





REVISED QRs : MINI ROV

1. The Mini ROV should be able to carry out EOD and Surveillance of the following structures/ installations :-
- Inside aircraft and train.
  - Bldg and Installations.
  - Bus Station/Metro Station/ Rly Station
  - Passenger Terminals.
  - On Ferries and Ships
  - Exterior and Interior of Veh.
2. The weight of the Mini ROV should not be more than 110 kgs incl the Mini ROV base station.
3. The Mini ROV should be able to climb up and down a stair case/slope of at least 45 degree along with weight of 8 kgs and should have minimum two speeds.
4. The Mini ROV should be able to operate in all types of weather conditions.
5. The Telescope Boom of Mini ROV should extend minimum 01 mtr and max 2.5 mtrs or more from the ground/floor level and should be modular in nature wherein it can be fixed/removed easily.
6. The Mini ROV should have the fwg video cameras :-
- Front and rear video cameras with IR capability and range of minimum 3 meters.
  - PTZ fusion (day & night ) camera having PAN (-45 to +45 degrees) & Tilt (0-360 degrees) with capability to recognize human form factor at minimum 200 meters. The camera should possess minimum 10x Optical zoom capability.
  - Video Camera at claw with thermal capability with capability to recognize human form factor at minimum 200 meters.
  - Aiming Video camera for firing with IR capability and range of minimum 10 meters.
7. The Mini ROV should have the following attachments :-
- Modular mount for weapon systems. ( SMG MP5 & Shot Gun)
  - Modular mount for De-Armr Disrupter
  - Modular mount for RTVS (should be capable to take X-Ray with RTVS).
8. Mini ROV should be able to aim with the help of both the camera and the laser aiming pointer.
9. Mini ROV should have lifting capability of minimum 8 Kgs with telescopic boom fully extended.

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10. The Mini ROV should have spot lights/LED for both driving cameras and for aiming camera and should be compatible with video camera. 11
11. The Mini ROV should have a malfunction detection and display unit. 282
12. Use of COFDM technology in data, audio & video transfer between the ROV and the Base Station.
13. The Mini ROV should be able to give its optimum output in the under mentioned areas/ranges :-
- Radio Control in Urban/Built up area – upto 200m.
  - Radio control in open area- upto 500m.
  - Fibre Optic Control min- upto 200m with self retractable cable assembly.
  - Capability to take X-Ray with X-Ray mount assembly/Real Time Viewing System in all terrains.
14. The Mini ROV should be EMI/EMC compatible (certificate from national/internationally accredited lab to be produced).
15. Mini ROV should have the following EOD options/resources with the claw :-
- Pipe holding grip.
  - Spike Grip.
  - Beak Grip.
  - Box Cutter.
  - Glass breaker.
  - Tyre Deflator.
  - Line for towing veh
16. The Power Supply of the Mini ROV should have the following :-
- Rapid rechargeable lithium-ion battery
  - The battery should be able to support all ops of the Mini ROV for a minimum duration of not less than 04 hrs.
  - Firm to provide spare battery for both Mini ROV and base station with charger.
17. Mini ROV should have a sensitive microphone to pickup acoustic signature within a radius of 15 feet of Mini ROV.

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18. Base Station of the Mini ROV should have the following features :-

- (a) Compact and light weight.
- (b) Portable control panel.
- (c) The display unit at base station should have LCD screen of min 15" with capability of simultaneously displaying at least 04 on board cameras in one screen and each camera output separately on the screen.
- (d) Capable of being powered on mains and bty both.
- (e) Should have joystick control.
- (f) Should have inbuilt safety features.
- (g) Should have essential operational controls.
- (h) Should have capability to listen and record voice signature being picked up by the microphone on board the ROV.
- (j) Should have a S-Video/ BNC video out port for transmission of surveillance feed being received from mini ROV to Command & Control center.

19. The operating temperature of the Mini ROV should be (-) 10 degree C to (+) 55 degree C (OEM/firm to provide certificate from national/internationally accredited lab).

20. Suitable pelican cases for safety of Mini ROV and associated accessories.

21. **Miscellaneous.** The firm will provide the following documents/ literature (in English language) along with the equipment :-

- (a) Technical Manual with full description of all the items.
- (b) User's Hand Book.
- (c) Literature on care and preservation technique/methods.
- (d) Specifications for packing handling/transportation/storage.
- (e) Details regarding periodical checks to be carried out by the user for serviceability of the equipment.

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TRIAL DIRECTIVES OF MINI ROV

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Sr No	QR of Mini ROV	Trial Directives	Remarks
1.	The Mini ROV should be able to carryout EOD and Surveillance of the fwg structures/ installations :- (a) Inside aircraft and train. (b) Bldg and Installations. (c) Bus Station/Metro Station/ Rly Station (d) Passenger Terminals. (e) On Ferries and Ships (f) Exterior and Interior of Veh.	To be physically checked by BOO. To be physically checked by BOO. To be physically checked by BOO. To be physically checked by BOO. To be physically checked by BOO. To be physically checked by BOO.	In case feasible.
2.	The weight of the Mini ROV should not be more than 110 kgs incl the Mini ROV base station.	To be physically checked by BOO	Wt to include total wt of Mini ROV, base station and incl all accessories required to make Mini ROV fully operational. Wt of carrying case, user manual and cleaning kit not to be included in the total wt.
3.	The Mini ROV should be able to climb up and down a stair case/slope of at least 45 degree along with weight of 8 Kgs and should have minimum two speeds.	Mini ROV to be operated to climb up and down a stair case / slope of at least 45 degree along with weight of 8 kgs.	
4.	The Mini ROV should be able to operate in all types of weather conditions.	OEM certificate for compliance will be acceptance criteria.	
5.	The Telescope Boom of Mini ROV should extend minimum 01 mtr and max 2.5 mtrs or more from the ground/floor level and should be modular in nature wherein it can be fixed/removed easily.	To be checked by the BOO.	

Ser No	QR of Mini ROV	Trial Directives	Remarks
6.	The Mini ROV should have the following video cameras :-		
✓	(a) Front and rear video cameras with IR capability and range of minimum 3 meters.	In addition to Certificate from the OEM the parameter to be physically checked by the BOO.	
✓	(b) PTZ fusion (day & night ) camera having PAN (-45 to +45 degrees) & Tilt (0-360 degrees) with capability to recognize human form factor at minimum 200 meters. The camera should possess minimum 10x Optical zoom capability.	In addition to Certificate from the OEM the parameter to be physically checked by the BOO.	
✓	(c) Video Camera at claw with thermal capability with capability to recognize human form factor at minimum 200 meters.	In addition to Certificate from the OEM the parameter to be physically checked by the BOO.	
✓	(d) Aiming Video camera for firing with IR capability and range of minimum 10 meters.	To be physically checked by the BOO. Firing of De Armr Disrupter to be carried out.	De-Armr Disrupter to be provided by the user.
7.	The Mini ROV should have the following attachments :-		
✓	(a) Modular mount for wpn systems.( SMG MP5 & Shot Gun)	To be physically checked by the BOO by firing five rounds of ammunition each from SMG MP5 and Shot Gun weapons.	SMG MP5 & Shot Gun wpn to be fired. The weapon & ammunition will be provided by the indenter.
✓	(b) Modular mount for De-Armr Disrupter	To be physically checked by the BOO.	De-Armr Disrupter to be mounted & fired.
✓	(c) Modular mount for RTVS (should be capable to take X-Ray with RTVS).	To be physically checked by the BOO.	RTVS should be mounted and X-ray to be taken. RTVS to be provided by the indenter.
8.	The Mini ROV should be able to aim with the help of both the camera and laser aiming pointer.	To be physically checked by the BOO.	



9.	The Mini ROV should have lifting capability of minimum 08 kgs with telescopic boom fully extended.	To be physically checked by the BOO.	
10.	The Mini ROV should have spot lights/LED for both driving cameras and for aiming camera and should be compatible with video camera.	In addition to Certificate from the OEM the parameter to be physically checked by the BOO.	
11.	The Mini ROV should have a malfunction detection and display unit.	To be physically checked by the BOO.	
12.	Use of COFDM technology in data, audio & video transfer between the ROV and the Station Base.	OEM Certificate for compliance will be the acceptance criteria.	
13.	The Mini ROV should be able to give its optimum output in the under mentioned areas/ranges :-		
(a)	Radio Control in Urban/Built up area – upto 200m.	To be physically checked by the BOO.	
(b)	Radio control in open area- upto 500m.	To be physically checked by the BOO.	
(c)	Fibre Optic Control min upto 200m with self retractable cable assembly.	To be physically checked by the BOO.	
(d)	Capability to take X-Ray with X-Ray mount assembly/Real Time Viewing System in all terrains.	To be physically checked by the BOO.	X-ray to be taken of the suspected device.
14	The Mini ROV should be EMI/EMC compatible (certificate from national/internationally accredited lab to be produced)	OEM Certificate for compliance will be the acceptance criteria.	
15.	Mini ROV should have the fwg EOD option/resources with the claw :-		
(a)	Pipe holding grip.	To be physically checked by the BOO.	
(b)	Spike Grip.	To be physically checked by the BOO.	
(c)	Beak Grip.	To be physically checked by the BOO.	
(d)	Box Cutter	To be physically checked by the BOO.	
(e)	Glass breaker	To be physically checked by the BOO.	
(f)	Tyre Deflator	To be physically checked by the BOO.	
(g)	Line for towing veh	To be physically checked by the BOO.	



16.	The Power Supply of the Mini ROV should have the following :-		
(a)	Rapid rechargeable lithium-ion battery	To be physically checked by the BOO.	
(b)	The bty should be able to sp all ops of the Mini ROV for a minimum duration of not less than 04 hrs.	Mini ROV to be physically operated on bty for more than 04 hrs.	
(c)	The Firm to provide spare bty for both Mini ROV and base stn with charger.	To be physically checked and tested by BOO.	
17	Mini ROV should have a sensitive microphone to pickup acoustic signature within a radius of 15 feet of Mini ROV.		To be physically checked and tested by BOO.
18.	Base Station of the Mini ROV should have the fwg features :-		
(a)	Compact and light weight	To be physically checked by the BOO.	
(b)	Portable control Panel	To be physically checked by the BOO.	
(c)	The display unit at base stn should have LCD screen of min 15" with capability of simultaneously displaying atleast 04 on bd cameras in one screen and each camera output separately on the screen.	To be physically checked and operated by BOO.	
(d)	Capable of being powered on mains and bty both.	To be physically checked and operated by BOO.	
(e)	Should have joystick control.	To be physically checked and operated by BOO.	
(f)	Should have inbuilt safety features	To be physically checked by BOO.	
(g)	Should have essential operational controls.	To be physically checked by BOO.	
(h)	Should have capability to listen and record voice signature being picked up by the microphone on board the ROV.	To be physically checked by BOO.	
(j)	Should have a S-Video/ BNC video out port for transmission of surveillance feed being received from mini ROV to Command & Control center.	To be physically checked by BOO.	

19.	The operating temperature of the Mini ROV should be (-) 10 degree C to (+) 55 degree C (OEM/firm to provide certificate from National/ Internationally accredited lab).	National / Internationally accredited lab certificate for compliance.	
20	Suitable pelican cases for safety of Mini ROV and associated accessories.	To be physically checked by BOO.	
21	<p><b>Miscellaneous.</b> The firm will provide the following documents/ literature (in English language) along with the equipment :-</p> <p>(a) Technical Manual with full description of all the items.</p> <p>(b) User's Hand Book.</p> <p>(c) Literature on care and preservation technique/ methods.</p> <p>(d) Specifications for packing, handling/ transportation/ storage.</p> <p>(e) Details regarding periodical checks to be carried out by the user for serviceability of the equipment.</p>	<p>(a) For technical literature, undertaking by the OEM/firm, to provide the technical literature along with the delivery of the equipment, will be obtained.</p> <p>(b) Remaining items, to be physically checked by the BOO.</p>	

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