

**GOVERNMENT OF INDIA
BHABHA ATOMIC RESEARCH CENTRE
HEALTH PHYSICS DIVISION**

Ref : BARC/HPD/RPS(NF)/RAL/2018/10/2

Oct. 8, 2018

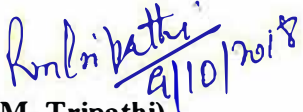
**Sub.: Fabrication of Smart Thermoluminescence Dosimeter (TLD) Repository
Management System**

Sealed quotations are hereby invited for the aforementioned work for which detailed specifications / descriptions are given in Annexure-1. You are requested to submit the sealed quotation by **Indian Post only (preferably speed post)**. You are requested to submit your sealed quotation by 25.10.2018 before 13.00 hrs. Any quotation reached us after this date and time will not be considered. The same will be opened on the same day at 15.30 hrs. Please note that the standard terms and conditions of the contract applicable to the work should be acceptable and no deviation will be allowed. The time allowed for completion of the above work is 3 months from the issue of the work order.

The quotation in sealed envelop with tender no. should be addressed to :

**Dr. (Smt.) A.C. Patra
Scientific Officer (F),
Radioanalytical Laboratory,
Health Physics Division,
Room No. BB-49, BARC Hospital,
Anushaktinagar, Mumbai-400 094
Tel. 022 – 2559 8267 / 78**

Thanking you,


(R.M. Tripathi)
Head, HPD

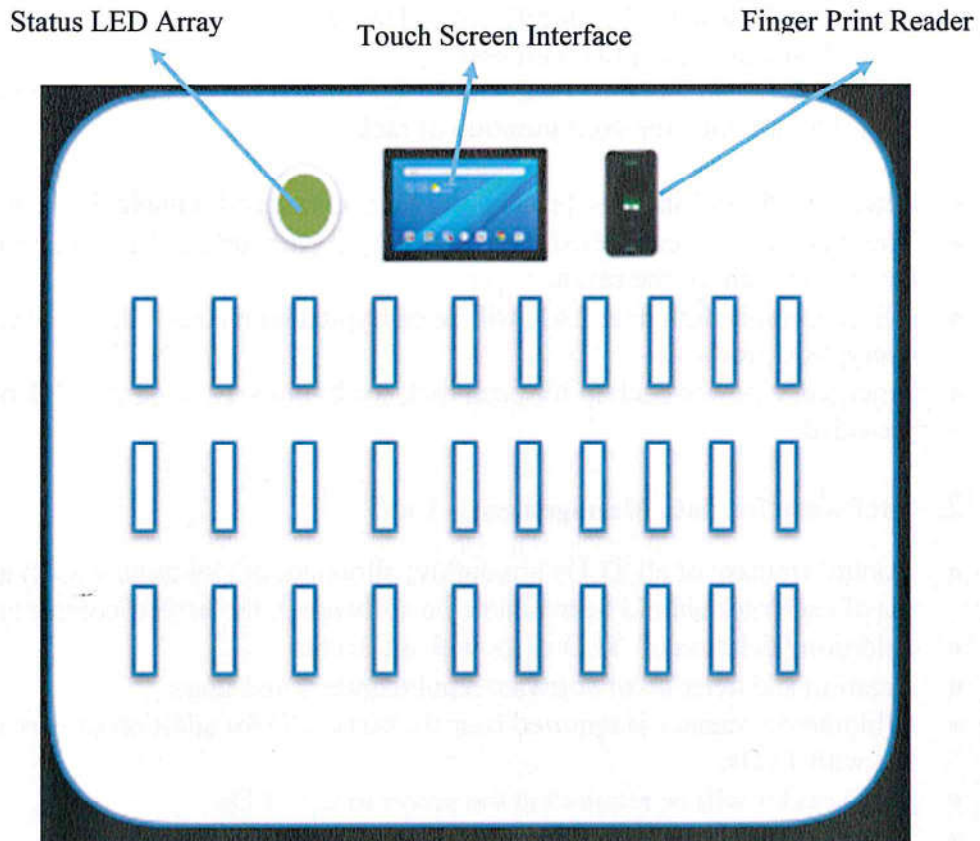
Encl.: As above

Technical Specifications of a Smart TLD Repository Management System

Supply, commissioning, installation, testing, demonstration and training of Smart Thermoluminescent Dosimeter (TLD) Repository Management System. The system comprises of Smart Rack (5 nos.), RFID tags for 1200 TLDs, Data management software and latest available desktop computer with monochrome duplex printer. Pre-despatch inspection will be carried out at workshop. The system will be installed at Health Physics Unit, Chatrapur, Odisha.

1. Smart TLD Repository System for 100 TLD slots in each rack - 5 Nos Required

- Each rack shall contain 100 slots for TLD with a LED indicator near each slot for location identification. Each rack will be designated to 100 workers and interchangeable of racks is not permitted. If by mistake, the employee put the TLD in wrong slot, it will not be accepted and a red LED will glow with an audible alarm.
- The dimensions of the slot will be 10 mm Length * 40 mm Height * 65 mm Depth
- The TLD slots will be such that one deposited any forceful removal will not be possible.
- The spacing between individuals slots will be 10 mm horizontal and 10 mm vertical.
- Layout of each rack / repository will be as follows:



- Each slot shall have a RFID reader to unique identification of TLD.
- Slots to deposit TLDs will have a replaceable plastic inner lining in case of damage or contamination.
- Each TLD will have an passive RFID tag to uniquely link it with its user's biometric data.
- No change can be made to the structural design of the TLD as it might affect the functionality of the device. However minor modifications can be done.
- Each rack shall contain one biometric scanner and a 7 inch LED display for details (Name of the user, Section, TLD No., Slot No. and time of issue).
- Large Circular LED Array to provide visual confirmation of employee identity verification with red or green lights.
- Both deposit and withdrawal of TLDs requires biometric verification of the employee to estimate the actual occupancy factor.
- The TLDs can only be deposited / withdrawn after of valid biometric conformation. LED indicator will indicate whether the identity of the user has been successfully validated by glowing Green / Red.
- Detailed logs pertaining to deposit and withdrawals of TLDs will be maintained.
- 7 inch Touchscreen display System will also be used for configuration and administration on rack
 - a. View User Logs
 - b. Enroll New User . Modify User . Delete User
 - c. Associate new TLD with user
 - d. Release all TLD for maintenance (permitted only for admin users)
 - e. Communication configuration of rack
- Ultrasonic deep skin fingerprint reader for accurate and reliable fingerprint verification.
- The racks will be connected over Local Area Network. A Management software will be used to manage the racks.
- All Communication over LAN will be encrypted with AES / 3DES / RSA or equivalent encryption protocol.
- Emergency power backup for each rack for 8 hours 12 V 42 AH * 4 batteries will be provided

2. **Software for data Management – 1 no.**

- Control (release of all TLDs bimonthly; allotment of slot to new user) and current status of each rack should be available on software in the server computer
- Addition / deletion of TLD users with all details
- Creation and deletion of software administrators and users
- A biometric scanner is required near the server PC for addition of new users and linking with TLDs.
- RFID reader will be required at the server to tag TLDs
- Realtime activity of any rack can be viewed .
- The software will be responsible for User Fingerprint management.
- Management of multiple TLD repositories.
- Control PC can generate the man hour of each TLD user for dose management.
- Generate TLD deposit and withdrawal reports.
- Simultaneous release of all TLDs for admin users during equipment servicing
- Time based deposit and retrieval schedules

- Generation of report on daily, weekly, monthly, quarterly, half yearly and yearly basis for all / selected employees with their details (Name, TLD ID, TLD ID, Occupancy Factor, Name of mine, working section, etc.)

3. **Data management System - 1 no.**

Latest available desktop computer comprises of LED Monitor, CPU, (Intel i3 or higher processor), 1 TB hard disk, 4 GB RAM, DVD writer, wired keyboard and mouse and installed with Windows 10 professional operating systems and laserjet printer with automatic duplex printing facility

USB Finger Print Scanner and USB RFID Reader – 1 no. each

Work Flow

Deposit of TLD

- A valid user will first place His / Her finger in the biometric scanner in the rack
- Once the identity is verified his details appear on screen and the user can now place the TLD in a slot designated to the user
- Once the TLD is placed in the correct slot user is given visual confirmation by green LED lights in the rack

Withdrawal of TLD

- The user who wants to withdraw his / her TLD places his finger on the finger print reader on the rack assigned to him.
- Once confirmed the LED array glows green and his details are displayed on the screen
- The user can now withdraw his TLD from the slot designated to him

Enrollment of New User

- The administrator of the system enters the user details in the software like name , dept. etc
- Admin enrolls the fingerprint of the user in the system with the help of the usb finger print scanner
- Admin attaches an RFID tag to the TLD and checks whether it is working on the USB RFID reader
- Admin then checks for all the vacant slots in the rack network through the software
- Out of the list of vacant slots he assigns one to the user
- The user can now use the system for depositing his / her TLDs.

Important terms and conditions in addition to general terms of BARC :

One smart rack will be inspected at the vendors workshop for checking of the features and other details. Only after our satisfactory certificate, other units will be fabricated. If the vendor fails to meet the technical specifications, no payment will be made for the first unit. If any suggestion is made during inspection, the vendor will implement in the other racks.

As the required unit will be installed in corridor / room without AC over the years, the design of the smart rack such that it sustain the temperature variation from 10 – 50 °C and humidity variation of 40 – 80%. Any defect in any part will be replaced by the vendor without any additional charge upto 12 months from the date of installation. Service and maintenance charges shall be submitted with the quotation for 5 years after warranty period.

Format for Providing the Financial Details

Sl. no.	Description/ Dimension	Quantity (no.)	Cost per unit (₹)	Total cost (₹)
1	Smart PRD Rack for 100 PRD slots	5		
2	Software for data Management	1		
3	Data management system (Desktop computer & Printer)	1		
		Sub-Total (₹)		
		GST @5% (₹)		
		Grand Total (₹)		

Note : GST@5% will be payable only. GST exemption certificate will be provided along with work order.