8. Personal Radiation Detector

1. Brief:

1.1. Direct reading personal dosimeter should have a damp and dustproof body with a high ingress protection rating, designed for use by the NDRF in conditions of significant temperature variation and other ambient air conditions.
1.2. It should be able to be used either independently or within the automated system of personal dosimetry control.
1.3. The dosimeter should allow storage of dose accumulation history with real-time reference in the physical memory and communication it to the computer.
1.4. The dosimeter should be able to actuate light and audio alarms if the programmed threshold levels of gamma dose or its rate are exceeded.
1.5. The equipment should Conform to the CE standards and should be able to meet the requirements of IEC 61526 standards.

2. Equipment should be able to:

2.1. Measure gamma and X-ray radiation individual dose equivalent rate (DER).
2.2. Measure gamma and X-ray radiation individpual dose equivalent (DE).

2. Equipment should have:

3.1. Clock, alarm clock.
3.2. IP54 ingress protection rating or more
3.3. Stand-alone use or use within an automated system of personal dosimetry control.
3.4. Storage of dose accumulation history in the physical memory with real-time reference.

3.5. Capability to transfer dose accumulation history to the computer.
3.6. Provision for blocking of accidental switching off of power supply switch until the data reading procedure is finished.
3.7. Gamma radiation DER and DE threshold levels programming with the help of the computer or manually with control keys.
3.8. Light and audio alarms when programmed threshold levels are exceeded on DER and DE of gamma radiation.
3.9. Display automatic switch off if the current gamma background is lower than the pre-set threshold level with instant switching on at:

a. Pressing any control key;
b. Gamma background increase above the pre-set Threshold levels;
c. Alarm clock ringing.

3.10. Periodic self-testing of batteries and detector.
3.11. Energy-compensated Geiger-Muller counter.

3.12. Warranty for minimum 1 year or more with service and spare parts support for not less than 10 years.

4. Technical Specifications

S.No	Technical parameters	Unit	Range
1	Measurement range of gamma and X-ray radiation individual dose equivalent rate HP(10)	µ Sv/h	.01 µSv/h to 1 Sv/h
2	Main relative permissible error limit when Measurement of gamma radiation DER at ^{137}Cs calibration with a confidence probability of 0.95 - In the range from 1.10^{-6} Sv/h to 1.10^{-5} Sv/h (inclusive) - in the range from 1.10^{-5} Sv/h to 1 Svfh	%	20% 15%
3	Gamma and X-ray radiation individual dose equivalent HP(10)	mSv	0.001…999 9; ±15%
4	Energy range of registered gamma and X- ray radiation and energy dependence	MeV	0.05…6.0; (0.05…1.25; ±25%)
5	Recording resolution of dose accumulation history in the physical memory	minutes	5…255
6	Time of data storage in the physical memory	years	Not less than 10 years Not less than 38400 Bit/sec
7	Data exchange rate through the infrared port	Bit/S	Not less than 38400
8	Positive data exchange distance between the dosimeter and the infrared port adapter	m	not more than 0.3
9	Battery life (under gamma background not more than 0.5 1.6v/h, switched off alarm system and display)	hours	Not less than 3500
10	Operating temperature range	°C	-20 to +50

11	Weight	kg	Not more than 0.15
12	Dimensions	mm	115 x 60x 20 mm or less
13.	Carrying case	Injection moulded plastic case with customised body.	

DIRECTORATE GENERAL NATIONAL DISASTER RESPONSE FORCE
NDCC-II BUILDING, 6th FLOOR, JAI SINGH ROAD,
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CORRIGENDUM NOTICE NO. 01
(Consisting of 01 page only)

No. 1-17018//Proc/1411/HQ-NDRF/2024/ 2489 Dated, the 17 Oct, 2024

Reference to this NDRF HQ GeM Bid No. GEM/2024/B/5238015 dated 12/08/2024 in c/w Procurement of Personal Radiation Detector for NDRF Bns.

2. In partial modification of this NDRF HQ GeM Bid No. GEM/2024/B/5238015 dated 12/08/2024 is as under: -

S.N	Technical Specifications (FOR CLAUSE)	READ AS
1.1	Direct reading personal dosimeter should have a damp and dustproof body with a high ingress protection rating, designed for use by the NDRF in conditions of significant temperature variation and other ambient air conditions.	Personal radiation detector should have a damp and dustproof body with a high ingress protection rating, designed for use by the NDRF in conditions of significant temperature variation and other ambient air conditions.
1.2	It should be able to be used either independently or within the automated system of personal dosimetry control.	It should be able to be used independently.
1.3	The dosimeter should allow storage of dose accumulation history with real-time reference in the physical memory and communication it to the computer.	The detector should allow storage of detection history with real-time reference in the physical memory and communication ~~it~~ to the computer.
1.4	The dosimeter should be able to actuate light and audio alarms if the programmed threshold levels of gamma dose or its rate are exceeded.	The detector should be able to activate light and audio alarms if the programmed threshold levels of gamma dose rate are exceeded.
1.5	The equipment should Conform to the CE standards and should be able to meet the requirements of IEC 61526 standards.	The equipment should Conform to meet the requirements of **IEC 62401.**

2. **Equipment should be able to:**

S.N	Technical Specifications (FOR CLAUSE)	READ AS
2.1	Measure gamma and X-ray radiation individual dose equivalent rate (DER).	Measure gamma and X-ray radiation dose rate.
2.2	Measure gamma and X-ray radiation individual dose equivalent (DE).	Clause may be treated as 'Deleted'.

3. **Equipment should have:**

S.N	Technical Specifications (FOR CLAUSE)	READ AS
3.1	Clock, alarm clock.	Clause may be treated as 'Deleted'.
3.3	Stand-alone use or use within an automated system of personal dosimetry control.	Clause may be treated as 'Deleted'.
3.4	Storage of dose accumulation history in the physical memory with real-time reference.	Clause may be treated as 'Deleted'.
3.5	Capability to transfer dose accumulation history to the computer.	Clause may be treated as 'Deleted'.
3.6	Provision for blocking of accidental switching off of power supply switch until the data reading procedure is finished.	Clause may be treated as 'Deleted'.
3.7	Gamma radiation DER and DE threshold levels programming with the help of the computer or manually with control keys.	Gamma radiation DER threshold levels programming with the help of the computer or manually with control keys.
3.8	Light and audio alarms when programmed threshold levels are exceeded on DER and DE of gamma radiation.	Clause may be treated as 'Deleted'.
3.9	Display automatic switch off if the current gamma background is lower than the pre-set threshold level with instant switching on at:	Clause may be treated as 'Deleted'.
3.9a	Pressing any control key	Clause may be treated as 'Deleted'.
3.9b	Gamma background increase above the pre-set Threshold levels	Clause may be treated as 'Deleted'.
3.9c	Alarm clock ringing.	Clause may be treated as 'Deleted'.
3.10	Periodic self-testing of batteries and detector.	Battery indication on display/ unit.
3.11	Energy-compensated Geiger-Muller counter.	**Detector may be Energy compensated GM tube/ CsI(Tl) det/NaI(Tl) Det or Diode**

4. **Technical Specifications**

S.No	Technical Specifications (FOR CLAUSE)	Unit	Range	READ AS
1	Measurement range of gamma and X-ray radiation individual dose equivalent rate HP(10)	µ Sv/h	.01 µSv/h to 1 Sv/h	Measurement range of gamma and X-ray radiation **Unit:** µ Sv/h **Range:** 0.1µSv/h to 10 Sv/h

S.No	Technical Specifications (FOR CLAUSE)	Unit	Range	READ AS
2	Main relative permissible error limit when Measurement of gamma radiation DER at ^{137}Cs calibration with a confidence probability of 0.95 - In the range from 1.10-6 Sv/h to 1.10-5 Sv/h (inclusive) - in the range from 1.10-5 Sv/h to 1 Sv/h	%	20% 15%	Main relative permissible error limit at ^{137}Cs calibration with a confidence probability of 0.95 - In the range from 1.10-6 Sv/h to 1.10-5 Sv/h (inclusive) - In the range from 1.10-5 Sv/h to 1 Sv/h **Unit: %** **Range: -** 20% 15% **As per standard IEC 62401**
3	Gamma and X-ray radiation individual dose equivalent HP(10)	mSv	0.001...9999 9; ±15%	Gamma and X-ray radiation dose equivalent. **Unit:** mSv **Range**: - 0.001...999 9; ±15% **As per standard IEC 62401**
4	Energy range of registered gamma and X- ray radiation and energy dependence	MeV	0.05...6.0; (0.05...1.25; ±25%)	Energy range of registered gamma and X- ray radiation and energy dependence **Unit:** MeV **Range**: - 0.05...6.0; (0.05...1.25; ±25%) **As per standard IEC 62401**
5	Recording resolution of dose accumulation history in the physical memory	minutes	5...255	Clause may be treated as 'Deleted'.
6	Time of data storage in the physical memory	years	Not less than 10 years Not less than 38400 Bit/sec	Clause may be treated as 'Deleted'.
7	Data exchange rate through the infrared port	Bit/S	Not less than 38400	Data exchange rate through the IR/USB. **Unit:** Bit/S **Range**:- Not less than 38400 Bit/S
8	Positive data exchange distance between the dosimeter and the infrared port adapter	m	Not more than 0.3	Clause may be treated as 'Deleted'.
9	Battery life (under gamma background not more than	hours	Not less than 350	Battery life (under gamma background not more than 0.5-1.6v/h, switched off

S.No	Technical Specifications (F OR CLAUSE)	Unit	Range	READ AS
	0.5 1.6v/h, switched off a larm system and display)		0	alarm system and display)- **800 Hours or More** **Unit:** hours
11	Weight	kg	Not mor e than 0. 15	Weight **Unit: Kg** **Upto 200 gm**
12	Dimensions	mm	100 x 60 x 20 mm or less	Clause may be treated as 'Deleted'.
13.	Carrying case	Injection moulde d plastic case wit h customised bod y.		Injection moulded strong plastic case wit h customised body.

Note: - Remaining terms and conditions of the GeM bid will remain unchanged.

17/10/2024

(Gyaneshwar Singh)
Commandant (Proc/Prov)
HQ DG NDRF
For and on Behalf of President of India