

Information Notice, applicable to the European open tender for a Bifacial LED based Solar Simulator, Ref. WS2682288826, dated 3 December 2025

Date : 29-1-2026			
No.	Section nr. / subject	Questions Tenderer	Answers TNO
1	Annex A04	<i>To measure compliance with 1000 W/m², do we measure and sum spectral irradiance from 300 nm to 1200 nm?</i>	<i>Yes. Please be informed that TNO will use a calibrated WVPS reference cell.</i>
2	Annex A04	<i>No spectral match criteria were provided for meeting the AM0 spectrum. Do you have spectral match criteria for the purpose of evaluating this requirement? ASTM E490-00?</i>	<i>TNO advises to use the same criteria as in requirement 8.1.3, for the spectrum we use the ASTM E490-00.</i>
3	Annex A04	<i>Does it suffice to do a pick-off measurement from a small portion of the light field (e.g. with a pick off optical fiber)?</i>	<i>TNO allows to do a pick-off measurement from a small portion of the light field, however not in the measurement plane. This to prevent devices shading the pick-off in relation to the aperture area.</i>
4	Annex A04	<i>Why a 4th range for current below 25 mA is needed? By standard, our company offers three ranges and the lowest range is 250 mA. A fourth range will require a development effort of 4 -6 months at an additional surcharge.</i>	<i>TNO requires a low current range since we measure a large variety of devices. At the moment the most commonly used devices have short circuit current of 12mA.</i>
5	Annex A04	<i>Should the pick off be done from within the specified target area, or should it be performed from a representative portion of the light field outside the target area?</i>	<i>TNO prefers the pick-off to be from a representative part outside the target area. Only if it is discrete enough not to disturb the uniformity, it is allowed from within the specified target.</i>
6	Annex A04	<i>How thick are the devices under test?</i>	<i>Typically, the thickness of our samples is between 100µm and 3mm. However, we have a sample holder which is about 100mm in height. Therefore, TNO requires a height adjustment of at least 100mm. See also requirement 8.5.2.</i>
7	Annex A04	<i>Do the two light engines require a single common fixed focal plane or should the two light engines have their target planes independently moveable?</i>	<i>Minimum requirement is Single fixed focal plane.</i>
8	Annex A04	<i>Will using two Keithly 2461 SMUs be considered fully satisfying requirement 8.3.3 ?</i>	<i>Any SMU, alternative or combination thereof will be sufficient, following the requirements as set in requirement 8.3.3. NOTE: Requirement 8.3.1 specifies synchronized measurement of Voltage, current, irradiance, and temperature, to which additional measurement equipment is required to record the irradiance and temperature.</i>

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9	Annex A04	How do you differentiate between measurement uncertainty and repeatability from TNOs perspective?	The uncertainty is calculated from the accuracy you specify for your system, using iec 60904-1 2020 section 5d as guide. For instance an accuracy of 0.1% of full scale reading is 0.25mA, this will give an uncertainty for an Isc of 5mA of 5%. Repeatability is determined by measuring a device multiple times and calculate how closely matched the measurements are.
10	Annex A04	Does it suffice that the reference cells lie within the standard target area of the system (e.g. within the 300 mm square target of the front-side light engine), or should they lie outside the standard target area?	The reference cells indeed lie within the standard target area.
11	Annex A04	Is it permitted to have reflective side-panels that surround the target area and cell chuck but access is available by opening a panel when the simulator is not operating?	TNO permits but prefers a large open space above the measurement plane. In case of reflective panels, please mention in preference 8.7.1 whether the reflective panels are part of the optical system and whether soiling or damaging them can influence performance over time.
12	Annex A04	Please define "W12". Does this mean Microsoft Windows 12, which is not yet released, or does it have another meaning?	TNO meant to require the operating system to be prepared for future upgrades to any Windows based operating software.
13	Annex A03	Are we allowed to include more detailed pricing descriptions in the price sheet?	The Price sheet must be filled as-is, for level playfield comparison. Supplier is allowed to share more detailed pricing information in a separate document. NOTE: This detailed pricing information in the separate document will NOT be part of the comparison as described in section 6.1.1.
14	Annex A03	Are we allowed to include the information about payment term in the price sheet?	Payment terms will follow the included TNO General Purchasing Conditions, notably art. 11, and is not a part of the Price sheet.