

GOVERNMENT OF INDIA
(Ministry of Home Affairs)
COMMUNICATION & IT DIRECTORATE
CENTRAL RESERVE POLICE FORCE
EAST BLOCK-7, SEC-1, R.K. PURAM, NEW DELHI-110066
(Email:- comncell@crpf.gov.in Tele/Fax:011-26109038)

No. B.V-7/2024-25-C-(UAV)-Q

Dated, the 5 June'2025

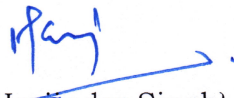
To

1. The DsG: AR, BSF, CISF, ITBP, NSG, SSB and BPR&D
2. Director, DCPW

Subject: Regarding QRs/TDs of "Small UAV for ISR Purpose (45 Min Endurance)"

I am directed to refer on the subject mentioned above and to say that the QRs/TDs of **"Small UAV for ISR Purpose (45 Min Endurance)"** has been approved by the DG CRPF after deliberation and recommended by CAPFs sub-group and experts from DCPW.

Encl:-As above


{Harjinder Singh}
DIG (Communication)
Communication & IT Branch
Directorate General C R P F

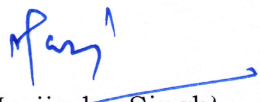
No. B.V-7/2024-25-C-(UAV)-Q

Dated, the 5 June'2025

Copy to:-





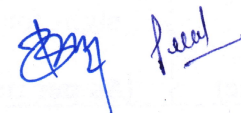

4. Mrs. Sugandhi, Technical Director, North block, MHA with request to upload the QRs/TDs of **"Small UAV for ISR Purpose (45 Min Endurance)"** on MHA website (e-mail ID: mpsugandhi@nic.in).

Encl:-As above





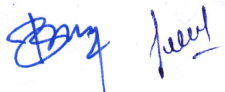


{Harjinder Singh}
DIG (Communication)
Communication & IT Branch
Directorate General C R P F

QRs/TDs of Small UAV for ISR Purpose (45Min Endurance)





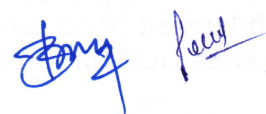
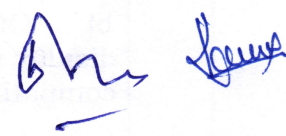
S.no	Parameter/ Specification		Trial Directives
1	UAV (As a system)		
1.1	Aerial Vehicle-01 No		BOO will check practically.
1.2	Portable GCS -01 No		
1.3	One Payload assemble consist of A) Day Camera Only B) Night Camera Only C) Day & Night camera payload (Both) D) Integrated day and night camera (As per user requirement) Optional for Training UAV		
1.4	Data link Equipment/ Antenna -01 No		
1.5	Battery/Battery set for each Aerial Vehicle-01 No		
2	Drone Characteristics		
2.1	Nomenclature	Small UAV (45Min), 2 to 5 kg (MTOW)	BOO will check practically
2.2	Design	Rotorcraft	BOO will check practically
2.3	Role	Intelligence, Surveillance, Reconnaissance	BOO will check practically
2.4	Launch and recovery mode (In meter)	Automatic vertical takeoff and landing (VTOL) within the area of 5X5 m	BOO will check practically
2.5	Aural Signature (In dB)	≤40 dBs at 300 m above AGL	The firm will submit certificate of Govt Lab. Or NABL/ILAC accredited laboratory.
2.6	Propulsion system	Electrical with rechargeable batteries	BOO will check practically.
2.7	Payloads carrying capability	Capable to carry EO for day and Thermal imager for night one at a time. (As per user requirement) Or Integrated day & night. (As per user requirement.)	BOO will check practically.

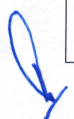








S.no	Parameter/ Specification	Trial Directives
2.8	Flight modes <ul style="list-style-type: none"> a) Fully autonomous Mode b) Fully autonomous and stabilized c) Hover at defined waypoint d) Remote piloted mode (RPV Mode) and target tracking mode. e) Waypoint Navigation (Pre-defined as well as dynamically adjustable waypoints during flight) f). Should be controllable in real time from the GCS up to recovery g). Real time target tracking of designated static and moving targets. 	BOO will check practically.
2.9	Endurance (In Minutes) <ul style="list-style-type: none"> a) Min. 45 Minutes with payload at 1000M degradation of 10% of every increase in 1000M b) Min. 30 Minutes with payload at 1000M for training UAV (As per user requirement) 	BOO will check practically
2.10	Minimum Operating altitude above ground level (AGL) (In Meter)	500M AGL (Above Ground Level) or more.
2.11	Maximum Launch altitude above mean sea level (AMSL) (In Meter)	3000m AMSL (Above Mean Sea Level) or more (As per user requirement)
2.12	Operating wind conditions (In km/h)	<ul style="list-style-type: none"> a) Take off: 25 km/h or more b) Landing: 25 km/h or more c) Operate: 25 km/h or more
2.13	Cruise Speed (In km/h)	Minimum 30 Km/h or more MSL
2.14	Collision Avoidance sensor (As per user requirement)	Should be available during take-off and landing.
2.15	Range of live transmission (LOS) (un-obstructed & interference free)	<ul style="list-style-type: none"> a) Minimum 5 Km line of sight b) Minimum 02 Km line of sight for training UAV. (As per user requirement)




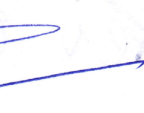

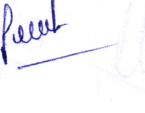
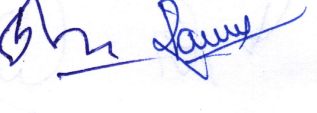
S.no	Parameter/ Specification	Trial Directives
3.0	Failsafe features	a) Automatic change to recovery mode after 10 seconds on communication loss, again on mission if communication restore.
		b) Automatic Return to Home/Land on battery low/imbalance
		c) (i) Multiple GNSS on-board for failure redundancy (ii) NAVIC - As per user requirement)
		d) Warning on exceeding Wind limit or gust
		e) Warning on exceeding the UAV health parameters (Temperature, vibration and throttle limit of the system)
		BOO will check practically and firm will produce OEM certificate
		Firm will submit OEM certificate.
		BOO will check practically and firm will submit OEM certificate.
4	Payload characteristics	
4.1	Payloads required	Electric Optic (EO) for day, Thermal Imager (TI) for night payload Or Integrated day and night payload (As per user requirement)
		BOO will check practically.
4.2	Payload and video stabilization	a) All payload should be gimbal stabilized on board
		b) Video output should be digitally stabilized at all zoom levels
		c) Quality of video should not be affected by UAV vibrations.
		d) Payload with 360° pan & 90° tilt control during flight
		e) Single payload assembly housing for day/night camera or integrated both day and night camera in one payload case (as per user requirement)
		BOO will check practically.

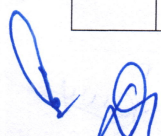







S.no	Parameter/ Specification			Trial Directives
4.3	Electro optic (EO) daylight Payload	a) UAV should transmit real time imagery to GCS		BOO will check practically.
		b) Resolution: 1920X1080 or better (As per user requirement)		Firm will submit OEM certificate.
		c) Continuous Optical Zoom in 10X or 20X Optical zoom or more (as per user requirement) with minimum-NFOV≤5°, maximum- WFOV ≥ 45° (wide field). Digital Zoom: 4X or more		BOO will check practically & firm will submit OEM certificate.
4.4	Thermal imager (TI) night payload	a) Payload with 360° pan and 90° tilt control during flight.		BOO will check practically.
		b) Resolution: 640 X 480 pixels or better		Firm will submit OEM certificate.
		c) Digital Zoom: 4X or more		BOO will check practically.
		d) White and Black hot modes		
4.5	Target Detection, Recognition, identification		Day Payload	Board will check practically. Detection- Ability to distinguish an object from background. Recognition- Ability to classify the object class (Animal, Human, Vehicle, Boat etc) Identification- Ability to describe the object in details (man with weapon, hat, Uniform/colour of cloths, type/colour of vehicles)
			Vehicle size (4.5X1.5 m)	
		Detection	2000M	1500 M
		Recognition	1500M	750M
		Identification	1000M	500M
		Detection	Night Payload	
			750M	500M
5	Ground control station characteristics			
5.1(Option-1)	a) GCS should be portable minimum 7-inch display with rugged IP 55 tablet/laptop which is compatible with GCS for surveillance or b) GCS should be portable minimum 10-inch display with rugged IP 65 tablet/laptop which is compatible with GCS for surveillance or c) (As per user requirement)			Firm will submit certificate of Govt. Lab. or NABL/ILAC accredited laboratory.

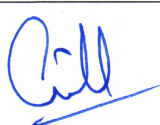
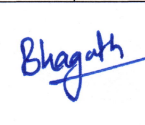
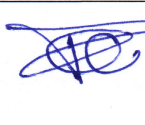
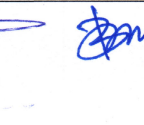
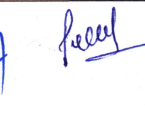
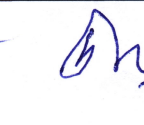

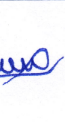
S.no	Parameter/ Specification		Trial Directives
5.2 (Option-2)	Computing Hardware (as per user requirement) for 5.1(a) & 5.1(b)		
	CPU	CPU- Clock Speed minimum 2.3 GHz or better or as per user requirement	BOO will check practically and firm will also submit OEM certificate.
	Storage	Minimum 256 GB or as per user requirement	
	RAM Memory	8GB or more as per user requirement	
5.3	Battery operation	Minimum 02 hours at peak utilization	
5.4	Capability	a) Transmit control commands to UAV b) Receive UAV flight and propulsion parameters c) Receive, display and transfer real time day and night video to display unit from GCS d) Capability to control UAV while on the move. e) Record real time video in display unit. f) Capable to storing 100 or more flight routes with each route having capacity to configure minimum 70 waypoints in GCS	BOO will check practically and firm will also submit OEM certificate.
5.5	GCS application software	a) Able to control all aspect like pre-flight checks, self-tests, control of takeoff/landing, pay loads, output: go/no go and payloads b) The software should have following mission information: - <ul style="list-style-type: none"> i. Coordinate of target ii. Target distance. iii. AV Co-ordinates iv. Distance of AV from GCS v. AV Speed vi. Mission time vii. Payload looking angle viii. Communication link status ix. GPS Status x. Health status of AV battery xi. UAV heading /true North indication xii. Bearing (Azimuth) of UAV from GCS. xiii Geographic map and real time video should be displayed at all times during the flight 	BOO will check practically and firm will also submit OEM certificate.

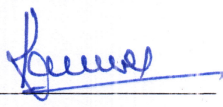
		<p>xiii. Geographic map & real time video views should be resizable and/or switchable to allow user to switch between big map/small video and small map/big video views through a single click input.</p> <p>xiv. Artificial horizon indicating UAV altitude.</p> <p>xv. Switchable between 2D/3D views, capability to tilt/rotate 3D maps as per user input.</p> <p>xvi. Perpetual proprietary software of the system product support for minimum 5 years</p> <p>xvii. AI/ML capability for identification & detection of targets/humans/friendlies (as per user requirement)</p>	
5.6	Map formats	<p>a) Should have the capability to integrate geo-referenced raster maps provided in commonly Digital formats as per user requirement.</p> <p>b) Ability to display 3D maps with the digital terrain data provided. Option to switch between 2D and 3D maps in real time.</p>	BOO will check practically and firm will also submit OEM certificate.
5.7	Button based/ USB Joystick control	<p>a) Full Camera Control Pan/Tilt</p> <p>b) Zoom In/Out Black/White Hot</p> <p>c) RPV Mode</p> <p>d) Altitude Control</p>	BOO will check practically
6 Communication Link			
6.1	Communication link equipment capability	<p>i) Transmit control commands from GCS to UAV</p> <p>ii) Transmit parameter of UAV and payload to GCS</p> <p>iii) Transmit day and night video from UAV to GCS</p>	BOO will check practically.
6.2	Data link	S/C band (2 Ghz to 6 Ghz) with 128 bit or better AES encryption.	Firm will submit OEM certificate
7 General System requirements			
7.1	Weight (In kg)	Complete weight of the UAS not more than 15 kg and system should be packable in 2 backpacks with 2 spare batteries.	BOO will check practically.
7.2	Assembly/ Disassembly time (In minutes)	Less than 15 minutes with one person.	

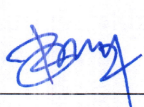









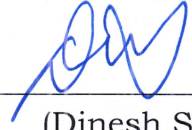
S.no	Parameter/ Specification	Trial Directives
7.3 (a)	Environmental conditions for operation and storage The UAV and associated systems should operate and stored at following environment conditions. i) Damp heat: 40°±2°C at RH not less than 90% as per JSS 55555 or equivalent. ii) Starting operating temperature & Storage temp: -10°C to +55°C with ±10 % tolerance iii) Ability to withstand dust, drizzle and humid conditions	Firm will submit certificate of Govt lab or NABL/ILAC accredited laboratory
(b)	IP (Ingress Protection) of the UAV IP 54 or better	
7.4	Portability and operation The UAV should be battery operated portable, light in weight, compact for day and night surveillance, capable of being carried and operated by two man.	BOO will check practically.
7.5	Battery charger of AV battery Suitable universal battery charger to charge the batteries within (03) three hours	BOO will check practically and firm will submit OEM certificate.
7.6	Accessories i. Field repair kit: 1 Nos ii. Lithium based battery packs: 2 Nos iii. Spare propeller set: iv. 1 Complete set v. Spare landing gear sets: 1 Complete set vi. Associated cables & mounting: 1 Set vii. User, technical & maintenance manual: 1 set viii. Water resistance (IP 66) back packs to carry UAS-02 Nos ix. Rugged, Compact and light weight transportation box-01 Nos	BOO will check practically BOO will check practically BOO will check practically BOO will check practically BOO will check practically BOO will check practically Firm will submit certificate of Govt lab or NABL/ILAC accredited laboratory BOO will check practically
7.7	Night recovery Beacon Switchable LED light when operating with night payload	BOO will check practically
Miscellaneous Requirement.		
8.1	Warranty 2 Years / 5 Years (as per user requirement)	firm will submit OEM certificate
8.2	Total Technical Life 1000 Flight Landings	firm will submit OEM certificate

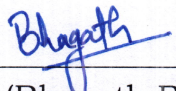









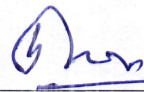
S.no	Parameter/ Specification		Trial Directives
8.3	Total Product Support	5 Years / 7 Years (as per user requirement)	firm will submit OEM certificate
8.4	Manufacturer Recommended list of Spare (MRLS)	Should be provide	Firm will submit OEM Certificate.
8.5	Spare Ground Control System (2 Remote Controllers -Master and Slave configuration, Telemetry and Display device) for training UAV. (As per user requirement)		BOO will check practically.
8.6	Training simulator with RC option (as per user requirement)		BOO will check practically

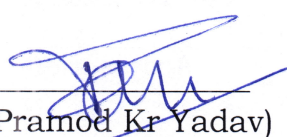

(Nb Sub.R.D.Ansari)
Assam Rifles



(Bhupendra Kumar)
AC, BSF

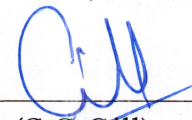

(Dinesh.S.A)
AC(QR/UAV), CRPF

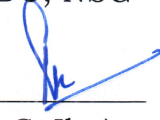

(Bhagath.R)
AC(TUC/Drones),SSB

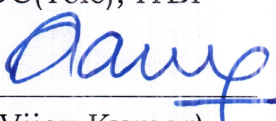

(Laljee Ram)
JAD, DCPW

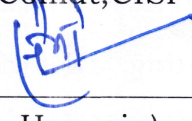

(Pramod Kr Yadav)
DC, NSG

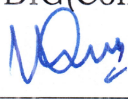

(P.K.Tiwari)
DC(Tele), ITBP


(S.S.Gill)
Comdt,CISF



(P.C.Jha)
DIG(Comn), CRPF


(Vijay Kumar)
IG, CRPF


(S.M. Hasnain)
IG (Comn& IT), CRPF


(Vitul Kumar, IPS)
SDG (OPS), CRPF

✓
Approved/Not Approved


(Gyanendra Pratap Singh,IPS)
DG, CRPF