



# INSTITUTE OF NANO SCIENCE AND TECHNOLOGY, MOHALI

(An autonomous Research Institute of Department of Science and Technology,  
Government of India)

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Ref No. INST/12(352)/2020-Pur

Date: 06/05/2021

## **CORRIGENDUM**

Reference to NIT no. INST/12(352)/2020-Pur published in national newspapers for purchase of equipment: Solar Simulator with I-V Tester STS Correction. Below mentioned revised technical specification after pre-bid meeting held on 03/05/2021.

### **Revised Specification of Solar Simulator with I-V Tester STS Correction**

Features:

1. Portable (Weight within 10 Kg)
2. Single optical arrangement unit such as lamp housing, powers supply etc.
3. Touch controlled settings like ON/OFF, lamp current etc.
4. Illumination facet can be easily rotate in all direction as per requirement.
5. Air Mass 1.5 G
6. Automatic Shutter facility (Pulse Motor operated shutter for minimum noise)
7. Lower surface temperature (better to have less than 50°C)
8. Thermostat controller
9. Filter holder
10. Lamp usage meter (for close surveillance on Xe lamp consumption)
11. Illumination timer
12. Lamp: Xenon Arc Lamp (150 W)
  - 12.1. Mirror angle: 45°
  - 12.2. Illumination area 40 ×40 mm<sup>2</sup>
  - 12.3. Spectral Match (<25%), Uniformity of Irradiance (<2%) and Temporal Stability (1% per hour maximum to be considered) - all in JIS C 8912 standard
  - 12.4. Detachable panel controller
  - 12.5. I/O port at rear panel
  - 12.6. Lamp input voltage: 220 V
  - 12.7. Lamp life: 1000 hours approximately
  - 12.8. Availability of spare lamp
13. Irradiance: 0.8 to 1.2 SUN

#### 14. Power Source Meter with I-V measurement

- 14.1. Voltage range 20mV to 200 V
- 14.2. Voltage Resolution 500 nV
- 14.3. Current range 10 nA to 1 A
- 14.4. Current resolution 500 fA
- 14.5. Measurement speed : 3000 Readings/Second or more
- 14.6. Touchscreen of high resolution
- 14.7. Source Voltage 20 mV and source current 10 nA
- 14.8. Four quadrant operation
- 14.9. Banana jacks as well as triaxial connections
- 14.10. USB memory port
- 14.11. Linear sweep, dual linear and dual log sweep operations
- 14.12. Programming interface: SCPI (2400, 2450) + TSP, Ethernet, USB etc.
- 14.13. Current-Voltage curve automatic analysis
- 14.14. Internal Buffer: >250,000
- 14.15. Wideband Noise: 2 mVrms Typ
- 14.16. Front panel USB memory port for data / configuration I/O capacitance

15. Measurement Parameters - Open Circuit Voltage, Short Circuit Current, Fill Factor, Current vs time (for more than 4 hrs continuous data recording interface facilities) and upgradable QE. Adequate software interfacing is required to take online data recording in each measurement/run. **The software should be tailor made for the IV characterization and analysis of solar cells. It should calculate automatically Isc, Jsc, Voc, Pmax, Imax, Vmax, fill factor and power efficiency from the collected datas, display them in the working window and store them in a file.**

16. Temperature controller: Range from room temperature to 120 °C or more **with +/- 1.0 °C of accuracy (resolution)**

- 16.1. Black anodized plate
- 16.2. Mandatory sample holding facility
- 16.3. Minimum plate size: 40×40 mm<sup>2</sup>

#### 17. Standard Silicon Cell for calibration

18. Touch enabled control panel (to control lamp ON/OFF and shutter ON/OFF and visualization of lamp current and usage details)

#### 19. High speed fan

20. Probe Station for measurement **with two micro-manipulator** with three Axis (XYZ) Translation Stage (Customized vibration isolation stage or alternative arrangement is highly preferable but not mandatory if organic thin film based standard solar cells characterization is possible to produce noise less (that often produce due to external vibrations) research grad measurements/datas)

#### 21. 25 micron Tungsten probe pair

#### 22. Solid Aluminum Bread Board for minimize vibration

#### 23. Stand for the solar simulator

24. 2-channel digital storage oscilloscope with suitable connectors

24.1. 200 MHz bandwidth

24.2. 2 GS/s sample rate,

24.3. 5 Mpts record length

24.4. Input sensitivity: more than 2 mV/div and less than 10 V/div

24.5. More than 8 inch color wide video graphic array (WVGA) display

25. Automatic shutter connector with remote controlling facility and respective software for operation

26. PC and interfacing: All in one desktop, 10<sup>th</sup> Gen Core i3 or better processor, 8GB or more RAM; 19 inch or more full HD screen, Window based operating system, key board and mouse.

27. Bidder should have installed minimum five numbers of similar types of solar simulator in atleast five govt. organizations/R & D laboratories. Installations report is preferably suggested to provide with tender.

The last date for receipt of tender has been extended upto **28/05/2021 till 2:00PM** which will be opened on the next day at **3:00PM** at INST, Mohali. The other details of the tender shall remain unchanged.

**Sd/-**  
**Chief Finance and Admin Officer**