

3701:1-66-01 **Definitions.**

(A) Terms defined in this rule are intended to be used only within this chapter of the Administrative Code.

(B) As used in this chapter:

(1) "Air kerma" means the sum of the initial kinetic ~~energies~~energy of all charged ionizing particles liberated by uncharged ionizing radiation in a given mass of air. The unit for air kerma is joules per kilogram which is given the special name of gray (Gy). To determine air kerma in Gy from exposure in units of roentgens (R) multiply exposure by the conversion factor 0.00876 Gy/R.

(2) "Air kerma rate (AKR)" means the air kerma per unit time.

~~(2)~~(3) "Aluminum equivalent" means the thickness of aluminum affording the same attenuation, under specified conditions, as the material in question.

(4) "Annual" means at least once a year, not to exceed fourteen months.

~~(3)~~(5) "~~Automatic exposure control," or "AEC,"~~"Automatic exposure control (AEC)" means a device which automatically controls one or more technique factors in order to obtain, at a preselected location, a required quantity of radiation.

~~(4)~~(6) "Beam-limiting device" means a collimator which provides a means to restrict the dimensions of the x-ray field.

~~(5)~~(7) "Calibration" except as provided in rules 3701:1-66-14 and 3701:1-66-15 of the Administrative Code, means the determination of the response or reading of an instrument relative to a series of known radiation values over the range of the instrument, or the radiation output of a source of radiation relative to a standard.

~~(6)~~(8) "Coefficient of variation" means the ratio of the standard deviation to the mean value of ~~a sample of the~~ observations.

~~(7)~~(9) "Collimator" means a device or mechanism by which the x-ray beam is restricted in size.

~~(8)~~(10) "Computed radiography" means a system that utilizes a photostimulable phosphor (PSP) plate for capturing radiographic images. The components of the system include, at a minimum, the PSP plate and a computed radiography

reader which laser scans the exposed plate, collects the stimulated light and ultimately creates the digital image.

~~(9)~~(11) "~~Computed tomography,~~" or "~~CT,~~" "Computed tomography (CT)" means an imaging procedure that uses multiple x-ray transmission measurements and a computer program to generate tomographic images of a patient or material.

~~(10)~~(12) "Contrast scale" means the change in the linear attenuation coefficient per ~~CTN~~CT number (CTN) relative to water.

~~(11)~~(13) "Control panel" means that part of the radiation-generating equipment used for setting the technique factors.

~~(12)~~(14) "CT conditions of operation" means all selectable parameters governing the operation of CT radiation-generating equipment including, but not limited to, nominal tomographic section thickness, filtration, ~~mA, kVp~~milliamperere (mA), kilovoltage peak (kVp), and scan time.

~~(13)~~(15) "CT noise" means the per cent standard deviation of the fluctuations in CTN expressed as a percentage of the attenuation coefficient of water.

~~(14)~~(16) "~~CT number,~~" or "~~CTN,~~" "CT number (CTN)" means the number used to represent the x-ray attenuation associated with each elemental area of the CT image.

~~(15)~~(17) "Dead-man switch" means a switch so constructed that a circuit closing contact can be maintained only by continuous pressure on the switch by the operator.

~~(16)~~(18) "Diagnostic radiation-generating equipment" means x-ray machines designed for irradiation of any part of a human body or animal, or phantom for the purpose of diagnosis or visualization, or teaching.

~~(17)~~(19) "Direct scattered radiation," means scattered radiation which has been deviated once in direction only by materials irradiated by the useful beam.

~~(18)~~(20) "Enclosed system" means industrial radiation-generating equipment operated in an enclosure or cabinet and may include, but is not limited to, cabinet radiography, irradiation devices, and other equipment.

~~(19)~~(21) "~~Executive~~"Executive administration" ~~means individuals who belong to the~~

~~two highest levels of authority within the hospital as listed on the hospital's organizational chart. The highest level may include the president, chief executive officer, or hospital administrator. The second level may include vice president, chief financial officer, or an administrative director of hospital services groups.~~ means individuals employed at the highest levels of a hospital's administration and having the authority to expend capital funds, approve personnel actions, and implement changes to hospital policy and procedure. Executive administration includes the president, chief executive officer, vice president, chief financial officer, and administrative director of hospital services. Executive administration does not include department heads and managers.

~~(20)~~(22) "Filter" means material placed in the useful beam to preferentially attenuate selected radiations.

(23) "Fluoroscopic irradiation time" means the cumulative duration of x-ray tube activation in any fluoroscopic mode of operation.

~~(21)~~(24) ~~"Half-value layer," or "HVL,"~~ "Half-value layer (HVL)" means the thickness of specified material which attenuates the beam of radiation to an extent such that the ~~exposure rate~~AKR is reduced by one-half of its original value.

(25) "Hand-held radiation-generating equipment" means x-ray equipment that is specifically designed to be held in the hand during operation.

~~(22)~~(26) "Handle" means receive, possess, use, store, transfer, install, service, or dispose of radiation-generating equipment unless possession is solely for the purpose of transportation.

~~(23)~~(27) "Handler" means a facility that handles radiation-generating equipment unless possession is solely for the purpose of transportation.

~~(24)~~(28) ~~"Image receptor" means any device, such as a fluorescent screen, radiographic film, or digital detector which transforms incident x ray photons either into a visible image or into another form which can be made into a visible image by further chemical or computer signal processing. "Image Receptor" means any device, such as fluorescent screen, radiographic film, x ray image intensifier tube, solid state detector or gaseous detector which that transforms incident x ray photons either into into either a visible image or into another form which that can be made into a visible image by further transformation. In those cases, where means are provided to preselect a portion of the image receptor, the term "image receptor" shall means the preselected portion of the device.~~ means any device that transforms incident

x-ray photons into either a visible image or another form that can be made into a visible image by further transformation. In those cases, where means are provided to preselect a portion of the image receptor, the term "image receptor" means the preselected portion of the device.

- ~~(25)~~(29) "Individual responsible for radiation protection" or "IRRP" means the person the registrant has designated the responsibility of assuring radiation safety and implementing the quality assurance program for that facility."Individual responsible for radiation protection (IRRP)" means an individual designated by the registrant who has the knowledge and responsibility for overall radiation safety and the quality assurance program at the facility, to include daily radiation safety operations and compliance with the rules.
- ~~(26)~~ "Industrial irradiation devices" means radiation-generating equipment used to alter the chemical, biological, or physical properties of materials or to sterilize materials.
- ~~(27)~~ "Industrial radiation-generating equipment" means x-ray machines used to produce ionizing radiation for purposes other than dental, veterinary, medical or therapeutic uses on patients.
- ~~(28)~~(30) "Industrial radiographer" means any individual who performs or personally supervises industrial radiographic operations and who is responsible to the registrant for assuring compliance with the requirements of these regulations and certification of registration conditions.
- ~~(29)~~(31) "Industrial radiographer assistant" means any individual who, under the personal supervision of an industrial radiographer, uses radiation-generating equipment, related equipment, or radiation survey instruments in industrial radiography.
- ~~(30)~~(32) "Inherent filtration" means the filtration in the useful beam due to the window of the x-ray tube and any permanent tube enclosure.
- (33) "Interventional procedure" means an invasive procedure that utilizes radiation-generating equipment for diagnostic or therapeutic purposes.
- ~~(31)~~(34) "Ionizing radiation" means gamma rays and x-rays, alpha and beta particles, high-speed electrons, neutrons, protons, or other atomic or nuclear particles or rays with sufficient energy to form ions during an interaction with matter, but does not include sound or radiowaves or visible, infrared, or ultraviolet light.

~~(32)~~(35) "~~Kilovoltage peak," or "kVp,"~~"Kilovoltage peak (kVp)" means the maximum value of the electrical potential difference between the cathode and the anode of the x-ray tube during an exposure.

(36) "Lateral fluoroscope" means the portion of a biplane system consisting of an x-ray tube housing assembly and an image receptor that are fixed in position to produce a horizontal x-ray beam.

~~(33)~~(37) "Lead equivalent" means the thickness of lead affording the same attenuation, under specified conditions, as the material in question.

~~(34)~~(38) "Leakage radiation" means all radiation coming from within the x-ray tube housing except the useful beam.

~~(35)~~(39) "Licensed practitioner" means an individual licensed by the state of Ohio pursuant to:

- (a) Chapter 4715. of the Revised Code to practice dentistry;
- (b) Chapter 4731. of the Revised Code to practice medicine or surgery or osteopathic medicine or surgery;
- (c) Chapter 4731. of the Revised Code to practice podiatry;
- (d) Chapter 4741. of the Revised Code to practice veterinary medicine;
- (e) Chapter 4734. of the Revised Code to practice chiropractic medicine; and
- (f) Chapter 4723. of the Revised Code to practice as a clinical nurse specialist within the scope of practice of his or her collaborating physician.
- (g) Chapter 4730. of the Revised Code to practice as a physician assistant within the scope of practice of his or her supervising physician and in accordance with the utilization plan approved by the state medical board.

~~(36)~~(40) "Light field" means that area of the intersection of the light beam from the beam-limiting device and one of the set of planes parallel to and including the plane of the image receptor, whose perimeter is the locus of points at which the illumination is one-fourth of the maximum in the intersection.

- (37)(41) "Local components" means parts of an analytical radiation-generating system and includes areas that are struck by x-rays such as radiation source housings, port and shutter assemblies, collimators, sample holders, cameras, goniometers, detectors, and shielding, but does not include power supplies, transformers, amplifiers, readout devices, and control panels.
- (38)(42) "Locked out and tagged" means a system of equipment security and safety in which radiation-generating equipment, rendered inoperable for storage or because of faulty operation is locked to prevent operation and tagged with specific information as to why it is not to be used. Suggested tag warning, "DO NOT USE - EQUIPMENT NEEDS REPAIR OR CALIBRATION - CONTACT RADIATION SAFETY OFFICER PRIOR TO USE."
- (39)(43) "~~Milliampere," or "mA,"~~ "Milliampere (mA)" means the measurement of tube current which reflects the number of electrons flowing from the cathode to the anode of an x-ray tube during x-ray production.
- (40)(44) "~~Mobile"~~ "Mobile radiation-generating equipment" means ~~radiation-generating x-ray equipment permanently mounted on a permanent base with wheels or installed in a van, trailer, or mobile vehicle~~ castors for moving while completely assembled and is not used in a fixed location.
- (41)(45) "Multiple tomogram system" means a CT radiation-generating equipment which obtains x-ray transmission data simultaneously during a single scan to produce more than one tomogram.
- (42)(46) "~~Nondestructive testing" or "NDT,"~~ "Nondestructive testing (NDT)" means the development and application of technical methods to examine materials or components in ways that do not impair future usefulness and serviceability in order to detect, locate, measure and evaluate flaws; to assess integrity, properties and composition; and to measure geometrical ~~characteristics~~ characteristics.
- (43)(47) "Open-beam" means an analytical radiation-generating equipment in which an individual could place any part of his or her body in the primary beam during normal operation.
- (44)(48) "Patient" means an individual or animal subjected to ~~a radiographic diagnosis or radiation for the purposes of~~ examination, or therapy.
- (45)(49) "Permanent radiographic installation" means a shielded installation or structure designed or intended for radiography and in which radiography is

regularly performed.

~~(46)~~(50) ~~"Portable"~~"Portable radiation-generating equipment" means radiation-generating equipment designed to be hand-carried.

~~(47)~~(51) "Primary protective barrier" means a barrier sufficient to attenuate the useful beam to the required radiation level.

~~(48)~~(52) "Protective apron" means an apron made of radiation-attenuating materials used to reduce radiation exposure.

~~(49)~~(53) "Protective barrier" means a barrier of radiation-attenuating materials used to reduce radiation exposure.

~~(50)~~(54) "Protective glove" means a glove made of radiation-attenuating materials used to reduce radiation exposure.

~~(51)~~(55) "Radiation expert" means an individual that meets the qualifications of:

(a) Applicable paragraphs of rule 3701:1-66-03 of the Administrative Code for hospitals registered under section 3710.07 of the Revised Code as determined by the type of radiation equipment used for the radiation service;

(b) Paragraph (D) of rule 3701-83-45 of the Administrative Code for any facility providing radiation therapy services;

(c) Paragraph (C)(3) of rule 3701-83-52 of the Administrative Code for CT equipment or paragraph (F)(3) of rule 3701-83-52 of the Administrative Code for fluoroscopy at any facility providing CT or fluoroscopy services; or

(d) 21 C.F.R. 900.12(a)(3) (as published in the April 1, 2008, Code of Federal Regulations) for any facility providing mammography services.

~~(52)~~(56) ~~"Radiation-generating equipment"~~"equipment (RGE)" means any manufactured product or any component of such a product or device, or any machine or system that during operation can generate or emit ionizing radiation, except those what emit ionizing radiation only from radioactive material. The system 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. "Radiation-generating equipment" does not include either of the following:

(a) Diathermy machines; or

(b) Microwave ovens including food service microwave ovens used for commercial and industrial uses, television receivers, electric lamps, and other appliances and products such as computer monitors that generate very low levels of radiation.

~~(53)~~(57) "Radiation worker" means an individual engaged in activities registered by the department and controlled by the registrant, but does not include the registrant.

~~(54)~~(58) "Reference plane" means a plane which is displaced from and parallel to the computed tomographic plane.

~~(55)~~(59) "Scan" means the complete process of collecting x-ray transmission data for the production of a tomogram. Data can be collected simultaneously during a single scan for the production of one or more tomograms.

~~(56)~~(60) "Scan increment" means the amount of relative displacement of the patient with respect to the CT x-ray system between successive scans measured along the direction of such displacement.

~~(57)~~(61) "Scan sequence" means a pre-selected set of two or more scans performed consecutively under pre-selected CT conditions of operation.

~~(58)~~(62) "Scattered radiation" means radiation that, during passage through matter, has been deviated in direction.

~~(59)~~(63) "Secondary protective barrier" means a barrier sufficient to attenuate stray ionizing radiation to a required level.

~~(60)~~(64) "Shutter" means a device, fixed to any radiation-generating equipment housing to intercept the useful beam.

~~(61)~~(65) "Single tomogram system" means a CT x-ray system which obtains x-ray transmission data during a scan to produce a single tomogram.

~~(62)~~(66) "Source" means the point of origin of the useful radiation beam.

~~(63)~~(67) "~~Source-to-image receptor distance," or "SID,"~~"Source-to-image receptor distance (SID)" means the distance from the source to the center of the input surface of the image receptor.

~~(64)~~(68) "~~Source-to-skin distance," or "SSD,"~~"Source-to-skin distance (SSD)" means the distance between the source and the skin of the patient.

~~(65)~~(69) "Stationary equipment" means equipment which is installed in a fixed location.

~~(66)~~(70) "Stray radiation" means leakage radiation or scattered radiation.

~~(67)~~(71) "Technique factors" means any combination of the following which determines the exposure rate: kVp, mA, time, x-ray pulses, or the product of tube current and exposure time in mAs.

~~(68)~~(72) "Temporary job site" means any location where industrial radiography is performed other than the location listed in the certificate of registration.

~~(69)~~(73) "Therapeutic radiation-generating equipment" means x-ray or electron-producing machines designed and used for external beam radiation therapy.

~~(70)~~(74) "Tomogram" means the depiction of the radiation attenuation properties of a section through a body.

~~(71)~~(75) "Tomographic plane" means that geometric plane which is identified as corresponding to the output tomogram.

~~(72)~~(76) "Tomographic section" means the volume of an object whose x-ray attenuation properties are imaged in a tomogram.

~~(73)~~(77) "Tube housing assembly" means the tube housing with tube installed. It includes high voltage or filament transformers and other appropriate elements when they are contained within the tube housing.

~~(74)~~(78) "Useful beam" means that part of the radiation which passes through the window, aperture, cone, or other collimating device of the source housing.

~~(75)~~(79) "X-ray field" means that area of the intersection of the useful beam and

any one of the set of planes parallel to and including the plane of the image receptor, whose perimeter is the locus of points at which the exposure rate is one-fourth of the maximum in the intersection.

Effective: 06/20/2010

R.C. 119.032 review dates: 03/19/2010 and 06/01/2015

CERTIFIED ELECTRONICALLY

Certification

06/10/2010

Date

Promulgated Under: 119.03
Statutory Authority: 3748.04
Rule Amplifies: 3748.01, 3748.02, 3748.04, 3748.05, 3748.06,
3748.07, 3748.12, 3748.13, 3748.14, 3748.15,
3748.17, 3748.18, 3748.19, 3748.20, 3748.22, 3748.99
Prior Effective Dates: 2/15/2001, 6/1/06