



## Diagnostic Radiology Inspection Checklist

[Doc No. : AERB/IMS/L-III/DRI/RFIC/31C]

Directorate of Regulatory Inspection  
ATOMIC ENERGY REGULATORY BOARD

Revision : 1  
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|                       |   |
|-----------------------|---|
| Name of Facility      |   |
| e-LORA ID             | Yes <input type="checkbox"/> _____ No <input type="checkbox"/>  |
| Additional Facilities | Medical Cyclotron <input type="checkbox"/><br>Nuclear Medicine <input type="checkbox"/><br>Radiotherapy <input type="checkbox"/><br>Gamma Chamber(Blood Irradiator) <input type="checkbox"/><br>Any other _____ |
| Facility Status       | In Operation <input type="checkbox"/><br>Not in Operation <input type="checkbox"/><br>Reasons for Not in operation _____  |
| Inspection Date       |   |
| Type of Inspection    | Routine <input type="checkbox"/> Special <input type="checkbox"/><br>Announced <input type="checkbox"/> Unannounced <input type="checkbox"/>  |
| Inspection Team       | 1.<br>2.<br>3.  |

### 1.0 Organization & Administration

#### 1.1 Facility *(to be filled in, in case the details are not matching with e-LORA)*

Address :

Telephone (O) :

e-mail :

**Type of Facility** : Government  Private  Others  \_\_\_\_\_



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### 1.2 Organization *(to be filled in, in case the details are not matching with e-LORA)*

*If the Facility is not registered, Fill in the details as obtained during inspection*

#### Employer

Name :

Designation :

Mobile Number : +91

e-mail :

**Whether Employer is the same as mentioned in e-LORA?** Yes  No

**If No, whether Employer change has been initiated in e-LORA?** Yes  No

**Whether Licensee is same as Employer?** Yes  No

#### If No, Licensee

Name :

Designation :

Mobile Number : +91

E-mail :

**Whether Licensee is the same as mentioned in e-LORA?** Yes  No

**If No, whether licensee change has been made in e-LORA?** Yes  No

#### RSO

Name :

Designation :

Mobile Number : +91

E-mail :

**Whether RSO approval is/are valid?** Yes  No



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### Operation Staff

Number of X-ray technologists: \_\_\_\_\_

Number of medical practitioners: \_\_\_\_\_

Whether all the radiation professional/workers are registered in e-LORA? Yes  No

Whether the operation staff is adequate? Yes  No

*(Consider no. of Equipment & work load -Refer RSD Guidelines/Consult RSD)*

### Observations:

## 2.0 Compliance to Previous Inspection Findings

Whether any Inspection was carried out in the past? NA  Yes  No

Date of inspection: \_\_\_/\_\_\_/\_\_\_\_\_

Whether NCs, if any are already complied? Yes  No

**If No**, Particulars of pending NCs:

1.

2.

3.



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### 3.0 X-ray Equipment availability, Operational Parameters and Protection Devices

| Type of equipment         | No. of Equipment | License obtained<br>Yes/No | Model Name of equipment (# <i>pl. specify only if the equipment is not licensed</i> ) | QA & Radiation Protection Survey Report Available:<br>Yes/No | Layout of X-ray Installation (s) as per shielding guidelines:<br>Yes/No | Availability of Radiation protection Devices/ Accessories<br>(Please tick )   |
|---------------------------|------------------|----------------------------|---|--|---|---|
| Computed Tomography       |                  |                            |   |  |   | Lead Apron  |
| Interventional Radiology  |                  |                            |   |  |   | DAP meter,<br>Lead Apron,<br>Ceiling suspended screen,<br>Couch hanging flaps |
| Radiography (Fixed)       |                  |                            |   |  |   | MPB<br>Lead Apron   |
| Radiography (Mobile)      |                  |                            |   |  |   | Lead Apron  |
| Radiography (Portable)    |                  |                            |   |  |   | Lead Apron  |
| C-Arm                     |                  |                            |   |  |   | Lead Apron  |
| O-Arm                     |                  |                            |   |  |   | Lead Apron  |
| Radiography & Fluoroscopy |                  |                            |   |  |   | MPB<br>Lead Apron   |
| Mammography               |                  |                            |   |  |   | Protective Barrier  |
| Dental (OPG)              |                  |                            |   |  |   | Protective Barrier  |
| Dental (CBCT)             |                  |                            |   |  |   | Protective Barrier  |
| Dental (Intra oral)       |                  |                            |   |  |   | Lead Apron  |
| BMD                       |                  |                            |   |  |   |   |



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Whether the above equipment are same as in e-LORA? **Yes**  **No**

If **No**, details of mismatches:

**Observations:**

### 4.0 Radiation Protection

#### 4.1 Personnel Monitoring (*PMS is recommendatory for dental radiology practice*)

- a) Whether the facility has registered with a personnel monitoring service (PMS) provider? **Yes**  **No**
- b) Whether PMD is provided to all radiation workers? **Yes**  **No**
- c) Whether PMD is provided to the trainees (if any)? **Yes**  **No**
- d) Whether PMDs are being worn by workers appropriately? **Yes**  **No**
- e) Whether proper storage of PMDs is available? **Yes**  **No**
- f) Whether a control TLD is available and kept at a radiation free Area? **Yes**  **No**
- g) Whether radiation workers have access to their personnel monitoring records? **Yes**  **No**
- h) Whether PMS was suspended any time during last three years? **Yes**  **No**
- If Yes, reasons thereof \_\_\_\_\_
- i) Whether any excessive exposure was reported during last three years? **Yes**  **No**

If **Yes**, whether investigation report was submitted to AERB? **Yes**  **No**

Whether adequate measures have been taken to avoid recurrence of such excessive exposure?(please ask what measures taken to confirm) **Yes**  **No**



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### 4.2 Radiation Surveillance

- a) Whether Radiation Placard including Proper Radiation Warning Symbol and instruction for pregnant woman outside the X-ray Installation(s) is available? **Yes**  **No**
- b) Whether door of X-ray Installation(s) is lead lined (except Mammography/Dental (intra-oral)/BMD installation)? **Yes**  **No**
- c) Whether two or more X-ray units are installed in a single room? **Yes**  **No**
- d) Whether lead aprons are stored properly when not in use? **Yes**  **No**
- e) Whether more than one attendee/comforter of the patient are inside the X-ray room during the procedure/examination? **Yes**  **No**

### Observations:

### 5.0 Equipment Related Parameters & Safety

#### 5.1 Fixed Radiography

- a) Whether collimator bulb(s) and beam limiting device (Collimator) are in working condition? **Yes**  **No**
- b) Whether chest stand is located at appropriate location (such that no significant stray radiation reaches at control console/entrance door)? **Yes**  **No**

#### 5.2 Computed Tomography (CT)

- a) Whether exposure parameters stated below are displayed on Control Console of the CT equipment?

|                          |  |
|--------------------------|--|
| Operating potential (kV) | <b>Yes</b> <input type="checkbox"/> <b>No</b> <input type="checkbox"/> |
| Operating Current (mA)   | <b>Yes</b> <input type="checkbox"/> <b>No</b> <input type="checkbox"/> |
| Exposure time            | <b>Yes</b> <input type="checkbox"/> <b>No</b> <input type="checkbox"/> |
| Scan length              | <b>Yes</b> <input type="checkbox"/> <b>No</b> <input type="checkbox"/> |
| Slice thickness          | <b>Yes</b> <input type="checkbox"/> <b>No</b> <input type="checkbox"/> |



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|           |  |
|-----------|--|
| CTDI_____ | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| DLP       | Yes <input type="checkbox"/> No <input type="checkbox"/> |

b) Whether Beam-ON status is available on Control Console of CT equipment during X-ray Examination? Yes  No

c) Whether oral communication and direct viewing facility between operator and patient is available on control console of CT equipment? Yes  No

### 5.3 Interventional Radiology

a) Whether dose related quantities are displayed on Control Panel of the Interventional Radiology equipment?

|                          |  |
|--------------------------|--|
| Operating potential (kV) | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Operating Current (mA)   | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Exposure time            | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Total fluoroscopy time   | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Number of Cine runs      | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Dose Area product        | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Dose rate                | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Cumulative Air Kerma     | Yes <input type="checkbox"/> No <input type="checkbox"/> |

b) Whether oral communication and direct viewing facility between operator and patient is available on control console of IR equipment? Yes  No

c) Whether visual indication on the control console is available for 'X-ray beam ON' condition when foot-operated switch is activated for conducting fluoroscopic examinations? Yes  No

**Observation:**



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### 6.0 Equipment Performance & Records

a) Whether periodic QA test (*kV accuracy, Linearity of radiation output, output constancy, Total Filtration, leakage radiation from tube housing & radiation protection survey etc.*) of the equipment is carried out by authorized agencies/supplier and records are maintained? Yes  No

b) Whether the following records are available?

- Maintenance/surveillance records Yes  No
- Personnel Dose Yes  No

**Observations:**

### 7.0 Radiation Survey of X-Ray/CT/IR Installation

Measure radiation levels at the following locations of the DR Installation, if the Inspector feels the layout & shielding [Refer Section 3.0 – Column 6] is not adequate to protect the occupational radiation workers and the Public-

| Location                         | Radiation level ( $\mu\text{Sv/hr}$ ) |  |  |
|----------------------------------|---------------------------------------|--|--|
| <b>Type of DR Equipment</b>      |                                       |  |  |
| Control Console / behind MPB     |                                       |  |  |
| Patient Entry Door               |                                       |  |  |
| Operator Entry Door              |                                       |  |  |
| Patient Waiting Area             |                                       |  |  |
| Outside the wall (If accessible) |                                       |  |  |
| Any Other*                       |                                       |  |  |

\*additional location decided by inspector





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*If any of these readings is/are abnormally high, or in the opinion of the inspector, the layout & shielding is not proper, radiation levels at all around the installation should be measured and recorded preferably with the help of a rough sketch. Please mention the Radiation Survey Meter Details, Background radiation levels, Operating parameters (kV, mA, exposure time) of the unit during the measurements.*

### 8.0 Feedback

I/we was/were briefed by the inspector(s) about the above observations mentioned in this report.

**(Signature of Employer)**

Name:

FACILITY SEAL

**Name of Inspectors**

1.

2.

3.

**Signature with Date**

1.

2.

3.