EXAMPLE FORM
EQUIPMENT PERFORMANCE EVALUATION (EPE)
RADIOGRAPHIC UNIT

NOTE: Equipment performance evaluations shall be performed by or under the supervision of a licensed medical physicist: 25 TAC §289.227(o)(1)

Facility Name: ___________________________ Registration No.:__________________ Date: _________________

Survey Instrument Used: ____________________________ Calibration/ Intercomparison Date:_________________________

X-RAY UNIT IDENTIFICATION (CONTROL PANEL)
Manufacturer: _____________________________________________________ Location/Room: ________________________
Model No.: _________________________________________ Serial No.: ___________________________________________

TIMER ACCURACY
Regulation: 25 TAC ‘289.227(o)(5)(A): The accuracy of the timer shall meet the manufacturer’s specifications. If the manufacturer specifications are not obtainable, the timer accuracy shall be ±10 percent of the indicated time with the testing performed at 0.5 second. (The numerical values shall be documented in milliseconds or pulses.) Select method used for testing.

Select One: □ Manufacturer specifications which are ________________________________ OR □ ±10% tolerance

Time used for testing: ____________ msec OR ___________ pulses (No time greater than 0.5 second (500 msec) to be used)

Perform four measurements at the above time setting: (Circle appropriate unit)

   _____ msec
   _____ msec/pulses
   _____ msec/pulses
   _____ msec/pulses

Pass ( ) Fail ( )

EXPOSURE REPRODUCIBILITY
Regulation: 25 TAC ‘289.227(o)(5)(B): Exposure reproducibility shall meet the requirements of 25 TAC §289.227(l)(4). When all technique factors are held constant, the coefficient of variation of exposures for both manual and AEC systems shall not exceed 0.05. This requirement applies to clinically used techniques.

Technique factors selected: _______ kVp ________ mA _________ time

Perform four measurements:

1. __________ mR  3. __________ mR
2. __________ mR  4. __________ mR

Coefficient of variation:
(Must not exceed .05) _____________

Pass ( ) Fail ( )
LINEARITY

Regulation: 25 TAC §289.227(o)(5)(C): mA/mAs stations shall meet the requirements of 25 TAC §289.227(l)(5). The average ratios of exposure mR to the indicated mAs product obtained at any two consecutive mA or mAs settings shall not differ by more than 0.10 times their sum, where \( X_1 \) and \( X_2 \) are the average mR/mAs values obtained at each of two consecutive tube current settings.

\[
\frac{X_1}{X_2} \leq 0.1(X_1 + X_2)
\]

mA station selected: ______ mA  mA station selected: ______ mA
mAs determined: ______ mAs     mAs determined: ______ mAs
Output:_______ mR/mAs_______ = \( X_1 \)  Output:_______ mR/mAs_______ = \( X_2 \)

Pass ( )  Fail ( )

KVP

Regulations: 25 TAC §289.227(o)(5)(D): If the registrant possesses documentation of the appropriate manufacturer’s kVp specifications, the radiation machine shall meet those specifications. If the registrant does not possess documentation of the appropriate manufacturer's kVp specifications, the kVp shall be accurate to within ±10 percent of the indicated setting at no less than three points over the usual operating range of the machine. (For units with fewer than three fixed kVp settings, the units shall be checked at those settings.)

Select method for testing:

- Manufacturer specifications which are ____________________________  OR
- ±10% of indicated setting

Indicated kVp_______ Measured kVp_______ Deviation ____%
Indicated kVp_______ Measured kVp_______ Deviation ____%
Indicated kVp_______ Measured kVp_______ Deviation ____%

Pass ( )  Fail ( )

ENTRANCE EXPOSURE (EE) LIMITS

Regulations: 25 TAC §289.227(o)(5)(G): EE limits shall meet the requirements in 25 TAC §289.227(j). The in-air exposure determined for the technique used by the registrant for the specified average human adult patient thickness for routine medical radiography shall not exceed the entrance exposure limits in the following Table. (Test all exam types performed in facility.)

<table>
<thead>
<tr>
<th>Examination</th>
<th>Patient Thickness(cm)</th>
<th>Exposure Limit (mR)</th>
<th>kVp</th>
<th>mA(s)</th>
<th>Time</th>
<th>SID</th>
<th>Entrance Exposure</th>
<th>Circle one Pass/Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest-PA</td>
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<td>Non-Grid</td>
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<td>P F</td>
</tr>
<tr>
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<td>P F</td>
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<tr>
<td>Abdomen KUB</td>
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<td>P F</td>
</tr>
<tr>
<td>Lumb-Sacral Spine–AP</td>
<td>23</td>
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<td>P F</td>
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<tr>
<td>Thoracic Spine</td>
<td>23</td>
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<td>P F</td>
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<td>P F</td>
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<td>P F</td>
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<td>P F</td>
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<tr>
<td>Foot-DP</td>
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<td>50</td>
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<td></td>
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<td></td>
<td>P F</td>
</tr>
</tbody>
</table>
**TUBE STABILITY**

**Regulation:** 25 TAC §289.227(o)(5)(E): The tube shall remain physically stable during exposures. In cases where tubes are designed to move during exposure, the registrant shall assure proper and free movement of the unit.

Tube stable at all orientations with free movement where designed: Pass ( ) Fail ( )

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**COLLIMATION**

**Regulation:** 25 TAC §289.227(o)(5)(F):

The following items shall meet the requirements of 25 TAC §289.227(l)(1):
(i). Numerical indicators of x-ray field size
(ii). Light field versus x-ray field congruence
(iii). Operable automatic and semi-automatic collimators
(iv). Center of x-ray field with center of image receptor

Select type of collimation: ☐ Automatic ☐ Semi-automatic ☐ Manual

Source to image distance (SID): _______ ☐ in OR ☐ cm

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**TEST ALL MODES THAT ARE FUNCTIONAL**

**Manual mode**

Selected field size _______ X _______ ☐ in OR ☐ cm

Measured field size _______ X _______ ☐ in OR ☐ cm

Misalignment within 2% of the SID: Pass ( ) Fail ( )

**Automatic/Semi-automatic mode**

Selected field size: _______ X _______ ☐ in OR ☐ cm

Measured field size: _______ X _______ ☐ in OR ☐ cm

Misalignment within 3%/4% total of the SID: Pass ( ) Fail ( )

**Light field vs. X-ray field**

Light field/X-ray field misalignment: _______ X _______ ☐ in. OR ☐ cm

Light field/X-ray field misalignment within 2% of the SID: Pass ( ) Fail ( )

**Center alignment**

Center misalignment: _______ ☐ in OR ☐ cm

Center misalignment within 2% of the SID: Pass ( ) Fail ( )

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**Equipment Performance Evaluation Testing performed by:**

Service Company: _______________________________ Registration No.: _______________________________

Technician Signature: __________________________ Date: __________________________

Licensed Medical Physicist’s Signature: __________________________ Date: __________________________

LMP License No.: __________________________ LMP Registration No.: __________________________