



POST GRADUATE DEPARTMENT OF PHYSICS

UNIVERSITY OF KASHMIR, SRINAGAR-06

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Ref: BRNS/PHYSICS/2016/011

Dated:30-08-2016

TENDER NOTICE

Sealed tender bids affixed with revenue stamp of Rupees five are invited from reputed manufacturers/agencies/agents , having a minimum experience of two years in the field of radiation instruments, for the following equipments/items to be used in a BRNS, DAE , Govt of India sponsored research project.

S.No.	Item/Equipments	Quantity
01	Gamma pocket survey meter	01
02	Wire-mesh caped progeny sensors	200
03	GPS	01
04	Radon Surface/mass exhalation chamber	01
05	Water sampling kit and bubbler	01
06	Pinhole cup dosimeter	200
07	Deposition progeny sensor	200
08	Etching bath and counting unit	01
09	Radon & Thoron Monitor with it accessories	01
10	Digital camera	01

Dr. Shakeel Ahmad
(Principal Investigator)
Project No:**36(4)/48/2015-BRNS/36045**
Department of Physics,
University of Kashmir

Tender Document

A) Terms and Conditions:

B) Format for Quotation:

C) Specifications:

A) Terms & Conditions

General:

1. The Purchase Committee for the purpose reserves the right to reject any or all the tenders without assigning any reason thereof. Conditional tenders shall not be accepted.
2. Duly filled tender documents in sealed cover should reach to **To Dr. Shakeel Ahmad, Principal Investigator, BRNS Project, Department of Physics, University of Kashmir, Hazratbal Campus, Srinagar, Kashmir-190006**, on or before 20-09-2016. Tender documents that do not provide complete information and that are received after the specified date and time will not be considered and will be summarily rejected. The department will not be responsible for any postal delay.
3. The amount of total earnest money (5% of quoted price) should be equal to the sum of the amounts of earnest money of the items for which tender has been placed in the form of CDR/FDR drawn on a nationalized/ scheduled bank and pledged to the P I of the project, has to be enclosed with the tender document.
4. Rates should indicate all taxes and installation charges F.O.R. the Department of Physics, University of Kashmir, Hazratbal, Srinagar J & K.
5. Tenderer should produce authorization certificate of the Manufacturing Company/Firm represented by him/her.
6. It is essential to enclose make/company name/model No. and other specifications/product catalogue/manual, etc. of the items tendered.
7. After finalization of the purchase order to the successful tenderer, the EMD will be refunded, preferably within two months, to the unsuccessful tenderers without any interest. However, the EMD of the successful tenderer will be kept as Security deposit.
8. The supplier, ordered to supply the equipment(s)/item(s), has to supply, install and demonstrate the equipment(s) within **three months** from the date of issue of purchase order, failing which the purchase committee may cancel the purchase order in full, or part, and re-allot the same to next lowest tenderer who otherwise fulfills all conditions.
9. The bills of the suppliers shall be paid by the University after all the materials/articles/ equipments have been received, installed, inspected and operational training of the instruments/equipment(s) has been performed, and verified by the departmental purchase committee.
10. The equipments should be of said specifications and have at least **two year** warranty. The tenderer shall specify after sales service facilities within the Guarantee/Warranty period. The warranty period will be extended for the period by which the equipment(s)/instrument(s) remain out of order during warranty period.

11. Non-compliance of the terms and conditions or breach of contract will result in forfeit of deposited EMD/Security deposit.

Term & Conditions of Supply:

1. The last date and time for the acceptance of the bids is on **20-09-2016, till 17.00 hrs.**

2. Tenderers shall submit the following documents along with the Tender.

a) Income Tax/Sales Tax clearance certificate from the office concerned, certifying that the tenderer has cleared all the tax dues.

b) Suppliers should be either manufacturer or authorized dealer of the said equipment(s) and should submit the proof for the same. Also, the suppliers should state whether they are a Proprietary Firm, Partnership Firm or Private/Public Limited Company and furnish the proof of the same.

c) The names of the organizations and laboratories, if any, to which similar equipment(s) have been supplied.

d) Certificate of registration of firm (Registration No.).

e) Technical specifications offered by the Supplier.

f) Proprietary certificate, if any.

3. Tender bids, not accompanied by the requisite amount of Earnest Money Deposit, are liable to be rejected.

4. Supplier should read carefully all the instructions and terms and conditions, etc., before registering rates in prescribed schedule of the tender. Taxes and duties etc. should be shown separately and clearly.

5. The Tender Documents shall be opened only if **at least three Vendors** have participated.

6. In case of imported items/equipments/components, the rates should be quoted in the light of exemptions enjoyed by educational institutions, as per the Department of Scientific & Industrial Research (DSIR), Govt. of India norms. Certificate for that effect shall be provided.

7. The university is entitled for availing Excise Duty exemption at present. Excise Duty Exemption Certificate (DSIR Certificate), wherever applicable, and as per rules will be issued at the appropriate time. Hence Excise Duty should not be included in the BID.

8. The delivery, installation and operational training of the instruments/equipment should be completed within three months from the date of placing the order. No extension shall be granted to the contractors/suppliers for the period of delivery.

9. If the supplier fails to deliver the article(s) as per the delivery schedule, the University shall be free to procure the balance/undelivered supply, at the risk and cost of the supplier, from other such suppliers.

10. The goods, articles, material supplied by the supplier shall be accepted after inspection. No articles/materials, which do not conform to the specifications laid down in the terms & conditions or damaged in transit, are acceptable.

11. Supplier(s) shall be responsible for the supply and installation of equipment(s) at the destination. The cost towards insurance, etc., until destination, shall be borne by the supplier(s).

12. The contract/Purchase order shall be governed by the Laws of India for the time being in force. All disputes or differences arising out of this contract shall be subject to the exclusive jurisdiction of court of Srinagar, j&k only.

B) Format for Quotation

1. Name of the Firm

2. Address of the Firm with phone number, fax No., E-mail, etc.

3. Validity period of Tender:

4. Format for submitting the financial bid (A)

Item No.	Description of goods with details of specifications	Quantity	Price/Rate per Unit (Rs)	Taxes (Rs.) (please specify)	Total Cost (Rs.)
01	Gamma pocket survey meter	01			
02	Wire-mesh caped progeny sensors	200			
03	GPS	01			
04	Radon Surface/mass exhalation chamber	01			
05	Water sampling kit and bubbler	01			
06	Pinhole cup dosimeter	200			
07	Deposition progeny sensor	200			
08	Etching bath and counting unit	01			
09	Radon & Thoron Monitor with it accessories	01(set)			
10	Digital camera	01			

* Prices quoted should be in figures and words.

Signature of the Tenderer
With Seal of the firm

C) Specifications:

1. Specifications for GPS device

Physical & Performance:	
Unit dimensions, WxHxD:	not more than 7 x20 x 4 cm
Display size, WxH:	at least 4 x 5.5 cm
Display resolution, WxH:	160 x 240 pixels
Display type:	transflective, 65-K color TFT
Weight:	less than 275 g with batteries
Battery:	2 AA batteries
Battery life:	20 hours or higher
Waterproof:	yes (IPX7)
High-sensitivity receiver:	Yes
Interface:	high-speed USB and NMEA 0183 compatible
Maps & Memory:	
Base map:	Yes
Ability to add maps:	Yes
Built-in memory:	At least 1.5 GB
Compatible data cards:	microSD™ card
Waypoints/favorites/locations:	More than 2000
Routes:	More than 200
Track log:	More than 10,000 points, 200 saved tracks

2. Specifications for pocket Gamma survey meter:

Application	Gamma exposure meter for wide range gamma dose rate
Detector	Geiger-Muller counter
Measurement range	0.01 μ Sv/h – 130 mSv/h
Energy range (\pm 30%)	0.04 – 3 MeV
Operating condition	
Temp:	-10 to 50 °C
RH :	Upto 95% at 35 °C
Weight	not more than 300 gm
Size	not more than 150 X 100 X 50 mm
Power requirement	Battery operated
Battery life	Typically six months
Communication with computer	USB interface

3. Specifications of passive equipment

3.1 Technical data of the pin holes type twin cup dosimeters

- 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 with suitable number of pin holes for thoron cut off.
 - Provision for dosimeter numbering as per user request
 - Sensitivity should be at least $0.017 \text{ track/cm}^2/\text{day}/(\text{Bq/m}^3)$ for radon and $0.01 \text{ track/cm}^2/\text{day}/(\text{Bq/m}^3)$ 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

3.2 Fabrication of the badge-holders for DTPS/DRPS

Specifications:

1. The badge should be of dimensions ~6cm x 3 cm.
2. It should have two slots to accommodate two detectors each of dimension 3x3 cm².
3. The badge should have two parts. The lower part should have a clip for suspension. The upper part should have two brackets to make the detector grip tight.
4. The material of the badge should be acrylic/hard plastic.
5. The weight should be ~ 20 gms.

3.3. Fabrication of the Wire-mesh capped holders for Direct Thoron Progeny Sensor (DTPS) and Direct Radon Progeny Sensor (DRPS)

Specifications:

1. The Wire-mesh capped holder will have two parts.
2. The upper part will have two sections having wire-mesh, such that each section will have the dimension of 22 x 22 mm².
3. The total dimension of the upper part will be: length 66 mm, thickness 12 mm, breadth 34 mm.
4. The base will have dimensions: length 66 mm, thickness 2 mm, breadth 34 mm.
5. The distance between the wire-mesh and the detector should be 1 cm.
6. The upper part should fit in tightly on the base.
7. The material of the badge should be acrylic/hard plastic.
8. A clip should be fitted at the back-side of the base to use it as personal dosimeter.
9. The weight should be ~ 20 gms.

3.4. Fabrication of integrated sampler (DTPS/DRPS WL monitor)

Specifications:

1. The material of the sampler should be light metal/aluminium.
2. One end of the sampler should be open-faced and the other end should be close-faced for attachment to pump.
3. Distance between the wire-mesh and the detector and that between the Filter-paper and the detector should be 3 mm.
4. The diameter of the sampler should be ~5.5 cm, and height ~1.5 cm.

4. Technical Specification of Spark Counter

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(\pm 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 \pm 10%
Dimensions	23 cm x 20 cm x 28 cm
Accessories	Microprocessor based control system

5. Specification of Constant Temperature Water Bath:

- Heating: 5 to 99 °C
- Dimension : not more than 20x15x10 cms
- Voltage (V) : 170 - 240.0 V AC
- Rating (Watt) : 2.0
- Accuracy in (°C): ±0.5

6. Specifications of radon-thoron monitor and accessories

6.1. SPECIFICATIONS OF PORTABLE RADON-THORON MONITOR

- | | | | |
|-----|------------------------------|---|--|
| 1. | Detector type | : | ZnS:Ag scintillation detector |
| 2. | Scintillation volume | : | ~ 0.15 L |
| 3. | Sensitivity | : | > 1 CPH/(Bq/m ³) for Radon
> 0.7 CPH/(Bq/m ³) for Thoron |
| 4. | Sampling type | : | Both Diffusion and Flow with interchangeable sampler |
| 5. | Sampling pump | : | Inbuilt noiseless pump with Auto / manual control of power to pump |
| 6. | Sampling volume | : | 0.5 to 1 L/min |
| 7. | Measured quantity and its | : | Radon mode : User selectable
15 / 60 min
measurement interval
Thoron mode :
User selectable 15 /30 / 60 min
Alpha mode : User settable 1 to 999 min |
| 8. | Response time for Radon | : | 95% of radon value is to be attained within an hour and thoron measurement 95% of Thoron value is to be attained within 5 minutes |
| 9. | Minimum detection limit | : | 15 Bq/m ³ at 1 σ and 1 h cycle for radon / thoron |
| 10. | Upper detection limit | : | 10 MBq/m ³ |
| 11. | Thoron interference in radon | : | < 5% with sniffing mode of sampling |

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|-----|----------------------|---|---|
| 12. | Display | : | LCD touch screen display indicating the current measurement process and also capable of displaying the past measurements with a on-screen key press during on-going measurement. |
| 13. | Date storage memory | : | Memory with storage capacity of at least 30,000 readings |
| 14. | Data communication | : | 2-wire RS 485 data communication with USB data port at PC end. |
| 15. | Inbuilt sensor | : | Temperature and Relative humidity sensor inside monitor |
| 16. | Operating power | : | Internal DC Battery operated with backup up to 30 hr Continuous use with 110- 240 V AC 50 Hz main supply. |
| 17. | Dimension and weight | : | portable equipment having dimensions within 35 cm x 20 cm x 14 cm and weight less than 4 Kg |
| 18. | Carrying case | : | Instrument carry case with sufficient cushioning for safe transport of equipment during field use. |
| 19. | Software | : | PC end software with following functions & features:
RS485 based data communication with radon monitor
Display of current readings and trend from multiple units
Data downloading in online and offline mode
Long distance data communication range
Remote operation of radon monitor through software |

6.2 Accessory name: Mass exhalation chamber

Used for:	To measure radon mass exhalation rate (per unit mass) /thoron surface exhalation rate (per unit exposed surface area) from Powder samples
Internal dimensions:	100 mm Diameter X 50 mm height
Volume:	0.4 Litre
Sampling	Both diffusion and flow mode
Lid sealing to chamber:	Threaded
Lid sealing to detector:	Threaded compatible to SRM detector and flow mode sampling lid.
Material:	Aluminium
Flow mode sampler:	Threaded disc with two 5 mm nozzles (or std. size)

6.3 Accessory name :	Radon accumulator
Used for:	To measure in situ radon flux (per unit area of ground surface) from ground.
Internal dimensions:	200 mm Diameter X 105 mm height
Volume:	3 Litre
Surface area	314 cm ²
Sampling	Both diffusion and flow mode
Connection to detector:	Threaded compatible to SRM detector
Material:	Aluminium double walled
Flow mode sampler:	Threaded disc with two 5 mm nozzles (or std. size)

6.4. Accessory name:	Water Bubbler Kit
Used for:	To measure radon/thoron dissolved in water/liquid sample (per unit liquid volume)
Kit contents	sampling bottles – 10 nos, Bubbler – 2 Nos. 500 ml capacity syringe with 10 cm long nozzle – one No. packed in a hard carry case
Sample capacity:	50 ml
Head space volume:	50 ml
Material:	Borosilicate glass

6.5. Accessory name:	Soil probe
Used for:	To measure in-situ radon/thoron in pore space of soil.
Probe length	1 meter
Hammering tool:	500 gm hammer.
sampling connector	5 mm size nozzle – one No.
probe handle:	detachable handle for removing the probe from ground
Material:	Hard S.S.

6.6. Accessory name:	Thoron accumulator
Used for:	To measure in situ thoron flux (per unit area of surface)
Internal dimensions:	60 mm Diameter X 40 mm height
Volume:	100 ml approx.
Surface area	28 cm ²
Sampling	flow mode by two nozzles attached on the chamber walls at 2 cm and 4 cm from bottom and opposite to each other.
Insertion depth mark:	Marking at one cm height along perimeter for indicating insertion depth of accumulator in soil.

Material: Aluminium
Sealing on surface Soft gasket (removable) at edge for mounting on plane surface

Accessory name: Geo station for continuous radon emission measurement
Used for: Radon anomaly detection by measuring in situ radon flux (per unit area of ground surface) from ground continuously.
Power solar powered with battery back up
Sampling Both diffusion and flow mode
Material: Stainless Steel
Pressure relief vent: 0.5 inch size auto shut-off valve connection (2 Nos)

7 Specification for Digital Camera

3 inches high-resolution tiltable display

very fast and high-performance auto-focus system.

40 times optical zoom, continuous shots,

HDMI/USB & Bluetooth connectivity. Weight around 0.5 KG weight.

16 million pixel sensor or more.

(For any further clarification on the design of different components of the system(s) please feel free to contact **The Principal Investigator,**

Project No:**36(4)/48/2015-BRNS/36045** at phone Nos.: 09419077283 (M),
0194-2454266(R)),or(Email:ssimnani@gmail.com,shakeelphy@kashmiruniversity.ac.in)