Name of Policy:	PERIODIC QUALITY ASSURANCE TESTING OF THE PET/CT SIMULATOR
Policy Number:	3364-134-103
Department:	Radiation Oncology
Approving Officer:	Chief Executive Officer - UTMC Professor & Chairman, Radiation Oncology
Responsible Agent:	Technical Manager, Radiation Oncology
Scope:	Radiation Oncology

UT HEALTH
THE UNIVERSITY OF TOLEDO

Effective Date: 12/1//2017

Initial Effective Date: 5/1/2014

_____ New policy proposal
__X__ Major revision of existing policy
_____ Minor/technical revision of existing policy
_____ Reaffirmation of existing policy

OBJECTIVE:
Routine QA testing is performed on the PET/CT-SIM unit to assure the scanner is in optimal operating condition. These testing procedures are based on American Association of Physicists in Medicine's TG66 report.

CT-SIM

DAILY: The following tests are performed on the scanner in the beginning of the day when there is a patient scheduled to be scanned:

- Manufacturer's recommended warm-up procedure
- Alignment of gantry lasers with the center of imaging plane (BB test)
- CT numbers accuracy
- Image noise assessment
- In plane spatial integrity (x or y)

MONTHLY: Monthly QA will be performed by a physicist during each calendar month following the recommendations of the AAPM TG66. These checks will include documentation of:

- Orientation of the gantry lasers with respect to the imaging plane
- Orientation of the wall/ceiling lasers with respect to the imaging plane
- Table vertical and longitudinal motions
- Spacing of wall lasers with respect to gantry lasers and scan plane
- Orientation of the CT scanner tabletop with respect to the imaging plane
- CT number accuracy
- In plane spatial integrity (both directions)
- Field uniformity*

ANNUAL: A physicist will perform annual calibrations and QA within 14 months of the initial acceptance or the previous annual QA. These reports will include the documentation of:

- CT Number Accuracy
- Image Noise
- Image Uniformity & Artifacts
- Low Contrast Performance & CNR
- High-Contrast Resolution
- Spatial Resolution
- Slice Thickness Accuracy & Geometric Accuracy

- Slice Positioning & Laser Light Accuracy
- Table Incrementation (Indexing and Position) Accuracy
- Radiation Beam Width
- Scan Localization
- Sensitivity Profile Width (twice annually)
- Radiation Dosimetry (CTDI Accuracy)
- CT Protocol Review
- Monitor Evaluation

PET SCANNER

DAILY
- Manufacturer's daily automated QC to check baseline, energy, PMT gains, emission, and timing

MONTHLY
- SUV Validation
- Image Uniformity

ANNUAL
- SUV Validation
- Image Uniformity & Artifacts
- Low Contrast Performance
- High-Contrast Resolution
- Monitor Evaluation

Approved by: 11/29/2017 Changhu Chen, MD — Date Professor & Chairman, Radiation Oncology 6 Dec 2017 Daniel Barbee, RN, BSN, MBA — Date Chief Executive Officer - UTMC *Review/Revision Completed By:* *Michelle Giovanoli*	**Review/Revision Date:** 5/1/2014 5/1/2017 12/1/2017 **Next Review Date:** 12/1//2020
Policies Superseded by This Policy:	