

Part IV - Appendix F

Minimum Criteria for Performance Tests

The following items must be tested. Each item tested must include an indication of Pass/Fail, Compliant/Non-compliant, as required by RHB 2.7.3.6. Items marked with an asterisk (*) indicate that this item is not necessarily required to be tested by the vendor, but must be tested in order for the facility to meet the requirements of RHB 4.2.16.1. Each record of equipment performance testing shall be legible and include company name, service person name, and the date of the test, and all applicable requirements of RHB 2.7.3.6.6.

MEDICAL RADIOGRAPHIC (Including veterinary facilities)

1. Half-value layer (HVL) (4.3.5)
2. X-ray field/light field alignment (4.7.1.3, 4.8.4)
3. Exposure reproducibility (4.7.5)
4. mA/mAs linearity (4.7.7)
5. kVp accuracy (4.7.6)
6. Timer reproducibility and accuracy (4.7.4.2.6, 4.7.6)
7. X-ray beam/image receptor centering (4.7.1.7)
8. Collimator light illuminance (4.7.8)
9. Actual vs. indicated collimator field sizes (4.7.1.5, 4.8.6)
10. Positive beam limitation function, if operable (4.7.12)
11. Visual and audible indication of exposure (4.7.4.2.4)
12. Minimum field size (4.7.14)
13. Patient exposure at skin entrance, for most common exams performed at the facility (except veterinary facilities) (4.2.13.2)
14. Proper function of automatic exposure control devices, including AEC reproducibility, kV compensation, and minimum response time (4.7.4.2.5)
15. Grid uniformity and alignment (4.2.16.3)
16. Integrity of lead aprons, gloves, and other protective clothing (4.2.8)*
17. Actual vs. Indicated Source to Image Distance (SID), for all clinically used SIDs (4.7.11)
18. Beam size(s) for fixed collimation, if applicable (4.7.3)
19. X-ray control placement (Appendix C, 3a)

These items must be checked upon initial installation and after any maintenance or repair that could affect its status:

1. Adherence to the accepted shielding plan (4.4) (Visual inspection of layout of equipment, location of exposure button, location of film, etc.)
2. Minimum source to skin distance on mobile radiographic units (4.8.12)
3. Proper indication of multiple tubes on units so equipped (4.7.4.2.3)

FLUOROSCOPIC

1. X-ray beam/Viewed image size comparison (4.9.2.2)
2. Exposure rate output measurement, using average techniques, using maximum techniques, and in high level exposure mode, if so equipped, in each mode routinely used (4.9.4)
3. Image intensifier interlock with unit in park position (4.9.2.1.2)
4. Cumulative timer function (4.9.7.1)
5. Control of scattered radiation (4.9.8)
6. High contrast resolution and low contrast performance

7. Minimum source to skin distance, upon initial installation (4.9.1)
8. Spot film beam size (4.9.2.3.2)
9. Spot film beam centering (4.9.2.3.4)
10. Spot film exposure reproducibility (4.9.9.3)
11. Spot film mA/mAs linearity (4.7.7)
12. Spot film timer reproducibility and accuracy (4.9.9.2, 4.7.6)
13. Proper function of spot film automatic exposure control devices, including AEC reproducibility, kV compensation, and minimum response time (4.7.4.2.5)
14. Half-value layer (HVL) (4.3.5)
15. Cinefluorographic exposure rates (4.9.4)
16. Integrity of lead aprons, gloves, and other protective clothing (4.2.8)*
17. Integrity of bucky slot cover shielding and lead drapes (4.2.8)*
18. Continuous indication of kV and mA during fluoroscopy (4.9.6)
19. X-ray control placement (Appendix C, 3a)

These items must be checked upon initial installation and after any maintenance or repair that could affect its status:

1. Adherence to the accepted shielding plan (4.4) (Visual inspection of layout of equipment, location of exposure button, location of film, etc.)
2. Primary Barrier Transmission (4.9.5)

RADIATION THERAPY SIMULATION SYSTEMS

1. Half-value layer (HVL) (4.3.5)
2. X-ray field/light field alignment (4.7.1.3)
3. Exposure reproducibility (4.7.5)
4. mA/mAs linearity (4.7.7)
5. kVp accuracy (4.7.6)
6. Timer reproducibility and accuracy (4.7.4.2.6, 4.7.6)
7. X-ray beam/image receptor centering (4.7.1.7)
8. Actual vs. indicated collimator field sizes (4.7.1.5)
9. Positive beam limitation function, if operable (4.7.12)
10. Visual and audible indication of exposure (4.5.4.2.4)
11. Proper function of automatic exposure control devices, including AEC reproducibility, kV compensation, and minimum response time (4.7.4.2.5)
12. Grid uniformity and alignment (4.2.16.3)
13. Integrity of lead aprons, gloves, and other protective clothing (4.2.8)*
14. Actual vs. Indicated Source to Image Distance (SID), for all clinically used SIDs (4.7.11)
15. Exposure rate output measurement, using average techniques, using maximum techniques, and in high level exposure mode, if so equipped, in each mode routinely used (4.9.4)
16. Cumulative timer function (4.9.7.1)
17. Measurement of scattered radiation (4.9.8)
18. High contrast resolution and low contrast performance
19. Minimum source to skin distance, upon initial installation (4.9.1)
20. X-ray control placement (Appendix C, 3a)

These items must be checked upon initial installation and after any maintenance or repair that could affect its status: Adherence to the accepted shielding plan (4.4) (Visual inspection of layout of equipment, location of exposure button, location of film, etc.)

COMPUTED TOMOGRAPHY (CT) (Including CT treatment planning systems used in radiation therapy, and dental CT where applicable)

1. Actual vs. indicated scan increment (4.11.1.6.3)
2. Measurement of radiation output (patient dose) (CT treatment planning systems are exempt) (4.11.3.1)
3. CT number calibration and constancy (4.11.3)
4. High and low contrast resolution
5. Precision (noise)
6. Contrast scale
7. Spot checks as specified by a Class IX Vendor (4.11.3.2)
8. An area survey, upon initial installation
9. X-ray control placement (Appendix C, 3a)
10. Integrity of lead aprons, gloves, and other protective clothing (4.2.8)*

These items must be checked upon initial installation and after any maintenance or repair that could affect its status: Adherence to the accepted shielding plan (4.4) (Visual inspection of layout of equipment, location of exposure button, location of film, etc.)

DENTAL

1. Half-value layer (HVL) (4.3.5)
2. Exposure reproducibility (4.5.5)
3. mA/mAs linearity (4.5.6)
4. kVp accuracy (4.5.7)
5. Timer reproducibility and accuracy (4.5.3.3, 4.5.7)
6. Visual and audible indication of exposure (4.5.4.2.4)
7. Patient exposure at skin entrance, bitewing and/or periapicals (4.2.13.2)
8. Mechanical support of tubehead (4.5.10)
9. Integrity of pass through interlocks (4.5.11.3)
10. Integrity of lead aprons, gloves, and other protective clothing (4.2.8)*
11. X-ray control placement (4.5.4.2)

These items must be checked upon initial installation and after any maintenance or repair that could affect its status:

1. Adherence to the accepted shielding plan, if applicable (4.4) (Visual inspection of layout of equipment, location of exposure button, location of film, etc.)
2. Minimum source to skin distance (4.5.1)
3. X-ray beam size (4.5.2)
4. Proper indication of multiple tubes on units so equipped (4.5.9)

NOTE: Cephalometric units are considered medical units by the Department, and are subject to the requirements for medical radiographic units.