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.: ____________________________________ EPE Date: _______________________
Survey Instrument Used: ____________________________________ Calibration Date: ________________
Survey Instrument: □ Exposed sensor/detector OR □ Enclosed sensor/detector

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/pulses 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. (See pages 4 & 5 for formula and explanation.)

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. (See pages 6 and 7 for explanation.)

\[
X_1 - X_2 \leq 0.1(X_1 + X_2)
\]

<table>
<thead>
<tr>
<th>mA station selected:</th>
<th>mA station selected:</th>
</tr>
</thead>
<tbody>
<tr>
<td>mA determined:</td>
<td>mA determined:</td>
</tr>
<tr>
<td>Output: ( mR/mAs = X_1 )</td>
<td>Output: ( mR/mAs = X_2 )</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Indicated kVp</th>
<th>Measured kVp</th>
<th>Deviation %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.) (See page 8 for formula and instructions.)

<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>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Grid</td>
<td>23</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P F</td>
</tr>
<tr>
<td>Grid</td>
<td>23</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P F</td>
</tr>
<tr>
<td>Abdomen KUB</td>
<td>23</td>
<td>450</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P F</td>
</tr>
<tr>
<td>Lumb-Sacral Spine–AP</td>
<td>23</td>
<td>550</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P F</td>
</tr>
<tr>
<td>Thoracic Spine</td>
<td>23</td>
<td>325</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P F</td>
</tr>
<tr>
<td>Cervical Spine</td>
<td>13</td>
<td>120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P F</td>
</tr>
<tr>
<td>Full Spine</td>
<td>23</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P F</td>
</tr>
<tr>
<td>Skull-Lateral</td>
<td>15</td>
<td>150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P F</td>
</tr>
<tr>
<td>Foot-DP</td>
<td>8</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<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.

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Test Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tube stable at all orientations with free movement where designed:</td>
<td>Pass ( ) Fail ( )</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Select type of collimation</th>
<th>☐ Automatic</th>
<th>☐ Semi-automatic</th>
<th>☐ Manual</th>
</tr>
</thead>
</table>

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

**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 ( )

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.: __________________

Rad INSP EPE – Radiographic-1 updated November, 2006
Page3 of 3