

**GOVERNMENT OF INDIA**  
**(Ministry of Home Affairs)**  
**DIRECTORATE GENERAL**  
**CENTRAL RESERVE POLICE FORCE**  
**EAST BLOCK-7, SEC-1, R.K. PURAM, NEW DELHI-110066**  
(Email:- [comncell@crpf.gov.in](mailto:comncell@crpf.gov.in) Tele/Fax:011-26107493)

No. B.V-7/2021-22-C (FCJ)

Dated, the December'2021

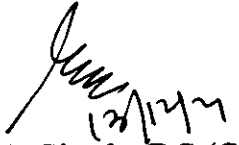
To

- |   |  |
|---|--|
| 1. DIG (Comn), ITBP<br>Block No. 2, CGO Complex<br>Lodhi Road, New Delhi-03 | 2. DIG (Comn), NSG<br>Meharam Nagar<br>Palam, New Delhi-37                       |
| 3. DIG (Comn), SSB<br>East Block-V, R.K Puram<br>New- Delhi-66              | 4. AIG (Comn), CISF<br>Block No. 13, CGO, Complex<br>Lodhi Road, New Delhi-03    |
| 5. DIG (Prov), BSF<br>Block No. 10, CGO Complex<br>Lodhi Road, New Delhi-03 | 6. Liaison Office, Assam Rifle<br>Room No-171, North Block, MHA<br>New Delhi -01 |

**Subject: Regarding revision of QRs/TDs of "Direct Methanol Fuel Cell(600Wh)".**

Please find enclosed QRs/TDs of "Direct Methanol Fuel Cell(600Wh)" as Annexure-"A" duly approved by the competent authority is forwarded herewith for further necessary action.

Encl: (QRs & TDs of "Direct Methanol Fuel Cell(600Wh)")

  
{Sunil Kr Singh, DC (Comn)}  
**For DIG (Equipment)**  
**Directorate General, CRPF**




S N	Parameters	Specifications
<b>(d)</b>	<b>Fuel Cartridge</b>	
(i)	Running time	≥9 Hrs of continuous operations at peak load with 1 fuel Cartridge
(ii)	Shelf life of filled fuel cartridge/container	Minimum 3 years
(iii)	Hot SWAP	Capability to change the fuel cartridge without shutting down the system.
<b>2.</b>	<b><u>Intelligent Power Management System</u></b>	
	The following features shall be available in the Power Management Device that forms a Part of Man Portable Direct Methanol Fuel Cell.	
(i)	Number of Ports	Power Management should have relevant ports and connectors to charge minimum four batteries (Li-Ion, Li-Po, Ni-Mh etc) simultaneously with a cumulative energy capacity of ≤350Wh
(ii)	Cables	It should have relevant cables and connectors to charge the batteries as per user requirement.
(iii)	Voltage Range	8-33 V DC
(iv)	Charging option	Fuel Cell System and AC (220V ±10%)
(v)	Protection	a) Over Voltage b) Over Current c) short circuit d) Reverse Polarity e) Over Temperature

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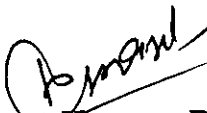
S N	Parameters	Specifications
3	<b>Smart Hybrid Battery</b>	
	The following features should be available in the Smart Battery.	
(i)	Capacity	≥ 25 Ah
(ii)	Chemistry	Lithium based Battery.
(iii)	Nominal Voltage	14.4 V DC
(iv)	Voltage Range	13.0V -16.8V DC
(v)	Battery Charging cycle	Minimum 2000 Charging Cycle

  
(SI/RM. Somnath Sadhukhan)  
BSF


  
(Nb/Sub. Harmail Singh)  
Assam Rifles

  
(INSP. Ranveer Singh)  
CISF

  
(Vaibhav Kr Srivastava),AC(UAV)  
CRPF

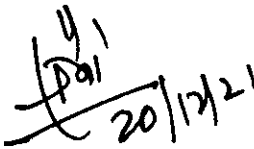
  
(Hemant Kumar, Dy.Dir)  
DCPW

  
(Maj. Shanshah Ali)  
NSG


  
(Sunil Kr Singh), DC(Comn)  
CRPF

  
(Amit Taneja), DIG(Eqpt)  
CRPF

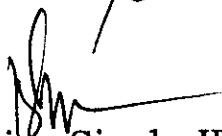
  
(Virendra Agrawal), DIG(Comn)  
CRPF

  
(Syed Mohd Husnain)  
IG(Comn&IT), CRPF



  
(Zulfiqar Hasan), IPS  
SDG(OPS), CRPF

Approved / Not Approved

  
(Kuldeep Singh, IPS)  
DG, CRPF

**QRs/TDs of Direct Methanol Fuel Cell (600Wh)**

<b>S N</b>	<b>Parameters</b>	<b>Specifications</b>	<b>Trial Directives</b>
<b>1.</b>	<b>Fuel Cell</b>		
<b>(a)</b>	<b>General</b>		
(i)	Role	Man portable	BOO will check practically.
(ii)	Operating Principle	Methanol Fuel	Firm will submit OEM certificate.
(iii)	Mode of Use	(a) As a power supply (b) As a battery charger	BOO will check practically.
(iv)	Operational weight (Including fuel cell, power manager, smart hybrid battery and allied accessories)	≤5Kgs	BOO will check practically.
(v)	Start Up Time	Generate peak power in less than 01 (One) minute.	BOO will check practically.
<b>(b)</b>	<b>Electrical Parameters</b>		
(i)	Charging capacity	600 Wh ± 5%	BOO will check practically and firm will submit OEM certificate.
(ii)	Nominal Power	25 Watts ± 5%	
(iii)	Output Voltage	10 – 30 V DC	
<b>(c)</b>	<b>Environmental Parameters</b>		
(i)	Operating Temperature	-20 °C to +55 °C	Firm will submit certificate of Govt lab/NABL/ILAC accredited laboratory.
(ii)	Storage Temperature	-25 °C to +60 °C (with Frost Protection)	Firm will submit certificate of Govt lab/NABL/ILAC accredited laboratory.
(iii)	Noise Emission	< 40 dB at 1 meter	Firm will submit certificate of Govt lab/NABL/ILAC accredited laboratory.
(iv)	Relative Humidity (%)	95 % at 50°C	
(v)	Environmental Standard i.e Vibration, drop, Sand & Shock	As per MIL-STD-810 F or better	Firm will submit certificate of Govt lab/NABL/ILAC accredited laboratory.


A series of handwritten signatures and initials in black ink, including names like 'Gan', 'Shalmy', 'Prasad', 'Shah', and others, with some initials circled.

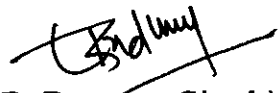
<b>S N</b>	<b>Parameters</b>	<b>Specifications</b>	<b>Trial Directives</b>
(vi)	Water and dust Intrusion	IP 65 or better	Firm will submit certificate of Govt lab/NABL/ILAC accredited laboratory.
<b>(d)</b>	<b>Fuel Cartridge</b>		
(i)	Running time	≥9 Hrs of continuous operations at peak load with 1 fuel Cartridge	BOO will check practically.
(ii)	Shelf life of filled fuel cartridge/container	Minimum 3 years	Firm will submit OEM Certificate.
(iii)	Hot SWAP	Capability to change the fuel cartridge without shutting down the system.	BOO will check practically.
<b>2.</b>	<b>Intelligent Power Management System</b>		
	The following features shall be available in the Power Management Device that forms a Part of Man Portable Direct Methanol Fuel Cell.		
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(ii)	Cables	It should have relevant cables and connectors to charge the batteries as per user requirement.	BOO will check it practically.
(iii)	Voltage Range	8-33 V DC	BOO will check it practically.
(iv)	Charging option	Fuel Cell System and AC (220V ±10%)	BOO will check practically.
(v)	Protection	a) Over Voltage b) Over Current c) short circuit d) Reverse Polarity e) Over Temperature	Firm will submit OEM Certificate.

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A2, S, ~~Sharma~~, ~~Prasad~~, ~~Sharma~~, ~~Sharma~~, ~~Sharma~~


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3	<b>Smart Hybrid Battery</b>		
	The following features should be available in the Smart Battery.		
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(iii)	Nominal Voltage	14.4 V DC	BOO will check practically.
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