

QRs of Tethered UAV with Digital VHF Repeater

S N	Parameter	Specifications
1	Tethered UAV System with digital VHF repeater should consist of following	
1.1	UAV bird with back up battery pack	
1.2	Tethering power base station	
1.3	Ground control station	
1.4	Day & Night camera payload or Integrated camera payload	
1.5	Digital VHF Repeater and antenna with duplexer	
1.6	Universal battery charger with power supply system	
2	UAV Characteristics	
2.1	Role	Seamless surveillance during day & night and enhance communication range
2.2	Launch and Recovery mode	i) Automatic Vertical Take Off and Landing (VTOL) ii) Payload should not damage during landing of UAV
2.3	Propulsion system	Electrical with rechargeable batteries
2.4	Payloads carrying capability	Should have capability to carry digital VHF repeater with antenna and Day & Night camera payload or Integrated camera payload at the same time
2.5	Flight Modes	a) Fully Autonomous Vertical Take Off b) Fully Autonomous Vertical Landing c) Hover at defined fixed altitude d) Remote piloted mode for video-based user navigation e) Vision based Autonomous Target Tracking of fixed and moving targets f) Should be controllable in real time from the GCS up to recovery g) Fully autonomous and stabilized
2.6	Endurance	08 hrs with all payloads. After 45 minutes of cooling period, bird will be ready for another 08 hrs operational flights
2.7	Operating Altitude	100m AGL (Above Ground Level) or more
2.8	Launch Altitude	2000m AMSL (Above Mean Sea Level) or more
2.9	Operating Wind Conditions	a) Take off: 20 km/h or more b) Landing: 20 km/h or more c) Operate: 20 km/h or more

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S N	Parameter	Specifications
2.10	Failsafe features	a) Automatic Return to Home on communication failure
		b) Automatic Return to Home/Land on low battery and power cut.
		c) Multiple GPS on-board for GPS failure redundancy
		d) Should support power line failure and seamless switching to backup battery
		e) High wind and high temperature indication
		f) Should support one motor failure during flight
3	Payload characteristics	
3.1	Payloads required	a) Should have capability to carry digital VHF repeater and antenna with duplexer b) Day & Night camera payload or Integrated camera payload
3.2	Payload and Video Stabilization	a) EO/IR payload should be gimbals 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
3.3	Electro optic (EO) Daylight Payload	a) Color Camera with 360° pan and 90° tilt control during flight
		b) Resolution: 1920 × 1080 pixel or better
		c) Optical zoom:-30X or more with minimum-FOV≤5°, maximum- FOV ≥ 45° (wide field). Digital Zoom:- 4X or more
		d) Should be able to detect human size target at 750-meter slant or more
3.4	Thermal Imager (TI) Night Payload	a) Thermal Camera with 360° pan and 90° tilt control during flight
		b) Resolution: 640 X 480pixels or better
		c)White/Black Hot modes
		d) Digital Zoom: 4X or more
		e) Should be able to detect human size target at 400-meter slant or more

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