

**TENDER REF. No: PAKIS/ITB/22/0256**  
**Specifications for the Components**

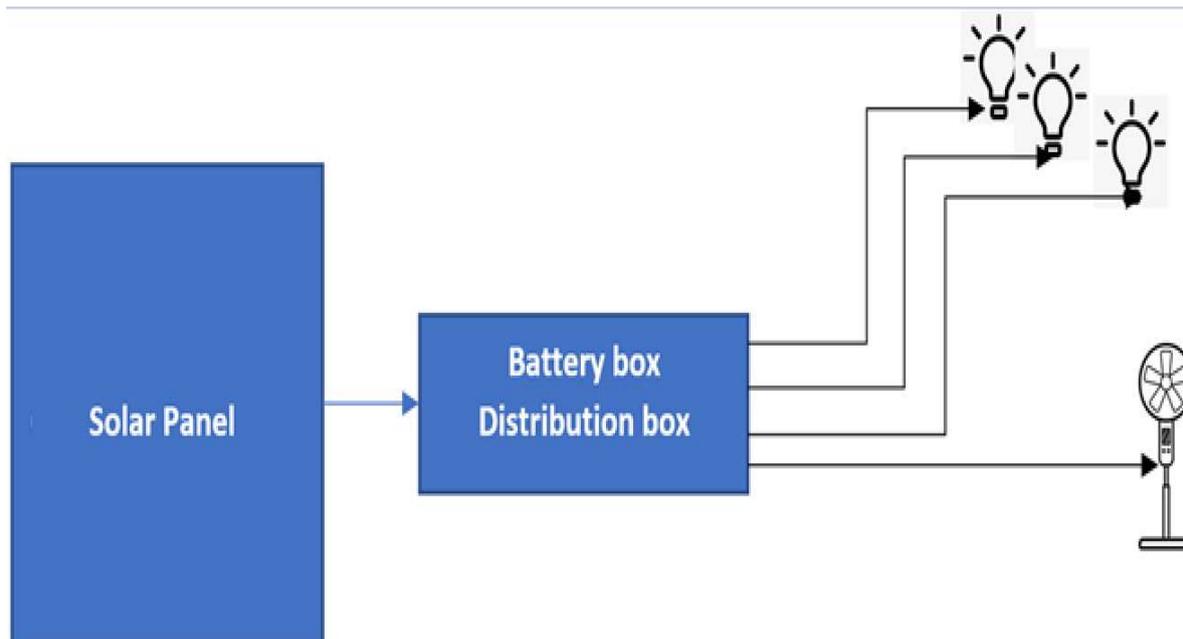
**FOR PROCUREMENT OF PORTABLE SOLAR KITS (DC)**

This annexure presents the minimum requirement required to be met by the VENDOR. A vendor must meet and adhere to these minimum specs. All the costs shall be included in the financial bid. UNHCR will not be responsible for any additional cost arising because of the equipment not considered in the financial bid.

**Components of the Solar Kit**

The solar kit must be plug-and-play and each kit must have the following components. Detailed description of each component is provided separately. The kit will operate on low voltage DC. A block diagram of the system is also provided for reference. The tests reports mentioned in this annexure can be submitted upon delivery of the kits. However, no payment will be made before the respective tests are submitted to UNHCR. The kit shall be in proper and safe packing to avoid any damage during transportation. Please refer to the ITB document for packaging details.

Appliance	Description
Solar panel	For powering the whole system. Minimum 60 W with a maximum weight of 7 kg. Shall have protection from outdoor exposure
Distribution Box or Main Unit	The unit shall have ports for connecting the appliances and charging a mobile phone. The connecting ports on the unit shall also symbolically show light/fan/mobile ports.
Battery	24 Ah, Lithium ion contained inside the main unit
Lights	3 LED bulbs, each of 3 W totaling to 9 W power. Each light shall have at least 5-Meter DC wire (cord) with proper connection to the battery unit and a power on/off button.
Fan	One pedestal fan of up to 12 W power. The fan shall have shall have at least 5-Meter DC wire (cord) with proper connection to the battery unit and a power on/off button.



Reference block diagram of the portable solar kit. This will be a plug-and-play low voltage DC system

## Solar Panel

Parameter	Specification
	The PV module is separate and not integrated so it can be placed anywhere. The panel must have protection from outdoor exposure.
Applicable Standard <sup>1</sup>	IEC 61215-1, IEC 61730 - 1 & 2 or CE Certification
Ambient Temperature Range	-10°C ~ +50°C
Type	Monocrystalline
Tier	1
Minimum Power	60 W at STC <sup>2</sup>
Performance Warranty	≥ 80% of Maximum Power after 10 years
Module Efficiency	≥ 18%
MPPT	Yes
Connectivity Cable	Minimum 5-Meter, AWG20 (0.5mm <sup>2</sup> ) or better Cable
Tests	Reports to be submitted as per applicable IEC standards
Weight	Maximum 7.0 kg
Dimensions	Vendor to specify, but as compact as possible
Replacement Warranty	Minimum two years

## Distribution Box/Main Unit

Parameter	Specification
	The main unit shall house the battery and shall have all the connectivity ports and indicators display. This unit shall be portable with a portable handle for easy movement. The connectivity ports shall have graphic icon of each appliance to be connected to the port.
Portable	Yes – with a handle for easy movement
Dimensions	Vendor to specify but as compact as possible
Material	Vendor to specify the material of the container but properly insulated and safe to use in any environment.
Ports	<p>The container box shall contain suitable ports for connectivity the appliances. Each port shall have a small icon on the port (of the appliance to be connected) for easy understanding.</p> <ul style="list-style-type: none"> <li>• 3 ports for connecting the light bulbs</li> <li>• 1 port for connecting the pedestal fan</li> <li>• Min 1 USB – A port for charging mobile phone</li> </ul>
Status indicators	<ul style="list-style-type: none"> <li>• Battery status indicator</li> <li>• Solar strength indicator</li> </ul>

<sup>1</sup> Unless otherwise specified, latest editions of IEC standards shall be applicable

<sup>2</sup> STC (Standard Test Conditions): Irradiance of 1000 W/m<sup>2</sup> (1 kW/m<sup>2</sup>) with the panel and cells at ambient temperature of 25°C with a sea level air mass (AM) of 1.5.

## Battery

Parameter	Specification
Applicable Standard <sup>3</sup>	IEC 61427-1, IEEE 1361, or CE Certification
Ambient Temperature Range	-10°C ~ +50°C
Altitude	< 2000 m
Type	Lithium ion
Rated Capacity	24 Ah
Rated Voltage	12 V
Float Charge Voltage	Vendor to specify
Max. Charging Current	Vendor to specify
Max. Discharge Current	Vendor to specify
Internal Resistance	Vendor to specify
Tests	Reports to be submitted as per applicable IEC standards
Weight	Vendor to specify
Warranty	Minimum 01 year

## Lighting/Bulbs

Parameter	Specification
Number of light bulbs	Three (03) LED Lights
Current type	Direct Current (DC)
Power	3 W for a single bulb
Voltage	12V
Light output	Minimum 280 lm for each bulb
Lumen maintenance	100% after 2,000 hours of run time
Number of settings	Minimum 1. Each light must have a power on/off button
Cable/Cords	Yes – PVC Insulated DC cable as per applicable IEC/BS standards
Wire length	Minimum 5-Meter for each bulb
Connectivity ports and sockets	Each bulb with proper socket at one end for the bulb and to a connector for the main unit at the other end. The wire shall be properly insulated. Bulb should be Screw Type (E-27).
Warranty	Minimum 01 year

<sup>3</sup> Unless otherwise specified, latest editions of IEC/IEEE standards shall be applicable

## Pedestal Fan

Parameter	Specification
	Pedestal fan with copper wire with energy efficient durable motor. The fan shall be completely sealed with rustproof material.
Number of Fans	01
Current type	Direct Current (DC)
Power	12 W
Voltage	12V
Number of settings	Minimum 2 for varying the speed of fan.
Side-ways movement	Yes
Cable/Cords	Yes – PVC Insulated DC cable as per applicable IEC/Standards
Wire length	Minimum 5-Meter
Connectivity ports and sockets	Wire properly connected to the fan at one end and to a connector to the main unit at the other end. The wire shall be properly insulated.
Material	Any suitable rustproof material, completely sealed with proper insulation
No of blades	03
Height	Minimum 24 inches. Adjustable with a knob.
Warranty	Minimum 01 year