

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)

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

Dated, the 23 June'2025

To

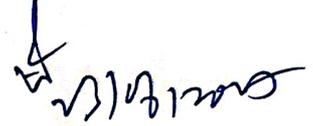
1. The DsG: AR, BSF, CISF, ITBP, NSG, SSB and BPR&D
2. Director, DCPW

Subject: QRs/TDs OF "NANO UAV" REGARDING.

I am directed to refer on the subject mentioned above and to say that the QRs/TDs of "Nano UAV" have been approved by the DG CRPF after due deliberations and recommended by CAPFs sub-group and experts from DCPW.

This is for favour of information and needful action please.

Encl:-As above



(Megh Raj)

DIG (Equipment)
Communication & IT Branch
Directorate General C R P F

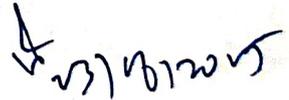
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Copy to:-

1. Mrs. Sugandhi, Technical Director, North block, MHA with request to upload the QRs/TDs of "Nano UAV" on MHA website (e-mail ID: mpsugandhi@nic.in) and QRs/TDs of "Nano UAV" forwarded earlier vide letter No. B.V-7/2024-25-C-(N/UAV)-Q dated 19/03/2025 are hereby rescinded please.

Encl:-As above



(Megh Raj)

DIG (Equipment)
Communication & IT Branch
Directorate General C R P F

QRs/TDs of Nano UAV

SN	Parameter	Specifications	Trial directives
1	Nano UAV (As per drone rule 2021) system should consist of the following sub-systems: -		
1.1	UAV Bird with battery pack		Board will check it practically
1.2	Ground Control station with data link equipment		
1.3	One Payload assembly 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)		
1.4	Universal Battery Charger with Power Supply System		
2	Nano UAV characteristics:-		
2.1	Role	Personal soldier Surveillance, air platform of very small size of close range surveillance and detection during day and night.	Board will check it practically
2.2	Launch and Recovery mode (In meter)	Vertical Take Off and Landing (VTOL) or Hand Launch and Belly landing in open area within an area of 2m x 2m clearing or less	Board will check practically by within the shown area and will ensure that payload should not get damaged during recovery of UAV.
2.3	Aural Signature (in dB)	≤40dBs at 20 Meter Above Ground Level	The firm will submit certificate of Govt. Lab. or DRDO or NABL accredited or ILAC accredited laboratory.
2.4	Payloads carrying capability	Should have capability to carry electro Optic (EO) for day and Thermal Imager (TI) for night one at a time. Or Integrated day & Night payload. (As per user requirement)	Board will check practically.
2.5	Flight Modes	a) Semi-autonomous vertical take-off or hand launch. b) Semi-autonomous vertical landing or belly landing. c) Hover at defined waypoint d) Semi-Autonomous waypoint navigation (pre-defined as well as dynamically adjustable waypoints during flight) e) Remote Piloted mode for video based user navigation. f) Should be controllable in real time from the GCS up to recovery. g) Fully autonomous in outdoor environment.	Board will check practically.

SN	Parameter	Specifications	Trial directives
2.6	Endurance (In minutes)	20 minutes or more with payload at 1000M above Mean Sea Level (AMSL).	Board will check practically with maximum payload up to launch altitude of 1000 meter Above Mean Sea Level (AMSL).
2.7	Operating Altitude (In Meter)	100Meter AGL (Above Ground Level) or more.	Board will check practically by flying the UAV.
2.8	Range of Operation (In Km)	Minimum 1.5 km line of sight	Board will check practically.
2.9	Indoor Communication (As per user requirement)	Range of minimum 70 meter or more (as per user requirement) of Minimum 2 walls of thickness 6 inch	Board will check practically
2.10	Cruise Speed (In km/h)	20 km/h or more	Board will check practically and firm will submit OEM certificate.
2.11	Operating Wind Conditions (In knots)	a) Take off: 10 knots or more b) Landing: 10 knots or more c) gust: 12 knots or more	Firm will submit OEM certificate.
2.12	Fail safe features	a) Automatic Return to Home/ Land on low battery	Board will check it practically.
		b) Single GPS on-board	Firm will submit OEM certificate.
2.13	Propulsion system	Electrical with rechargeable batteries	Board will check it practically.
3. Payload characteristics:-			
3.1	Payloads required	One Payload assembly 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)	Board will check practically after fitting the required payloads and ensure that UAV working satisfactorily.
3.2	Payload and Video Stabilization	a) Video output should be digitally/gimbal stabilized at all zoom levels.	Board will check practically all parameters
		b) Quality of video should not be affected by UAV vibrations.	
3.3	Electro optic (EO) Daylight Payload	a) Resolution: 1920×1080 or better	Board will check it practically and firm will submit OEM certificate

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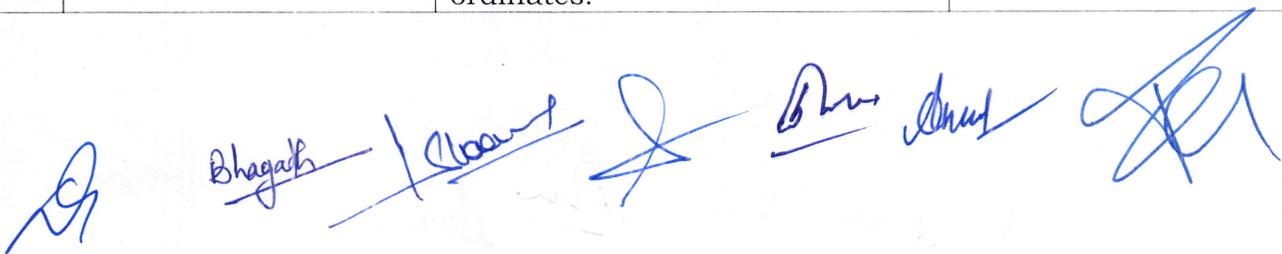
SN	Parameter	Specifications	Trial directives
		b) User Should be able to detect human size target at 100-meter slant or more	
3.4	Thermal Imager (TI) Night or IR Payload (As per user requirement)	a) Resolution: 320 X 240 pixels or better b) White/Black Hot modes for TI payload c) User Should be able to detect human size target at 70-meter slant or more	Board will check it practically and firm will submit OEM certificate.
3.5	Night Recovery Beacon	Switchable (from GCS) LED light when operating with Night Payload	Board will check it practically.
4. Ground Control Station characteristics:-			
4.1	(a) Semi ruggedized 7-inch tablet Or As per user requirement.	Compatible with Nano UAV	Board will check it practically.
4.2	Computing Hardware only for option (a)		
	CPU	Processor minimum frequency 2.3 GHz or equivalent /better	BOO will check it practically and Firm will submit OEM certificate.
	Storage	256 GB or better	
	Memory	4 GB or more	
	Display	Minimum 7 inch, Resolution - 1920×1080 or better, sunlight readable screen, anti-glare.	
4.3	Battery Operation	Minimum two hours at peak utilisation.	Board will check practically
4.4	Battery Charging time of GCS	Maximum battery charging time 2 hours for up to 90% of battery charge.	Board will check practically
4.5	Data portability	Ports for data transfer to external secondary storage devices	Board will check practically
4.6	Interface	Type C with support for other interfaces via docking station or adaptors for HDMI, USB, Micro USB, 10/100/1000 Ethernet.	Board will check practically
4.7	Capability	a) Transmit control commands to UAV. b) Receive UAV flight and propulsion parameters. c) Receive, display and record real time day and night video from UAV. d) Capability to control UAV while on the move.	Board will check it practically.







SN	Parameter	Specifications	Trial directives
4.8	GCS Application Software	a) Geographic Map along with UAV location, UAV trajectory, camera view polygon, waypoints and flight plan.	Board will check it practically.
		b) Real-time video from the UAV with on-screen display of important parameters like:- <ul style="list-style-type: none"> i. UAV Position (Only in outdoor) ii. Height of UAV above ground Level (AGL) in outdoor environment. iii. Distance of UAV from GCS iv. Bearing (Azimuth) of UAV from GCS v. Ground speed of UAV vi. UAV Heading/ True North indication vii. Mission time 	Board will check it practically.
		c) Geographic map and real-time video should be displayed at all times during the flight.	
		d) Geographic map and real-time video views window 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/button input.	
4.9	Map Formats	a) Should have the capability to integrate geo-referenced raster maps provided commonly used digital map formats or As per user requirement.	Board will check it practically.
		b) Should be able to work with Google Maps, application should have the capability to download maps automatically after specifying location GPS co-ordinates.	

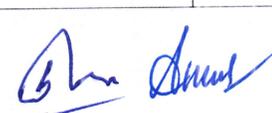


S.N	Parameter	Specifications	Trial directives
4.10	Payload Controls	a) Toggle for Selection and switch payload b) Recording on/off	Board will check it practically.
4.11	Button based/USB Joystick Controls	i. Full Camera Control- a). Zoom In/Out b). Black/White Hot (only in case of TI) ii. RPV Mode iii. Altitude Control	Board will check practically.
4.12	Video	a) Video should be recorded in any commonly portable video formats (AVI/MPEG/ MP4 etc) b) Video of the full flight should be recorded c) Should have capability to take image snapshots at any time during flight d) Should be able to export the video in common formats	Board will check it practically.
4.13	Pre-flight checks	Self-test of UAV system, Output: go/no go	Board will check it practically.
5. Communication Link:-			
5.1	Communication link equipment capability	i) Transmit control commands from GCS to UAV ii) Transmit parameter of UAV and payload to GCS iii) Transmit day and night video from UAV to GCS	Board will check it practically.
5.2	Data Link	(400 MHz to 6 GHz) with minimum 128 bit AES encryption.	Firm will submit OEM certificate.
6. General System requirements:-			
6.1	Weight (in grams) MTOW	As per drone rule 2021, The maximum all up weight (including payload) should be ≤ 250 gms.	Board will check practically.
6.2	Assembly/ Disassembly time (In minutes)	≤ 5 minutes.	Board will check practically.
6.3	Life of Nano UAV	The total technical life of Nano UAV should not be less than 750 Landings	Firm will submit OEM certificate.

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SN	Parameter	Specifications	Trial directives
6.4	IP (Ingress Protection)	IP 53 or better Or As per user requirement.	Firm will submit certificate of Govt. Lab. or NABL or ILAC accredited laboratory
6.5	Environmental Conditions for Operation and Storage	The UAV and associated systems should be certified for operation and storage for following environment conditions. i) Damp Heat: 40°C±2° at RH not less than 90% ii) Operating temperature & Storage temp: -5°C to +50°C, Tolerance ± 10%	Firm will submit certificate of Govt. Lab. or NABL or ILAC accredited laboratory.
6.6	Portability and Operation	The Nano UAV should be battery operated portable, light in weight, compact, for day and night surveillance, capable of being carried and operated by one man. The complete mission-ready kit backpack/ Hard case (IP 66) including UAV, GCS, and spare battery should weigh not more than 2.5 kg."	Board will check practically.
6.7	Battery of AV	The intelligent standard battery pack should have the backup of minimum 20 minutes.	Board will check practically and firm will submit OEM certificate.
6.8	Life of AV Battery	Minimum 200 charging cycles or 2 Years, whichever is earlier.	Firm will submit OEM certificate
6.9	Battery Charger of AV battery	Suitable universal battery charger to charge the batteries up to 98% within two hours.	Board will check practically
6.10	Manufacturer Recommended list of Spare (MRLS)	Should be provided	Board will check practically and Firm will submit OEM certificate.




SN	Parameter	Specifications	Trial directives
6.11	Accessories	a) Water proof Back Packs IP66: 1 set	Board will check physically and firm will submit certificate of Govt. Lab. or NABL accredited or ILAC accredited laboratory for IP66.
		b) Field Repair kit: 1 No's	
		c) Spare Battery packs: 3No's	
		d) Spare propeller with guard Sets: 2 No's	
		e) Associated Cables & Mountings: 1set	
		f) Hard transportation boxes: 1set	
		g) User, Technical & Maintenance Manual: 1set	
		h) Log book : 1 set	
		i) FPV Goggles (As per user requirement)	
6.12	Total Product Support	05 Years or As per User Requirement	Firm will Submit OEM Certificate
6.13	Warranty	Minimum 02 Years or As per User Requirement	Firm will Submit OEM Certificate



Tushar Sharma
AC(Exe), CISF



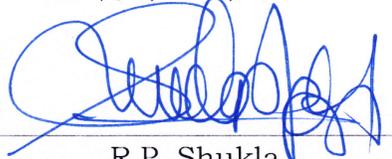
Dinesh S.A
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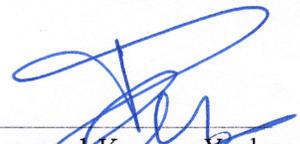
Laljee Ram
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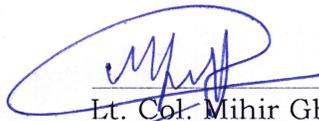
R.P. Shukla
DC, BSF



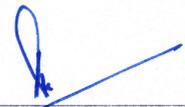
Pramod Kumar Yadav
DC, NSG



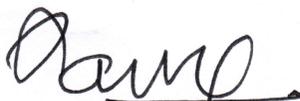
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