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SYNOPSIS

1. **IS/IEC 62220-1-1 : 2015** 'Medical electrical equipment — Characteristics of digital X-ray imaging devices — Part 1-1: Determination of the detective quantum efficiency — Detectors used in radiographic imaging

   a) **Scope:** This standard specifies the method for the determination of the DETECTIVE QUANTUM EFFICIENCY (DQE) of DIGITAL X-RAY IMAGING DEVICES as a function of AIR KERMA and of SPATIAL FREQUENCY for the working conditions in the range of the medical application as specified by the MANUFACTURER. The intended users of this part of standard are manufacturers and well equipped test laboratories.

   NOTE 1 While not recommended, applying this standard to determine the DQE of digital X-ray imaging devices integrated in a clinical system is not excluded as long as the requirements as set in this standard are respected. Points of additional attention could be (for example but not exclusively) the establishment of the required RADIATION QUALITIES, minimizing influences of scattered and back-scattered radiation, accurate AIR KERMA measurements, positioning of the TEST DEVICE, presence of protective covers, removal of ANTI-SCATTER GRID.

   This Part 1-1 is restricted to DIGITAL X-RAY IMAGING DEVICES that are used for radiographic imaging such as, but not exclusively, CR systems, direct and indirect flat panel-detector based systems.

   It is not recommended to use this part of standard for digital X-RAY IMAGE INTENSIFIER-based systems.

   NOTE 2 The use of this standard for X-RAY IMAGE INTENSIFER-based systems is discouraged based on the low frequency drop, vignetting and geometrical distortion present in these devices which may put severe limitations on the applicability of the measurement methods described in this standard.

   This part of IEC 62220 is not applicable to:

   – DIGITAL X-RAY IMAGING DEVICES intended to be used in mammography or in dental radiography;
   – slot scanning DIGITAL X-RAY IMAGING DEVICES;
   – COMPUTED TOMOGRAPHY;
   – devices for dynamic imaging (where series of images are acquired, as in fluoroscopy or cardiac imaging).

   NOTE 3 The devices noted above are excluded because they contain many parameters (for instance, beam qualities, geometry, time dependence, etc.) which differ from those important for RADIOGRAPHY. Some of these techniques are treated in other parts of the IEC 62220 standards (IEC 62220-1-2 and IEC 62220-1-3).

b) **Salient features of content:**

This part of standard specifies the method for the determination of the DETECTIVE QUANTUM EFFICIENCY (DQE) of DIGITAL X-RAY IMAGING DEVICES as a function of AIR KERMA and of SPATIAL FREQUENCY for the working conditions in the range of the medical application as specified by the MANUFACTURER. The intended users of this part of standard are manufacturers and well equipped test laboratories.

c) **Type/grades/classes, if any covered in the standards: Nil**