

**DIRECTOR GENERAL BORDER SECURITY FORCE**  
**(PROVISIONING DIRECTORATE (MOD CELL))**

**Expression of Interest**

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The Sub-group of Technical Experts on Surveillance Equipment's constituted by MHA vide their letter No. IV-1017/18/2001-Prov-I dated 05 Jul 2002 held its meeting at BSF Headquarters on 15<sup>th</sup> May 2017, 15<sup>th</sup> June 2017 and 25<sup>th</sup> Aug 2017 to formulate the QRs of '**Vehicle Mounted Surveillance System**'.

After detailed deliberations the referred Sub-group has formulated the QRs of '**Vehicle Mounted Surveillance System**' which are as under:-

**Qualitative Requirements/specification of Vehicle Mounted Surveillance System**

S.No	Specification
01.	Vehicle mounted Surveillance system consists of Day and Night cameras, inbuilt DMC & GPS , LRF, control & Display unit and telescopic mast, mounted on the vehicle offered by the firm.
02.	<b>Colour Camera</b>
a	CMOS/CCD Colour camera.
b	Resolution-640 x 480 or better.
c	Auto and manual focus mechanism.
d	Optical magnification: 16x or better.
e	Digital magnification: 2x,4x.
f	<b>Range</b>
	<b>For Human Target</b>
	i) Detection : 5 Km.
	ii) Recognition - 2.5 Km.
	<b>For Vehicle</b>
	i) Detection : 9 Km (min).
	ii) Recognition : 4.5 Km (min).
3.	<b>Night (Thermal) Camera :</b>
a	Spectral response : LWIR/MWIR or both
b	FPA Resolution : 640 x 512 (min )at pixel pitch of 15 µm or better.
c	Auto and manual focus mechanism.
d	Optical magnification -5x (min) continuous.
e	Electronic magnification- 2x,4x .



	f	Wide FOV	12.5° x 9° (min).
	g	Narrow FOV	2.5° x 2.0° (max).
	h	<b>Range :</b>	
		<b>For Human Target</b>	
		i) Detection – 3 Km.	
		ii) Recognition – 1.5 Km.	
		<b>For Vehicle</b>	
		i) Detection – 5 Km.	
		ii) Recognition – 2.5 Km.	
4.		Start up time : NMT 8 MINTS	
5.		The MSV should be operable by a crew of 2 operators. The system should take not more than 15 minutes to come into full operation once vehicle is halted which includes powering the system, hoisting of mast and receiving Day and TI video on the console.	
6.		Non uniformity calibration(NUC)	
7.		The EO system should be immune to glare of searchlights. It should not get damaged if faced towards Sun accidentally.	
8.		It Should have the facility to stream imagery over wireless link(500 meters minimum NLOS and 2000 meters minimum LOS with coding. <b>(Wireless link range for imagery transmission to be specified by the user at the time of indent)</b>	
9.		<b>Pan &amp; Tilt :</b>	
	a	Pan movement : n x 360°.	
	b	Tilt movement + 15° to -30° or better.	
10.		<b>Laser Range Finder (LRF) :</b>	
	a	Should be class 1 eye-safe.	
	b	Range : Up to 5 km. for a vehicle target (Medium Vehicle) parked side ways.	
	c	Range accuracy ± 5 meter minimum.	
11.		<b>Global Positioning System</b> It should be inbuilt and give co-ordinates in Lat/Lon and Indian Military Grid Reference system. The accuracy should be less than 10 meters.	
12.		<b>Digital Magnetic Compass</b> :In built DMC should be provided for auto Northing. In accuracy should be ≤ 1° and resolution 1° or better.	
13.		<b>Control Unit should have :</b>	
	a	Ruggedized LED display having size 15" (min) to be mounted in the cabin. It should also be removable for remote use.	
	b	Command & Control (C2) software.	
	c	Command control real time alerts. On detection of a threat in a designated area, the system should be able to generate audio/visual alarm/alert.	
	d	Have provision for video output.	
	e	Ethernet/ports for data retrieving.	
	f	Control unit should have facility to display :- i) Day Camera Video ii) TI Camera Video iii) Panoramic View iv) Map View	

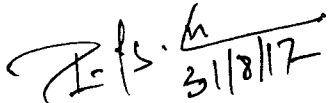
	g	It should have facility to display lased target area on map.
	h	Should have facility to get image shot whenever required.
	i	Should have facility to scan user defined sector automatically.
	j	Should have facility to control all the functions of day, night pan & tilt mechanism via wired link from EO to the control unit.
	k	System should support various maps formats including Raster & Vector maps.
	l	Should have video recording capability: Advanced inbuilt storage memory of 1 TB (min) exclusively to store the video should be provided in the console. The system should have facility to retrieve the stored data.
14.	<b>Telescopic Mast:</b>	
	a	The mast should be either pneumatic, electric or Hydraulic operated.
	b	The height of the Mast should be 15 feet (min) from the platform.
	c.	The mast should be mounted on the offered vehicle.
	d.	The mast should be strong enough to carry the payload in stand-alone positions in rough weather conditions with wind speed of min 40 knots per hour at its maximum extended position.
	e	The system must be able to provide a clear video while moving at a speed of 20 Km/per hours with mast height min 15 feet.
15.	<b>Power Source :</b>	
	a.	2KV or better (as per load) silent Gen Set (fixed with vehicle body) to be provided as power source of equipment/ console and Pan & Tilt.
16.	<b>Online UPS:</b>	
	a	In Put voltage range 90 to 270 V, 46 to 54 Hz AC mains supply.
	b	Back up of 04 hrs minimum. UPS should power the Pan Tilt, Camera, Mast, LOS Radio, and Control unit for the entire backup duration in sector scan mode. The available battery capacity should be visible on the control unit and user should get an alarm if battery capacity <15%.
	c	It should be provided with an all-weather enclosure for keeping the UPS and its batteries safe in rain and snow.
17.	<b>Batteries:</b>	
	a	Should have Lithium ion rechargeable battery to operate TI and Day Camera, for an entire temperature area.
	b	The battery should have battery status indication showing the charge status of the battery.
	c	System should be able to run 4 hrs or more in operational mode on single charge.
18.	<b>Battery Charger :</b>	
	a	90 V to 250 V, 46 to 50 Hz AC main supply along with DC charging facilities from 12 V to 48 V.
	b	It should have charge ON and full charge indication during battery charging.

19.	<b>Environmental Specification :</b>
a	The Camera, Control unit & Pan Tilt should comply with Mil Std 810F or JSS 55555 or better in respect of low & high temperature, humidity, shock & vibration. It should also comply with IP-65 or better.
20.	<b>Vehicle: Suitable vehicle having following specification to be provided by the firm :</b>
a	Should be a light petrol vehicle.
b	Should be a 4x4 vehicle with cross country mobility.
c	Number of doors -04.
d	Number of cylinder -04.
e	Engine Torque (Min) 200 Nm.
f	Capacity - 2000 CC (min).
g	Should have a crew cabin and an open platform for mounting mast and EO system.
h	Should be BS4.
i	Gradability -30° (min).
j	Gearbox - 05 forward 01 reverse.
k	Staring - Power starting.
l	Ground clearance -Min 180 mm.
m	Air condition for safety of command control system.
n	Number of cylinder in engine -04 Nos.
o	Seating Capacity of cabin-05 Members.
p	Drive axle- front and rear.
q	ABS-Yes.
r	Front vehicle break- Disc Break.
s	Rear Vehicle brake- Drum Brake.
t	Air Bgs - Driver and Co Driver.
u	Vehicle air intake system - Turbo charged.

The Sub-group has decided to upload the QRs on MHA and BSF website for 15 days to invite the views/ comments/ suggestions of prospective bidders to make the QRs more broad based.

**Note-** All firms are requested to provide the following.

1. Original Brochure of product by OEM.
2. Detail literature about the product.
3. Comprehensive comments for incorporation in the specifications.

  
31/8/17

( RISHIPAL SINGH )

Second-In-Command (Mod)