No. P-63013/33/2019/Mod-I/BSF 1199-1208
Government of India Ministry of Home Affairs
Directorate General Border Security Force
(Prov Dte: Mod Cell)
(Fax: 011-24367683)

Block No.10, CGO Complex,
Lodhi Road, New Delhi-03

Dated, the 26 June 2019

To,

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

Sub: **Forwarding of QRs and Trial Directives of Equipment/ accessories for CCTV surveillance system**

Find enclosed herewith QRs and Trial Directives of **"Equipment/accessories for CCTV surveillance sytem"** as per appendix 'A' and 'B' duly finalized by Sub group of technical experts and approved by DG BSF for your information and necessary action please.

Encl : As above

(Satish Chandra Budakoti)
Dy. Inspector General (Prov)
FHQ BSF, New Delhi

Copy to :-

1. SO (IT), North Block MHA, New Delhi : You are requested to host the above QRs and TDs on MHA website please.

2. IT Cell FHQ BSF, New Delhi : You are requested to host the above QRs and TDs on BSF website please.

3. Comn & IT Dte Eqpt Section : W.r.t. your UO No. 1329 dated 14th May 2019.

IG (Comn & IT)....
DIG (C-Eqpt)....
AC (Min)/Section Officer (Comn)....

Directorate General Border Security Force
(Prov Dte: Mod Cell)

Expression of Interest

Dy. Inspector General (Ord)
HQ DG BSF, Prov Dte (Ord Sec)
Block No. 10, CGO Complex
Lodhi Road, New Delhi
(Tele/Fax No. 011-24367683)
Mail id: comdtord@bsf.nic.in

The Sub-group of technical experts on surveillance equipment constituted by MHA vide their letter No. IV-17017/18/2001-Prov-I dated 05 Jul 2002 held its meeting at BSF HQ on 15th May 2019 and 31st May 2019 to formulate the QRs of **Equipment and accessories for CCTV surveillance system**.

After detailed deliberation the referred Sub-group of technical experts has formulated the QRs and TDs of **Equipment and accessories for CCTV surveillance system** on 31st May 2019 which are as under:-

a) QR OF 4 Port POE with 2 SFP ports and 2 SFP modules (Unmanaged)

S.No	Specifications
1	Rugged outdoor Din Rail mountable switch with **Ethernet ports 2 or more** with suitable AC PSU; Support bi-directional SFP optical for seamless integration and dual power inputs.
2	POE + Standards should be in accordance with IEEE 802.3af and IEEE 802.3at standards with PoE budget of 240W or more. Should support HPOe 60W to power PTZ
3	The Switch must support IEEE 802.17 or equivalent Ring resiliency / Ring protection technology for Sub 50Ms convergence time
4	L2 Features: IEEE 802.3ac, IEEE 802.3az, IEEE 802.1v, IEEE 802.1Q, IEEE 802.1s, IEEE 802.1w, IEEE 802.1D,VRRPv3 and shall be upgradable to support RIP, OSPF for IPv4 and IPv6 based on network requirements.
5	Multicast For Video: IGMP snooping v1 , v2 and v3, MLD snooping (v1 and v2)
6	Security: Should support ACLs, DHCP snooping, IEEE 802.1x based port authentication, DHCPv4 (Snooping, server/ client), RADIUS, TACACS+, SSL, SSH, SSLv3, Port Mirroring, NTP, sflow/netflow

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7	Wire speed traffic classification with low latency essential for real time streaming and real time Video and voice applications
8	Management: SNMPv1, v2c and v3, Web GUI, CLI, IPv6 management features on open standards
9	Should support Unidirectional Link Detection (UDLD) or equivalent to detect unidirectional links caused by incorrect fibre optic wiring or port faults and disable on fibre optics interfaces
10	Operating Temperature: Min of -40 to 70 Degrees or better
11	Humidity: 5% to 95% or better
12	Certifications: Shock EN60068-2-2/ EN60068-2-3/Vibration EN60068-2-6/ NEMA TS2/EMC : EN61000-4-2 (ESD)/ EN61000-4-3 (RS)/ EN61000-4-4 (EFT)/ EN61000-4-5 (Surge)/ EN61000-4-6 (CS)/ EN61000-4-8 EN61000-4-11
13	UL/IEC/EN 60950-1; ROHS Compliance; Min. IP30 Enclosure Rating, DIN Rail Mounting **(Optional)**
14.	Device management(Optional)- Graphical Monitoring (Topology view, Floor view, System (iDMS) Map view), find my switch, Traffic Monitoring, Trouble shooting

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(Rajnish Kumar), PSO (E)
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(Surender Singh)DC
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BORDER SECURITY FORCE

6) QR of Junction Box

SNo.	Specification
An IP66 Rated Junction Box with following as minimum requirement	
1.	Frame Enclosures in sturdy sheet steel construction consisting of a 1.5mm sheet steel frame folded from one piece and welded, with All-round protective channel on the door aperture. Cutout with Gland plates on Top sides for cable entry purpose.
2.	Enclosure Material CRCA Sheet steel
3.	Surface finish Powder-coated
4.	Colour Nano Ceramic Coated, electro-dipcoat primed to 20 microns and powder coated with Textured polyester RAL 7035 to 80 to 120 microns
5.	Dimension (minimum) 300 X 400 X 210 (mm)
6.	IP Protection IP66 (Certificate to be enclosed)
7.	Paint Electrophoretic Powder quoting:
8.	Standard and Certificates Regulatory Standard Compliance: IP66 to EN60529 , ISO 9001, 14001, comply with EIA 310 ,DIN 41494
9.	Supply includes:
a	6 Core Fiber Splice Tray,
b	2 Pole 16Amp MCB
c	Terminal Blocks

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c) **Network Video Recorder (NVR)**

S. No.	Parameter	Specification
i.	Channels	64 Nos IP Channel
ii.	Max incoming	**640 Mbps or better**
iii.	Supported camera	ONVIF
iv.	Video Output	1 HDMI/I VGA/TCP/IP
v.	Display resolution	3840x2160, 1920x1200,1920x1080,1680x1050,1600x1200
vi.	Display speed	Upto 1920 ips
vii.	Digital zoom	X2-X12
viii.	Max throughput	**4k (UHD) resolution with 30 frames/sec (Maximum)**
ix.	Recording resolution	upto 12 MP (depending on IP camera)
x.	Encoding Mode	CBR,VBR
xi.	Compression	H.265, H.264
xii.	Recording Mode	Time-Lapse, Event,Pre-Event, Panic Alarm In, Audio Detection , Trip –Zone, Tampering
xiii.	**Trigger events with suitable analytics**	**Video loss, text-in, ANPR,FRS at respective interface (as per requirement)**
xiv.	Performance	16ch full HD synchronous playback time-lapse , event log. Thumbnail
xv.	Search Mode	Motion, text in
xvi.	**Digital zoom**	**X2-x12/SATAX4/SATAX8,eSATAx1 (As per project requirement)**
xvii.	HDD	(upto 10 TB capacity for each disk), RAID 1,5/6, 10 supported
xviii.	Total capacity	4x4 (External)
xix.	Client connection	Gigabit Ethernet (client)x1
xx.	Video in connection	Gigabit Ethernet (video in) x3
xxi	Remote data export	Yes, Email (attach clip)(cbf) (,call back to
xxii	Event notification	Notification (mobile)
xxiii	Redudancy support	10:01
xxiv	Two way audio	Yes, Local (NVR) :1 RCA/1RCA+1HDMI
xxv	Audio in/out	IP camera:64/64 (depending on IP)
xxvi	Alarm in/out	Local (NVR):4/1 IP camera: 64/64
xxvii	Alarm reset in	1
xxviii	Serial interface	RS232 (terminal block), RS 485
xxix	USB	USB 2.0X2,USB 3.0X1, mouse control , network remote keyboard , front
xxx	**User interface**	**Button (panic)**
xxxi	**Operating system**	**Embedded Linux/windows**

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xxxii	Chasis	Rack type
xxxiii	Working temp	0-40 degree centigrade
xxxiv	Operating humidity	10-90%
xxxv	Power input	Ac 100-240 V (redundant SMPS)

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QRS OF OFC 6 CORE (ARMOURED)

S/No	SPECIFICATION
(A) Optical Fiber Sensor Cable:	
1	Loose Tube jelly filled Multi tube design Armored optical Fiber cable
2	Single Mode : (ITU-T Rec. G652D) Fiber
3	Attenuation : At 1310nm > 0.38 dB/Km
4	Attenuation : At 1550 nm < 0.25 dB/Km
5	Core Diameter : 9/125/250μ m
6	Clad Diameter : 125 + 1.0 μ m
7	Clad non circularity : < 1.0%
8	Coating Diameter : 245 + 10 μ m
9	Chromatic Dispersion : At 1550 nm < 18.0 ps/nm.km
10	Zero Dispersion wave length : 1300 ~1324 nm
11	Zero Dispersion slop : < 0.092 ps/nm2.km
12	Cut-off Wavelength : < 1320 nm
13	Polarization Mode Diameter : < 0.2 ps/root km
14	Mode Field Diameter : At 1310 nm 9.3 + 0.5 μ m
15	Fiber Identification: Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Pink & Natural.
16	No. of fibers : 06F
17	Moisture Barrier: Single layer of water swellable tape / Polyester Tape applied longitudinally.
(B) Strength:	
1	Type (Outer Jacket) : 2# Steel wire /FRP RODs
2	Type (Peripheral) : Aramid Yarn
(C) Mechanical and Environmental:	
1	Max Tensile Strength : 3500 Newton
2	Crush Resistance :Newton 4000/10 cm
3	Minimum Bending radius : 20 x Diameter
4	Operating Temperature : -30°C to +70°C

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e) QR OF SOFTWARE FOR INTEGRATION OF CAMERAS WITH SDK/API WITH VMS, 2.5D MAPS, HYPERLINK, VA-TRIPWIRE & ZONE ENTRY EXIT

Sr. No.	Specifications
1	**REQUIREMENT:**
	The requirements VMS System shall be as below:
1.1	**Management Software:**
1.1.1	This shall be a highly scalable enterprise level software solution. It shall offer a complete video surveillance solution that will be scalable to required numbers of cameras that can be added on a unit-by-unit basis.
1.1.2	The Management Software shall be licensed and shall operate on open architecture and shall require no proprietary IT hardware.
1.1.3	The Management Software shall allow for video to be streamed on workstation in Matrix or on a video wall.
1.1.4	The user with administrative rights shall create clients (users) and give access to the software client application based on predefined user access rights.
1.1.5	The system shall allow the recording, live monitoring, playback of archived video and data simultaneously.
1.1.6	The software shall provide the following:
1.1.6.1	Several simultaneous live picture connections of camera in network.
1.1.6.2	Configuration of monitoring situation (2 Dimensional Multi-Level site maps).
1.1.6.3	Programming of alarm-triggered automatic events in various alarms configuration.
1.1.6.4	System set up with limited operation options for clearly defined surveillance tasks.
1.1.6.5	Programming of automatic recording events on a network recorder.
1.1.7	The software shall display dual H.264 video streams in real time simultaneously at frame rates ranging from 1 fps to 25 fps and resolution ranging Full HD to other HD/SD resolution.
1.1.8	Each camera's bit rate, frame rate and resolution shall be set independently from other cameras in the system, and altering these settings shall not affect the recording and display settings of other cameras.
1.1.9	The software shall provide automatic search and discovery of components of video surveillance system on the network which can be network cameras.
1.1.10	The software shall provide drag & drop functions on the system and also for set up of connection between cameras and monitors connected to one workstation.
1.1.11	The software shall allow:
1.1.11.1	Live display of cameras.
1.1.11.2	Live display of camera sequences.
1.1.11.3	Control of PTZ cameras.
1.1.11.4	Playback of archived video.
1.1.11.5	Retrieval of archived video.
1.1.11.6	Instant Replay of live video.
1.1.11.7	Use of site maps.
1.1.11.8	Configuration of system settings.
1.1.11.9	Configuration and programming of P/T/Z cameras, features like auto tours, presets etc.

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1.1.12	The software shall be able to do video recording on any of the following options - inbuilt hard disks on the server, direct attached storage boxes attached to servers, network attached storage, storage area network.
1.1.13	The software shall be capable of handling camera and alarm icons on area maps. The area map shall be configurable to pop up upon the receipt of an alarm received from a camera on the map. This can be on the same or other monitors on the PC.
1.1.14	The software shall be able to select the required recording based on the time recording was activated, the duration of recording, operator activated recording, event activated recording, scheduled recording.
1.1.15	The software shall provide a reporting utility for tracking for the following minimum options. Video clips and image snapshots shall be stored with reports for documenting events.
1.1.15.1	Alarms
1.1.15.2	Incidents
1.1.15.3	Operator logs
1.1.16	The software shall have the facility to export the desired portion of clipping of video from a desired date/time to another desired date/time on DVD/ on any client/ network storage device. Viewing of this recording shall be possible on authorized player which shall be provided by software manufacturer or in media player on computer utilizing a Window environment.
1.1.17	The Video Management servers shall not limit the number of network video recording servers which can be networked together to form video management and recording system.
1.1.18	The Video Management servers shall maintain a catalog of settings for all the clients, servers, and IP cameras & IP enabled cameras in the system. If Video Management servers & recording cannot be managed by single server, in such cases, additional server shall be provided.
1.1.19	The software shall enable the client to dynamically create connections between cameras and clients and view live or recorded video on Monitors.
1.1.20	The software shall provide the client seamless operation of all cameras and clients available in the system regardless of the actual connection to different Network Video Recording servers.
1.1.21	The software shall detect signal loss and have the capability to alert the systems administrator.
1.1.22	The software shall receive all incoming events (motion detection and triggered digital input and relay output) in the system and take appropriate actions based on user-defined event/action relationships.
1.1.23	The software shall create an audit trail of all events and user activities.
1.1.24	The Management Software shall support the following:-
1.1.24.1	The Management Software shall provide a full matrix operation of IP video to display monitors.
1.1.24.2	The Management Software shall have the capability of creating camera sequences with the following functionalities:
1.1.24.2.1	Each Sequence shall have capability up to hundreds of cameras.
1.1.24.2.2	Each camera in the sequence shall have its own individual dwell time, from 1 to 60 seconds.
1.1.24.2.3	Multiple users shall be able to view the same camera sequence simultaneously, not necessarily synchronized one with the other.

Contd.. 3/-

1.1.25	The software shall provide alarm management module.
1.1.25.1	The alarm management shall be able to set any monitor or groups of monitors to automatically display cameras in response to alarm inputs.
1.1.25.2	The alarm management shall be able to reset automatically or manually alarmed video.
1.1.26	It shall be possible to search for recordings in the software by camera, date and time. If a data and time is specified, playback shall commence from that date and time. It shall be possible to playback more than one camera simultaneously.
1.1.27	The software shall support at least 64 video streams concurrently. It shall support at least 4 monitors in one server/ workstation for displaying live video. It shall allow minimum 5 levels of user and alarm prioritization. It shall allow minimum 16 cameras to be replayed simultaneously.
1.1.28	The VMS shall be seamlessly integrated with Face recognition Software and have capability to receive the alerts.
1.2	**Graphic User Interface Client Software Features:**
1.2.1	The GUI software shall perform the following applications simultaneously without interfering with any of the storage server operations (recording, alarms, etc.):
1.2.1.1	Live display of cameras.
1.2.1.2	Live display of camera sequences.
1.2.1.3	Control of PTZ cameras.
1.2.1.4	Playback of archived video.
1.2.1.5	Retrieval of archived video.
1.2.1.6	Instant replay of live video.
1.2.1.7	Use of graphical controls (maps) and alarm management.
1.2.1.8	Configuration of system settings.
1.2.2	The GUI software shall support any form of IP network connectivity including LAN, WAN and wireless LAN technologies.
1.2.3	The GUI software shall support multicast and unicast video streaming.
1.2.4	The GUI software shall provide an authentication mechanism, which verifies the validity of the user.
1.2.5	The GUI software shall allow for live monitoring of video.
1.2.6	It shall enable view of 1 to minimum 16 video tiles simultaneously on a single digital monitor at 25 fps per camera.
1.2.7	The software shall provide on each of the digital monitors independently the following tile views:
1.2.7.1	Full screen
1.2.7.2	Quad view
1.2.7.3	4x4 (16-view)
1.2.7.4	The Software shall also support any other window division based on the site requirement.
1.2.8	The GUI software shall allow operators to view an instant replay of any Camera.
1.2.8.1	The operator shall be able to define the amount of time he wishes to go back from a timeline bar or through a custom setup period.
1.2.8.2	The operator shall be able to control the playback with play, pause, forward, and speed buttons.
1.2.9	The operator shall be able to choose and trigger following minimum action from a macro/site map:

Contd...4/-

1.2.9.1	View Camera in a video tile.
1.2.9.2	View map or procedure in a video tile.
1.2.9.3	Starting/stopping PTZ pattern.
1.2.9.4	Go to PTZ preset.
1.2.10	The GUI software shall provide management and control over the system using a standard PC mouse, keyboard and Digital keyboard.
1.2.11	The GUI software shall display all cameras attached to the system regardless of their physical location on the network.
1.2.12	The GUI software shall display all camera sequences created in the system.
1.2.13	The GUI software shall allow operators to control (pause/play, skip forwards, skip backwards) camera sequences.
1.2.14	The GUI software shall display all cameras, sequences and users in a logical tree.
1.2.15	The GUI software operator shall be able to drag and drop a camera from a tree of available cameras into any video tile for live viewing.
1.2.16	The GUI software operator shall be able to view the camera from a tree of available cameras into any video tile for live viewing.
1.2.17	The GUI software shall support graphical site representation (map) functionality, where digital maps are used to represent the physical location of cameras and other devices throughout facility.
1.2.18	The maps shall have the ability to contain hyperlinks to create a hierarchy of interlinked maps.
1.2.19	The GUI software operator shall be able to view the camera from a map into a video tile for live viewing in the same browser without opening a new browser.
1.2.20	The operator shall be able to click on an icon in a map to initiate PTZ camera preset, run PTZ pattern, view camera in an analog monitor or send an I/O stream.
1.2.21	The GUI software shall support digital zoom on a fixed camera's live video streams.
1.2.22	The GUI software shall support digital zoom on a PTZ camera's live video streams.
1.2.23	The operator shall be able to control Pan, Tilt and Zoom patterns of P/T/Z Camera.
1.2.24	The software shall be able to display video of cameras on 40 inch Large Format Display Monitors and Workstation Monitors.
1.2.25	The software shall allow the control of display from the client PC.
1.2.26	The operator from the GUI software shall be able to decide the screen layout and also the cameras that shall be displayed on the monitors.
1.2.27	The software shall support multicasting.
1.2.28	It shall be possible to switch the screen layout in response to an alarm.
1.2.29	The GUI Software shall support text superimposing the title and date & time on the video.
1.3	**Video Recording Software:**
1.3.1	Software shall support recording of H.264/H.265 video streams. It shall support recording of video and audio for all the channels.
1.3.2	Software shall support triplex applications, recording, re-play and backup simultaneously. It shall be compatible with windows Server OS or Linux for highest performance and reliability.

Contd-05/-

1.3.3	The software shall support absolute recording redundancy with X to N, N to X and N to N redundancy configurations for recording severs. This feature shall be provided, if specified by purchaser.
1.3.4	Software shall operate on open architecture and shall not require any proprietary hardware.
1.3.5	Software shall be able to record minimum 64 different video streams or more simultaneously. It shall be accessible from any client PC connected to the network.
1.3.6	Software shall provide network time server function to ensure the synchronization of the video servers and the recordings.
1.3.7	The servers shall be connected to the network so that these can be placed at any location which has network access.
1.3.8	The software shall be able to receive alarms of different types from equipment to start a recording. These alarms can be motion detection, video loss, unified picture and trigger input.
1.3.9	The software alarm recording shall support pre-and post-alarm periods. Both can be configured in duration.
1.3.10	The software shall provide a status of the available recording capacity.
1.3.11	**Fault Tolerant Recording:**
1.3.11.1	If software & server(s) operation are interrupted, like power disconnection and once the server(s) are restarted, these shall automatically resume recording of any cameras these were recording prior to the interruption.
1.3.11.2	The software shall support network fault-tolerant recording such that if the network connection between a video management server and video recording server becomes unavailable, for example through cable breakage, network congestion or WLAN interruption, the system operation shall automatically recover when the connection is restored.
1.3.12	Search & Export:
1.3.12.1	It shall be possible to search for recordings in the software by camera, date and time. If a data and time is specified, playback shall commence from that date and time. It shall be possible to playback more than one camera simultaneously.
1.3.12.2	The software shall be able to export sections of recordings to a separate Windows folder, which can then be written to CD-ROM, DVD-ROM or USB Flash Drives etc. to be played back at a location not connected to the network video management & recording network. The export process shall make available a player application, which can be provided with the exported video. Export shall be possible in Windows media player or any other media player compatible format. Simultaneous export of multiple cameras shall also be possible.
	The VMS should be able to integrate with IRIDISS and raise an alarm. It should support intelligent logics for entry-exit, entry-exit-entry. It should also be able to detect multiple entry, false entry, division of intruders etc
	VMS Should be able to integrate to unmanned ground sensors. This should be depicted on the live map with highlighting of zone of intrusion
	The VMS should be able to integrate with exiting surveillance equipment. It should be able to highlight any movement of humans and vehicles under no light conditions and pop up alerts on the alert screen.
	The Command Control Software should be integrated to GIS Maps to support position of cameras with Lat/Long. In addition should be DMR ready to integrate the Police DMR sets for live display of location of policemen in the venue.

Contd--06/-

1.3.12	**Additional Features:**
1.3.12.1	The software should have an integrated Video Analytics to support following Features : i. Tripwire ii. Person moving in/out of an Area iii. Left object Detection iv. ANPR Capability v. UVSS Capability
1.3.11.2	The VMS Software, Video Analytics, ANPR & UVSS should be a seamless integrated single software Platform.

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SIW, BSF

APPROVED/ ~~NOT APPROVED~~

24/6/19

(Rajni Kant Mishra) IPS
DIRECTOR GENERAL
BORDER SECURITY FORCE

Trial Directive OF 4 Port POE with 2 SFP ports and 2 SFP modules (Unmanaged)

S.No	Specifications	Trial Directive
1	Rugged outdoor Din Rail mountable switch Ethernet ports 2 more with suitable AC PSU; Support bi-directional SFP optical for seamless integration and dual power inputs.	Specification to be verified by the BOO through Specs Sheet.
2	POE + Standards should be in accordance with IEEE 802.3af and IEEE 802.3at standards with PoE budget of 240W or more. Sould support HPOe 60W to power PTZ	Specification to be verified by the BOO through Specs Sheet.
3	The Switch must support IEEE 802.17 or equiavlent Ring resiliency / Ring protection technology for Sub 50Ms convergence time	Specification to be verified by the BOO through Specs Sheet.
4	L2 Features: IEEE 802.3ac, IEEE 802.3az, IEEE 802.1v, IEEE 802.1Q, IEEE 802.1s, IEEE 802.1w, IEEE 802.1D,VRRPv3 and shall be upgradable to support RIP, OSPF for IPv4 and IPv6 based on network requirements.	Specification to be verified by the BOO through Specs Sheet.
5	Multicast For Video: IGMP snooping v1 , v2 and v3, MLD snooping (v1 and v2)	Specification to be verified by the BOO through Specs Sheet.
6	Security: Should support ACLs, DHCP snooping, IEEE 802.1x based port authentication, DHCPv4 (Snooping, server/ client), RADIUS, TACACS+, SSL, SSH, SSLv3, Port Mirroring, NTP, sflow/netflow	Specification to be verified by the BOO through Specs Sheet.
7	Wire speed traffic classification with low latency essential for real time streaming and real time Video and voice applications	Specification to be verified by the BOO through Specs Sheet.
8	Management: SNMPv1, v2c and v3, Web GUI, CLI, IPv6 management features on open standards	Specification to be verified by the BOO through Specs Sheet.
9	Should support Unidirectional Link Detection (UDLD) or equivalent to detect unidirectional links caused by incorrect fibre optic wiring or port faults and disable on fibre optics interfaces	Specification to be verified by the BOO through Specs Sheet.
10	Operating Temperature: Min of -40 to 70 Degrees or better	Specification to be verified by the BOO through Specs Sheet.
11	Humidity: 5% to 95% or better	Specification to be verified by the BOO through Specs Sheet.

12	Certifications: Shock EN60068-2-2/ EN60068-2-3/Vibration EN60068-2-6/ NEMA TS2/EMC : EN61000-4-2 (ESD)/ EN61000-4-3 (RS)/ EN61000-4-4 (EFT)/ EN61000-4-5 (Surge)/ EN61000-4-6 (CS)/ EN61000-4-8 EN61000-4-11	Specification to be verified by the BOO through Specs Sheet.
13	UL/IEC/EN 60950-1; ROHS Compliance; Min. IP30 Enclosure Rating, DIN Rail Mounting	Specification to be verified by the BOO through Specs Sheet.
14.	Device management(Optional)- Graphical Monitoring (Topology view, Floor view, System (iDMS) Map view), find my switch, Traffic Monitoring, Trouble shooting	To be checked physically by the BOO.

(Ashok Kumar Sharma)
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(Surender Singh)DC
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(SI/RM Brajesh Bhardwaj)
BSF

(Gagan Bhardwaj), AC
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(Insp/Comn Chhitar Mal)
SSB

(Insp/Tele Thakar Ram)
ITBP

(SI/RM Subhash)
SIW, BSF

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21/6/19

(Rajni Kant Mishra) IPS
DIRECTOR GENERAL
BORDER SECURITY FORCE

TD of Junction Box

SNo.	Specification	Trial Directive
An IP66 Rated Junction Box with following as minimum requirement		
1.	Frame Enclosures in sturdy sheet steel construction consisting of a 1.5mm sheet steel frame folded from one piece and welded, with All-round protective channel on the door aperture. Cutout with Gland plates on Top sides for cable entry purpose.	Specification to be verified by the BOO through specs sheet
2.	Enclosure Material CRCA Sheet steel	Specification to be verified by the BOO through specs sheet
3.	Surface finish Powder-coated	Specification to be verified by the BOO through specs sheet
4.	Colour Nano Ceramic Coated, electro-dipcoat primed to 20 microns and powder coated with Textured polyester RAL 7035 to 80 to 120 microns	Specification to be verified by the BOO through specs sheet
5.	Dimension (minimum) 300 X 400 X 210 (mm)	Specification to be verified by the BOO through specs sheet
6.	IP Protection IP66 (Certificate to be enclosed)	Specification to be verified by the BOO through specs sheet
7.	Paint Electrophoretic Powder quoting:	Specification to be verified by the BOO through specs sheet
8.	Standard and Certificates Regulatory Standard Compliance: IP66 to EN60529 , ISO 9001, 14001, comply with EIA 310 ,DIN 41494	Specification to be verified by the BOO through specs sheet
9.	Supply includes:	Specification to be verified by the BOO through specs sheet
a	6 Core Fiber Splice Tray,	Specification to be verified by the BOO through specs sheet
b	2 Pole 16Amp MCB	Specification to be verified by the BOO through specs sheet
c	Terminal Blocks	Specification to be verified by the BOO through specs sheet

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(Rajni Kant Mishra) IPS
DIRECTOR GENERAL
BORDER SECURITY FORCE

Trial Directives of Network Video Recorder (NVR)

S. No.	Parameter	Specification	Trial Directive
i.	Channels	64 Nos IP Channel	Specification to be verified by BOO through spec. sheet
ii.	Max incoming throughput	640 Mbps or better	Specification to be verified by BOO through spec. sheet
iii.	Supported camera	ONVIF	Specification to be verified by BOO through spec. sheet
iv.	Video Output	1 HDMI/I VGA/TCP/IP	Specification to be verified by BOO through spec. sheet
v.	Display resolution	3840x2160, 1920x1200,1920x1080,1680x1050,1600x1200	Specification to be verified by BOO through spec. sheet
vi.	Display speed	Upto 1920 ips	Specification to be verified by BOO through spec. sheet
vii.	Digital zoom	X2-X12	Specification to be verified by BOO through spec. sheet
viii.	Max throughput	4k (UHD) resolution with 30 frames/sec (Maximum)	Specification to be verified by BOO through spec. sheet
ix.	Recording resolution	upto 12 MP (depending on IP camera)	Specification to be verified by BOO through spec. sheet
x.	Encoding Mode	CBR,VBR	Specification to be verified by BOO through spec. sheet
xi.	Compression	H.265, H.264	Specification to be verified by BOO through spec. sheet
xii.	Recording Mode	Time-Lapse, Event,Pre-Event, Panic Alarm In, Audio Detection , Trip –Zone, Tampering	Specification to be verified by BOO through spec. sheet
xiii.	Trigger events with suitable analytics	Video loss, text-in, ANPR, FRS at respective interface (as per requirement)	Specification to be verified by BOO
xiv.	Performance	16ch full HD synchronous playback time-lapse, event log. Thumbnail	Specification to be verified by BOO through spec. sheet
xv.	Search Mode	Motion, text in	Specification to be verified by BOO through spec. sheet
xvi.	Digital zoom	X2-x12/SATAx4/SATAX8,eSATAx1 (As per project requirement)	Specification to be verified by BOO through spec. sheet

xvii.	HDD	(upto 10 TB capacity for each disk), RAID 1,5/6, 10 supported	Specification to be verified by BOO through spec. sheet
xviii.	Total capacity	4x4 (External)	Specification to be verified by BOO through spec. sheet
xix.	Client connection	Gigabit Ethernet (client)x1	Specification to be verified by BOO through spec. sheet
xx.	Video in connection	Gigabit Ethernet (video in) x3	Specification to be verified by BOO through spec. sheet
xxi	Remote data export	Yes, Email (attach clip)(cbf) (,call back to remote S/W, PUSHMP4)	Specification to be verified by BOO through spec. sheet
xxii	Event notification	Notification (mobile)	Specification to be verified by BOO through spec. sheet
xxiii	Redundancy support	10:01	Specification to be verified by BOO through spec. sheet
xxiv	Two way audio	Yes, Local (NVR) :1 RCA/1RCA+1HDMI	Specification to be verified by BOO through spec. sheet
xxv	Audio in/out	IP camera:64/64 (depending on IP)	Specification to be verified by BOO through spec. sheet
xxvi	Alarm in/out	Local (NVR):4/1 IP camera: 64/64	Specification to be verified by BOO through spec. sheet
xxvii	Alarm reset in	1	Specification to be verified by BOO through spec. sheet
xxviii	Serial interface	RS232 (terminal block), RS 485	Specification to be verified by BOO through spec. sheet
xxix	USB	USB 2.0X2,USB 3.0X1, mouse control , network remote keyboard , front	Specification to be verified by BOO through spec. sheet
xxx	User interface (optional)	Button (panic)	Specification to be verified by BOO through spec. sheet
xxxi	Operating system	Embedded Linux/windows	Specification to be verified by BOO through spec. sheet
xxxii	chasis	Rack type	Specification to be verified by BOO through spec. sheet

xxxiii	Working temp	0-40 degree centigrade	Specification to be verified by BOO through spec. sheet
xxxiv	Operating humidity	10-90 percent	Specification to be verified by BOO through spec. sheet
xxxv	Power input	Ac 100-240 V (redundant SMPS)	Specification to be verified by BOO through spec. sheet

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Approved/Not approved

24/4/18

(Rajni Kant Mishra)
Director General
Border Security Force

TD OF OFC 06 CORE (ARMOURED)

S/No	SPECIFICATION	TRIAL DIRECTIVE
(A)	**Optical Fiber Sensor Cable:**	
1	Loose Tube jelly filled Multi tube design Armored optical Fiber cable	Specification to be verified by the BOO through Specs Sheet.
2	**Single Mode :** (ITU-T Rec. G652D)Fiber	Specification to be verified by the BOO through Specs Sheet.
3	**Attenuation :** At 1310nm ≥ 0.38 dB/Km	Specification to be verified by the BOO through Specs Sheet.
4	**Attenuation :** At 1550 nm ≤ 0.25 dB/Km	Specification to be verified by the BOO through Specs Sheet.
5	**Core Diameter :** 9/125/250μ m	Specification to be verified by the BOO through Specs Sheet.
6	**Clad Diameter :** 125 ± 1.0 μ m	Specification to be verified by the BOO through Specs Sheet.
7	**Clad non circularity :** ≤ 1.0%	Specification to be verified by the BOO through Specs Sheet.
8	**Coating Diameter :** 245 ± 10 μ m	Specification to be verified by the BOO through Specs Sheet.
9	**Chromatic Dispersion :** At 1550 nm ≤ 18.0 ps/nm.km	Specification to be verified by the BOO through Specs Sheet.
10	**Zero Dispersion wave length :** 1300 ~1324 nm	Specification to be verified by the BOO through Specs Sheet.
11	**Zero Dispersion slop :** ≤ 0.092 ps/nm2.km	Specification to be verified by the BOO through Specs Sheet.
12	**Cut-off Wavelength :** ≤ 1320 nm	Specification to be verified by the BOO through Specs Sheet.
13	**Polarization Mode Diameter :**≤ 0.2 ps/root km	Specification to be verified by the BOO through Specs Sheet.
14	**Mode Field Diameter :** At 1310 nm 9.3 ± 0.5 μ m	Specification to be verified by the BOO through Specs Sheet.
15	**Fiber Identification:** Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Pink & Natural.	Specification to be verified by the BOO through Specs Sheet.
16	**No. of fibers :** 06 F	Checked by BOO.
17	**Moisture Barrier:** Single layer of water swellable tape / Polyester Tape applied longitudinally.	Specification to be verified by the BOO through Specs Sheet.
(B)	**Strength:**	
1	**Type (Outer Jacket) :** 2# Steel wire /FRP RODs	Specification to be verified by the BOO through Specs Sheet.
2	**Type (Peripheral) :** Aramid Yarn	Specification to be verified by the BOO

		through Specs Sheet.
(C) Mechanical and Environmental:		
1	**Max Tensile Strength :** 3500 Newton	Specification to be verified by the BOO through Specs Sheet.
2	**Crush Resistance :**Newton 4000/10 cm	Specification to be verified by the BOO through Specs Sheet.
3	**Minimum Bending radius :** 20 x Diameter	Specification to be verified by the BOO through Specs Sheet.
4	**Operating Temperature :** -30°C to +70°C	Specification to be verified by the BOO through Specs Sheet.

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Approved/~~Not approved~~

21/6/19

(Rajni Kant Mishra)
Director General
Border Security Force

TD OF SOFTWARE FOR INTEGRATION OF CAMERAS WITH SDK/API WITH VMS, 2.5D MAPS, HYPERLINK, VA-TRIPWIRE & ZONE ENTRY EXIT

Sr. No.	Specifications	Trial Directive
1	**REQUIREMENT:**	
	The requirements VMS System shall be as below:	
1.1	**Management Software:**	
1.1.1	This shall be a highly scalable enterprise level software solution. It shall offer a complete video surveillance solution that will be scalable to required numbers of cameras that can be added on a unit-by-unit basis.	Specification to be verified by the BOO through specs sheet
1.1.2	The Management Software shall be licensed and shall operate on open architecture and shall require no proprietary IT hardware.	Specification to be verified by the BOO through specs sheet
1.1.3	The Management Software shall allow for video to be streamed on workstation in Matrix or on a video wall.	Specification to be verified by the BOO through specs sheet
1.1.4	The user with administrative rights shall create clients (users) and give access to the software client application based on predefined user access rights.	Specification to be verified by the BOO through specs sheet
1.1.5	The system shall allow the recording, live monitoring, playback of archived video and data simultaneously.	Specification to be verified by the BOO through specs sheet
1.1.6	The software shall provide the following:	Specification to be verified by the BOO through specs sheet
1.1.6.1	Several simultaneous live picture connections of camera in network.	Specification to be verified by the BOO through specs sheet
1.1.6.2	Configuration of monitoring situation (2 Dimensional Multi-Level site maps).	Specification to be verified by the BOO through specs sheet
1.1.6.3	Programming of alarm-triggered automatic events in various alarms configuration.	Specification to be verified by the BOO through specs sheet
1.1.6.4	System set up with limited operation options for clearly defined surveillance tasks.	Specification to be verified by the BOO through specs sheet
1.1.6.5	Programming of automatic recording events on a network recorder.	Specification to be verified by the BOO through specs sheet
1.1.7	The software shall display dual H.264 video streams in real time simultaneously at frame rates ranging from 1 fps to 25 fps and resolution ranging Full HD to other HD/SD resolution.	Specification to be verified by the BOO through specs sheet
1.1.8	Each camera's bit rate, frame rate and resolution shall be set independently from other cameras in the system, and altering these settings shall not affect the recording and display settings of other cameras.	Specification to be verified by the BOO through specs sheet

1.1.9	The software shall provide automatic search and discovery of components of video surveillance system on the network which can be network cameras.	Specification to be verified by the BOO through specs sheet
1.1.10	The software shall provide drag & drop functions on the system and also for set up of connection between cameras and monitors connected to one workstation.	Specification to be verified by the BOO through specs sheet
1.1.11	The software shall allow:	
1.1.11.1	Live display of cameras.	Physically checked by BOO
1.1.11.2	Live display of camera sequences.	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.1.11.3	Control of PTZ cameras.	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.1.11.4	Playback of archived video.	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.1.11.5	Retrieval of archived video.	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.1.11.6	Instant Replay of live video.	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.1.11.7	Use of site maps.	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.1.11.8	Configuration of system settings.	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.1.11.9	Configuration and programming of P/T/Z cameras, features like auto tours, presets etc.	Specification to be verified by the BOO through specs sheet
1.1.12	The software shall be able to do video recording on any of the following options - inbuilt hard disks on the server, direct attached storage boxes attached to servers, network attached storage, storage area network.	Specification to be verified by the BOO through specs sheet
1.1.13	The software shall be capable of handling camera and alarm icons on area maps. The area map shall be configurable to pop up upon the receipt of an alarm received from a camera on the map. This can be on the same or other monitors on the PC.	Specification to be verified by the BOO through specs sheet
1.1.14	The software shall be able to select the required recording based on the time recording was activated, the duration of recording, operator activated recording, event activated recording, scheduled recording.	Specification to be verified by the BOO through specs sheet

1.1.15	The software shall provide a reporting utility for tracking for the following minimum options. Video clips and image snapshots shall be stored with reports for documenting events.	Specification to be verified by the BOO through specs sheet
1.1.15.1	Alarms	Specification to be verified by the BOO through specs sheet
1.1.15.2	Incidents	Specification to be verified by the BOO through specs sheet
1.1.15.3	Operator logs	Specification to be verified by the BOO through specs sheet
1.1.16	The software shall have the facility to export the desired portion of clipping of video from a desired date/time to another desired date/time on DVD/ on any client/ network storage device. Viewing of this recording shall be possible on authorized player which shall be provided by software manufacturer or in media player on computer utilizing a Window environment.	Specification to be verified by the BOO through specs sheet
1.1.17	The Video Management servers shall not limit the number of network video recording servers which can be networked together to form video management and recording system.	Specification to be verified by the BOO through specs sheet
1.1.18	The Video Management servers shall maintain a catalog of settings for all the clients, servers, and IP cameras & IP enabled cameras in the system. If Video Management servers & recording cannot be managed by single server, in such cases, additional server shall be provided.	Specification to be verified by the BOO through specs sheet
1.1.19	The software shall enable the client to dynamically create connections between cameras and clients and view live or recorded video on Monitors.	Specification to be verified by the BOO through specs sheet
1.1.20	The software shall provide the client seamless operation of all cameras and clients available in the system regardless of the actual connection to different Network Video Recording servers.	Specification to be verified by the BOO through specs sheet
1.1.21	The software shall detect signal loss and have the capability to alert the systems administrator.	Specification to be verified by the BOO through specs sheet
1.1.22	The software shall receive all incoming events (motion detection and triggered digital input and relay output) in the system and take appropriate actions based on user-defined event/action relationships.	Specification to be verified by the BOO through specs sheet
1.1.23	The software shall create an audit trail of all events and user activities.	Specification to be verified by the BOO through specs sheet
1.1.24	The Management Software shall support the following:-	Specification to be verified by the BOO through specs sheet
1.1.24.1	The Management Software shall provide a full matrix operation of IP video to display monitors.	Specification to be verified by the BOO through specs sheet

1.1.24.2	The Management Software shall have the capability of creating camera sequences with the following functionalities:	Specification to be verified by the BOO through specs sheet
1.1.24.2.1	Each Sequence shall have capability up to hundreds of cameras.	Specification to be verified by the BOO through specs sheet
1.1.24.2.2	Each camera in the sequence shall have its own individual dwell time, from 1 to 60 seconds.	Specification to be verified by the BOO through specs sheet
1.1.24.2.3	Multiple users shall be able to view the same camera sequence simultaneously, not necessarily synchronized one with the other.	Specification to be verified by the BOO through specs sheet
1.1.25	The software shall provide alarm management module.	Specification to be verified by the BOO through specs sheet
1.1.25.1	The alarm management shall be able to set any monitor or groups of monitors to automatically display cameras in response to alarm inputs.	Specification to be verified by the BOO through specs sheet
1.1.25.2	The alarm management shall be able to reset automatically or manually alarmed video.	Specification to be verified by the BOO through specs sheet
1.1.26	It shall be possible to search for recordings in the software by camera, date and time. If a data and time is specified, playback shall commence from that date and time. It shall be possible to playback more than one camera simultaneously.	Specification to be verified by the BOO through specs sheet
1.1.27	The software shall support at least 64 video streams concurrently. It shall support at least 4 monitors in one server/ workstation for displaying live video. It shall allow minimum 5 levels of user and alarm prioritization. It shall allow minimum 16 cameras to be replayed simultaneously.	Specification to be verified by the BOO through specs sheet
1.1.28	The VMS shall be seamlessly integrated with Face recognition Software and have capability to receive the alerts.	Specification to be verified by the BOO through specs sheet
1.2	**Graphic User Interface Client Software Features:**	
1.2.1	The GUI software shall perform the following applications simultaneously without interfering with any of the storage server operations (recording, alarms, etc.):	Specification to be verified by the BOO through specs sheet
1.2.1.1	Live display of cameras.	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.2.1.2	Live display of camera sequences.	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.2.1.3	Control of PTZ cameras.	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.2.1.4	Playback of archived video.	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.2.1.5	Retrieval of archived video.	Physically checked by BOO/Specification to be verified by

		the BOO through specs sheet
1.2.1.6	Instant replay of live video.	Specification to be verified by the BOO through specs sheet
1.2.1.7	Use of graphical controls (maps) and alarm management.	Specification to be verified by the BOO through specs sheet
1.2.1.8	Configuration of system settings.	Specification to be verified by the BOO through specs sheet
1.2.2	The GUI software shall support any form of IP network connectivity including LAN, WAN and wireless LAN technologies.	Specification to be verified by the BOO through specs sheet
1.2.3	The GUI software shall support multicast and unicast video streaming.	Specification to be verified by the BOO through specs sheet
1.2.4	The GUI software shall provide an authentication mechanism, which verifies the validity of the user.	Specification to be verified by the BOO through specs sheet
1.2.5	The GUI software shall allow for live monitoring of video.	Specification to be verified by the BOO through specs sheet
1.2.6	It shall enable view of 1 to minimum 16 video tiles simultaneously on a single digital monitor at 25 fps per camera.	Specification to be verified by the BOO through specs sheet
1.2.7	The software shall provide on each of the digital monitors independently the following tile views:	Specification to be verified by the BOO through specs sheet
1.2.7.1	Full screen	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.2.7.2	Quad view	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.2.7.3	4x4 (16-view)	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.2.7.4	The Software shall also support any other window division based on the site requirement.	Specification to be verified by the BOO through specs sheet
1.2.8	The GUI software shall allow operators to view an instant replay of any Camera.	Specification to be verified by the BOO through specs sheet
1.2.8.1	The operator shall be able to define the amount of time he wishes to go back from a timeline bar or through a custom setup period.	Specification to be verified by the BOO through specs sheet
1.2.8.2	The operator shall be able to control the playback with play, pause, forward, and speed buttons.	Specification to be verified by the BOO through specs sheet

1.2.9	The operator shall be able to choose and trigger following minimum action from a macro/site map:	Specification to be verified by the BOO through specs sheet
1.2.9.1	View Camera in a video tile.	Specification to be verified by the BOO through specs sheet
1.2.9.2	View map or procedure in a video tile.	Specification to be verified by the BOO through specs sheet
1.2.9.3	Starting/stopping PTZ pattern.	Specification to be verified by the BOO through specs sheet
1.2.9.4	Go to PTZ preset.	Specification to be verified by the BOO through specs sheet
1.2.10	The GUI software shall provide management and control over the system using a standard PC mouse, keyboard and Digital keyboard.	Specification to be verified by the BOO through specs sheet
1.2.11	The GUI software shall display all cameras attached to the system regardless of their physical location on the network.	Specification to be verified by the BOO through specs sheet
1.2.12	The GUI software shall display all camera sequences created in the system.	Specification to be verified by the BOO through specs sheet
1.2.13	The GUI software shall allow operators to control (pause/play, skip forwards, skip backwards) camera sequences.	Specification to be verified by the BOO through specs sheet
1.2.14	The GUI software shall display all cameras, sequences and users in a logical tree.	Specification to be verified by the BOO through specs sheet
1.2.15	The GUI software operator shall be able to drag and drop a camera from a tree of available cameras into any video tile for live viewing.	Specification to be verified by the BOO through specs sheet
1.2.16	The GUI software operator shall be able to view the camera from a tree of available cameras into any video tile for live viewing.	Specification to be verified by the BOO through specs sheet
1.2.17	The GUI software shall support graphical site representation (map) functionality, where digital maps are used to represent the physical location of cameras and other devices throughout facility.	Specification to be verified by the BOO through specs sheet
1.2.18	The maps shall have the ability to contain hyperlinks to create a hierarchy of interlinked maps.	Specification to be verified by the BOO through specs sheet
1.2.19	The GUI software operator shall be able to view the camera from a map into a video tile for live viewing in the same browser without opening a new browser.	Specification to be verified by the BOO through specs sheet
1.2.20	The operator shall be able to click on an icon in a map to initiate PTZ camera preset, run PTZ pattern, view camera in an analog monitor or send an I/O stream.	Specification to be verified by the BOO through specs sheet
1.2.21	The GUI software shall support digital zoom on a fixed camera's live video streams.	Specification to be verified by the BOO through specs sheet

		sheet
1.2.22	The GUI software shall support digital zoom on a PTZ camera's live video streams.	Specification to be verified by the BOO through specs sheet
1.2.23	The operator shall be able to control Pan, Tilt and Zoom patterns of P/T/Z Camera.	Specification to be verified by the BOO through specs sheet
1.2.24	The software shall be able to display video of cameras on 40 inch Large Format Display Monitors and Workstation Monitors.	Specification to be verified by the BOO through specs sheet
1.2.25	The software shall allow the control of display from the client PC.	Specification to be verified by the BOO through specs sheet
1.2.26	The operator from the GUI software shall be able to decide the screen layout and also the cameras that shall be displayed on the monitors.	Specification to be verified by the BOO through specs sheet
1.2.27	The software shall support multicasting.	Specification to be verified by the BOO through specs sheet
1.2.28	It shall be possible to switch the screen layout in response to an alarm.	Specification to be verified by the BOO through specs sheet
1.2.29	The GUI Software shall support text superimposing the title and date & time on the video.	Specification to be verified by the BOO through specs sheet
1.3	**Video Recording Software:**	
1.3.1	Software shall support recording of H.264/H.265 video streams. It shall support recording of video and audio for all the channels.	Specification to be verified by the BOO through specs sheet
1.3.2	Software shall support triplex applications, recording, re-play and backup simultaneously. It shall be compatible with windows Server OS or Linux for highest performance and reliability.	Specification to be verified by the BOO through specs sheet
1.3.3	The software shall support absolute recording redundancy with X to N, N to X and N to N redundancy configurations for recording severs. This feature shall be provided, if specified by purchaser.	Specification to be verified by the BOO through specs sheet
1.3.4	Software shall operate on open architecture and shall not require any proprietary hardware.	Specification to be verified by the BOO through specs sheet
1.3.5	Software shall be able to record minimum 64 different video streams or more simultaneously. It shall be accessible from any client PC connected to the network.	Specification to be verified by the BOO through specs sheet
1.3.6	Software shall provide network time server function to ensure the synchronization of the video servers and the recordings.	Specification to be verified by the BOO through specs sheet
1.3.7	The servers shall be connected to the network so that these can be placed at any location which has network access.	Specification to be verified by the BOO through specs sheet

1.3.8	The software shall be able to receive alarms of different types from equipment to start a recording. These alarms can be motion detection, video loss, unified picture and trigger input.	Specification to be verified by the BOO through specs sheet
1.3.9	The software alarm recording shall support pre-and post-alarm periods. Both can be configured in duration.	Specification to be verified by the BOO through specs sheet
1.3.10	The software shall provide a status of the available recording capacity.	Specification to be verified by the BOO through specs sheet
1.3.11	**Fault Tolerant Recording:**	**Specification to be verified by the BOO through specs sheet**
1.3.11.1	If software & server(s) operation are interrupted, like power disconnection and once the server(s) are restarted, these shall automatically resume recording of any cameras these were recording prior to the interruption.	Specification to be verified by the BOO through specs sheet
1.3.11.2	The software shall support network fault-tolerant recording such that if the network connection between a video management server and video recording server becomes unavailable, for example through cable breakage, network congestion or WLAN interruption, the system operation shall automatically recover when the connection is restored.	Specification to be verified by the BOO through specs sheet
1.3.12	Search & Export:	Specification to be verified by the BOO through specs sheet
1.3.12.1	It shall be possible to search for recordings in the software by camera, date and time. If a data and time is specified, playback shall commence from that date and time. It shall be possible to playback more than one camera simultaneously.	Specification to be verified by the BOO through specs sheet
1.3.12.2	The software shall be able to export sections of recordings to a separate Windows folder, which can then be written to CD-ROM, DVD-ROM or USB Flash Drives etc. to be played back at a location not connected to the network video management & recording network. The export process shall make available a player application, which can be provided with the exported video. Export shall be possible in Windows media player or any other media player compatible format. Simultaneous export of multiple cameras shall also be possible.	Specification to be verified by the BOO through specs sheet
		Specification to be verified by the BOO through specs sheet
	The VMS should be able to integrate with IRIDISS and raise an alarm. It should support intelligent logics for entry-exit, entry-exit-entry. It should also be able to detect multiple entry, false entry, division of intruders etc	Specification to be verified by the BOO through specs sheet
	VMS Should be able to integrate to unmanned ground sensors. This should be depicted on the live map with highlighting of zone of intrusion	Specification to be verified by the BOO through specs sheet
	The VMS should be able to integrate with exiting surveillance equipment. It should be able to highlight any movement of humans and vehicles under no light conditions and pop up alerts on the alert screen.	Specification to be verified by the BOO through specs sheet
	The Command Control Software should be integrated to GIS Maps to support position of cameras with Lat/Long. In addition should be DMR ready to integrate the Police DMR sets for live display of location of policemen in the venue.	Specification to be verified by the BOO through specs sheet

1.3.12	**Additional Features:**	
1.3.12.1	The software should have an integrated Video Analytics to support following Features : i. Tripwire ii. Person moving in/out of an Area iii. Left object Detection iv. ANPR Capability v. UVSS Capability	Physically checked by BOO/Specification to be verified by the BOO through specs sheet
1.3.11.2	The VMS Software, Video Analytics, ANPR & UVSS should be a seamless integrated single software Platform.	Specification to be verified by the BOO through specs sheet

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APPROVED/ NOT APPROVED

21/6/19

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