

**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 constituted by MHA vide their letter No. IV 1017/18/2001-Prov-I dated 05th July 2002 held its meeting at BSF Headquarters on 25th Nov 2016 to revise the QRs of Hand Held Search Light (HHSL).

QUALITATIVE REQUIREMENT OF HAND HELD SEARCH LIGHT (HHSL)

S.No.	Specification	Parameter	
1.	Casing/Body	Casing/body of HHSL should be tubular heavy duty water resistant (Should pass IP X3 test for water protection) and one piece moulded with integral handle of ABS. It should be light, impact proof and corrosion proof should be able to withstand impact from one meter on hard surface.	
	a	Maximum weight including the battery	3.8 Kgs
	b	Length maximum	35 Cms
	c	Front dia maximum	22 Cms
	d	Rear dia maximum	19 Cms
2.	Construction		
	a	Modular construction consisting of replaceable modules for ease of servicing/repairs.	
	b	The lamp shall be replaceable by unscrewing the front cover.	
	c	The battery and blown fuses can be replaced without disturbing electronic circuit.	
	d	Colour of the casing should be preferably black or olive green.	
	e	Markers name shall be clearly printed on the body of the cabinet.	
f	Operational instruction in brief shall be printed on the casing of the body.		
3.	Operating Temperature	Equipment shall be able to operate satisfactorily in the temperature range of -20 ^o C to 55 ^o C and 95% RH at 40 ^o C. National/International accredited Lab certificate should be furnished by the firm along with tender documents.	
4	Battery	Rechargeable sealed minimum 12 volts and minimum 7 AHC maintenance free batteries. The battery if customised should be of standard, dimension as per 12 Volt 7 Ahc	



		available in market and easily replaceable.
5	Housing of Battery	
	a	Housing for the battery should be provided in the cabinet/casing of equipment.
	b	There should be adequate space around the battery in the battery housing for dissipation of heat developed in battery while charging.
	c	The battery fuse should be easily accessible from outside for ease of replacement.
	d	The battery compartment should not be over crowded by placing electronics all around it.
	e	All electronics should be placed on lamp end of the search light.
	f	Electronics should not be in direct contact with body of the battery.
	g	The housing is such that the battery could be replaced easily.
6	Circuit	
	a	Glass epoxy PCB.
	b	Electronic component nomenclature should not erase.
	c	Wire should be heavy duty.
	d	PCB should be easily removable for repairs.
	e	Moulded modules should not be sealed at any stage.
	f	Electronic circuits should not be sealed at any stage.
	g	Any additional circuitry for facilitating like traffic light, LCD display, torch light etc will not be acceptable to avoid complexity in circuit.
7	Minimum Continuous Operation	Should operate minimum of 90 minutes continuously.
8	Wiring	Wiring should be neat and clean using minimum number of wires for ease of serviceability. Wire should be heavy duty.
9	Switches/Selector	Suitable control for ON/OFF and function like flasher, dimmer and timer
	Single rotary selector for all the following modes :-	
	a	Continuous/direct light
	b	Minimum 2 positions for dimmer to extend battery life to 2 and 5 hrs respectively.
	c	Flasher to give 45 flashed (± 2 flashes) per minute.
	d	Timer 1 minute
e	Remote control (As an option to be specified by the user).	
10	Battery Statuses	Low battery indicator and DC blown fuse indicator shall be provided.
11	Beam Distance/Range	Search light should be able to detect a group of moving persons at a distance of 400 meters minimum.
12	Reflector	
	a	Parabolic reflector mounted in shock resistance cap of good quality rubber.
	b	Sealed/glass beam reflector should not be used.
13	Front Glass	The glass should be of a good quality and should be heat and shock resistant. It should

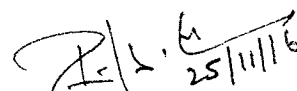
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		not crack when water droplets fall on it when used continuously.
14	Shoulder Straps	Shoulder straps would be adjustable, should be minimum 150 cm long 3 cm wide, made of good quality nylon and the metallic part to connect the strip the search light should be coated with non shinning paint/non fluorescent/non phosphorescent. Strap should have a pad of minimum 20 cm long, 5 cm wide and 1 cm thick.
15	Battery Charger	
	a	In built battery charger.
	b	Input voltages 90 to 270 volts, 50 HZ single phase AC.
	c	Charging time maximum 10 hrs.
	d	Charging Status : Charging and fully charged indication should be provided through LED.
	e	Adequate protection shall be provided against short circuit, bty over charge, bty deep discharge and reserve polarity.
	f	When battery voltage drops to around 10.5 V advance low battery indication should be provided through LED and battery should cut off at 10.5v ($\pm 0.2V$)
16	Resting Support	Should be provided on front and back cover plates as well as on the body of the casing.
17	Power Cord	3 meters long fitted with suitable connector.
18	OPTIONAL ACCESSORY	
	a	Remote Control
	(i)	The transmitter should work on 9V/12V battery.
	(ii)	Dimension of Tx Unit :- 80 mm x 50 mm x 20 mm ($\pm 5mm$)
	(iii)	Range minimum 100 meters.
	b	IR Filter :- Should have IR filter which can be attached ir detached with ease. IR collar should be able to jack on the Hand Held Search Light.
	c	Specification of Wired Control :-
	(i)	Length of the cord 100 meters minimum
	(ii)	Cord shall be spooled on a plastic or metallic reel having knob for spooling and mounted in a powder coated metal frame.
19	Misc	
	a	User manual should be provided with each equipment.
	b	Technical manual including schematic diagram and spare parts list should be provided (Qty as specified by the user).

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 in corporation in the specifications.

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.



(Rishipal Singh)
Second-In-Command (Mod)

TRIAL DIRECTIVES OF HAND HELD SEARCH LIGHT (HHSL)

S. No.	PARAMETERS	TRIAL PROCEDURE SUGGESTED FOR BOARD OF OFFICERS	RESULT EXCEPTED/DESIRED	COMPLIED/N OT COMPLIED	
1	a	<p>Causing/Body :- Casing/body of HHSL should be tubular heavy duty water resistant (Should pass IP X3 test for water protection) and one piece moulded with integral handle of ABS. It should be light, impact proof and corrosion proof should be able to withstand impact from one meter on hard surface.</p>	<p>Should be checked physically. Drop the search light from the height of 1 meter on hard surface to check its sturdiness. The firm has to submit National/ International accredited Lab test report in respect of the water resistance (should pass IP X3 test for water protection), body/casing material ABS & corrosion proof.</p>	<p>The search light must meet the requirement specification mentioned at Para (a). Check the National/ International accredited Lab test report, the veracity of the same may be checked from the concerned Lab. Lab test in r/o casing /body conducted upto 2 years prior to the date of submission of tender may be considered as valid.</p>	
	b	Maximum weight including the battery : 3.8 Kgs	Measure the weight including the battery with the help of weighing machine.	Weight of HHSL must be 3.8 kg or less including the battery.	
	c	Length Maximum : 35 Cms	Measure the length with the help of measuring tape. Length of the equipment shall be measured from both extreme ends.	Length of HHSL must be 35 Cms or less.	
	d	Front dia Maximum : 22 Cms	Measure the front dia with the help of measuring tape.	Front dia of HHSL must be 22 Cms or less.	

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	e	Read dia Maximum : 19 Cms	Measure the rear dia with the help of measuring tape.	rear dia of HHSL must be 19 Cms or less.	
2.	Construction :-				
	a	Modular construction consisting of replaceable modules for ease of servicing/repairs.	Check the equipment physically to ascertain the replaceable modules for ease of servicing/repairs.	Should be a modular construction consisting of replaceable modules for ease of servicing/repairs.	
	b	The lamp shall be replaceable by unscrewing the front cover.	Should be checked physically whether the lamp shall be replaceable by unscrewing the front cover.	The lamp must be replaceable by unscrewing the front cover.	
	c	The battery and blown fuses can be replaced without disturbing electronic circuit.	Should be checked physically whether the battery and blown fuses can be replaced without disturbing electronic circuit.	The battery and blown fuses must be replaced without disturbing electronic circuit.	
	d	Colour of the casing should be preferably black or olive green.	Should be checked physically.	Colour of casing must be preferably black or olive green.	
	e	Markers name shall be clearly printed on the body of the cabinet.	Should be checked physically.	Makers name must be clearly printed on the body of the cabinet.	
	f	Operational instruction in brief shall be printed on the casing of the body.	Should be checked physically.	Operational instructions in brief must be printed on the casing of the body.	
3	Operating Temperature: Equipment shall be able to operate satisfactorily in the temperature range of -20 ⁰ C to 55 ⁰ C and 95% RH at 40 ⁰ C. National/International accredited Lab certificate		Check the National/International accredited Lab test report submitted by the firm.	Check the national/international accredited lab test report for the same. In case of	

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	should be furnished by the firm along with tender documents.		any doubt in the test report, the veracity of the same may be checked from the concerned lab.	
4	Battery : Rechargeable sealed minimum 12 volts and minimum 7 AHC maintenance free batteries. The battery if customised should be of standard, dimension as per 12 Volt 7 Ahc available in market and easily replaceable.	Should be checked physically.	The battery must be sealed maintenance free rechargeable 12 volt and have minimum voltage & capacity of 12 Volt & 7 AHC respectively. The battery is customised should be as standard, dimension as per 12 Volt 7 Ahc available in market and easily replaceable. Certificate in r/o cycle life of the battery must be submitted by the firm.	
5	HOUSING OF BATTERY			
a	Housing for the battery should be provided in the cabinet/casing of equipment.	Check the equipment physically to ascertain that housing for battery should be provided in the cabinet/casing of equipment.	Housing for the battery must be provided in the cabinet/casing of equipment.	
b	There should be adequate space around the battery in the battery housing for dissipation of heat developed in battery while charging.	Open the rear cover of the equipment and check the space provided around the battery physically.	There must be adequate space around the battery in the battery housing for dissipation of heat developed in battery	

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				while charging.	
	c	The battery fuse should be easily accessible from outside for ease of replacement.	Should be checked physically whether the battery fuse can be easily accessible from outside.	The battery fuse must be easily accessible from outside for case of replacement.	
	d	The battery compartment should not be over crowded by placing electronics all around it.	Should be checked physically.	The battery compartment must not be over crowded by placing electronics all around it.	
	e	All electronics should be placed on lamp end of the search light.	Should be checked physically.	All electronics must be placed on lamp end of the search light.	
	f	Electronics should not be in direct contact with body of the battery.	Should be checked physically.	Electronic must not be in direct contact with body of the battery.	
	g	The housing is such that the battery could be replaced easily.	Checked the equipment physically to ascertain that the battery is such that the battery could be replaced easily.	The housing is such that the battery must be replaced easily.	
06	Circuit				
	a	Glass epoxy PCB.	Should be checked physically.	The PCB must be made of Glass Epoxy.	
	b	Electronic component nomenclature should not erase.	Should be checked physically.	Electronic component nomenclature.	
	c	Wire should be heavy duty.	Should be checked physically.	Wireless used must be heavy duty.	
	d	PCB should be easily removable for repairs.	Should be checked physically.	PCB must be easily removable for repairs.	
	e	Moulded modules should not be sealed at any	Should be checked	Moulded modules must	



		stage.	physically.	not be used at any stage.
	f	Electronic circuits should not be sealed at any stage.	Should be checked physically.	Electronic circuits must not be sealed at any stage.
	g	Any additional circuitry for facilitating like traffic light, LCD display, torch light etc will not be acceptable to avoid complexity in circuit.	Should be checked physically.	Any additional circuitry for facilitating like traffic light, LCD display, torch light etc must not be acceptable to avoid complexity in circuit,
07	Minimum Continuous Operation : Should operate minimum of 90 minutes continuously.		Switch 'ON' the search light with fully charge battery & observe the operating time with the help of stop	Battery must operate the search light for minimum of 90 minutes continuously on single charge.
08	Wiring : Wiring should be neat and clean using minimum number of wires for ease of serviceability. Wire should be heavy duty.		Should be checked physically by opening the search light.	Wiring must be heavy duty and neat & clean using minimum number of wires for ease of serviceability.
09	Switches/Selector	Suitable control for ON/OFF and function like flasher, dimmer and timer	Check the search light for ON/OFF & control for functions physically	Suitable control for ON/OFF and single rotary selector switch must be provided to select the functions like flasher, dimmer and timer modes.
	Single rotary selector for all the following modes :-			
	a	Continuous/direct light	Rotate the Single rotary selector switch to select 'continuous/direct light'	Single rotary selector switch must have a position for

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		function	'continuous/direct light' mode
b	Minimum 2 positions for dimmer to extend battery life to 2 and 5 hrs respectively.	Rotate the single rotary selector switch to select 'dimmer' mode having minimum two positions of dimmer function. Switch 'ON' the search light with fully charged battery in dimmer positions separately one by one & observe the operating time with the help of stop watch.	Single rotary selector switch must have minimum two positions for 'dimmer' function. Battery must operate the search light for minimum 2 hrs continuously in dimmer 1 position & 5 hrs continuously in dimmer 2 positions respectively.
c	Flasher to give 45 flashes (± 2 flashes) per minute.	Rotate the single rotary selector switch to select 'Flasher' mode and count the flasher per minute with the help of stop watch.	Single rotary selector switch must have position for 'flasher' function flasher must give 45 flashes (± 2 flashes) per minute.
d	Timer 1 minute	Rotate the single rotary selector switch to select 'Timer' mode and observe the timer for 1 minute with the help of stop watch.	Single rotary selector switch must have position for 'timer' function and search light turn off after 1 minute.
e	Remote control (As an option to be specified by the user).	Rotate the single rotary selector switch to select 'remote control' mode and check all the operations in remote mode.	Single rotary selector switch must have position for 'remote control' function.
10	Battery Statuses :- Low battery indicator and DC blown fuse indicator shall be provided.	Check the indication provided in the search light	There must be indications provided in

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		for low battery by discharging the battery. Check DC blown fuse indication by removing the fuse.	the search light for low battery & DC blown fuse.	
11	Beam Distance/Range : - Search light should be able to detect a group of moving persons at a distance of 400 meters minimum.	This test will be conducted in the field during night time where 400 meters line of sight is available. Move a group of men and check the movement from 400 meters by switching 'ON' the search light with (fully charged battery) in 'continuous/direct' mode	Search light must be able to detect a group of moving persons at a distance of 400 meters minimum.	
12	Reflector			
	a	Parabolic reflector mounted in shock resistance cap of good quality rubber.	Open the front cover of the search light and check the parabolic reflector mounted with shock resistance cap.	Parabolic reflector must be mounted in the shock resistance cap of good quality rubber.
	b	Sealed/glass beam reflector should not be used.	Ensure that sealed glass beam reflector should not be used.	Sealed glass beam reflector must not be used.
13	Front Glass : The glass should be of a good quality and should be heat and shock resistant. It should not crack when water droplets fall on it when used continuously.	Switch 'ON' the search light continuously for 1 hours. During continuous operation of the search light check the glass for damage light check the glass for damage due to heat produced. Again, during continuous operation, check the glass for	Check the glass used must be of a good quality and must be heat & shock resistant. It must be get damaged or cracked when used continuously and water droplets sprinkled on it suddenly.	

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		crack or damage when water droplets sprinkled on it.		
14	Shoulder Straps : Shoulder straps would be adjustable, should be minimum 150 cm long 3 cm wide, made of good quality nylon and the metallic part to connect the strip the search light should be coated with non shinning paint/non fluorescent/non phosphorescent. Strap should have a pad of minimum 20 cm long, 5 cm wide and 1 cm thick.	Check the shoulder strap. It should be adjustable. Measure all the dimensions of strap & pad in accordance with the given parameter.	Ensure the strap must be made of good quality Nylon and be adjustable. Dimensions of the strap & Pad must be as per the dimensions mentioned in the para 14. All the metallic parts must be coated with non shinning/non fluorescent/non phosphorescent paint.	
15	Battery Charger			
	a	In built battery charger.	Connect the search light with the AC mains supply for charging the battery	The search light must have inbuilt battery charger.
	b	Input voltages 90 to 270 volts, 50 HZ single phase AC.	Connect search light with AC mains supply and vary the input voltage from 90 to 270 volt AC mains and check the charging voltage (output) of inbuilt.	The output i.e charging voltage must not be changed with the change in input voltage i.e 90 volt to 270 volt AC mains
	c	Charging time maximum 10 hrs.	Connect the search light having full discharge battery with the mains supply for charging and observe the charging time of battery to get full charge.	Charging time taken by the inbuilt battery charger must not be more that 10 hrs.
	d	Charging Status : Charging and fully charged	Connect the search light with	There must be an LED

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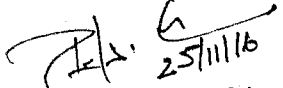
		indication should be provided through LED.	the AC mains supply for charging the battery and check the charging status indications for charging & fully charged battery.	indication in the equipment for charging of the battery during charge and indication for fully charged condition.	
e		Adequate protection shall be provided against short circuit, bty over charge, bty deep discharge and reserve polarity.	<p>Check the following protections provided in the inbuilt battery charger by connecting the battery on charge :-</p> <p>Short circuit protection : short the output terminals of the battery charger output.</p> <p>Battery over charge protection : Measure the charging current after the battery gets charged fully.</p> <p>Battery deep discharge protection : Switch 'ON' the search light when the battery is fully exhausted.</p> <p>Reverse polarity protection : Connect the output of the charger in reverse polarity with the battery and observe the result.</p>	<p>On shorting of the output terminals of the battery charger, circuit must not be getting defective.</p> <p>The charging current must be very less or ignorable which will not over charge the battery.</p> <p>The search light must not switched 'ON' when battery fully exhausted /discharge to a specified level.</p> <p>On connecting the opposite terminals of the battery & output of the battery charger, the circuit must not be getting defective.</p>	
f		When battery voltage drops to around 10.5 V	Switch 'ON' the search light	An advance low voltage	

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		advance low battery indication should be provided through LED and battery should cut off at 10.5v ($\pm 0.2V$)	with DC regulated power supply source on 12 volt DC, decrease the voltage slowly till advance low battery indication appears and search light turn 'OFF' as the applied voltage decrease further.	indication through LED must be given and battery must cut at 10.5 V ($\pm 0.2V$)	
16		Resting Support : Should be provided on front and back cover plates as well as on the body of the casing.	Check resting support provided on the body of the search light.	Resting supports must be provide on front and back cover plates as well as on the body of the casing.	
17		Power Cord : 3 meters long fitted with suitable connector.	Measure the length of the power cord with the help of measuring tape.	The length of the power cord must be 3 meters with suitable/ compatible connector.	
OPTIONAL ACCESSORY					
18	a	Remote Control			
		(i)	The transmitter should work on 9V/12V battery.	Check the Tx-unit battery for nominal voltage.	The dimensions of the Tx unit must be as per the dimensions mentioned at Para 18 (a) (ii). The unit must work on 9V or 12 Volt batteries. The search light must be operated/controlled form a distance of 100 meters.
		(ii)	Dimension of Tx Unit :- 80 mm x 50 mm x 20 mm ($\pm 5mm$)	Check the dimension of the transmitter unit of remote control.	
	(iii)	Range minimum 100 meters.	Operate the remote control search light from a distance of minimum 100 meters.		
b	IR Filter				

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	(i)	Should have IR filter which can be attached or detached with ease. IR collar should be able to jack on the Hand Held Search Light.	Fit an IR filter on to the search light front head and check for the method & ease to attach or detach it from search light.	Search light must have IR filter which can be attached or detached with ease.	
	c	Specification of Wired Control :-			
	(i)	Length of the cord 100 meters minimum	Measure the length of the cord with the help of measuring tape.	The length of the cord must be equal or more than 100 meters.	
	(ii)	Cord shall be spooled on a plastic or metallic reel having knob for spooling and mounted in a powder coated metal frame.	Check the cord spooled on plastic or metallic reel and mounted on a powder coated metal frame.	It must be spooled on a plastic metallic reel having knob for spooling and mounted on a powder coated metal frame.	
19	Misc				
	a	User manual should be provided with each equipment.	Not applicable	At the time of supply.	
	b	Technical manual including schematic diagram and spare parts list should be provided (Qty as specified by the user).			


 (Rishipal Singh)
 Second-In-Command (Mod)