संख्या. पी-63013/207/01/2024/मोड-I/सीसुबल 2414-24

भारत सरकार, गृह मंत्रालय
महानिदेशालय सीमा सुरक्षा बल
(रसद निदेशालय: आधुनिकीकरण सैल)
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(Fax: 011-24367683)

ब्लाक संख्या . 10,
सीजीओ काम्पलैक्स,
लोधी रोड, नई दिल्ली–03
दिनांक 08 मई 2024

सेवा में,

महानिदेशकः– आसाम राईफलस (through LOAR), केन्द्रीय ओद्यौगिक सुरक्षा बल, केन्द्रीय रिजर्व पुलिस बल, भारतीय तिब्बत बोर्डर पुलिस, सशस्त्र सीमा बल, राष्ट्रीय सुरक्षा गार्ड एवं पुलिस अनुसन्धान एवं विकास ब्योरो

विषयः **अनुमोदित गुणात्मक आवश्यकता /परीक्षण निर्देशों का प्रेषण**

तकनीकी विशेषज्ञों के उप समूह द्वारा किए गये सूत्रीकरण एवं महानिदेशक सीमा सुरक्षा बल द्वारा अनुमोदित "Perimeter Intrusion Detection System (PIDS)" के गुणात्मक आवश्यकता/परीक्षण निर्देशों को आपकी अग्रिम कार्यवाही हेतु प्रेषित किया जाता हैं।

संलग्न : उपरोक्तनुसार

इ.दे.सिंह
8/5/24
(इन्द्र देव सिंह)
उप महानिरीक्षक (रसद)

प्रतिलिपि :–

1. तकनीकी निदेशक
   The Technical Director
   राष्ट्रीय सूचना–विज्ञान केन्द्र, नोर्थ ब्लाक, गृह मंत्रालय, नई दिल्ली
   NIC, North Block, MHA
   New Delhi, (द्वारा ई–मेल)
   (ई–मेल पता : mpsugandhi@nic.in)
   : आपसे अनुरोध है कि उक्त उपकरण के सूत्रीक्रण किये गये गुणात्मक आवश्यकता /परीक्षण निर्देशों को गृह मंत्रालय की वैबसाईट (MHA website Division of MHA+ - Police Modernization Division- Qualitative Requirements-Qualitative Requirements of Machinery & Eqpt Items with Surveillance item) पर अपलोड करने का श्रम करें।
2. SO (IT), North Block, MHA
   (Through E-mail)
   (E-mail address: soit@nic.in)
   : कृपया उपरोक्तानुसार कार्यवाही करने का श्रम करें।
3. तकनीकी विंग, सीमा सुरक्षा बल
   : कृपया उक्त उपकरण के गुणात्मक आवश्यकता/ परीक्षण निर्देशों को सीमा सुरक्षा बल की वैबसाईट पर अपलोड करने का श्रम करें।
4. Sh. Anoop Dhanvijay, Director- Buyer Management (CPSEs & Central Ministries), GOI. Ministry of Commerce & Industry, Government e-Marketplace. Jeevan Tara Building.5-Parliament Street. New Delhi-110001
   E-mail:- anoop.dhanvijay@gem.gov.in
   For info with request to upload the approved QRs & TDs of "Perimeter Intrusion Detection System (PIDS)" on GeM Portal. Copy of QRs & TDs is attached with this letter.
5. The DIG (PROV)
   Directorate General CRPF
   Block-1, CGO Complex, Lodhi Road,
   New Delhi-03
   : वास्ते सूचनार्थ आपके पत्र संख्या–L.VII.4/2021-22-Prov-DA5 दिनांक 24 अप्रैल 2024 के संदर्भ में।
6. फाईल।

QUALITATIVE REQUIREMENT OF PERIMETER INTRUSION DETECTION SYSTEM (PIDS)

The solution comprises of the following components:

a. Electrical Smart Power Fence (ESPF)
b. CCTV camera (Fixed and PTZ camera)
c. UPS power supply
d. IT infrastructure (Hardware and Software)

a) Electrical Smart Power Fence (ESPF)

- ESPF can be mounted on existing boundary wall.
- ESPF can also be mounted on chain link fence with proper support.
- ESPF can also be installed in open area of the campus boundary with suitable arrangements.
- The ESPF gives a high voltage electric shock (non-lethal) to the intruder when he touches/cuts/tampers the wire. This event triggers alarm at the nearby hooter and strobe light as well as triggers the alarm in PIDS software at the command-and-control center.
- The live feed of intrusion attempt can be visualized in command-and-control center, as PIDS software would display video feed of the nearby CCTV cameras on display. The PIDS operator can focus PTZ camera towards the intruder for further investigation.
- This security surveillance will be available 24x7 throughout year(s) and CCTV video recording for 30 days will be available in storage.

ITBP NSG (BSF) (SSB) CISF

CRPF BPR&D

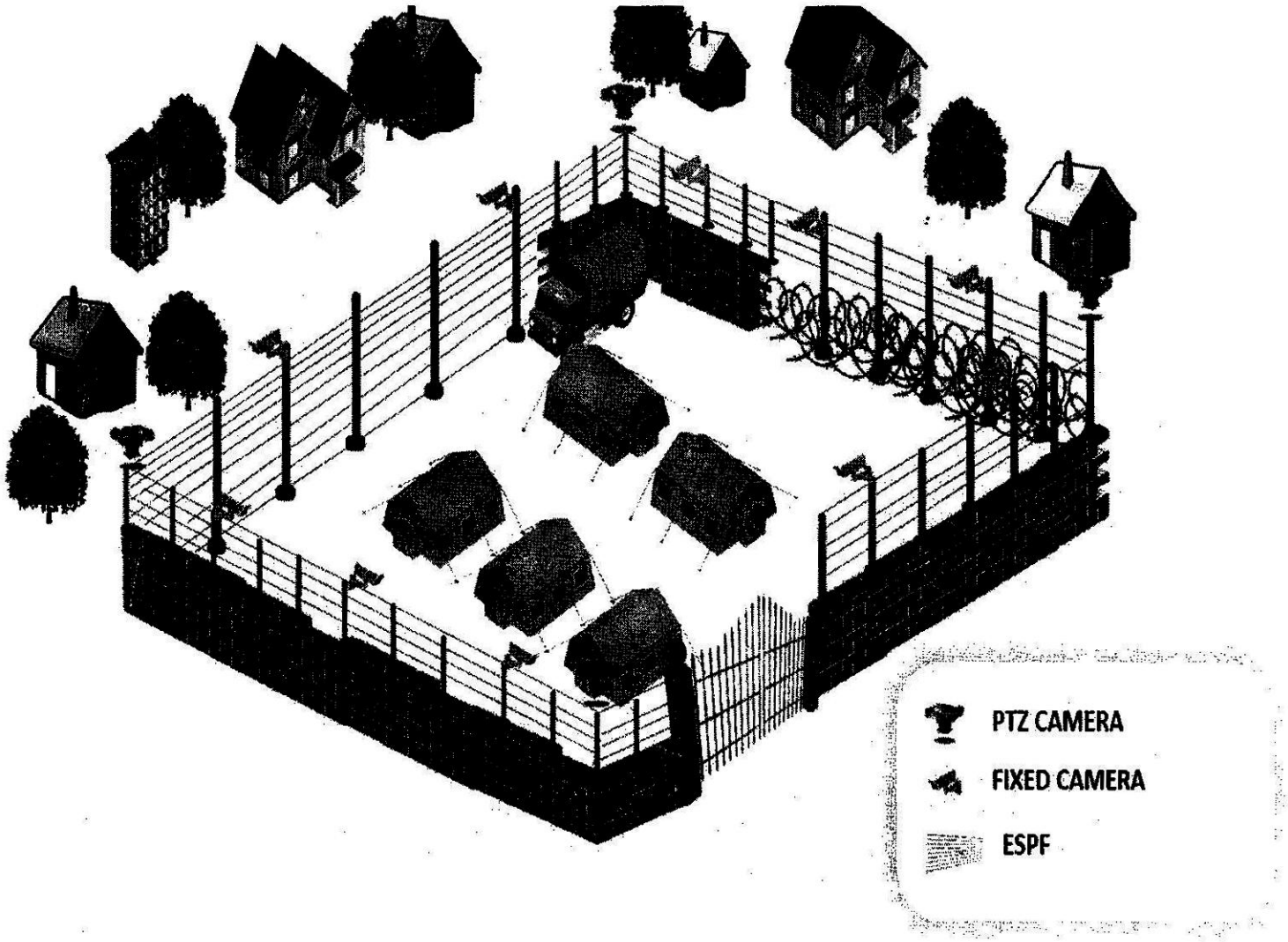

Figure :: Integrated Security Solution

1. Detailed analysis of Qualitative Requirements (QR)

ELECTRICAL SMART POWER FENCE (ESPF)

Sl. No	Technical Requirements/Parameters	Trial Directives
1.	An electrical smart power fence (ESPF) is installed on the perimeter. It's a non – lethal electric smart power fence, which serve dual functions i.e deterring intruders by a non-lethal high voltage low current DC shock and sounding an alarm both at the place of attempted intrusion and at Control Room to facilitate suitable contingency response. Anyone who touches the power fencing when the system is armed will be repelled by a short, sharp, painful, but regulated safe pulsed DC high voltage shock. Alarm will be generated when someone attacks, tries to climb through or tampers with the power fencing system. The system is integrated with other sensors such as CCTV cameras with built in IR, back to back camera fixing and thermal cameras in slew to clue mode along with its integration at Control Room for control and monitoring of the system.	The bidder should show system is armed. Also show system generates alarm in case of cutting of any wire, shorting the wires, tampering of energizer or power failure, network disconnections, live pop up of CCTV and live feed pre and post event on the command centre software, verified by the BOOs.
2.	The ESPF is conducting wires firmly fixed on supporting post mounted firmly on perimeter wall/fence/ground.	To be verified by through specs sheet/OEM will submit certificate which will be verified by the BOO.
3.	The ESPF withstand strong winds (up to 50 knots)and weather conditions like snow, hailstorm, sandstorm prevailing in area.	-do-
4.	All posts are fixed securely to the wall while withstanding the tension. Corner post suitably strengthened to ensure stability and strength of the fence. Warning signboards indicating Caution electrical power fence in minimum three languages which includes one local language at every 50 m are installed all along the ESPF.	-do-
5.	The system generates alarm in case of cutting of any wire, shorting the wires, tampering of energizer or power failure, network disconnection.	-do-
6.	The system performance is unaffected in day or night conditions and the system is capable of detecting and locating multiple simultaneous intrusions.	The bidder should show the invariable capability in day and night for detecting and locating multi-type simultaneous intrusions. To be verified by BOO.
7.	Energizer cabinet complies with IP65 standards for outdoor installation. Energizer conforms to safety requirement as per latest international safety standards IEC/EN 60335 or equivalent.	The bidder should demonstrate the operation of energizer in the corresponding IP 65 conditions, verified by the BOO.

8.	Wire			
	(a)	Material	Mild steel	To be verified by through specs sheet/OEM will submit certificate which will be verified by the BOO.
	(b)	Coating	Galvanized with minimum zinc Coating 325 gm/m^2 or more	-do-
	(c)	Diameter(mm)	2 or more	-do-
	(d)	Resistance(Ω/km)	Less than 100	-do-
	(e)	Tensile strength (kg/mm2)	At least 125	-do-
9.	Energizer			-do-
	(a)	Type	Pulse	To be verified by through specs sheet/OEM will submit certificate which will be verified by the BOO.
	(b)	Maximum Voltage(kV)	Less than 10kv	-do-
	(c)	Pulse energy(J)	At least 3 to 5 J	-do-
	(d)	Peak current(A)	10 A	-do-
	(e)	Output characteristics	As per Para5.101 of IS302-2-76 (1999)	-do-
	(f)	Battery back-up(hours)	At least 3 hrs.	-do-
	(g)	Operating temp range	-20 to +50□	-do-
	(h)	Zone	Single energizer to support 200mtr ESPF zone.	-do-
	(i)	Connectivity	RS485 or better	-do-
	(j)	Standard compliance	IEC 60335-2-76: 2018	-do-

●	(k)	Pulse	LIVE & Earth configuration	-do-
	(l)	Output/Input	Inputs – 4 and Outputs 4 Communication between energizer and the master controller may be RS 232/422/485 or better	-do-
10	IP Based Controller Preferably in built energizer			
	(a) Should be Ethernet based RJ45 interface			To be verified through specs sheet/OEM will submit certificate which will be verified by the BOO.
	(b) Real time monitoring and control to be provided to PIDS software..			-do-
	(c) It should control the energizer			-do-
	(d) LCD/equivalent visual indicator for status monitoring of ESPF. Controlling of energizer is required.			-do-
	e) Should communications fail with the system, each intelligent field controller shall be capable of buffering upto 30,000 events.			-do-
	f) The Master controller shall operate from a separate battery backed 13.6 V DC			-do-
	g) Communication port :10/1000 Base T Ethernet Port			-do-
	h) Data storage: Minimum 30,000 buffer Events			-do-
	i) Input power : 12 V DC			-do-
	j) Power supply : SMPS with Battery Charger: 12 V 7AH			-do-
	k) Compliance: CE, UL, ECC			
	l) IP 65 rated console box for intelligent field controller			-do-
11.	System Installation			
	(a)	Height of ESPF(cm)	120 cm Wall top	To be verified through specs sheet, OEM will submit certificate which will be physically verified by the BOO.

	(b)	Distance between adjacent wires (cm)	Maximum10 cm	-do-
	(c)	Distance between the top of the Wall to the bottom of ESPF(cm)	Maximum 10 cm	-do-
	(d)	Strain Poles		
		(i)Material	Galvanized MS	-do-
		(ii)Section	50 X 50 mm galvanized pre Hold circular tubing with Minimum thickness of 2mm	-do-
		(iii)Size(mm) two support poles	Minimum30x30	-do-
		(iv)Height above wall (cm)	120 + grouting 300mm It can be grouting / anchoring / welding depending on the surface available for installation	-do-
		(v) Distance between poles(m)	Maximum 50 mtr depending on site condition.	-do-
	(e)	Intermediate Poles		
		(i)Material	Hot dip Galvanized MS	-do-
		(ii)Section	Shape can be T / L / Kiwitah	-do-
		(iii)Size(mm)	Minimum 20x20x3mm	-do-
		(iv)Height above wall (cm)	120 + grouting 300mm It can be grouting / anchoring / welding depending on the surface available for installation	-do-
		(v) Distance between poles(m)	Maximum 3 mtr	-do-

	(f)	Insulator(for Strain Poles)		
		(i)Material	UV stabilized plastic	-do-
		(ii)Break down voltage (kVDC)	At least 15	-do-
		(iii)Working load	140 kg	-do-
	(g)	Insulator(for intermediate pole)		
		(i)Material	UV stabilized plastic	-do-
		(ii)Break down voltage(kVDC)	At least 15	-do-
		(iii)Vertical break download	25kg or better	-do-
	(h)	Zonal length	200 m or less	-do-
12.	Constant False Alarm Rate(CFAR)		0	To be verified that there is no false alarm. Physical verification by the BOO.
13	Audio, visual alarm		Hooter and strobe light to be provided at every 200m	Operation of hooter and strobe to be tested physically by the BOO.
14	Earthing and Lightning protection		Each subsystem of ESPF should be protected from lightning, surge and power fluctuations. Each energizer/controller should have its own independent earthing.	OEM will submit certificate. The BOO should physically verify that each energizer/controller should have its own independent earthing.
15	Training for operation of entire ESPF (PIDS) system		Supplier OEM, Firm has to impart proper training to personnel for at least 03 days on site.	Firm will provide User manual, maintenance manual, guidance manual etc.
16.	Warranty		Supplier firm, OEMs have to provide at least 2 years replacement warranty of ESPF items.	
17.	Shelf life		10 years. {However, **regular updation** and Software support on all existing items have to be extended by the OEMs, Vendors.}	During the shelf life of 10 years, OEM/ firm will provide complete support and regular updation of all software time to time under SMA (Software maintenance agreement)

18.	Software should incorporate the feeds from Drones with ONVIF interface.	Apps /software of drone having ONVIF interfacecan be integrated with PIDS software.	BOO Can verify if such drone system is available. Supplier toGive certificate
19.	AMC (Annual Maintenance Contract)	Upto two year from installation, firm has to extend all services. After that AMC can start which should not exceed 8% of the cost of items. Subsequent years AMC will be done by enhancing 5% of first AMC cost. AMC cost will cover replacement of items etc. if required.	BOO will check physically
20.	Software and sensor must be make in India and should not transmit any data outside close network.	For this OEM will provide certificate	BOO will check physically

CCTV camera (Fixed and PTZ camera)

Fixed Camera

Sl. No.	Technical Requirements /Parameters	
1.	The Visible/ Near-IR Camera based Video Surveillance System are installed at perimeter for effective surveillance from Control Room. A combination of vari-focal cameras of low and high focal lengths are installed at suitable distance along the perimeter to provide gap free coverage.	The system installation as per QRs/Spec specify QR capabilities should be demonstrated and bidder should show live pop up of CCTV and live feed pre and post multiple events both in day and night (gap free) on the Command centre software. Physically verified by the BOOs.
2.	The cover age area of Fixed Camera is illuminated with in-built-infrared Illuminator for surveillance during night.	-do-
3.	The fixed cameras are installed on the poles at suitable heights of 3m above boundary wall with flexibility in height as per the site condition.	-do-

5.	Cameras are installed such that the camera system covers the entire perimeter for gap free coverage of perimeter			-do-
6.	The system performance is unaffected in day or night conditions and the system is capable of detecting and locating multiple simultaneous intrusions.			-do-
	Parameter		**Requirement**	
7.	Imager			
	(a)	Size(inch)	Minimum 1/ 2.8	Physically checked by BOO
	(b)	Sensor Type	CMOS/CCD	Physically checked by BOO
	(c)	Scan Type	Progressive	Physically checked by BOO
8.	Lens			
	(a)	Type	Vari-focal,	Physically checked by BOO
	(b)	Focal Length(mm)	2.7mm- 12mm or better	Physically checked by BOO
	(c)	Zoom Control	Manual	Physically checked by BOO
	(d)	Focus Control	Manual	Physically checked by BOO
	(e)	Size (inch)	Minimum size of the imager	Physically checked by BOO
	(f)	Iris	Auto Variation	Physically checked by BOO
9.	Minimum Illumination (Lux)			
	(a)	Color Mode	0.5	Physically checked by BOO
	(b)	Night Mode	0.05(without IR illuminator)	Physically checked by BOO
			0.0001(with IR illuminator)	Physically checked by BOO
10.	Sensor Resolution (Mega Pixels)		Minimum 2	Physically checked by BOO
11.	Video compression		H.264 or better	Physically checked by BOO
12.	Maximum Shutter Speed(sec)		1/8000 or faster	Physically checked by BOO
13.	Frame Rate		At least 25 fps with max resolution	Physically checked by BOO

14.	Video Standard		PAL	Physically checked by BOO
15.	Wide Dynamic Range (WDR) (dB)		At least 70	Physically checked by BOO
16.	Data Rate		6 Mbps for H.264 Video compression	Physically checked by BOO
17.	Interface		Open Network Video interface Forum (ONVIF)	Physically checked by BOO
18.	Alarm Trigger			
	(a)	Motion Detection	Required	**System performance to be demonstrated by the bidder and verified by the BOO at the time of installation assessing the ground situation.**
	(b)	Tampering Alarm	Required	Checked by BOO physically
	(c)	Network Disconnect	Required	Checked by BOO physically
19.	Dust/ Water Protection Level		IP66	System performance to be demonstrated by the bidder and verified by the BOO
20.	Dual Stream		Dual H.264 Streams or better	System performance to be demonstrated by the bidder and verified by the BOO
21.	Automatic White Balance		Required	System performance to be demonstrated by the bidder and verified by the BOO
22.	Black Light Compensation		Required	System performance to be demonstrated by the bidder and verified by the BOO
23.	Network connectivity			
	(a)	Ethernet	IEEE802.3	External components will be checked physically by he BOOs with Specs.
	(b)	Connector	RJ-45	
	(c)	PoE+	IEEE802.3AT	

24.	Outdoor Enclosure	IP 66 Enclosure along with, anti-condensation, heater, Sunshield, Blower, Vandal proof compliance to IK10 or else compliance to Mil 810F:	External components will be checked physically by he BOOs with Specs.
25	IR illumination	Inbuilt (at least 60 m)	To be physically checked by the BOO
26	Onboard storage(Gb)	At least 64, memory card to be supplied.	To be physically checked by the BOO

IR PTZ Camera Specification

1	Image Sensor	1/2.8" CMOS Image Sensor (0.9071 centimeters)	To be physically checked by BOOs on Eye pierce as well as on external device. (Must produce real time picture)
2	Effective Pixels	1920(H) x 1080(V), 2 Megapixels	
3	Resolution	2MP	Firm to provide OEM data sheet in this regard
4	Focal Length	4.5mm~135mm	Firm to provide OEM data sheet in this regard
5	Optical Zoom	30x	Firm to provide OEM data sheet in this regard
6	Digital Zoom	16x	Firm to provide OEM data sheet in this regard
7	Pan Travel	0°~360° endless, Pan Speed: 0.1° ~ 200°/sec	Firm to provide OEM data sheet in this regard
8	Tilt Travel	-20° ~ 90° auto flip 180°, Tilt Speed: 0.1° ~120°/sec	Firm to provide OEM data sheet in this regard
9	Presets	300	To be checked physically by the BOOs
10	Preset Speed	Pan: 300° /s; Tilt: 200° /s	To be checked physically by the BOOs
11	Operating Temperature	-30°C ~ 60°C	To be checked physically by the BOOs
12	IR Range	200 mtr.	To be checked physically by the BOOs
	GENERAL		
13	Operating weather Conditions	-20 to 50□C (Relative Humidity:5to90%)	To be checked physically by the BOOs
14	Maximum Frame rate(fps)	At least 25	To be verified as per Specs sheet
15.	Display form at capability	White–hot & black –hot	To be verified as per Specs sheet
16.	Dust and water Protection	IP66 compliance	To be verified as per Specs sheet
17.	**Interface**	**ONVIF**	**To be verified as per Specs sheet**
18.	Onboard storage(Gb)	At least 64, memory card to be supplied.	To be verified as per Specs sheet
19.	Video streaming		
	Number	At least 2(dual)	To be verified as per Specs sheet

	Standard	H.264 or better	To be verified as per Specs sheet
20	Adjustments		
	Brightness	Required	To be verified as per Specs sheet
	Contrast	Required	To be verified as per Specs sheet
21	Sensor position display	Required	To be verified as per Specs sheet
22.	Outdoor Enclosure	IP 65 Enclosure along with, anti-condensation, heater, Sunshield, Blower, Vandal proof compliance to IK10 or else compliance to Mil810F:	Firms has to be submit national / international accredited lab certificate for the same.
	THERMAL SENSOR (CAMERA) OPTIONAL		
a)	General	(Un cooled Long Range Version)	To be physically checked by the BOOs.
b)	Ruggedness	Should be rugged for operations as per JS55555 or MIL Std 810 H (for high & low temperature, humidity, shock, vibration and Bump test) or better IP 66	Firms has to submit national / international accredited lab certificate for the same.
c)	Image	Have capability to produce real time picture	To be physically checked by BOOs on Eye pierce as well as on external device. (Must produce real time picture)
d)	Penetration	Penetrate darkness, haze and smoke	To be physically checked by the BOOs . Switch on the system in different conditions like full dark night , haze and smoke. Observe the imaze on external LCD/LED screen like full dark night , haze and smoke. For creating the smoke condition BOOs should use smoke candles.
		Immune to glare of searchlights.	To be physically checked by the BOOs. Switch on the search light and throw its beam towards HHTI in operational mode for 2 to 3 sec. System should work properly.
		Should be able to be fixed on mast or pole	To be physically checked by BOOs
2.	Technical Specification		
a)	Detector	Micro bolometer or better. Detector element pixel pitch 17 µm or better	Firm to provide OEM data sheet in this regard.
b)	Resolution	FPA 640 x 480 or better	Firm to provide OEM data sheet in this regard
c)	Spectral range	8- 14 µm	Firm to provide OEM data sheet in this regard
d)	Field of view	Wide- 8° x 6° (Minimum) Narrow- 4° x 3° (maximum)	To be physically checked by the BOOs (Tested on acceptance Test station of SIW BSF)
e)	Optical zoom	2x (min)	To be physically checked by BOOs

●	Digital zoom	4x or better	
f)	Ready time	1 minute or less	To be physically checked by BOOs
g)	Reticule	Inbuilt reticule for range estimation	To be physically checked by BOOs
h)	Focusing	Auto	To be checked by BOOs
i)	NUC	required	Firm to provide OEM certificate in this regard and to be physically checked by BOOs
j)	Polarity	Black hot and white hot should be available	To be physically checked by BOOs.
k)	Video output/control	All function- connector	To be physically checked by BOOs
l)	HHTI software/system	ONVIF compliant	To be checked physically by BOOs
3.	Operational features		
a)	Range (Human)	Detection: 1500 mtr (Minimum) Recognition: 750 mtr (minimum) Identification :250 mtr (minimum)	To be physically checked by BOOsDetection : Move a group of 03persons in camouflage uniformfrom a range of 1500 mtrs and move the both hand up & down. Then moveto group horizontally with the same action. Group of men should be recognized. Recognition :- Place 1 jawan in camouflage uniform at the range
b)	Vehicle	Detection:: 2000 mtrs (minimum) Recognition:: 1000 mtrs (minimum) Identification 500 mtrs For light motor vehicle	Detection ::- To be physically checked by BOOs Moving the vehicle in horizontal direction at 2000 mtr movement of vehicle to be detected. Moving the vehicle in horizontal at 1000 mtr and vehicle to be recognized.
c)	Operating temperature	-20° C to +55° C	Firm should submit the National/International Accredited lab certificate /report in respect of operating temp
d)	Storage temperature range	-30° C to + 60 ° C	Firm should submit the National/International Accredited lab certificate /report in respect of storage temp
e)	Power source	It should function on 110 volt to 270 v , 50 Hz AC mains and through UPS (back up time 30 minutes minimum)	To be physically checked by the BOOs. Connect the CA/DC adopted on 50 Hz variable AC mains supply and check the out-put voltage by varying the in-put voltage from 110 to 270 volts.
4.	Miscellaneous		
a)	User Manual	Operational manual , technical manual, operators detailed instructions, maintenance manual, inspections standards	Physically checked by the BOOs
b)	List of spare parts	Firm has to provide spare parts lists with parts no.	Physically checked by BOOs
c)	Training	Operator level training should be provided by firm	An undertaking submitted by the firm.

UPS power supply

Sr.No	Feature	Required Parameters	Trial Directives
1	Type	5KVA/10kVA/20kVA True Online Double Conversion UPS.1-Phase Input/1-Phase Output. Note: UPS Capacity according to site condition.	As per spec sheet to be verified by the BOO
2	Input Voltage	230VAC(+-10%&+-20%or better),Single Phase	As per spec sheet to be verified by the BOO
3	Input Frequency	50 Hz±5%	
4	Inverter type	1. High switching frequency with PWM (Pulse Width Modulation)	As per spec sheet to be verified by the BOO
		2. Use of IGB T as power switching devices	
5	Input Power Factor	≥0.98	As per spec sheet to be verified by the BOO
6	Output Voltage	230VAC±2% or better, Single phase	As per spec sheet to be verified by the BOO
7	Output frequency	50Hz ± 0.25% (Battery Mode)	As per spec sheet to be verified by the BOO
8	Output Power Factor	≥0.90	As per spec sheet to be verified by the BOO
9	Crest Factor	3:1or better	As per spec sheet to be verified by the BOO
10	Efficiency at full load	≥90%	As per spec sheet to be verified by the BOO
11	IR Range	200 mtrs	As per spec sheet to be verified by the BOO
12	Total Harmonic distortion	Less than ± 3% for Linear load	As per spec sheet to be verified by the BOO

13	Overload Ability	Minimum 1minute for 120% overload	
14	Battery Type	Sealed maintenance Free(SMF)	As per spec sheet to be verified by the BOO
15	Battery Backup	Minimum 30Minutes on full load	Physically checked by BOO
16	Noise level	<60dB at 1meter distance	As per spec sheet to be verified by the BOO
17	LCD/LED Indication	Mains ok, Low battery, On battery, Bypass, Error/Fault, Replace battery	As per spec sheet to be verified by the BOO
18	Operating Temp	0to45°C or better	As per spec sheet to be verified by the BOO
19	Relative humidity	20-90%non-condensing	As per spec sheet to be verified by the BOO
20	Metering Instruments	O/P Voltage, O/P frequency & Current, Battery Current, Input Frequency	As per spec sheet to be verified by the BOO
21	Communication	SNMP Card for Network Connectivity, status monitoring	As per spec sheet to be verified by the BOO
22	Protection	Output:ShortCircuit,Overload,OverVoltage,UnderVoltageatbatteryterminals	As per spec sheet to be verified by the BOO
		Input: Instant High Voltage Protection	As per spec sheet to be verified by the BOO
		Input Over/Under Voltage Cutoff	As per spec sheet to be verified by the BOO
		DC Over voltage &DC Under voltage.	As per spec sheet to be verified by the BOO
		Back-feed protection required.	As per spec sheet to be verified by the BOO
23	Cooling	Forced Air Cooled	As per spec sheet to be verified by the BOO
24	Certification	(i) ISO9001	As per spec sheet to be verified by the BOO
		(ii) CE&BIS	As per spec sheet to be verified by the BOO
		(iii) IEC/EN62040orequivalent	As per spec sheet to be verified by the BOO

IT INFRASTRUCTURE (HARDWARE AND SOFTWARE)

Active Items

L2 switch

SL. No.	Parameter	Specification	Trial Directives
1	Type	8 port Ethernet, Managed L2 POE+ switch with 2 SFP Uplink ports.	The bidder should show flawless communication between the master controller and field controller/energizer
2	Operation	The switch must provide wire speed Switching with Non-blocking full duplex performance.	The master controller should be IP based and should have at least 30000 events stored in case of any disconnection from the network or in case of server failure.
3	Interface	RJ45 Ports:8No's of 100/1000 Base T(X) SFP Uplink Ports:2No's of SFP port. Loaded with 2No's of 1G SM SFP LX modules of same OEM.	To be verified by the BOO physically as per spec sheet.
4	Performance	Switching bandwidth:5.6Gbps Forwarding Bandwidth2.8Gbps	To be verified by the BOO physically as per spec sheet.
5	Hardware	128 MBD RAM 160MB on board flash memory	To be verified by the BOO physically as per spec sheet.
6	Protocol features	100 Base-T 1000 Base-X STP/RSTP/MSTP IEEE802.1QVLAN POE+ Multicast	To be verified by the BOO physically as per spec sheet.

7	Software features	LLDP,MSTP, STP Port fast, ICMP Vlans, static IP, Trust Ingress DSCP, COS, Priority Port, port - security, IGMP querier, DHCP server SNMP v2/v3, SNMP traps, syslog, IGMP snooping, DHCP snooping, BPDU guard, Ether channel, Alarms, PoE capability, Smart port Macro, SPAN/Port Mirroring, Strom Control, Ether Net/IP(EDS)	To be verified by the BOO physically as per spec sheet.
8	Security features	SSH,SNMPv3,Port-Security,DynamicARPInspection	To be verified by the BOO physically as per spec sheet.
9	Environment Features	Operating temperature:-10to60°C Relative Humidity:5%to95%non condensing	To be verified by the BOO physically as per spec sheet.
10	Power Requirements	Power supply adapter to be supplied to power the switch from 220V AC 50Hz. Minimum power budget for POE+ 240W.	To be verified by the BOO physically as per spec sheet.
11	Standards	IEEE802.1D MAC bridges, STP IEEE802.1p Layer2COS prioritization IEEE 802.1q VLAN IEEE802.1s Multiple Spanning Trees IEEE802.1w Rapid Spanning Tree IEEE 802.1AB LLDP IEEE802.3ad Link Aggregation(LACP) IEEE802.310BASE-T specification IEEE802.3u100BASE-TX specification IEEE802.3ab1000BASE-T specification IEEE802.3z1000BASE-X specification	To be verified by the BOO physically as per spec sheet.

L3 SWITCH

SL. No.	Parameter	Specification	Trial directives

1	Type	1U rack mount, 24 SFP port Ethernet, L3 switch with 2SFP+Uplinkports. (as on requirement basis)	To be verified by the BOO physically as per spec sheet.
2	Operation	The switch must provide wire speed Switching with Non-blocking full duplex performance.	To be verified by the BOO physically as per spec sheet.
3	Architecture	• SFP ports: 24 No's of 100/1000 SFP ports. Loaded with 16 No's of 1G SM SFP LX modules of same OEM and 8No's of 1G copper RJ45SFP. Loaded with Copper 1G modules of same OEM • Uplink ports: 2 No's of 10G SFP+ ports. 2No'sof10G SMSFP+LR modules of same OEM as on requirement basis	To be verified by the BOO physically as per spec sheet.
4	Performance	• Forwarding rate:68.4Mpps • Switching band width:92Gbps	To be verified by the BOO physically as per spec sheet.
5	Hardware	• DRAM:4GB • FLASH:2GB	To be verified by the BOO physically as per spec sheet.
6	Protocol features	1000Base-T 1000 Base- XSTP/RSTP/ MSTPIEEE80 2.1QVLAN	To be verified by the BOO physically as per spec sheet.
		Unicast Routing: Static Routing,RIPV1/V2,OSPF,BGP,EIGRP Multicast Routing: PIM-DM,PIM-SM,PIM-SSM	To be verified by the BOO physically as per spec sheet.
7	Quality of service	QoS(IEEE802.1p)	To be verified by the BOO physically as per spec sheet.
8	Security features	IEEE802.1x,portsecurity,DynamicHostConfigurationProtocol(DHCP)SnoopingandGuard,DynamicARPInspection, Access Control Lists (ACLs),RADIUS/TACACS+,SNMPv3,HTTPS,SSH,	To be verified by the BOO physically as per spec sheet.

9	Environment Features	• Operating temperature:-5to45°C • RelativeHumidity:5%to90%noncondensing	To be verified by the BOO physically as per spec sheet.
10	Power Requirements	• Integrated redundant power supplies • Dual power supply adapter to be supplied to power the switchfrom220VAC50Hz	To be verified by the BOO physically as per spec sheet.

PIDS Server

Sl No.	Specification	Trial directives
1	Processor :Intel Xeon Silver 4200 series,min2.1GHz processor base frequency or better	All components are to be verified physically by the BOO as per computer properties/system informations after installation, specification sheet and peripherals as per QRs/Specs.
2	Number of core:2x8(16)core	-do-
3	RAM:64 GBDDR4	-do-
4	HDDforOS:2x600GBSAS	-do-
5	HDDforapp:1TB	-do-
6	OS: Windows/RHEL latest OS	-do-

VMS Server

S.No.	Specification	Trial directives
1	Processor: Intel Xeon Silver 4200 series,min2.1GHz processor base frequency or better	All components are to be verified physically by the BOO as per computer properties/system informations after installation, specification sheet and peripherals as per QRs/Specs.
2	Numberofcore:2x8(16)core	
3	RAM:64 GBDDR4	

4	HDDforOS:2x600GBSAS	
5	HDDforapp:1TB	
6	OS: Windows/RHEL latest OS	
7	**Blacklisting feature to be added to identify the threat duly analyzing the photographs/video fed in software (OPTIONAL)**	➢ **AI enabled camera with visual analytics/facial recognition needed for access control and distinct storage.** ➢ **Blacklisting features can be added to identify the threat duly feeding their photographs/videos in software.** ➢ **To be checked by BOO**

Video Recording Server

S.No.	Specification	Trial directives
1	Processor :Intel XeonSilver4200 series,min2.1GHz processor base frequency or better	All components are to be verified physically by the BOO as per computer properties/system information after installation, specification sheet and peripherals as per QRs/Specs.
2	Numberofcore:2x8(16)core	
3	RAM:64 GBDDR4	-do-
4	HDDforOS:2x600GBSAS	-do-
5	HDD for app:1TB	-do-
6	OS: Windows/RHEL latest OS	-do-

NTP SERVER (OPTIONAL)

S.N	TECHNICALSPECIFICATIONS:	Trial directives

1	GPS/GLONASSsatellitesupportedL1/L2/L5Frequencyband,RackMountType, NTP SERVER to maintain and display IP based NTP time across the network containing L2/L3 switches shall be supplied by the bidder. NTP server shall act as a master clock with accuracy better than 50 ms in the network towhichotherclientsshallinterconnectoverthenetworkusingNTPclientsoftware on Windows or Linux OS and synchronize periodically. It shall provide diagnostic and status ports/indications for automatic/manual intervention	All components are to be verified physically by the BOO as per computer properties/system informations after installation, specification sheet and peripherals as per QRs/Specs.
2	The GPS NTP Server shall be equipped with two independent network interfaces(10/100 Mbps Ports).	-do-
	TECHNICAL FEATURES:	-do-
3	NTP Server shall support all the required networking protocols.	-do-
4	SNMPv3 support for status and configuration and SNMP Trap messages	-do-
5	The GPS NTP Server shall be supplied and configured by bidder, with a GPS Antenna/Converter Unit and standard RF/ RG58 coaxial cable, as per site requirement.	-do-

Server for ESPF/AAA domain controller, AD, patch management

S.No.	Specification		Trial directives
1	Processor: Intel Xeon Silver 4200 series,min2.1GHz processor base frequency		All components are to be verified physically by the BOO as per computer properties/system information after installation, specification sheet and peripherals as per QRs/Specs.
2	Numberofcore:2x8(16)core		-do-
3	RAM:64 GBDDR4		-do-
4	HDDforOS:2x600GBSAS		-do-
5	HDDforapp:1TB		-do-
6	OS: Windows/RHEL latest OS		-do-

NAS storage

Sl.No	Parameter	Minimum Specifications (30 days back up)	Trial directives
1.	Solution /Type	NAS storage	All components are to be verified physically by the BOO as per computer properties/system information after installation, specification sheet and peripherals as per QRs/Specs.
2.	Size	100TB or more	-do-
3.	Hardware Platform	Rack mounted form-factor Modular design to support controllers and disk drives expansion	-do-
4.	Controllers	At least 2 Controllers inactive/active mode The controllers/Storage nodes should be upgradable seamlessly, without any disruptions/downtime to production workflow for performance, capacity enhancement and software/firmware upgrades. The proposed solution must supports calling upto minimum 4 controllers in	-do-
5.	RAID support	• Should support various RAID 5 Levels	-do-
7.	Redundancy and High Availability	• The Storage System should be able to protect the data against single point of failure with respect to hard disks, connectivity interfaces, fans and power supplies	-do-

8.	Management software	• All the necessary software (GUI Based) to configure and manage the storage space, RAID configuration, logical drives allocation, snapshots etc. Are to be provided for the entire system proposed. • Licenses for the storage management software should include disc capacity/count of the complete solution and any additional disks to be plugged in the future, upto max capacity of the existing controller/units. • A single command console for entire storage system. • Should also include storage performance monitoring and management software • Should provide the functionality of proactive monitoring of Disk drive and Storage system for all possible disk failures • Should be able to take "snapshots "of the stored data to another logical drive for back up purposes	-do-

WORKSTATION

Sl.No	Features	Description:	Trial directives
1	Processor	Intel Core I-7 Processor, latest generation	All components are to be verified physically by the BOO as per computer properties/system information after installation, specification sheet and peripherals as per QRs/Specs.
2	Memory	Min.16GB,DDR-3orbetter	-do-
3	GraphicCard	Minimum 4GB on-board video memory	-do-
4	HDD	500GB or better;SATA@Min.7500 RPM–8 MB Cache	-do-

5	Ethernet	Dual Port Gigabit Ethernet, Auto Negotiating Ethernet controller	-do-
6	OS	Windows 10 Professional (64bit)/Latest Windows OS/Linux	-do-
7	Monitor	21"LED,UltraHDDisplay	-do-
8	Speakers	Shall have built-in/external speakers	-do-

KVM WITH CONSOLE (OPTIONAL)

SN	Specifications		Trial directives
1.	Minimum Connections	8Server	All components are to be verified physically by the BOO as per computer properties/system information after installation, specification sheet and peripherals as per QRs/Specs.
2.	System Cable	Cat5/Cat6	-do-
3.	Port Selection	Hotkeys, User Interface	-do-
4.	Power Supply	230 V AC	-do-
5.	Mounting	Rack Mountable in server rack.	-do-
6.	Keyboard, Mouse Support (with/without)	PS/2,USB	-do-
7.	Video	The video shall be displayed at the user stations without any distortion/skew etc.	-do-
8.	Security	Password/ Multiple user profiles Allowing/disallowing access of particular machines to a user profile.	-do-
9	User to Switch Distance	30Meters or less	-do-
10	Servers to Switch Distance	15Meters or less	-do-

	Computer connections(CPU End)		
1	Video Type	All components are to be verified physically by the BOO as per computer properties/system information after installation, specification sheet and peripherals as per QRs/Specs.	-do-
2	Keyboard and Mouse Type	PS/2 or USB as required	-do-
3	Mounting	The device shall be fixed with proper fixtures in the server rack.	-do-
	User consoles		
1	Video Type	DVI or VGA as required	-do-
2	Keyboard and Mouse Type	PS/2 or USB as required	-do-
3	Mounting	Suitable mounting arrangement shall be provided.	-do-

Desktop PC

Sl.No.	Technical Features	Specification	**Trial directives**
1.	Processor	10thGeneration Intel core i5 (8MCache,upto 3.6GHz)or latest	All components are to be verified physically by the BOO as per computer properties/system information after installation, specification sheet and peripherals as per QRs/Specs.
2.	Chipset	Intel latest chipset	-do-
3.	Operating System	Microsoft Windows 10 or latest	-do-
4.	Memory	Minimum16GBDDR4 expandable up to 32GB	-do-
5.	Communication	LAN Integrated 10/100/1000, GbE Network connection	-do-
6.	Ports(Minimum)	USB 2 /3 – HDMIRJ-45DisplayPort	-do-

7.	Optical disc drives	CD/DVD + RW	-do-
8.	Storage	Minimum1TB@7200rpmSATAHDD or higher	-do-
9.	Graphics	Minimum1GB Dedicated Graphics Card	-do-
10.	Power supply unit	180W up to 85%efficient	-do-
11.	Peripherals	Wireless keyboard, Wireless Mouse, 22" Monitor, Display Cable	-do-

Display

SN	Item Description	Specifications	Trial directives
i	Screen Size	55"	OEM may provide necessary certificate in this regard. BOO will check physically.
ii	Video Resolution	FullHD1920x1080	-do-
iii	Brightness	500 Nits	-do-
iv	Contrast Ratio	4000:1	-do-
v	Viewing angle(H/V)	178 Degree	-do-
vi	Response Time	6ms	-do-
vii	Digital Input	HDMIx2, DVI-I,DP	-do-
viii	Analog Input	Through DVI-I	-do-
ix	USB Port	2	-do-
x	External Control	RJ45	-do-
xi	Display Control	Through remote	-do-
xii	Regulatory Approvals/ Certifications	UL/CE/IEC/BIS for safety, CE/FCC for EMC & Immunity	-do-

PASSIVE ITEMS

42 U RACK

SN	Parameter	Specifications	Trial directives
1	Basic Structure	19" floor standing rack. Width = Standard 19".Depth= 1200mm. Height = 42U. The colour of rack will be black.	OEM may provide necessary certificate in this regard.
2	Doors	The front door shall be fully perforated, shall have hinges handles and locks.	BOO will check on ground as per specification
		The rear door shall be fully perforated, shall have hinges handles and locks.	BOO will check on ground as per specification
		The two side panels shall have quick release fasteners/latches.	BOO will check on ground as per specification
		Rack shall have proper ventilation.	BOO will check on ground as per specification
3	Blanking plates	Blank spaces(on front side)shall have 1U blanking plates fill up all the remaining gaps.	BOO will check on ground as per specification
4	Accessories	Additional anti-vibration pads/mounts accessories. Four heavy duty, casters wheels With lock arrangement shall be provided, cable manager.	BOO will check on ground as per specification
5	PDU	Rack shall have minimum two PDU with circuit breaker(220V1phase50Hzinput).Each PDU Shall at least10No'sof5A/15A sockets of Indian type vertical mount.	BOO will check on ground as per specification

JUNCTION BOX

SN	Technical Specifications	Trial directives
1	IP65 Rating	OEM may provide necessary certificate in this regard.
2	Width: 19" ,Height: 9U, Depth: 600mm or better	Will be checked by BOO physically
3	CRCA Steel with min1.5mm gauge	-do-

4	The Junction Box must have Proper Powder Coating 80-120 micron required. However better method may be deployed	-do-
5	Lock with Key	-do-
6	Suitable Fastener with Cage Nuts(Approx20Nos.)	-do-
7	Light Grey Colour	-do-
8	Gasket–Polyurethane	-do-
9	Round off of all sharp edges	-do-
10	PDU with min 6 Socket, MCB, SPD, earthing cable for body earthing to be provided.	-do-

Cat 6 Cable (indoor)

Sl. No.	Parameter	Technical Specification	Trial directives
(a)	Cable	04 – Pair, unshielded twisted pair (UTP), of 23 AWG solid conductors with a PVC jacket and complying with TIA/EIA-568-B.2-1, Category 6 and ISO 11801 Class E standards.	OEM may provide necessary certificate in this regard. Physically checked by BOO
(b)	Electrical Characteristi cat20C	Conductor DC resistance (Max): 9.38/100mMutualcapacitance:5.6nF/100m WorstCasecableskew:45ns/100m	OEM may provide necessary certificate in this regard. Physically checked by BOO
(c)	Separator	The cable should have a Tape/Star fill separator to separate conductor pairs.	OEM may provide necessary certificate in this regard. Physically checked by BOO

Cat 6 Cable (Outdoor) Armored

Sl. No.	Parameter	Technical specification	Trial directives
(a)	Standard	AS per ISO/IEC11801requirements	OEM may provide necessary certificate in this regard. Physically checked by BOO

(b)	Insulation	HDPE insulation	Will be checked by BOO physically
(c)	Core	Deleted	Will be checked by BOO physically
(d)	Jacket	HDPE Jacket	Will be checked by BOO physically
(e)	Cable	04-pair, Shielded twisted pair(STP),of 23AWG solid conductors. armored	Will be checked by BOO physically
(f)	Electrical Characteristic At 20 C	Conductor DC resistance(Max):9.38Ω100m	Will be checked by BOO physically
(g)	Separator	The cable should have a Tape/Star fill separator to separate conductor pairs.	Will be checked by BOO physically

OFC Cable

SN	Specification	Trial directives
1	12 Core SM Armoured OFC Cable	OEM may provide necessary certificate in this regard. Physically checked by BOO
2	Multiple tubes	
3	Compliant to ITU-TG.652.D,TIA/EIA568,ISO11801,IEC60794	OEM may provide necessary certificate in this regard. Physically checked by BOO
4	9/125Micron	-do-
5	Cable OD 8.5 MM or More	-do-
6	Corrugated Steel Tape Armouring	-do-
7	Tensile Strength–1500N	-do-
8	Compatible to Coastal Environment	-do-

Fiber Patch Panel

S N	Specifications	Trial directives

1	12 Ports	OEM may provide necessary certificate in this regard. Physically checked by BOO
2	Fully Loaded with Adaptor/Coupler, Pigtails etc	-do-
3	LC Duplex SM Adaptor	-do-
4	Material–Cold Rolled Steel	-do-
5	All 12 Port populated with LC Pigtails	-do-
6	Sliding Type LIU/Adaptor Plate	-do-
7	Support for1G and 10G Speed	-do-
8	All mounting Accessories to be provided	-do-
9	Compatible to Coastal Environment	-do-

Cat6 Patch Panel

SN	Parameter	Specifications	Trial directives
1	Type	Cat-6,12-Port,modular UTP Connectors	OEM may provide necessary certificate in this regard. Physically checked by BOO
2	Material type	Fire retardant cold rolled steel(CRS)	-do-
3	Jacks	Copper plated	-do-
4	Panel	Powder coated steel	-do-
5	Port identification	Front &Rear labeling for port & panel identification	-do-
6	Accessories	Supporting Accessories for Integrated bend – limiting strain relief for cable entry	-do-

7	Temp range	0°C to+50°C	-do-

Pole for Fixed camera

Sl. No	Parameter	Minimum Specifications	Trial directives.
1.	Pole type	Hot Dip Galvanized after Fabrication with Silver coating of 86 micron as per IS:2629; Fabrication in accordance withIS-2713(1980)	Will be checked by BOO physically as per QRs/ specification.
2.	Height	7 Meters(or higher),as -per-requirements for different types of cameras & Site conditions for stand alone system and 3 mtr for concrete boundary wall	Will be checked by BOO physically as per QRs/ specification.
3.	Pole Diameter	Min. 10 cm diameter pole (Master System Integrator(MSI)/Implementation Agency (IA)shall choose larger diameter for higher height)	Will be checked by BOO physically as per QRs/ specification.
4.	Cantilevers	Based on the location requirement suitable size cantilevers to be considered with the pole	Will be checked by BOO physically as per QRs/ specification.
5.	Bottom base	Minimum base plate of size30x30x1.5cm	Will be checked by BOO physically as per QRs/ specification.
6.	Mounting facilities	To mount CCTV cameras, junction box,etc.	Will be checked by BOO physically as per QRs/ specification.
7.	Pipes, Tubes	All wiring must be hidden, through tubes/pipes. No wires shall be visible from outside.	Will be checked by BOO physically as per QRs/ specification.
8.	Protection	Lightning arrester shall be provided, to protect all field equipment mounted on pole.	Will be checked by BOO physically as per QRs/ specification.

Pole for PTZ Camera

Sl. No	Parameter	Minimum Specifications	Trial directives.
1.	Pole type	Hot Dip Galvanized after Fabrication with Silver coating of 86 micron as per IS:2629; Fabrication in accordance with IS-2713(1980)	Will be checked by BOO physically as per QRs/ specification.
2.	Height	9 Meters(or higher),as -per-requirements for different types of cameras & Site conditions	Will be checked by BOO physically as per QRs/ specification.
3.	Pole Diameter	Min. 10 cm diameter pole (Master System Integrator(MSI)/Implementation Agency (IA)shall choose larger diameter for higher height)	Will be checked by BOO physically as per QRs/ specification.
4.	Cantilevers	Based on the location requirement suitable size cantilevers to be considered with the pole	Will be checked by BOO physically as per QRs/ specification.
5.	Bottom base	Minimum base plate of size 30x30x1.5cm	Will be checked by BOO physically as per QRs/ specification.
6.	Mounting facilities	To mount CCTV cameras, junction box, etc.	Will be checked by BOO physically as per QRs/ specification.
7.	Pipes,Tubes	All wiring must be hidden, through tubes/pipes. No wires shall be visible from outside.	Will be checked by BOO physically as per QRs/ specification.
8.	Protection	Lightning arrester shall be provided, to protect all field equipment mounted on pole.	Will be checked by BOO physically as per QRs/ specification.

Power Cable

- 3CORE,2.5SQMM,armored, FRLSH cable
- 4CORE,16 SQMM, armored, FRLSH cable

SOFTWARE

Video Management Software(VMS)

SN	Specifications	Trial directives.
1	The VMS shall have server-client architecture	Will be checked by BOO physically as per QRs/ specification. OEM will submit necessary certificates.
2	VMS shall have the capability of accepting a range of digital video compression video stream includingMPEG4 and H.264.VMS shall have the capability of providing video processing for high resolutions; Including Full HD frames minimum frame 25FPS.	-do-
3	It must be capable of integration with Video Analysis software &IP cameras	-do-
4	VMS shall include full Settings Database back up for fast recovery.VMS Shall support System log of integral self-diagnostic alarm and event.	-do-
5	VMS shall enable reports of Log audit trail of user login, log out and Archiving functions integral reporting application with advanced sorting filters.	-do-
6	User data base with login, password and contact details	-do-
7	User profiles with configurable permissions and access settings.	-do-
8	Integration with many PTZ protocols, virtual or joystick control of all PTZ Cameras	-do-
9	VMS shall support drag and drop functionality from and to the Operator main screen.	-do-
10	VMS shall support multi monitor support.	-do-
11	VMS shall support video export to AVI format - to be played with Any Windows Media Player, with no software installation as a prerequisite.	-do-

12	Views and layouts • Different standard (Up to 50) pre-defined layouts for quick view starting from1x1,2x2,1+2upto10x10. • Support for Images, HTML pages, Maps, • Camera Drag and drop for easy viewing • Supports Public, Private and grouping of views. • Allows Full Screen View • View of Real Time alerts and events • live video and recorded video playback • Real time status display • PTZ Control, optional joystick control	-do-
13	Recording • 24x7 recording of Audio and Video up to Full HD(1080p) • Supports Manual, Continuous, on Event and Scheduled recording Modes per camera • pre-alarm and post-alarm recording with duration configured • Resolution and frame rate can be configured on a per camera basis • Proprietary water marked recordings • Streaming and recording server supported for rendering additional streams for recording and live viewing • Multi-monitor support • Video Archiving	-do-
14	Notifications • All events logged in the software • Filter for notifications and alerts	-do-
15	Alarms Alarm on any event or system failure.	-do-

[redacted]twork Management System(NMS)

SN	Specifications	Trial directives.
1	Automatic topology discovery and creation of network maps for Layer3 And layer 2 network, All the available VLANS	Will be checked by BOO physically as per QRs/ specification. OEM will submit necessary certificates.
2	Should have powerful administration control	-do-
3	Details performance monitoring and management	-do-
4	Should have extensive fault management capabilities with Real time Event and Alarm notifications, System Logs and Audit trials	-do-
5	Automatic Detection of configuration changes for easy troubleshooting and Isolation	-do-
6	Should have extensive centralized troubleshooting tools in built	-do-

PIDS Software

SN	DESCRIPTION	Trial directives.
1	It must ensure situational awareness by displaying relevant data in video wall	Will be checked by BOO physically as per QRs/ specification. OEM will submit necessary certificates.
2	It shall present a Common Operating Picture(COP)of the real time events in The area of purview.	-do-
3	PIDS software must be based on open multiple client–server architecture with TCP/IP protocol.	-do-
4	PIDS software has to be scalable for adding additional workstations and servers.	-do-
5	PIDS software must provide a real time display and control of all the security systems	-do-
6	All the users shall have independent user names and password protection and shall be able to operate from different workstations using the same user name and password.	-do-

7	System must support a comprehensive API(Application Programming Interface) or SDK(Software Development Kit) apart from Industry standard protocol to allow interfacing and integration with existing systems as well as subsystems being supplied as part of scope of this specification.	-do-
8	The system shall automatically log and time / date-stamp all events within the system including intruder alarm set/unset events, operator actions and activity.	-do-
9	The central control shall be fitted with a real-time server clock, the accuracy of which shall be preserved over the period of main power supply failure. Synchronization between the central control and field energizer connected Field Controller Controller's shall be automatic and not require operator intervention.	-do-
10	All operator activity including log on, logoff, alarm response messages and any alteration of system data files.	-do-
	- All alarm monitoring activations.	-do-
	- All communications link failures.	-do-
11	The Software shall provide entry and exit for the setting (arming) and unsetting (disarming) of alarms.	-do-
12	It shall be possible to view all alarm events by clicking on interactive Site Plan icons	-do-
13	All alarm events should be time-stamped	-do-
14	Operators shall be required to complete two-stage alarm processing as:	-do-
	- Acknowledge Alarm.	
	- An Acknowledged alarm shall remain in the alarm stack and be easily identified as having been acknowledged	-
15	Two factor authentication system must be there	-do-
16	False alarm ratio of system must be not more than 5%	-do-
17	Instant pop up/notification in case of any alarm of event with live video footage alongwith 10 seconds of pre and post event	-do-

6 **EARTHING :**

SEPARATE EARTH PIT FOR POLE AND LIGHTNING ARRESTER.

SN	Items	Trial directives.
1	Earthing rod	Will be checked by BOO physically as per QRs/ specification. OEM will submit necessary certificates.
2	Earthing strip for LA and pole earthing	-do-
3	Chemical compound for earthing	-do-

Air-conditioned control room (for server/display/UPS etc) will be in scope.

END OF DOCUMENT

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Shri Rohit Bansal, A/C
SSB

Shri Ankit Shukla, A/C
CRPF

Shri Shashank Shukla, A/C
CRPF

Shri Sanjeev Kumar Singh, 2-I/C
CRPF

Shri Shahnwaz Khan, DIG
CRPF

Smt Sonal V. Misra, IPS, IG
CRPF

Shri Rajeev Bhatt , PSO
BPR & D

Shri Sandeep Khirwar, IPS, ADG
CRPF

APPROVED / NOT APPROVED

DIRECTOR GENERAL
BORDER SECURITY FORCE