


Name of Policy: Quality Control of Radiation Generating Equipment	 Effective Date: 08/1/2022 Initial Effective Date: 10/1/2012
Policy Number: 3364-135-133	
Department: Radiology	
Approving Officer: Chief Operating Officer - UTMC	
Responsible Agent: Chairman & Professor, Radiology	
Scope: Radiology	
<input type="checkbox"/> New policy proposal <input checked="" type="checkbox"/> Minor/technical revision of existing policy <input type="checkbox"/> Major revision of existing policy <input type="checkbox"/> Reaffirmation of existing policy	

(A) Policy Statement

Radiation-generating equipment shall be evaluated by a certified medical physicist (or designee where permissible by regulation) upon installation, at a regular frequency as defined below for a given type of unit, and after major repair that could significantly affect the dose rate as determined by the medical physicist.

(B) Purpose of Policy

To ensure the equipment is operating in a safe manner for both the patient and operator(s) and to comply with all relevant regulations.

(C) Procedure

Evaluation of radiation-generating equipment will be conducted by the certified medical physicist or his/her designee in accordance with the specifications below dependent upon the type of equipment. In event that the evaluation is performed by the medical physicist’s designee the medical physicist will review the result of the evaluation. A report will be prepared for each equipment evaluation. In the event that a non-compliance is identified as a result of testing the equipment the appropriate manager or biomedical engineer will be notified such that corrective action can be arranged.

1. Radiographic equipment will be evaluated by the medical physicist or trained designee at a frequency of annual, not to exceed 18 months and will include tests of:
 - a. X-ray to light field alignment
 - b. Field size indicator accuracy
 - c. SID indicator accuracy
 - d. Radiation output reproducibility and linearity
 - e. Beam quality (HVL)
 - f. kVp accuracy and reproducibility
 - g. Timer accuracy

2. Fluoroscopic equipment will be evaluated by the medical physicist or trained designee at a frequency of annual, not to exceed 13 months (per Ohio Department of Health requirements) and will include tests of:
 - a. X-ray field and image receptor alignment
 - b. Performance of automatic exposure rate control
 - c. Maximum entrance exposure rates (per specifications of 3701:1-66-07(C)(6))
 - d. High contrast resolution
 - e. Low contrast resolution

3. Mammographic equipment will be evaluated ONLY by a certified medical physicist at a frequency of annual, not to exceed 14 months (per MQSA requirements) and will be performed as outlined in the latest edition of the Lorad Selenia Quality Control Manual.
4. Computed tomography equipment will be evaluated ONLY by a certified medical physicist at a frequency of annual, not to exceed 13 months (per Joint Commission requirements) and will be performed as outlined in the latest edition of the ACR Computed Tomography Quality Control Manual. This will include tests of:
 - a. Image uniformity
 - b. Slice thickness accuracy
 - c. Slice prescription accuracy
 - d. Laser light accuracy
 - e. Table incrementation accuracy
 - f. Radiation profiles (beam width)
 - g. High contrast resolution
 - h. Low contrast resolution
 - i. Geometric accuracy
 - j. CT number accuracy
 - k. Artifact evaluation
 - l. Measurement of CTDI_{vol} for adult brain, adult abdomen, pediatric brain and pediatric abdomen protocols (as applicable)
 - m. Accuracy of scanner-displayed CTDI_{vol}
 - n. Display monitor evaluation
5. Stereotactic breast biopsy equipment will be evaluated ONLY by a certified medical physicist at a frequency of annual, not to exceed 14 months and will be performed as outlined in the latest edition of the ACR Stereotactic Breast Biopsy Quality Control Manual.
6. Bone density equipment will be evaluated by the medical physicist or trained designee at a frequency of biennial, not to exceed 26 month and will include tests of:
 - a. Daily quality control evaluation
 - b. Measured bone density accuracy
 - c. Scatter measurements
7. Cabinet x-ray system equipment will be evaluated by the medical physicist or trained designee at a frequency of biennial, not to exceed 26 months and will include test of:
 - a. Tests for proper operation, interlocks, etc.
 - b. Scatter measurements

Approved by:	Review/Revision Date:
<u>/s/</u> Haitham Elsamaloty, MD Chairman & Professor, Radiology <u>07/22/2022</u> Date	10/1/2012 10/29/2012 10/1/2015 10/1/2018 08/1/2020 08/1/2022
<u>/s/</u> Christine Stesney-Ridenour, FACHE Chief Operating Officer - UTM <u>07/26/2022</u> Date	
<u>/s/</u> Joe Agosti, CNMT Radiation Safety Officer <u>07/20/2022</u> Date	
	Next Review Date: 08/1/2025
Policies Superseded by This Policy:	