

Detailed Specifications of Global/Open Tender Notice No: 11/2014

S. NO	TENDER NO.	BRIEF DETAILS OF ITEM(S)	PAGE NOS.
1.	14-VII/SPK(2447)14-PB/ T-91	Substrate Temperature and Growth Rate Monitor	2-3

Procurement of Substrate temperature and Growth rate monitor

Complete optical pyrometer, including temperature sensor, panel mounting unit, interconnecting cable and pyrometer support needs to be provided and installed

A Black body radiation source based pyrometry system is required for monitoring the instantaneous temperature (of substrate and the film) and record the same with time using a computer. The pyrometer should be placed approximately <0.5 m on a non-heated normal to wafer viewport (with shutter) – size 6” from the source and should be able to focus within the radius of 2-3 mm. The same system should also provide the growth rate measurements. The detailed specifications are listed as follows:

Essential

1) Real time Temperature measurement of the substrate or the growing film:

- a) Capability of Substrate blackbody temperature measurement with calibration possibility
- b) Emissivity corrected epitaxial film temperature measurement for “correct” film temperature (with required additional angled view port glass)
- c) Wobble correction
- d) Rotation trigger compatibility
- e) Operating range 450° C upto 1200° C
- f) Accuracy: $\pm 2^{\circ}$ C

2) Compatible Substrates:

- a) Si wafers

- b) Mo coated sapphire substrates
 - c) Mo coated SiC
 - d) Mo coated GaN template on sapphire
- 3) **I/O communications:** analog (RS232) / TCP IP
- 4) **Real time film thickness and growth rate monitoring on a single viewport:** Integrated growth rate monitoring software platform, capable of measuring film thickness after ~ 75 nm.
- a) Using Black body source radiation and / or using ECP (Reflectivity measurement for growth rate and optical constant determination)
- 5) Pre-installed data acquisition and analysis software on a compatible computer and backup for the software
- 6) **Operation manual:** You are required to supply the full (i) operation manual and (ii) troubleshooting manual of the equipment and software. Written in English.
- 7) **Warranty:** 15 months from the date of shipment.
- 8) Should comply with Indian electrical standards of single phase $230 \pm 10\%$ V AC, $50 \pm 5\%$ Hz supply
- 9) **Accessories:** connecting cables (between detector and control unit of atleast 10 meter length) and other essential accessories must be provided for smooth functioning of the above systems for atleast two years.

Optional

- 10) Upgradation to latest software for next two years
- 11) Extended warranty for 2 years
