

FORMAT FOR PERIODIC QUALITY ASSURANCE TEST REPORT FOR MAMMOGRAPHY EQUIPMENT

(Periodic Quality Assurance shall be carried out at least once in two years and also after any repairs having radiation safety implications)

A. DETAILS OF THE DIAGNOSTIC X-RAY EQUIPMENT

| | | |
|---|--|--|
| 1 | Name of the Institution and City | |
| 2 | Type of Equipment | |
| 3 | Model Name | |
| 4 | Name of the Manufacturer | |
| 5 | Name(s) of Person(s) testing the equipment and Name of Supplier/Service Agency | |
| 6 | Dates and Duration of the Tests | |

B. SUMMARY OF RADIATION SAFETY PERFORMANCE TEST REPORT:

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| Sr. No | Parameters tested | Specific values | Measured values | Tolerance | Remarks |
|--------|---|-----------------|-----------------|---|---------|
| 1. | Accuracy of Operating Potential | | | ± 1 kV | |
| 2. | Accuracy of Timer | | | % Error < 10 % | |
| 3. | Linearity of tube current (CoL) | | | CoL < 0.1 | |
| 4. | Reproducibility of output (CoV) | | | CoV \leq 0.05 | |
| 5. | Radiation Leakage level from X Ray tube housing ___ kV & __mA | | | < 0.02 mGy in one hour | |
| 6. | Total Filtration (Measurement at maximum kV) | | | Tolerance : First HVL at 30 kVp \geq 0.3 mm Al First HVL at 40 kVp \geq 0.4 mm Al First HVL at 50 kVp \geq 0.5 mm Al | |
| 7 | Performance of imaging phantom | | | > 4 fibers > 3 calcification > 3 masses must be visible | |

I hereby undertake that all the information provided above is correct and in accordance with the detailed Quality Assurance Report enclosed herewith.

Place:
Date:

Signature:
Name of the Service Engineer:
Name of Supplier/Service Agency:
Seal of Supplier/Service Agency:

#Signature of Institution's Representative:
Name of Institution:
Seal of the Institution:

Quality Assurance Tests Report shall be signed by Institution's Representative and duly stamped by the

User's Institution.

Result: The HVT of the unit is = _____ mm of Al for -- kVp
 Recommended Value: First HVL at 30 kVp \geq 0.3 mm Al
 First HVL at 40 kVp \geq 0.4 mm Al
 First HVL at 50 kVp \geq 0.5 mm Al

Added filter thickness =-----mm Molybdenum/Aluminium/Rhodium

5. REPRODUCIBILITY OF RADIATION OUTPUT:

| Applied kV | mAs | Output (μ Gy) | | | Average (X) | Coefficient of Variation (CoV) | Remarks |
|------------------------|-----|--------------------|---|---|-------------|--------------------------------|---------|
| | | 1 | 2 | 3 | | | |
| | | | | | | | |
| | | | | | | | |
| Tolerance : COV < 0.05 | | | | | | | |

6. RADIATION LEAKAGE LEVELS AT 5 cm FROM THE EXTERNAL SURFACE OF X-RAY TUBE HOUSING

Operating parameters:

| | | | | | | | |
|------------------------------|-----|-----|-------|----|--|---------|--|
| Distance from the focus (cm) | 100 | kVp | (Max) | mA | | Time(s) | |
|------------------------------|-----|-----|-------|----|--|---------|--|

| Location (at 1.0 m from the focus) | Exposure level (mGy/hr or mR/hr) | | | | | Workload | Result Maximum radiation leakage at 5cm from the external surface of X-ray tube housing |
|------------------------------------|--|-------|-------|------|-----|----------------------|--|
| | Left | Right | Front | Back | Top | | |
| Tube | | | | | | 40 mAmin in one hour | ... mGy in 1 hr |
| Tolerance | The leakage radiation averaged over an area of 10 cm ² , with no linear dimension greater than 20 cm and located at 5 cm from any point on the external surface of X-ray tube housing does not exceed 0.02 mGy in one hour. | | | | | | |

Max leakage = $40 \text{ mAmin in one hour} \times \text{---Max leakage mR/hr}$
 $60 \times \text{-----mA used for measurement}$

7. IMAGING PERFORMANCE EVALUATION:

Equipment Used: Mammography Imaging Phantom

| Sr. | Name of the object | Number of object visible | Tolerance (Number of object clearly |
|-----|--------------------|--------------------------|--------------------------------------|
|-----|--------------------|--------------------------|--------------------------------------|

| No. | in Mammography phantom | in the film exposed with Mammography Phantom | visible in the film at an average glandular dose less than 3 mGy |
|-----|------------------------|--|--|
| 1. | Fibers | | >4 fibers must be clearly visible |
| 2. | Micro Calcification | | >3 Micro calcification must be clearly visible |
| 3. | Masses | | > 3 masses must be clearly visible |

Details of Radiation Protection Survey of the installation

Date of radiation protection survey:

Whether radiation survey meter used for the survey has valid calibration certificate: Yes/No

Equipment Setting:-

Applied Current (mA):

Applied Voltage (kV):

Exposure time(s):

Workload:

Provide the measured maximum radiation levels (mR/hr) at different locations

| Location | Max. Radiation level (mR/hr) |
|------------------------------------|------------------------------|
| Control console(Operator Position) | |
| Outside patient entrance door | |
| Behind Windows (if applicable) | |
| Patient Waiting Area | |

$$\text{Maximum Radiation level/week (mR/wk)} = \frac{\text{----- mAmin/week} \times \text{----Max. radiation level (mR/hr)}}{60 \times \text{-----mA used for measurement}}$$

Permissible limit: For location of Radiation Worker: 20 mSv in a year (40 mR/week)

For Location of Member of Public: 1 mSv in a year (2mR/week)