SECTION - C

TECHNICAL SPECIFICATIONS OF STORES AND DRAWINGS.

Technical Specifications for Supply of Neutron and Gamma Area Monitor with Control and Display Unit

Objective:

Neutron and Gamma Area Monitors with Control and Display Unit will be used for area monitoring of radiation in Fusion Neutronics Laboratory which will house accelerator based 14 MeV neutron generator facility.

1. Specifications of Neutron Detector

1. Type: Polyethylene moderator sphere with a He-3 recoil proton counter tube
2. Energy Range: Thermal to 14 MeV or better
3. Measuring Quantity: Ambient Dose Equivalent H*(10)
4. Dose Conversion factor: ICRP 60 or higher/ ICRU
5. Required Measuring Range (R): 0.1 µSv/hr ≤R≤100 mSv/hr
6. Gamma Rejection : Yes
7. Power: Build in HV supply, if not inbuilt then suitable HV supply unit
8. Pulse Processing: Built in pulse processing, if not inbuilt then suitable pulse processing unit
9. Cable: interconnecting cable of 10 m in length must be supplied

2. Specifications of Gamma Detector

1. Type: Geiger Muller or Silicon Detector
2. Energy range: 65 keV-1.3 MeV or better
3. Measuring Quantity: Ambient Dose Equivalent H*(10)
4. Required Measuring Range (R): 0.1 µSv/h≤R≤10 mSv/h
5. Power: Built in HV supply, if not inbuilt then suitable HV supply unit
6. Pulse Processing: Built in pulse processing, if not inbuilt then suitable pulse processing unit
7. Cable: interconnecting cable of 10 m in length must be supplied

3. Control and Display Unit

1. Front Panel Display: Front panel Digital Display unit to display dose rate and integrated dose rate data
2. Interfaces: serial interface as RS 232 or RS 485
3. Relay: Relay for remote signaling of monitor status

4. Warranty

Minimum one year warranty should be provided for Neutron and Gamma Area Monitors with Control and Display Unit from the date of installation.

5. Acceptance Criteria

1. At Vendor site (by vendor)

Detectors should be calibrated as per ICRP/ICRU with standard source and calibration certificate along with the shipment should be provided.

2. At IPR site (by IPR person)

Detectors will be tested with standard source (Am-Be for Neutron, Co-60/Cs137/Na22 for Gamma) and measured dose rates will be compared with standard dose rate at IPR.

6. Mandatory Note

- Bidder must submit the valid authorization certificate from OEM, if bidder is not original equipment manufacturer (OEM).
- The installation & commissioning of Detectors will be carried out by IPR. The offer by the vendor should not include the installation & commissioning charges.

Our E-Tender Notice No. IPR/TN/ET/F/19-20/16 dated 12th July, 20019 for Supply of Neutron and Gamma Area Monitor with Control and Display Unit as per technical specifications mentioned in our tender documents – 2 Sets.

Compliance Sheet

Compliance Statement for Supply of Neutron and Gamma Area Monitor with Control and Display Unit

Bidder must submit compliance statement dully filled with exact technical values of each specifications (Not with OK, CONFIRM, COMPLY, ACCEPTABLE) alongwith official seal and signature with their offer.

1. Specifications of Neutron Detector

Sr. No.	IPR Specification		Vendor's Comment
1	Type	Polyethylene moderator sphere with He-3 recoil proton counter tube	
2	Energy Range	Thermal to 14 MeV or better	
3	Measuring Quantity	Ambient Dose Equivalent H*(10)	
4	Dose Conversion factor	ICRP 60 or latest version /ICRU	
5	Required Measuring Range (R)	0.1 µSv/hr≤R≤100 mSv/hr	
6	Gamma Rejection	Yes	
7	Power	Build in HV supply, , if not inbuilt then suitable HV supply unit	
8	Pulse Processing	Built in pulse processing, if not inbuilt then suitable pulse processing unit	
9	Cable	interconnecting cable of 10 m in length must be supplied	

2. Specifications of Gamma Detector

Sr. No.	IPR Specification		Vendor's Comment
1	Detector Type	Geiger Muller or Silicon Detector	
2	Energy Range	65 keV-1.3 MeV or better	
3	Measuring Quantity	Ambient Dose Equivalent H*(10)	
4	Required Measuring Range (R)	0.1 µSv/h≤R≤10 mSv/h	
5	Power	Build in HV supply, if not inbuilt then suitable HV supply unit	
6	Pulse Processing	Built in pulse processing, if not inbuilt then suitable pulse processing unit	
7	Cable	interconnecting cable of 10 m in length must be supplied	

3. Control and Display Unit

Sr. No.	IPR Specification		Vendor's Comment
1	Front Panel Display	Front panel Digital Display unit to display dose rate and integrated dose rate data	
2	Interfaces	serial interface as RS 232 or RS 485	
3	Relay	Relay for remote signaling of monitor	

		status	

4. **Acceptance Criteria**

a. At Vendor site (by vendor)

Detectors should be calibrated as per ICRP/ICRU with standard source and calibration certificate along with the shipment should be provided.

b. At IPR site (by IPR person)

Detectors will be tested with standard source (Am-Be for Neutron, Co-60/Cs137/Na22 for Gamma) and measured dose rates will be compared with standard dose rate at IPR.

Note: The supplier shall indicate the numerical values of specifications wherever necessary and provide technical offer. **Comments like YES, AGREED, WILL BE COMPLIED, CONFIRMED are not acceptable where numerical values are required to be quoted.**

Authorised Signatory

Official Seal

Date :-