ray system or parts of the system.

(73) "X-ray exposure button" means the part of the X-ray system that when engaged generates the production of an X-ray.

(74) "X-ray high-voltage generator" means a device that supplies electrical energy to the X-ray tube to create an X-ray beam.

(75) "X-ray system" means all of the components of a machine used for the controlled production of X-rays. It includes minimally an X-ray high-voltage generator, an X-ray control, a tube housing assembly, a beam-limiting device, and the necessary supporting structures. Additional components which function with the system, such as the image receptor, are considered integral parts of the system. Types of X-ray systems are:

(a) "Hand-held" means a self-contained X-ray system designed to be held in one or two hands to perform intra-oral radiography. Hand-held X-ray systems used on a tripod or stand are considered to be "portable" systems.

(b) "Mobile" means an X-ray system mounted on a permanent base with wheels or casters for moving the X-ray system fully assembled. It is intended to be taken from one geographical location to another or from one room to another.

(c) "Portable" means an X-ray system designed to be hand-carried, but not hand-held during use.

(d) "Stationary" means an X-ray system that is installed in a fixed location, such as bolted to a floor or wall.

(76) "X-ray tube" means any electron tube which is designed to be used primarily for the production of X-rays.

[Statutory Authority: RCW 43.70.040 and 2020 c 20. WSR 22-07-025, § 246-225A-010, filed 3/9/22, effective 4/9/22. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 11-19-013, § 246-225A-010, filed 9/7/11,

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