

**EXPRESSION OF INTEREST OF STAKEHOLDERS/OEM/FIRMS ON QRS
(QUALITY REQUIREMENT) & TDS (TRIAL DIRECTIVES) OF LITHIUM
BASED BATTERY FOR MICRO UNMANNED AERIAL VEHICLE.**

The proposed QRs/TDs of **Lithium Based Battery for Micro Unmanned Aerial Vehicle** is attached as **Appendix 'A & B'**. The OEMs/Vendors are requested to forward information of the product which they can offer and also forward correct specifications of their system against each parameter.

1. The required information / details may please be forwarded, in hard and soft copies (CD) at the following addresses by 28th May'2019.

Directorate General CRPF
East Block-7, Sec-1, R.K. Puram, New Delhi-110066
Email: comncell@crpf.gov.in

2. An early response is requested.

Annexure "A"

QRs of Lithium based Battery for Micro UAV.

S. No.	Specification	Parameters	Remarks
1	Type of Battery	Lithium based	
2	Smart Battery	a) Inbuilt Intelligent battery management system with the ability to do active logging of battery health for at least 2 years of data, monitoring and maintenance of battery health.	
		b) Logged data includes: <ul style="list-style-type: none">- battery voltage- cell voltage- charge/discharge current- date/time of logging- acceleration/shock- temperature of battery	
		c) Self-discharge of battery to moderate voltage if left fully charged and unused for few days to maximize battery life.	
3	Nominal Capacity	Minimum 10,000 mAh	
4	Nominal Voltage	22.2 V	

S. No.	Specification	Parameters	Remarks
5	Container/ Cover Material	Composite or plastic enclosure to provide handling and ingress protection (IP53) in standalone condition.	
6	Charging current	Minimum 7 A	
7	Maximum discharge current	Minimum 25 A	
8	Maximum power rating	Minimum 500 W	
9	Compatibility with NETRA Universal charger	The battery should be compatible with the universal battery charger supplied with NETRAv1 and NETRAv2 with compatible connectors.	
10	Weight	≤1600 gms	
11	Battery endurance	Minimum 40 mins or more at full range and full AGL mission on NETRA(V1&V2) UAV while ensuring compatibility with NETRAv1 and NETRAv2 autonomous battery failsafe system to ensure flight safety of the UAV.	
12	Charging cycle/ Prescribed life	Minimum 200 charging cycles or 2 years whichever is earlier while retaining minimum 60% of capacity if maintained under rated environmental conditions.	

S. No.	Specification	Parameters	Remarks
	Dimension	Less than 20cm x 10cm x 10cm	
14	Operating & Storage temperature	-5°C to 55°C	
15	Ingress Protection	IP53 or better	
16	Miscellaneous	<p>a) Compatible with Micro UAV (NETRA V1 & V2) in flight battery health monitoring feature without any error.</p> <p>b) Inflight battery cell balancing health monitoring feature without any error.</p> <p>c) High cycle life mixed power-signal connector compatible with NETRA (V1 & V2) with one-year limited warranty on connectors.</p> <p>d) Battery having provision of connecting and mounting safely to UAV NETRA (V1 & V2)</p>	

Annexure “B”**TDs of Lithium based Battery for Micro UAV.**

S. No.	Specification	Parameters	Trial directives	Remarks
1	Type of Battery	Lithium based	Firm will submit OEM certificate.	
2	Smart Battery	d) Inbuilt Intelligent battery management system with the ability to do active logging of battery health for at least 2 years of data, monitoring and maintenance of battery health.	Firm will submit OEM certificate.	
		e) Logged data includes: <ul style="list-style-type: none">- battery voltage- cell voltage- charge/discharge current- date/time of logging- acceleration/shock- temperature of battery	BOO will check practically.	
		f) Self-discharge of battery to moderate voltage if left fully charged and unused for few days to maximize battery life.	BOO will check practically.	
3	Nominal Capacity	Minimum 10,000 mAh	BOO will check practically, and firm will submit OEM certificate.	
4	Nominal Voltage	22.2 V	BOO will check practically, and firm will submit OEM certificate.	

S. No.	Specification	Parameters	Trial directives	Remarks
5	Container/ Cover Material	Composite or plastic enclosure to provide handling and ingress protection (IP53) in standalone condition.	Firm will submit OEM certificate.	
6	Charging current	Minimum 7 A	BOO will check practically, and firm will submit OEM certificate.	
7	Maximum discharge current	Minimum 25 A	BOO will check practically, and firm will submit OEM certificate.	
8	Maximum power rating	Minimum 500 W	BOO will check practically & firm will submit OEM certificate.	
9	Compatibility with NETRA Universal charger	The battery should be compatible with the universal battery charger supplied with NETRAv1 and NETRAv2 with compatible connectors.	BOO will check practically	
10	Weight	≤1600 gms	BOO will check practically.	
11	Battery endurance	Minimum 40 mins or more at full range and full AGL mission on NETRA(V1&V2) UAV while ensuring compatibility with NETRAv1 and NETRAv2 autonomous battery failsafe system to ensure flight safety of the UAV.	BOO will check practically.	

S. No.	Specification	Parameters	Trial directives	Remarks
12	Charging cycle/ Prescribed life	Minimum 200 charging cycles or 2 years whichever is earlier while retaining minimum 60% of capacity if maintained under rated environmental conditions.	Firm will submit OEM certificate.	
13	Dimension	Less than 20cm x 10cm x 10cm	BOO will check practically & also firm will submit OEM certificate.	
14	Operating & Storage temperature	-5°C to 55°C	Firm will submit OEM certificate of Govt. Lab or NABL or ILAC accredited laboratory.	
15	Ingress Protection	IP53 or better	Firm will submit OEM certificate of Govt. Lab or NABL or ILAC accredited laboratory.	

S. No.	Specification	Parameters	Trial directives	Remarks
16	Miscellaneous	a) Compatible with Micro UAV (NETRA V1 & V2) in flight battery health monitoring feature without any error.	BOO will check practically & firm will submit OEM certificate and BOO will check practically S.N (a & b).	
		b) Inflight battery cell balancing health monitoring feature without any error.		
		c) High cycle life mixed power-signal connector compatible with NETRA (V1 & V2) with one-year limited warranty on connectors.		
		d) Battery having provision of connecting and mounting safely to UAV NETRA (V1 & V2)		