सं-फा॰ 6301/08/2013/MOS -I/स॰ अ॰ - 4524-27

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ब्लाक संख्या . 10,
सीजीओ काम्पलैक्स,
लोधी रोड, नई दिल्ली–03

दिनांक 15 नवम्बर 2021

वरिष्ठ तकनीकी निदेशक
The Senior Technical Director
राष्ट्रीय सूचना–विज्ञान केन्द्र, नोर्थ ब्लाक,
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NIC, North Block, MHA
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Sub: **Request for comments of stakeholders/OEM on draft QRs.**

कृपया गृह मंत्रालय के पत्र संख्या IV-24011/12/2011-Prov-I(part)(CFN 3300890)-1710 दिनांक 31st Aug 2015 के सन्दर्भ में।

2. उपरोक्त विष्यान्तर्गत यह सूचित किया जाता है कि तकनीकी विशेषज्ञों के उप समूह द्वारा **"Long Range Reconnaissance and Observation System (LORROS)"** के गुणातमक आवश्यकता/परीक्षण निर्देशों का प्रारुप दिनांक 10 नवम्बर 2021 में आयोजित सभा के दौरान तैयार किया गया था जिसको इस आश्य से प्रेषित किया जा रहा है कि उक्त गुणातमक आवश्यकता/परीक्षण निर्देशों को गृह मंत्रालय की वैबसाईट पर 15 दिन के लिए अपलोड करने का श्रम करें।

संल्गन : उपरोक्तनुसार

15/11/2021

(दिगेन्द्र सिंह पॅवार)
उप कमाण्डेंट (मोड)

प्रतिलिपि :-

1. SO (IT), North Block, MHA **(Through E-mail)** **(E-mail address: soit@nic.in)** : उपरोक्त समस्त गुणातमक आवश्यकता का मसौदा आपके सूचनार्थ एवं अग्रिम कार्यवाही हेतु।

2. IT Wing, FHQ BSF : i) उपरोक्त समस्त गुणातमक आवश्यकता का मसौदा सीमा सुरक्षा बल की वैबसाईट पर 15 दिन यानि 27 नवम्बर 2021 तक अपलोड करने के लिए प्रेषित की जा रही है। उक्त मसौदे को सीमा सुरक्षा बल की वैबसाईट से दिनांक 28 नवम्बर 2021 को हटाने का श्रम करें। आपसे अनुरोध है कि उक्त मसौदे को निम्नलिखित पतों पर ई–मेल करने का भी श्रम करें:-
(a) Technical Director, NIC, North Block, MHA
(E-mail : mpsugandhi@nic.in)
(b) SO (IT), North Block, MHA
(E-mail : soit@nic.in)

महानिरीक्षक (आई टी) IG (IT)	
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कमाण्डेन्ट (आई टी) COMMANDANT (IT)	
द्वितीय कमान अधिकारी (आई टी) 2IC (IT)	
मुख्य लिपिक (आई टी) HEAD CLK	16/11/21 Web
डायरी नं DIARY NO	335
दिनांक DATE	16/11/21

Draft Qualitative Requirements/Trial Directives of Long Range Reconnaissance and Observation System (LORROS)-Revision			
S/No.	Specification	Procedure suggested for trial for Board of Officers	Result expected/desired
1	The LORROS must be rapidly deployable compact surveillance system, Modular in design, portable and be Tripod and mast mounted. (**User can be defined the type of vehicle and Mast**)	Check the system physically for compactness, modular design, and portability of the same on Tripod or on mast by installing it as per the requirement.	The System must be compact, modular in design, portable and tripod/mast mountable.
2	Installation and Dismantling of the system should be smooth and user friendly.	Check the system deployment by installing and dismantling for smooth and user friendly features.	Installation and dismantling of the system must be smooth and user friendly.
3	Range For Human target: a) Detection- 10 Km (Min) b) Recognition- 05 Km (min)	Place a group of men (3 to 4 person) each at the range of 10 Kms & 5 Kms and move them. Observe them for detection and Recognition at respective ranges.	Human target detection and Recognition through day & night camera must be achieved as per the minimum ranges mentioned in the QRs Para 3.
4	Range For vehicle: a) Detection- 20 Km (Min) b) Recognition- 10 Km (min)	Place a vehicle having size 4.3x1.8x1.5m target or better, in moving and stationary conditions, at side angle (for maximum surface area facing towards the camera) at a distance of 20 Kms & 10 Kms. Observe it for detection and Recognition at respective ranges.	The vehicle target Detection and Recognition through day & night camera must be achieved as per the minimum ranges mentioned in the QRs Para 4.
	(**Optional- To be specified by the user department**)		
(a)	Range **For Human target**: a) Detection-20 Km (Min) b) Recognition- 08 Km (min)	Place a group of men (3 to 4 person) each at the range of 20 Kms & 8 Kms and move them. Observe them for detection and Recognition at respective ranges.	Human target detection and Recognition through day & night camera must be achieved as per the minimum ranges mentioned in the QRs.
(b)	Range **For vehicle**: a) Detection- 40 Km (Min) b) Recognition- 15 Km (min)	Place a vehicle having size 4.3x1.8x1.5m target or better, in moving and stationary conditions, at side angle (for maximum surface area facing towards the camera) at a distance of 40 Kms & 15 Kms. Observe it for detection and Recognition at respective ranges.	The vehicle target Detection and Recognition through day & night camera must be achieved as per the minimum ranges mentioned in the QRs.
5	**Thermal Imager Camera Should have :**		
(a)	Advanced IR Detector having resolution 640 x 512 with 15 µm pitch or better for sharper Thermal Images.	Check the Detector (DDC) OEM certificate/data sheet submitted by the firm in respect of detector resolution, Pitch and spectral range.	The DDC OEM certificate/datasheet must confirm the same.
(b)	Spectral range: LWIR/MWIR or both.	Check the OEM certificate/data sheet in respect of Spectral range.	Spectral response must be of LWIR/MWIR or both.
(c)	Narrowest optical Field of View: : 1^0x 0.8^0 (maximum)	Fix the equipment on ATS (Acceptance test station) available in SIW & observe the TI image only. Measure the FOV in full zoon in as per the testing procedure.	FOV must be : 1^0x 0.8^0 (maximum) at fully zoom 'IN' condition

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	(**Optional- To be specified by the user department**) Narrowest optical Field of View: : 0.60x 0.50 (maximum)	Fix the equipment on ATS (Acceptance test station) available in SIW & observe the TI image only. Measure the FOV in full zoon in as per the testing procedure. Check the NABL accredited lab certificate/report submitted by the firm in respect of optical field of view.	FOV must be : 0.6^0x 0.5^0 (maximum) at fully zoom 'IN' condition.
(d)	Optical zoom: Minimum 12x (continuous zoom).	Measure the optical zoom and check the facility to zoom in & out in continuous manner.	The zoom must be achieved optically and should be minimum 12X continuous.
(e)	Automatic and manual focusing facility	Check the system for automatic and manual focusing facility	The system must have manual as well as automatic focusing mechanism.
(f)	Non Uniformity Calibration (NUC).	Check the system for NUC facilities.	The system must have NUC.
(g)	Capture frame rate not less than 25 FPS.	Check the system frame rate captured by the camera physically. The firm representative has to show the same during demonstration.	Capture frame rate must not be less than 25 FPS.
(h)	The external output in CCIR-PAL format.	Connect the out-put video of the system with the TV monitor in the CCIR-PAL mode and check its format compatibility.	The video must be free from any distortion in terms of vertical rolling, pixalization or sync/retrace bars on the display.
(i)	The camera initialization time to ready should not be more than 10 minutes.	Switch 'ON' the thermal camera from switch 'OFF' position and note down the initialization time up to ready.	The initialization time to ready must not be more than 10 minutes.
6	**Day light camera should have**		
(a)	CCD/CMOS Camera.	Check the Camera OEM certificate/datasheet duly attested by the participating firm in respect of Type of camera (CCD/CMOS) and resolution.	The camera OEM certificate / datasheet must confirm the same.
(b)	Optical zoom 16x (min).	Measure the optical zoom as per the procedure in the lab.	Optical zoom must be 16X (min).
(c)	Narrowest Optical Field of View: 1°x 0.8° maximum.	Fix the equipment on ATS(Acceptance test station) available in SIW & observe the day camera image only. Measure the FOV in full zoom in as per the testing procedure.	FOV must be 1°x 0.8° maximum at fully zoom 'IN' condition.
	(**Optional- To be specified by the user department**) Optical zoom 25x (min)	Measure the optical zoom as per the procedure in the lab. Check the NABL accredited lab certificate/report submitted by the firm in respect Optical zoom.	Optical zoom must be 25X (min).
	(**Optional- To be specified by the user department**) Narrowest Optical Field of View: 0.18°x 0.13° maximum.	Fix the equipment on ATS(Acceptance test station) available in SIW & observe the day camera image only. Measure the FOV in full zoom in as per the testing procedure. Check the NABL accredited lab certificate/report submitted by the firm in respect Optical field of view.	FOV must be 0.18°x 0.13° maximum at fully zoom 'IN' condition.

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(d)	Automatic and manual focusing facility.	Check the system for manual and automatic focusing facility.	The system must have manual as well as automatic focusing mechanism.
(e)	Capable to display colour and B & W picture	Check the system for the facility of B&W and colour picture on the screen.	The system Day camera must be capable to give colour and B&W picture.
(g)	Resolution: 0.4 Mega pixel (min).	Check the OEM data sheet.	Resolution should be 0.4 Mega pixel(min).
7	**LRF :** a) Inbuilt eye safe for accurate range measurement from 100 meters to 20 Km for vehicle size 4.3x1.8x1.5m target or better with range Accuracy of ± 1 meters minimum. b) Pulse/Min-10PPM.	In continuation of the test for QRs Para 3, range the human target and vehicle from the known distance of 100 meters, 2 Kms, 5 Kms, 10 Kms & 20 Kms ranges with the help of LRF and check the accuracy of the reading given by LRF. Check the NABL accredited lab certificate/report submitted by the firm in respect eye safe laser.	The system must have the range accuracy of ± 1 meters at all ranges. The NABL Accredited lab certificate/report should confirm the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab.
	LRF : (Optional- to be specified by the user department) (i) Inbuilt eye safe for accurate range measurement from 100 meters to 40 Km for vehicle size 4.3x1.8x1.5m target or better with range Accuracy of ± 5 meters minimum during Day and Night.	In continuation of the test for QRs Para 3, range the human target and vehicle from the known distance of 100 meters, 2 Kms, 5 Kms, 10 Kms, 20 Kms & 40 Kms ranges with the help of LRF and check the accuracy of the reading given by LRF.	The system must have the range accuracy of ± 5 meters at all ranges. The NABL Accredited lab certificate/report should confirm the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab.
8	**Digital Magnetic Compass (DMC):** (a) Inbuilt DMC should be provided for auto Northing. It should not get affected if installed on ferrous platform.	Switch on the system and do auto northing. Note down the bearing of a point with the help of compass. Again check the bearing of that point through inbuilt DMC and then compare both the readings for accuracy and resolution.	The system must have inbuilt DMC for auto northing. DMC should not get affected if installed on ferrous platform.
	(b) **System Accuracy** : The system should have the facility to give co-ordinates of the detected target with azimuth and elevation accuracy of 1° (max).	Firms be allowed to calibrate their device in order to reduce the effect of ferrous platform. Place a target at a distance of more than 2 Kms whose co-ordinates with azimuth and elevation are known. Note down the co-ordinates from the system and compare the values of both co-ordinates for accuracy difference.	The system must have the facility to give co-ordinates of the detected target with azimuth and elevation accuracy of 1° (max).
9	**Global Positioning System (GPS)** : Inbuilt GPS be integrated with the system to get own position during initialization. The accuracy of the GPS should be less than 10 meters. GPS should display the coordinates in Indian Grid reference system.	Check the co-ordinates of own position through inbuilt GPS. Check the own position co-ordinates of a point by other GPS or method and compare it with the co-ordinates of the same point shown by the inbuilt GPS.	The system must have inbuilt GPS to get own position and accuracy of the co-ordinates should be less than 10 meters. It must give co-ordinates in Indian Grid reference system.

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10	**Installation**: User will specify the requirement of Tripod or mast or both at the time of indent. Installation: User will specify the requirement of Tripod or mast or both at the time of indent.		
(a)	**Tripod**: Suitable Tripod with telescopic legs supporting the system offered with levelling bubble. There should be provision of levelling the tripod on a ground inclination up to ± 15°.	Check the tripod for telescopic legs and bubble for levelling. Mount the system on provided Tripod on an inclined ground having inclination up to ± 15° and check the compatibility & comforts in mounting. Check also the suitability of levelling adjustment mechanism provided.	The tripod must have telescopic legs with leveling bubble. It must have the suitable leveling provision to mount it on a ground Inclination up to ± 15°.
(b)	**Mast**: Telescopic mast driven through Pneumatic should be provided having minimum height of 10 meters in a fully expandable condition. It should have suitable and stable platform to hold system weight up to 50 Kgs. The base of the mast should be in commensuration with its height and load.	Check the mast provided for telescopic mechanism and pneumatic control to expand it up to a height of 10 meters. Mount the system on mast provided and check the compatibility, the area of base of the mast and measure the length of mast in fully expandable condition. Put a 50 Kgs load on the mast in fully expanded condition and check the stability of the system by monitoring the system performance in the console's display.	The mast must be telescopic, pneumatically driven and able to expand up to height of 10 meters. The mast must have compatible mechanism to interface with the LORROS. The mast platform must be suitable in commensuration with the height of 10 meters and stable enough to withstand the weight of 50 Kgs and vibrations/thrust of winds in fully expanded conditions. System must be electronically/ Gyro stabilized as per the requirement of the user.
(c)	In case mast is opted, the user, will have an option of choosing either electronic stabilisation or gyro stabilisation. Same will be defined by the user at the time of tender.	Firm to produce OEM data sheet and certificate in respect of electronic stabilization or gyro stabilization as opted by the indenter.	
11	**Mil Std**: The system and its sub-systems/accessories must conform to the latest Mil STD 810F or JSS55555 in respect of applicable environmental parameters (low high temperature, humidity, vibration, shock) and EMI & EMC in case user opts for wireless transmission.	Check the NABL accredited lab certificate/report submitted by the firm for Mil Std 810F in respect of applicable environmental parameters, ruggedness. Check the NABL accredited lab certificate/report submitted by the firm for EMI & EMC in case user opts for wireless transmission.	The NABL accredited lab certificate/report must confirm the Mil Std 810F in respect of applicable environmental parameters (low high temperature, humidity, vibration, shock) . The NABL accredited lab certificate/report must confirm the EMI & EMC in case user opts for wireless transmission. In case of any doubt in the test reports, the veracity of the same may be checked from the concerned lab.

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12	**Protection**: The system and its sub-systems/ accessories must conform to IP-65.	Check the NABL accredited lab certificate/report submitted by the firm for latest Mil Std in respect of IP-65.	The NABL accredited lab certificate/report must confirm the Latest Mil Std in respect of IP-65. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab.
13	**Pan & Tilt unit**: The system should have pan & tilt facility. It should have Pan speed up-to 40° per second or better. a) Azimuth - NX 360° b) Elevation - +30° to -35° c) Scan speed should be variable.	Mount the system on tripod with Pan & Tilt unit and check the azimuth and elevation movement in degrees. Physically check the pan speed per second and the facility to adjust the Pan speed as per requirement.	Pan & Tilt unit must have the following: a) Azimuth - NX 360° b) Elevation - +30° to -35° c) Scan speed should be variable and up to 40° per second or better.
14	**Power Source for Pan & Tilt** : Suitable AC/DC adaptor to be provided for running Pan & Tilt unit through AC mains 230 V (±30V) and through 24 volt sealed maintenance free battery.	BOO to physically check, by operating the Pan & Tilt through AC/DC adaptor on AC mains 230 V (±30V) and on 24 volt sealed maintenance free battery.	Pan & Tilt should function properly through AC/DC adaptor on AC mains 230 V (±30V) and on 24 volt sealed maintenance free battery.
15	**Video Recording Capability** : Inbuilt min 2 TB or above storage memory for video recording in the console. The system should have facility to retrieve the stored data. The system should have the facility to record either of the camera video (day or TI) or both the channels simultaneously at a time as per requirement.	a) Check the system for the facility of video recording and record the video of day & night camera individually and simultaneously for a total time period of 2 hours minimum. b) Check the storage capacity in the system. c) Check the system for the facility to retrieve the stored data.	a) The facility of video recording of day and night camera individually and simultaneously at the same time must be provided in the system. b) The total storage capacity must be 2 TB (min) or above. c) The facility to retrieve the stored data must be provided in the system.
16	**Online UPS: It should have**		
(i)	Out Put Power : 2 KVA (min)	Firm to produce OEM certificate. Also B.O.O. TO check physically also.	Out Put Power should be : 2KVA (min)
(ii)	In-put voltage range from 90 to 270 volt, 46-54 Hz AC mains supply.	Connect the UPS with variable AC mains supply (Dimmer state) and check the output voltage stability by varying in-put voltage from 90 to 270 volt, 46-54 Hz	The out-put of the UPS must not be effected on varying the AC in-put voltage from 90 to 270 Volt, 46-54 Hz mains supply.
(iii)	Back up of 60 minutes minimum.	Charge the UPS batteries fully and then connect it with the full load of LORROS. Note down the back up time at which the LORROS functions normally.	The back-up time of UPS on full load of LORROS must be 60 minutes minimum.
(iv)	Single phase.	Measure the UPS out-put with the help of multimeter and functioning on single phase mains supply.	The UPS must be functional on single phase mains supply and out-put voltage from the UPS be 220 volt ±10%.
(v)	Out-put 220 volt ±10%		
(vi)	In-put cable length of 15 meters with standard 3 pin plug.	Measure the in-put cable length and check the 3 pin plug attached with it.	In-put cable length must be 15 meters with standard 3 pin plug.

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(vii)	Minimum three 15 & 5 Amp combination sockets for Out-put.	Check the facility of combination of 15 & 5 Amp sockets provided in the UPS for out-put.	UPS must have minimum three combo sockets (15 & 5 amp socket i.e. 6 pin socket) provided for out-put.
(viii)	It should be provided with an all-weather enclosure for keeping the UPS and its batteries safe in rain and snow.	Check the UPS enclosure for keeping it with batteries safe in rain & snow.	UPS and its batteries must be provided in an all-weather proof enclosure to keep it safe in rain & snow.
17	**Battery/Power Source**: Should have Lithium and rechargeable battery to operate the LORROS in the entire operating range of temp mentioned in QRs at Para 22 (a) (i). The battery should have battery status indication to get the charge status of the battery.	a) Check the NABL Accredited lab certificate/report submitted by the firm in respect of type of battery and operating temperature range I.e. -30°C to 55°C. b) Check the battery for battery charge status indication.	a. The NABL Accredited lab certificate/ report should confirm the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab. b. The battery must have battery charge status indication.
18	**Battery Performance**: The on system battery (s) should be able to run the system for 6 hours or more in operational mode on single charge. Battery Performance: (**Optional- to be specified by the user department)** The on system battery (s) should be able to run the system for 6 hours or more in operational mode on single charge.	Switch 'ON' the system with fully charged battery (s) provided and check the endurance time of the system mounted on Tripod on single charge in mentioned conditions **{-30°C to 55°C (entire range) for min 06 Hrs}. Physically checked by the BOO or the firm should submit NABL accredited lab certificate.**	A fully charged battery (s) must run the system in operational mode for 6 hours or more on single charge.
19	**Battery Charger:** A smart and Intelligent Charger operating from 90 volt to 270 volts 50 Hz AC Mains along with DC Charging facility from 12 volt to 48 volt DC (on entire range) to charge the battery should be provided. It should have "charge On" and "charge complete" indications during the charging of battery. The charger should be capable to charge the battery fully in ≤ 10 hours.	a) Connect the battery charger on AC mains supply and vary the in-put supply from 90 to 270 volt. Check the out-put voltage stability on varying In-put voltage. b) Connect the battery charger input with 12 to 48 volt variable DC power supply. Check the out-put voltage stability on varying In-put voltage. c) Check the battery charger for the indication of 'Charge On' and "Charge Complete" status. d) Charge a fully discharged battery on AC mains supply and note down the charging time till the battery gets fully charged.	a) The out-put of the battery charger must not be effected on varying the AC in-put voltage from 90 to 270 Volt, 50 Hz mains supply and DC in-put from 12 to 48 volt. b) The out-put of the battery charger must not be effected on varying the DC in-put from 12 to 48 volt. c) The charger must have "charge On" and "charge complete" indications during the charging of battery. d) A fully discharged battery must be charged fully with the battery charger in ≤ 10 hours.
20	**Operator Console Unit:**		

S/No.	Specification	Procedure suggested for trial for Board of Officers	Result expected/desired
(a)	Console should be able to operate and control the equipment from a distance of 100 meters minimum through wire/OFC. ***Optional facility (Indenter to define the requirement at the time of indent): To stream imagery over digital wireless link (500 meters minimum NLOS and 10 Km minimum LOS)**.	a) Install the system with console unit which is 100 meters away from the cameras. Check all the functions and controls of the system from the console and measure the distance between console & tripod. b) Check the video on the display received from the video receiver, transmitted by the video transmitter. The distance between Rx & Tx will be kept 500 meters(min) in NLOS and 5 Kms (min) in LOS.	a) The console must be able to control all the functions of the day, night, pan& Tilt mechanism, LRF etc. from a distance of 100 meters minimum through wire link. b) In case of digital wireless link for imagery, the transmitter & receiver must be able to establish noiseless and continuous imagery wireless link up-to 500 meters (min) in NLOS and 5Kms (min) in LOS. Repeaters may be incorporated in the system for better and guaranteed reception.
	(**Optional- to be specified by the User Department**) i) Console should be able to operate and control the equipment from a distance of 100 meters minimum through wire/OFC. *Optional facility (Indenter to define the requirement at the time of indent): To stream imagery over digital wireless link (500 meters minimum NLOS and 10 Kms minimum LOS) ii) Facility to integrate the Console with integrated border surveillance & management projects by OGC complied feed output. iii) Standard application to control the Eqpt remotely from Command Centre with rights to over ride console operator commands.	i) Install the system with console unit which is 100 meters away from the cameras. Check all the functions and controls of the system from the console and measure the distance between console & LORROS, same procedure should also be followed for testing of 20 Km OFC. Check the video on the display received from the video receiver, transmitted by the video transmitter, the resolution of the recorded video should be the same as recorded by the Camera. The distance between Rx & Tx will be kept 500 meters (min) in NLOS and 10 Kms (min) in LOS. (ii) & (iii) BOO to physically check these features also check the NABL accredited lab certificate/report submitted by the firm.	Specification must be as per mentioned in the QRs.
(b)	Should have a ruggedized OLED/LED colour display of size 15" (min).	Measure the display size with the help of measuring tape. Check the NABL accredited lab certificate/report in respect of type of display and ruggedness.	The display size must be 15" (min). The NABL accredited lab certificate/report must confirm the type of display and ruggedness. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab.
(c)	The console should have facility to display map view, panoramic view with the FOV scene display, day camera and night camera view individually and simultaneously on one screen as per the requirement of user during surveillance.	Check the console for the display of following: a) Day camera video. b) TI camera video. c) Panoramic view with the FOV scene display. d) Map view. e) Day & TI camera video simultaneously.	The console must have facility to display map view, panoramic view with the FOV scene display, day camera and night camera view individually and simultaneously on one screen as per the requirement of user during surveillance.
(d)	The display should preferably be on graded background so as to facilitate correlation between displayed data and map features.	Check the correlation between features on map and displayed data on screen.	The displayed data/features on screen must be correlated with the map features/data.

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(e)	Screen should be capable to display area picture with selected target range, azimuth, elevation and co-ordinates.	Check the system for the display of area picture, selected target range, azimuth, elevation and its co-ordinates.	Console must be capable to display area picture with selected target range, azimuth, elevation and co-ordinates.
(f)	A suitable facility of the control keys or joystick should be provided to operate the system remotely with comfort.	Check the system for the facility provided to control the functions through keys or joystick remotely.	Console must have control keys or joystick to control all the functions of system efficiently.
(g)	The console recovery option should be provided in the system itself to cater for software corruption.	Check the facility provided to recover the console software (OS and application software) in terms of CDs/DVDs/one touch key (for recovery to factory setting) in the console.	There must be facility to recover the console software to cater for software corruption.
(h)	The console should have the facility to control the operation of day & night camera, LRF and Pan & Tilt sub systems through soft keys and via track ball.	Check the system console by operating all the functions of day & night camera, LRF and Pan & Tilt mechanism through soft keys, track ball or whatever the facility provided by the manufacturer in the console.	The console must have the facility to control the operation of day & night camera, LRF, Pan & Tilt sub-systems through soft keys and via track ball.
(j)	The system should have scan around and track while scan facility, automatically whenever required.	Put the LORROS system in the scan mode by feeding azimuth & elevation angle or co-ordinates of required target/limits. Check the system for the facility of track while scan by selecting a detected target for tracking.	The system must have scan around and track while scan facility, automatically whenever required.
(k)	The system must incorporate built in test equipment (BITE).	Check the facility of BITE in the system to verify the system health.	The console must have BITE facility.
(l)	The system should have the facility to display & store the positional co-ordinates (Lat/Lon and Indian GR system as selected by the user) and range of a selected target.	Check the system for the facility to show and store the positional co-ordinates of a selected target whenever required. Check also the range of a selected target by firing Laser through built in LRF.	The system must have the facility to display & store the positional co-ordinates and range of a selected target.
(m)	The system should have the ability to generate the custom bookmarks during recording and Go-to specific bookmarks during playback.	Check the system for generating the bookmark during recording whenever required and playback the same track by addressing the bookmark.	The console must have the facility to create bookmarks during recording for day & night channel as and when required. The facility to Playback the specific bookmarked video must also be provided.
(n)	There should have facility to capture snapshot and screenshot whenever required.	Check the facility in the system console to capture the snapshot of an image and screenshot whenever required.	The console must have facility to capture snapshot and screenshot whenever required.
(o)	There should be facility to store/mark pre-defined locations co-ordinates up to 100 points (min).	Check the system for the facility by storing co-ordinates of up to 100 locations.	The facility to store/mark locations co-ordinates up to 100 points (min).
(p)	There should have interface port for Ethernet, analogue & digital video out-put	Check the system for the interface port provided for Ethernet, analogue and digital video out-put.	The console must have interface port facility for Ethernet, analogue and digital video out-put.

S/No.	Specification	Procedure suggested for trial for Board of Officers	Result expected/desired
21	**Transportation case**: Should have a ruggedized Polypropylene shock proof container along with pressure equalizer valve compliant to IP-65 and Mil Std. 810G	Check the NABL accredited lab certificate/report submitted by the firm in respect of ruggedized Polypropylene shock proof container with pressure equalizer valve compliant to IP-65 and Mil Std.810G	The NABL accredited lab certificate/report submitted by the firm must confirm the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab.
22	**Environmental Specification**: a) Temperature: i) operation: -20°C to 55°C ii) Storage : -40° C to 70°C Note: **Operating temperature be defined by the user at the time of indent as per the requirement**.	Check the NABL accredited lab certificate/report submitted by the firm in respect of operation and storage temperature.	The NABL accredited lab certificate/report submitted by the firm must confirm the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab.
	b) **Altitude**: Complete system must be suitable for use and storage at heights up to 5000 meters above mean sea level at their full rated performance.	Check the NABL accredited lab certificate/report submitted by the firm in respect of functioning at mentioned altitude.	The NABL accredited lab certificate/report submitted by the firm must confirm the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab.
23	**A Single LORROS must comprise of following accessories :** a) UPS – 1 No. b) Rechargeable battery set – 2 no's (one on system and one additional set). c) Tripod / mast-1 no. or tripod and mast 1 no each. (As opted by the user) d) Additional one set of cables with connector to be provided. e) Transportation case. f) Water proof carrying case.(optional requirement. To be specified by the user at the time of indent) g) Battery charger having provision of charging two batteries at a time.	The firm has to submit an assurance certificate for the accessories as mentioned in Para 23.	Assurance certificate must confirm the accessories as mentioned at QRs Para 23 (a) to (g).
24	**User Manual and Operation Instructions**: Soft & hard copy of detailed instructions technical literature, maintenance manual, operational and Inspection standards be provided with the equipment.	Not applicable at the time of tender sample evaluation.	NA

S/No.	Specification	Procedure suggested for trial for Board of Officers	Result expected/desired
25	**(Optional- to be specified by the User Department)** a) GNSS services of GPS/GLONASS/ GAGAN/NAVIC (Restricted services will be preferred). b) Availability of telemetry data output and relay of feed over any COTS. c) Open Geospatial Consortium (OGC) complied data output. d) Feature Identification for Human, light vehicle, medium, vehicle, heavy vehicle, Aircraft, Heli, Boat, Animal (e.g. Matlab application) with option of summary in time frame. e) In built data compression feature for relay of output over low bandwidth (2mbps). f) 256 bit AES encryption facility between sensor and central console with user selectable key changing facility. g) Software enabled auto target locking, tracking and identification facility with audio/visual alarm generation for each entity with specific sounds/visual signature. h) AI/ML based algorithms for smart analysis over captioned date, time, feed by giving summary of detection and filter options by type of target.	a) Check the NABL accredited lab certificate/report submitted by the firm for GPS & IRNSS. b) BOO to physically check the telemetry data. c,d & e) Check the NABL accredited lab certificate/report submitted by the firm. f) Check the NABL accredited lab certificate/report submitted by the firm also BOO to physically check the key changing facility. g) BOO to physically check these parameters.	Specification must be as per mentioned in the QRs.
26	(**Optional-to be specified by the User department**):- i) Firm should provide operator training to 10 people for 03 to 05 days for 1st year at consignee location. ii) Firm will provide maintenance training to 10 people for 03 to 05 days for 1st year at firm premises. iii) Firm will also provide additional operator & maintenance training every year till 5th year to 10 people for 03 days at consignee location. iv) If need arises, Operator & maintenance training will be enhanced further by 01 week.	-	NA

S/No.	Specification	Procedure suggested for trial for Board of Officers	Result expected/desired
27	(**Optional- to be specified by the user department**) i) The stores supplied against the order should cover under free warranty repair/replacement of components which are established as being defective due to improper design, defective materials or poor workmanship standard for a period 02 years from the date of commissioning of the system at consignee's place. ii) Additional warranty for 03 years should also be provided. iii) For optimum performance of the LORROS, the firm/OEM has to install bullet proofed adequate prefab structure for 02-03 operators at the control unit site.	-	NA

तकनीकी विशेषज्ञों के उप समूह द्वारा यह निश्चित किया गया है कि उक्त गुणातमक आवश्यकता को अधिक बेहतर बनाने के लिए गृह मंत्रालय एवं सीमा सुरक्षा बल की वैबसाईट पर विक्रेताओं/फर्मों के सुझाव प्राप्त करने हेतु 15 दिनों के लिए अपलोड किया जाए।

नोट : सभी विक्रेताओं/फर्मों से निवेदन है कि अपने सुझावों के साथ निम्नलिखित कागजात संल्गन कर ई–मेल पता comdtord@bsf.nic.in पर भेजने का श्रम करें:–

क) उत्पाद की वास्तविक विवरण पुस्तिका।
ख) उत्पाद की साहित्यिक रचना का ब्यौरा।
ग) गुणातमक आवश्यकताओं के उपर व्यापक टिप्पणीयॉ।

(दिगेन्द्र सिंह पँवार)
उप कमांडेण्ट (आधुनिकीकरण)