PART-D:Specifications

Tender No.: 634/ CURIE/2024 **Dated: 14 November 2024**

1. Gamma Radiation survey cum Dosimeter:

Application	Gamma exposure meter for wide range gamma dose rate
Detector	Energy compensated GM tube
Measurement range	5 μR/h - 5 R/h
Over range indicator	1000 R/h
Energy range (±30%)	45 keV – 1.3 MeV
Sensitivity	at least 0.015 cps per μR/h for Cs-137 (662 keV)
Weight	not more than 175 gm
Size	not more than 100 × 65 × 35 mm (pocket size)
Data storage	at least 1500 data points for mean and max. allowing retrospective analysis
Software	PC software with real time graph

Accessories required:

a) Carry case 1 No.
b) PC software CD with data cable 1 No.
c) pair of AAA size NiMH rechargeable batteries with Battery charger: 1 No.

2. Dosimeter (Pinholes cup):

- Simultaneous measurement of radon and thoron using LR-115 (type-II) detector
- Single entry face for both radon and thoron diffusion.
- Discrimination of radon/thoron should be carried out by pin-holes. No additional membrane should be required for radon-thoron discrimination. Thoron entry into the radon chamber through pin-holes should be within 2 %.
- Material: Light weight plastic such ABS with inside metal coating
- Materials should be free from radon/thoron absorption
- Outside coating by a decorative colour preferably wooden
- Easy fixing metal holder for LR-115 detectors of minimum size of 3 cm x 3 cm withsuitable number of pin holes for thoron cut off.
- Provision for dosimeter numbering as per user request
- Sensitivity should be at least 0.017 track/cm^2/day/(Bq/m^3) for radon and 0.01 track/cm^2/day/(Bq/m^3) for thoron detection
- Proper sealing should be provided at each threading using Neoprene 'O' ring. Maximum allowable leakage in sealed condition is 0.0005 h^{-1}
- Deployment arrangement: vertically with chain lock system at top with gas entry face downward
- Design should be approved by RP&AD, BARC

3. Spark Counter and Boiling / Etching Bath

Detector Type	Solid State Nuclear track detector
Count Capacity	99999 counts
Count Display	On the LCD display
Dead Time	Less than 10 µ for spark registration Sparking Head area = 1 Sq.cm(±0.1% accuracy)
EHT Range	100 Volts to 1000 volts, user settable
EHT Display	4 Digit display on LCD Module
EHT Setting	Independent setting of Pre-sparking & counting Voltage through keys using two digital potentiometers
Counting Gate/Window time	1 to 10 sec. User –settable through keys
Display	32 character backlit LCD Module
Parameters Displayed	Counts and EHT
Operating Keys	5 Nos.
Data Transfer	Through RS 232 serial port for data transfer to a PC
Downloading Software	Provided on a CD
Power	Mains 230 V AC ± 10%
Dimensions	23 cm x 20 cm x 28 cm
Accessories	Microprocessor based control system

4. **Power supply**

Output voltage	Variable-50 to -1000 Voltage
Polarity	Negative
Maximum Output Current	100µA
Ripple	~50mV peak to peak at 1000V with the load
O/P Voltage Display	3 & ½ digit LED
Voltage Setting	10 turn Helipot (Potentiometer) with knob
Output	BNC Connector
Line and Load Regulation	Better than 0.05%
Operating Temparature	5 to 50^0 C
Power	Mains 230 V AC
Size	Approx. 125×125×150 mm
Standard Accessory	Power supply cable BNC M to BNC M

5. Laser (nm) with Tunable power supply:

For 980 nm laser please add with fiber coupling and fiber output along with compatible laser power meter.

6. Monochromator with detector:

Optical path configuration	Czerny-Turner type
Dispersion element	Holographic grating
Grating density	1200 grooves / mm
Relative diffraction efficiency	45 - 65% (Visible)
Scanning Wavelength Range	380 - 1100 nm

Wavelength range (Detector)	380 - 1100 nm
Resolution	0.1 nm
Wavelength Repeatability	± 0.5 nm
Slit width	0 - 3 mm (Micrometer Controlled)
Detector	Si photodiode or PMT
Interface	USB 2.0 or RS-232
Data formats	Spread sheet

(For any further clarification on the design of different components of the system(s) please feel free to contact **The Co-Principal Investigator,** at phone Nos.: 8979794959 or Email: ggpgcchld@gmail.com).