F.No. 63013/09/2013-Ord/BSF/MHA-Prov-I
Bharat Sarkar/Government of India
Griha Mantralaya/Ministry of Home Affairs
PM Division

26, Man Singh Road, Jaisalmer House
New Delhi, Dated 01 October, 2014

To,

DsG: AR (through LOAR), BSF, CISF, CRPF, ITBP, SSB, NSG & BPR&D.

Subject: QRs and Trial Directive for Field Search Light (FSL).

The QRs and Trial Directives in respect of Field Search Light (FSL) as per Annexure have been accepted by the Competent Authority in MHA.

2. The CAPFs concerned will be accountable for correctness of the QRs/Trial Directives.

3. Henceforth, all the CAPFs should procure the above item required by them strictly as per the laid down Technical Specifications/QRs.

Yours faithfully,

Encl: as above

(P.K. Srivastava)
Under Secretary to the Govt of India
Tel: 23381278

Copy forwarded for necessary action to :-

The Section Officer (IT), MHA: It is requested to host the QRs and Trial Directives (soft copy attached) on the MHA website (under the page of Organizational Set up- Police Modernization Division- Qualitative Requirement under Equipments.

(R.K. Soni)
Section Officer (Prov-I)

Copy to: Director (Procurement), MHA.
DIRECTOR GENERAL BORDER SECURITY FORCE  
(PROVISIONING DIRECTORATE (ORD SECTION))

The Sub-group of Technical Experts on Surveillance Equipments constituted by 
MHA vide their letter No. IV-1017/18/2001-Prov-I dated 05 Jul 2002 held its meeting at 
2014 to formulate the QRs of ‘FIELD SEARCH LIGHT (FSL)’.

After detailed deliberations the referred Sub-group has formulate the QRs of 
‘Field Search Light’ which are as under:-

### QUALITATIVE REQUIREMENT OF FIELD SEARCH LIGHT

<table>
<thead>
<tr>
<th>S No.</th>
<th>PARAMETER</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Design:</td>
<td>Field search light should be ergonomically designed, portable, compact, hand held with integrated handle and of a shape supporting easy carrying and handling in field conditions. Must have a carrying Strap with good quality padding and a quick release system to prevent any entanglement.</td>
</tr>
<tr>
<td>2.</td>
<td>Body:</td>
<td>It should be high impact resistant, waterproof and shock-resistant; either made of Aerospace-Aluminium with a Mil-spec hard-anodized coating or ruggedized Military Grade ABS Plastic. The system electronics and Lithium-Ion rechargeable batteries should be easy in carrying and handling in field conditions.</td>
</tr>
<tr>
<td>3.</td>
<td>Colour</td>
<td>Preferably OG or Black</td>
</tr>
<tr>
<td>4.</td>
<td>Light Emitting Source:</td>
<td>Suitable High Intensity Discharge (HID) Arc Lamp or LED, which can generate white light. The light source used must be extremely reliable and must not easily subject to breakage/failure as a result of mechanical shock or vibration.</td>
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<tr>
<td>5.</td>
<td>HID Lamp / LED Service Life</td>
<td>2500 hours (Minimum).</td>
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<tr>
<td>6.</td>
<td>Light Beam</td>
<td>Beam should be fixed focus.</td>
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<tr>
<td>7.</td>
<td>Battery:</td>
<td>Lithium-Ion rechargeable batteries of shape and size suiting the design of Field Search Light. The batteries must be available in Indian Market and should have operation life of two years (minimum) with minimum 500 charging cycles.</td>
</tr>
<tr>
<td>8.</td>
<td>Mil Std</td>
<td>Complete equipment should conform to Mil Std-810 F or better.</td>
</tr>
<tr>
<td>9.</td>
<td>Range:</td>
<td>Out of two ranges defined as below, User should have choice to select one type or both as per operational requirement.</td>
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<tr>
<td></td>
<td>1. Short range:</td>
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<tr>
<td></td>
<td>a) Weight: 2 Kgs (max) with battery.</td>
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<tr>
<td></td>
<td>b) Effective range be 400 meters (min) on full mode.</td>
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<tr>
<td></td>
<td>c) Continuous run time on each charge must be 120 minutes minimum.</td>
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<tr>
<td></td>
<td>d) Detection range: 400 meters (min) for a group of 3 persons</td>
<td></td>
</tr>
</tbody>
</table>
II. **Long range:**
   a) Weight: 4 Kgs (max) with battery.
   b) Effective range be 1000 meters (min) on full mode.
   c) Continuous run time on each charge be 90 minutes minimum.
   d) Detection range: 1000 meters (min) for a group of 5 persons

10. **Battery Status Indicator**
    - There must be provision of battery status indicator / digital display.

11. **Battery Charger**
    - A suitable single unit Intelligent, AC/DC Charger (AC 90-240V, DC 12 to 24 VDC) be provided. The charger should have over charge protection facility. Suitable connectors be provided to charge the battery by using 12-28 volt DC. The power cable for the charger should be 3-meter minimum in length with standard plug.

12. **Charging Time**
    - 4 hours (Maximum) to fully charge one battery.

13. **ON-OFF Mechanism**
    - Noiseless smooth push button or noiseless smooth rotary dial. There should be facility to cut off the battery from the system.

14. **Mode of Operation**
    - The search light should have two modes i.e. full light mode and half light mode.

15. **Operating temperature**
    - -20 degree to + 55 degree

16. **Manuals**
    - i) User manuals be provided with each equipment.
    - ii) Technical manual be provided giving illustrations on repair and maintenance along with the Schematic diagram.
    - iii) Maintenance and Repair List of Spares (MRLS) be provided.
    - iv) Special Tools/Kit be provided (Scale be specified by the user)

17. **Spares Support**
    - The firm shall give spare parts back up for 10 years.

18. **Optional items**
    - i. **Remote facility:**
      - The Field search light may have wired remote or wireless remote control facility or both from a distance of 100 meters as per the user requirements.
      - **Wired remote facility should have 100 meters wire provided on a standard spool, which can easily accommodate the full wire comfortably and smoothly.**
      - **In case of wireless remote facility, remote activator should be able to operate the search light from a distance of 100 meters.**

    - ii. **Filter:**
      - The Filters provided should be clip-on or screw able on the front end of the search light very comfortably and tightly. The following filters may be mentioned by the user as per the requirement:
      - **Yellow Filter (for Fog)**
      - **IR Filter (for area illumination during night for use of NVDs i.e. I² Tube based).**

    - iii. **Tripod:**
      - Tripod should be ruggedized, standard, suitable and collapsible with telescopic legs. It should be possible to level the tripod on a ground inclined up to ± 15°. It should have manual pan & tilt
<p>| | |</p>
<table>
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<tbody>
<tr>
<td></td>
<td>facility. The tripod should be military grade and of black or OG colour.</td>
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<tr>
<td>19. <strong>Swivel head:</strong></td>
<td>FSL should have a facility of rotating head of minimum 120° in vertical plane to work as hands free workstation light source.</td>
</tr>
<tr>
<td></td>
<td>i. Searchlight - 01 no</td>
</tr>
<tr>
<td></td>
<td>ii. Lithium-Ion Rechargeable battery – 01 fitted and 01 spare battery</td>
</tr>
<tr>
<td></td>
<td>iii. Single Unit AC/DC Charger - 01 no</td>
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<tr>
<td></td>
<td>iv. Carrying Strap with suitable padding and quick disengaging mechanism - 01 no</td>
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<td></td>
<td>v. Water proof soft carrying case - 01 no</td>
</tr>
<tr>
<td></td>
<td>vi. Ruggedized hard transportation box - 01 no</td>
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<tr>
<td></td>
<td>vii. Spare HID lamp/LED - 01 no</td>
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</table>

**Approved/Not Approved**

(DK Pathak) IPS  
DIRECTOR GENERAL  
BORDER SECURITY FORCE
INTRODUCTION:

A Field Search Light (FSL) is very useful equipment to illuminate the area of responsibility of a sentry during the night time. The search light is easy to operate and carry with the help of carrying strap and inbuilt handle on the body as well allowing the marksman to simultaneously illuminate and aim the target. The FSL is simple, lightweight, shock resistance, with powerful batteries, high light intensity and operable without attachments. It can also be operated remotely through wire or wireless. The light is pure white and the target can easily be detected from a distance of 400 meters or 1000 meters.

AIM:

To frame trial directives to facilitate Board of Officers to carry out physical evaluation of Tender sample of Field Search Light at the time of procurement.

GENERAL INSTRUCTIONS:

1. This trial directive is issued to assist and guide the evaluation committee. Nothing in this trial directive absolves the Board of Officers from their responsibility to ensure that the evaluation is carried out strictly as per the specifications in every respect.

2. The Evaluation committee may carry out additional test which they consider necessary after seeking approval of competent authority, to verify the quality of the tender sample with the specifications.

3. The Evaluation committee should ensure proper safety of man and equipment during evaluation to avoid any damage.

4. Trial / evaluation will be conducted in presence of firm representative only.
COMPOSITION OF THE BOARD:

The physical evaluation of the tender samples of Field Search Light will be carried out by the Board of Officers detailed by the competent authority.

GENERAL REQUIREMENT:

Following test instruments should be available during the trial:
(a) Variable AC source ranging from 90-270 Volt single phase 50 Hz
(b) Weighing Machine
(c) Measuring Tape
(d) Multi meter
(g) Water tank.
# TRIAL DIRECTIVE FOR FIELD SEARCH LIGHT

<table>
<thead>
<tr>
<th>S No</th>
<th>PARAMETER</th>
<th>SPECIFICATION</th>
<th>Procedure suggested for trial for Board of Officers</th>
<th>Result expected / desired</th>
<th>Complied / Not Complied</th>
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<tbody>
<tr>
<td>1</td>
<td>Design:</td>
<td>Field search light should be ergonomically designed, portable, compact, hand held with integrated handle and of a shape supporting easy carrying and handling in field conditions. Must have a carrying Strap with good quality padding and a quick release system to prevent any entanglement.</td>
<td>Field search light should be checked physically for ergonomically designed, portable, compact, hand held with integrated handle and of a shape supporting easy carrying and handling in field conditions. Must have a carrying Strap.</td>
<td>It must comply with the QRs Para 1</td>
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<td>2</td>
<td>Body:</td>
<td>It should be high impact resistant, waterproof and shock-resistant; either made of Aerospace-Aluminium with a Mil-spec hard-anodized coating or ruggedized Military Grade ABS Plastic. The system electronics and Lithium-Ion rechargeable batteries should be easy in carrying and handling in field conditions.</td>
<td>Should be checked physically after submerging the equipment in a water filled tank having the depth more than 02 mtr and equipment submerged/suspended in 01 mtr for half an hour. After half an hour, take out the equipment and dry it, then check all the functioning of the equipment. Check the National/International Accredited lab certificate or report in respect of High Impact Resistant and Shock-Resistant; either made of Aerospace-Aluminium with a Mil-spec hard-anodized coating or ruggedized Military Grade ABS Plastic submitted by the firm. Check the batteries for its type. Check the system electronics and battery for easiness in carrying and handling in field conditions.</td>
<td>All functions of the equipment should work after submerging for half an hour in 01 meter deep water. Check the authenticity of National/International accredited lab test certificate/report for the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab. The battery used must be rechargeable and Lithium-Ion. The system electronics and battery fitted in the system must be easy in carrying and handling in field conditions.</td>
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<td>3</td>
<td>Colour</td>
<td>Preferably OG or Black</td>
<td>Check the system for its body colour.</td>
<td>The colour of the body / casing must be OG or Black.</td>
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| 4. Light Emitting Source: | Suitable High Intensity Discharge (HID) Arc Lamp or LED, which can generate white light. The light source used must be extremely reliable and must not easily subject to breakage/failure as a result of mechanical shock or vibration. | - Check the system for HID Arc Lamp/LED physically and white light by switching 'ON' the search light.  
- Check the certificate in respect of mechanical shock or vibration as submitted for QRs Para 8 as Mil Std. | - System must have HID Arc Lamp/LED which can generate white light.  
- Check the authenticity of National/international accredited lab test certificate/report for light source for breakage/failure as a result of mechanical shock or vibration. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab. |
| 5. HID Lamp / LED Service Life | 2500 hours (Minimum). | - Check the OEM certificate or report in respect of HID Lamp/LED Service Life submitted by the firm. | - Check the authenticity and assurance of OEM certificate/report for the HID Lamp/LED Service Life of 2500 Hrs (Minimum). |
| 6. Light Beam | Beam should be fixed focus. | Check the light beam for fixed focus physically. | The light beam must be fixed focus. |
| 7. Battery: | Lithium-ion rechargeable batteries of shape and size suiting the design of Field Search Light. The batteries must be available in Indian Market and should have operational life of two years (minimum) with minimum 500 charging cycles. | - Check the type of battery used and its suitability with the FSL physically.  
- Check the OEM certificate in respect of operational life and minimum charging cycles. | - Lithium-ion rechargeable battery of suitable size & shape suiting the design of the FSL must be provided.  
- Check the authenticity and assurance of OEM certificate for the operational life & charging cycles (Minimum) as mentioned in the QRs Para 7. |
| 8. Mil Std | Complete equipment should conform to Mil Std-810 F or better. | Check the National / International accredited lab certificate / report submitted by the firm in respect of Mil Std-810 F or better. | Check the authenticity of National/international accredited lab test certificate/report for the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab. |
| 9. Range: | Out of two ranges defined as below. User should have choice to select one type or both as per operational requirement. |   |   |
II. Short range:
   a) Weight: 2 Kgs (max) with battery.
   b) Effective range be 400 meters (min) on full mode.
   c) Continuous run time on each charge must be 120 minutes minimum.
   d) Detection range: 400 meters (min) for a group of 3 persons

   - Measure the weight of the FSL with battery with the help of weighing machine.
   - Move group of 3 persons at the range of 400 meters (min) and move them horizontally and monitor the beam by person placed horizontally away from the beam source.
   - Charge the battery fully and switch ‘ON’ the FSL in full intensity mode.

   - The weight must be 2 Kgs (max) with battery.
   - The group of 3 men must be detected from 400 meters (min) in full mode.
   - Note: “Detection” here means that movement of a group of persons should be detected from maximum range.
   - The FSL must run continuously for 120 minutes on full intensity mode.

IV. Long range:
   a) Weight: 4 Kgs (max) with battery.
   b) Effective range be 1000 meters (min) on full mode.
   c) Continuous run time on each charge be 90 minutes minimum.
   d) Detection range: 1000 meters (min) for a group of 5 persons

   - Measure the weight of the FSL with battery with the help of weighing machine.
   - Move group of 5 persons at the range of 1000 meters (min) and move them horizontally and monitor the beam by person placed horizontally away from the beam source.
   - Charge the battery fully and switch ‘ON’ the FSL in full intensity mode.

   - The weight must be 4 Kgs (max) with battery.
   - The group of 5 men must be detected from 1000 meters (min) in full mode.
   - Note: “Detection” here means that movement of a group of persons should be detected from maximum range.
   - The FSL must run continuously for 90 minutes on full intensity mode.

10. Battery Status Indicator
    There must be provision of battery status indicator / digital display.
    Check the battery for battery status indicator, Switch ‘ON’ the FSL for 5 minutes. Repeat the same procedure two or three times. Every time monitor the battery status indicator for battery charging status.
    Battery status display/indicator must be provided to show the current battery charge status.

11. Battery Charger
    A suitable single unit intelligent, AC/DC Charger (AC 90-240V, DC 12 to
    Connect the charger through Rheostat/Dimmer on mains AC power
    - The out-put of the charger must not vary as the in-put varies from 90 volt to
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| 24 VDC) be provided. The charger should have over charge protection facility. Suitable connectors be provided to charge the battery by using 12-28 volt DC. The power cable for the charger should be 3-meter minimum in length with standard plug. | supply. Vary the input from 90 Volt to 240 V. Check the out-put of the charger.  
- Connect the charger with DC 12 Volt to 28 volt and check the out-put of the charger.  
- Check the system for automatic cut off feature when battery fully charged and also note the charging time physically after connecting the charger to the 220 v AC mains with the help of stop watch.  
- Measure the length of the power cable provided with the charger. Check also the standard plug be provided. | 240 volt.  
- The charger must be able to charge the battery when connected with DC 12 volt to 28 volt.  
- The battery charger must be intelligent i.e. must have indications for battery charge status during charging and must cut off the battery from over charging when gets fully charged.  
- The power cable length of the charger must be 3 meters minimum with standard plug. |   |
| 12. Charging Time | 4 hours (Maximum) to fully charge one battery. | Connect the fully discharged battery with the charger on main AC power supply for charging. Note down the charging time with the help of stop watch till gets fully charged. | Battery charger should charge a fully discharged battery in 4 hours (max). |
| 13. ON-OFF Mechanism | Noiseless smooth push button or noiseless smooth rotary dial. There should be facility to cut off the battery from the system. | Physically check the FSL for the mechanism provided in the light to switching it ON & OFF.  
- Check the FSL for the facility to cut-off the battery from the system when not in use. | FSL must have noiseless smooth ON-OFF mechanism through push button or rotary dial.  
- FSL must have facility to cut off the battery from the system when not in use. |
<p>| 14. Mode of Operation | The search light should have two modes i.e. full light mode and half light mode. | Check the modes provided in the FSL. | FSL must have two modes of operation as mentioned in the QRs Para 14. |
| 15. Operating temperature | -20 degree to + 55 degree | Check the National / International accredited lab certificate / report submitted by the firm in respect of operating temperature. | Check the authenticity of National/ international accredited lab test certificate/report for the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab. |</p>
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</table>
| **16. Manuals** | i) User manuals be provided with each equipment.  
ii) Technical manual be provided giving illustrations on repair and maintenance along with the Schematic diagram.  
iii) Maintenance and Repair List of Spares (MRLS) be provided.  
iv) Special Tools/Kit be provided (Scale be specified by the user) | i) Check the user manual provided with the FSL.  
ii) Check the assurance certificate in respect of the QRs Para 18 (ii), (iii) & (iv) submitted by the firm. | i) User manual must be provided with the FSL.  
ii) The assurance certificate in respect of the QRs Para 18 (ii), (iii) & (iv) submitted by the firm. |
| **17. Spares Support** | The firm shall give spare parts back up for 10 years. | Not concerned at the time of physical evaluation. | Not concerned at the time of physical evaluation. |
| **18. Optional Items** | e) Remote facility:  
The Field search light may have wired remote or wireless remote control facility or both from a distance of 100 meters as per the user requirements.  
• Wired remote facility should have 100 meters wire provided on a standard spool, which can easily accommodate the full wire comfortably and smoothly.  
• In case of wireless remote facility, remote activator should be able to operate the search light from a distance of 100 meters.  

i) Wired remote:  
• Check operation of FSL through the wire provided to operate the FSL remotely from a distance of 100 meters.  
• Measures the length of the wire provided and check its spool for the comfortness to accommodate it.  

ii) Wireless remote:  
• Check operation of FSL through the wireless remote provided to operate the FSL remotely from a distance of 100 meters.  
• Measures the range of wireless remote performance with no false shot.  
  
FSL must have wire or wireless remote facility as per the user requirement.  
i) Wired remote:  
• FSL must have wire provided to operate the FSL remotely from a distance of 100 meters.  
• Wire spool must be standard and can easily accommodate the full wire comfortably and smoothly.  

ii) Wireless remote:  
• FSL must have remote activator to operate it wirelessly from a distance of 100 meters.  
• Wireless activator must operate the FSL without any false shot.  
| Filter:  
The Filters provided should be | Physically check the Filter provided for the proper fitment on the FSL in the | The Filters provided must be clip-on or screw able on the front end of the search |  |
| Clip-on or screwable on the front end of the search light very comfortably and tightly. The following filters may be mentioned by the user as per the requirement:  
• Yellow Filter (for Fog)  
• IR Filter (for area illumination during night for use of NVDs i.e. IR Tube based). | Front end.  
• Check the filter utility as per the user requirement for a particular application like fog or area illumination for use of NVDs (IR Tube based). | Light very comfortably and tightly. |
|---|---|---|
| iii) **Tripod:**  
Tripod should be ruggedized, standard, suitable and collapsible with telescopic legs. It should be possible to level the tripod on a ground inclined up to ± 15°. It should have manual pan & tilt facility. The tripod should be military grade and of black or OG colour. |  
• Check the Tripod provided for its suitability, collapsibility and leveling provision to install it on a ground.  
• Check the manual pan & tilt facility provided in the tripod for its proper movement in azimuth and elevation direction.  
• Check the National / International accredited lab certificate / report submitted by the firm in respect of ruggedness / conformation to Mil grade. |  
• Tripod must be suitable and collapsible with telescopic legs.  
• It must be possible to level the tripod on a ground inclined up to ±15°.  
• It must have manual pan & tilt facility.  
• Check the authenticity of National/ international accredited lab test certificate/report for the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab. |
| iv) **Swivel head:**  
FSL should have a facility of rotating head of minimum 120° in vertical plane to work as hands free workstation light source. |  
• Check the FSL for the facility of rotating head in vertical plane.  
• Measure the swivel rotating angle. |  
• FSL must have a facility of rotating head of min 120° in vertical plane to work as hands free workstation light source. |
19. A single system must consist of:

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<tbody>
<tr>
<td>i)</td>
<td>Searchlight - 01 no</td>
</tr>
<tr>
<td>ii)</td>
<td>Lithium-Ion Rechargeable battery - 01 fitted and 01 spare battery</td>
</tr>
<tr>
<td>iii)</td>
<td>Single Unit AC/DC Charger - 01 no</td>
</tr>
<tr>
<td>iv)</td>
<td>Carrying Strap with suitable padding and quick disengaging mechanism - 01 no</td>
</tr>
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<td>v)</td>
<td>Water proof soft carrying case - 01 no</td>
</tr>
<tr>
<td>vi)</td>
<td>Ruggedized hard transportation box - 01 no</td>
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<tr>
<td>vii)</td>
<td>Spare HID lamp/LED - 01 no</td>
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</table>

Not concerned at the time of physical evaluation. (Only assurance certificate may be submitted by the firm in respect of the same)

Not concerned at the time of physical evaluation.

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**APPROVED/NOT APPROVED**

(D K PATHAK) IPS
DIRECTOR GENERAL
BORDER SECURITY FORCE

<signature>

20.5.19