U.P. ELECTRONICS CORPORATION LIMITED,
10, Ashok Marg
Lucknow - 226001

Telephones : (0522) 2286808, (0522) 4130303   Fax   : (0522) 2288583

E-mail : uplclko@gmail.com

REQUEST FOR PROPOSAL (RFP)
FOR
THE SUPPLY, INSTALLATION AND COMPREHENSIVE WARRANTY MAINTENANCE SERVICES OF CCTV SURVEILLANCE WITH INTEGRATION TO EXISTING CCTV INFRASTRUCTURE AT VIDHAN SABHA BUILDINGS LUCKNOW

E-Bid REFERENCE	:	UplcHwSadCctv022019
Bid Publish Date	:	20-02-2019
Bid clarification start date	:	21-02-2019 from 09.00 AM
Bid clarification end date	:	24-02-2019 upto 06.00 PM
Pre-Bid Meeting	:	26-02-2019 at 5:00 PM
Bid Submission Start Date	:	20-02-2019
Bid Submission End Date	:	07-03-2019 upto 05.00 PM
Bid Opening Date	:	07-03-2019 at 06.00 PM
ADDRESS FOR COMMUNICATION	:	Assistant Manager (Hardware)
		U.P. Electronics Corporation Limited
		10, Ashok Marg, Lucknow-226001

It will be the responsibility of the e-Bidders to check U.P. Government e-Procurement website http://etender.up.nic.in for any amendment through corrigendum in the e-tender document. In case of any amendment, e-Bidders will have to incorporate the amendments in their e-Bids accordingly.

---

e-Tender EMD	:	₹	10,00,000/-
e-Tender Document Processing / Cost :		₹	1,000/-

Index

U.P. Electronics Corporation Limited
(U.P. Government Undertaking)
10 Ashok Marg, Lucknow-226001

Tel. No. 0522-2286808, 4130303, Ext. 302, 303, Fax 0522-2288583

e-Tender Notice

Online e-bids are invited only from reputed Organization dealing with Supply and Installation of **CCTV SURVEILLANCE WITH INTEGRATION TO EXISTING CCTV INFRASTRUCTURE AT VIDHAN SABHA BUILDINGS LUCKNOW**, who have been authorized by OEM to participate in this Tender upto 05.00 P.M. on 07-03-2019, shall be opened at 06.00 P.M. on 07-03-2019. The e-tender document processing/Cost is ₹ 1,000/- (Rupees One Thousand only) and EMD ₹ 10,00,000/- (Rupees Ten lakhs Only) in the form of DD /Bank Guarantee drawn on Nationalised Bank, in favour of U.P. Electronics Corporation Limited, Lucknow or through eTender Payment Gateway. The details for submission of e-bids will be available in the e-tender document on the UP Government. e-Procurement website http://etender.up.nic.in or Corporation's website www.uplc.in from 20-02-2019. The Corporation reserves the right to cancel any or all the e-Bids/annul e-Bidding process without assigning any reason and decision of Corporation will be final and binding.

MANAGING DIRECTOR

INVITATION FOR e-Bids

This invitation for e-Bids is for **CCTV SURVEILLANCE WITH INTEGRATION TO EXISTING CCTV INFRASTRUCTURE AT VIDHAN SABHA BUILDINGS LUCKNOW**.

1. Bidders are advised to study the tender Document carefully. Submission of e-Bid against this tender shall be deemed to have been done after careful study and examination of the procedures, terms and conditions of the tender Document with full understanding of its implications.

2. The e-Bid prepared in accordance with the procedures enumerated in ITB Clause 15 of Section-I should be submitted through e-Procurement website http://etender.up.nic.in.

3. **The tender document is available at e-Procurement website http://etender.up.nic.in and Corporation's website www.uplc.in from 20-02-2019. Interested bidders may view, download the e-Bid document, seek clarification and submit their e-Bid online as per the date and time mentioned page number 01.**

4. The bidders need to submit the proof/cost of e-Bid document/processing as stated in the above table in Cash in the Purchaser's office or through Online through e-Tender portal in favour of U.P. Electronics Corporation Ltd (herein after referred as UPLC/Purchaser) payable at Lucknow. The scanned copy of the Receipt of Online payment through e-Tender portal must be enclosed / uploaded along with the e-Bids.

5. It is not necessary for a Bidder to quote all schedules of Bid. But if bidder is quoting any schedule, it is must to quote all items for that schedule. The bids of bidders who will not quote for all the items in any schedule in technical shall be rejected.

6. The e-Bids will be electronically opened in the presence of bidder's representatives, who choose to attend at the venue, date and time mentioned in the above table. An authority letter of bidder's/OEM representative will be required to be produced.

7. The Corporation reserves the right to cancel any or all the e-Bids/annul the e-Bid process without assigning any reason thereof. The decision of Corporation will be final and binding.

8. In the event of date specified for e-Bids opening being declared a holiday for Corporation's office then the due date for opening of e-Bids shall be the following working day at the appointed time and place.

09. All the required documents including Price Schedule should be uploaded by the e-Bidder electronically in the PDF format. The required electronic documents for each document label of Technical (Fee details, Qualification details, e-Bid Form and Technical Specification details) schedules/packets can be clubbed together to make single different files for each label.

10. The companies/firms who are registered at e-Procurement portal for e-tendering with U.P. Electronics Corporation Ltd. (UPLC), 10, Ashok Marg, Lucknow (UP) would only be eligible for participating in this e-tender as well as in e-tendering system of U.P. Govt. departments. All companies/firms who have not registered themselves with UPLC for e-tendering till date can get their registration done by depositing a filled in form issued by UPLC along with registration fee of Rs 6000.00 (Rupees Six thousand only) for participating in this e-tender and other e-tenders of U.P.Govt. departments. The companies/firms, who are not having digital signature, can also get their digital signature on deposit of processing fees of Rs 1708.00 (Rupees One Thousand Seven hundred eight only). The companies/firms may contact the officials on phone numbers 0522-

2286809, 0522-2288750 (O) 0522-4130303 (Extension: 303, 304 & 307), for their Registration/Digital Signature Certificate related queries.

11. Most of the departments for which UPLC is asking bids in this tender have not provided cost of equipment/materials in advance to UPLC. They have informed that they will provide the money only after successful delivery and installation of ordered items, hence UPLC shall pay the amount against delivery and installation against the ordered items to successful bidders only after same is received by UPLC from the concerned department. The Bank Guarantee worth 10% of the equipment/material value for the entire Warranty Period shall also require to be submitted with UPLC/Client Department.

SECTION I : INSTRUCTIONS TO BIDDERS (ITB)

(A) THE BID DOCUMENT

1. **Cost of e-Bid**

   a)   The bidder shall bear all costs associated with the preparation and submission of its e-Bid and U.P. Electronics Corporation Ltd, Lucknow hereinafter referred to as "the Purchaser", will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the e-Bid process.

   b)   This tender document is available on the web site http://etender.up.nic.in and Corporation's website www.uplc.in to enable the bidders to view, download the e-Bid document and submits e-Bids online up to the last date and time mentioned in e-Tender notice/e-tender document against this e-Tender. The bidders shall have to pay e-Tender document fee of ₹ 1000.00 (Rupees One thousand Only) and EMD ₹ 10,00,000/- (Rupees Ten lakhs Only) in the form of DD/ Bank Guarantee drawn on Nationalised Bank, payable in favour of U.P. Electronics Corporation Ltd, Lucknow or through eTender Payment Gateway. The scanned copy of the Tender Fee and EMD should be uploaded with technical bid. This e-tender document fee is non-refundable and EMD will be refundable.

2. **Contents of e-Bid Document**

2.1   The goods required to be supplied; e-Bid procedure and contract terms and conditions are prescribed in the e-Bid document. The e-Bid document includes:
   - (a) Invitation for e-Bid
   - (b)   Section I : Instruction to bidders (ITB);
   - (c)   Section II : Conditions of Contract (CC);
   - (d)   Section III : Technical e-Bid;
   - (e)   Section IV : Financial e-Bid;

2.2   The bidder is expected to examine all instructions, forms, terms and specifications in the e-Bid document. Failure to furnish all information required as per the e-Bid document or submission of e-Bid not responsive to the e-Bid document in every respect will be at the bidder's risk and may result in rejection of the said e-Bid.

3. **Clarification of e-Bid Document**

   A prospective bidder requiring any clarification of the e-Bid document may raise his/her point of clarification through Bid Management Window after successfully login to the e-Procurement website http://etender.up.nic.in. The bidder may seek clarification by posting query in the relevant window after clicking "Seek Clarification" option in the view e-tender details window for e-tender which can be selected through my tender option of e-Bid submission menu. The clarification will be replied back by the Purchaser through the e-Procurement website which can be read by the bidder through the "Clarification" option under Bid Submission menu. The Purchaser may also respond to clarifications raised by the prospective bidders on Purchaser's e-mail address

4. Amendment of e-Bid Document

4.1   At any time prior to the deadline for submission of e-Bid, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the e-Bid document by amendments. Such amendments shall be uploaded on the e-Procurement website http://etender.up.nic.in and Corporation's website www.uplc.in through corrigendum and shall form an integral part of e-Bid document. The relevant clauses of the e-Bid document shall be treated as amended accordingly.

4.2   It shall be the sole responsibility of the prospective bidders to check the web site http://etender.up.nic.in or Corporation's website www.uplc.in from time to time for any amendment in the e-tender document. In case of failure to get the amendments, if any, the Purchaser shall not be responsible for it.

4.3   In order to allow prospective e-Bidders a reasonable time to take the amendment into account in preparing their e-Bids, the Purchaser, at his discretion, may extend the deadline for the submission of e-Bids. Such extensions shall be uploaded on the e-Procurement website http://etender.up.nic.in and Corporation's website www.uplc.in

(B) PREPARATION OF e-Bid

5. Language of e-Bid

5.1   The e-Bid prepared by the bidder, as well as all correspondence and documents relating to the e-Bid exchanged by the bidder and the Purchaser shall be written either in English or Hindi language. The correspondence and documents in Hindi must be accompanied by embedded/separate Hindi font files. Only English numerals shall be used in the e-Bid.

6. Documents Constituting the e-Bid

6.1   The e-Bid prepared by the bidder shall comprise the following components:

(a)   **Technical e-Bid** - Technical e-Bid will comprise of :

(i) **Fee Details** – includes copies of e-tender document processing/Cost furnished in accordance with ITB Clause 12 in PDF format.

(ii) **Qualification Details** – includes copies of required documents as per ITB Clauses 10 and 11 in PDF format justifying that the bidder is qualified to perform the contract if his/her bid is accepted and that the bidder has financial, technical and production capability necessary to perform the contract and meets the criteria outlined in the Qualification Requirement and Technical Specification and fulfill all the conditions of the Contract and that the goods and ancillary services to be supplied by the bidder conform to the e-Bid document and Technical Specifications.

(iii) **e-Bid Form** – includes copy of filled in e-Bid Form as per Section-III(A) of e-tender document in PDF format justifying that the bidder is complying with all the conditions of the Contract and Technical Specifications of the e-Bid Document as no deviation will be acceptable to the Purchaser.

(iv)**Technical Specification Details** – includes copy of filled in Technical Specifications as per Section-III(C) of e-tender document in PDF format.

<u>Technical Bids</u>(Tender Ref: _____)
To be filled by bidder

(b)   **Financial e-Bid** – Financial e-Bid will comprise of :

(i) **e-Bid Form** – includes copy of filled in e-Bid Form as per Section-IV (A) of e-tender document in PDF format.

(ii) **Price Schedule/BOQ** – includes as per Section-IV (B)

7. e-Bid Form

7.1   The bidder shall complete the e-Bid Form and the appropriate Price Schedule/BOQ furnished in the e-Bid document, including the goods to be supplied, their quantities and prices in the format given in the e-Bid document.

8. e-Bid Price

8.1   The bidder shall quote separately in the downloaded spread sheet file for Price Schedule/BOQ unit price (along with basic price, GST such as installation and onsite comprehensive warranty maintenance service charges, if any) of each item in the specified places for all the goods mentioned in Section III(C) of Technical Specifications. The unit prices quoted shall be with onsite comprehensive warranty as well as extended warranty as per period specified in column-3 of Section III(C) of Technical Specifications.

1.2.   e-Bid price of each item indicated on the Price Schedule/ BOQ as mentioned in para 8.1 above, shall include all the cost till successful installation & commissioning at various offices situated in different cities of U.P. for all the items specified in the schedule of requirement and onsite comprehensive warranty maintenance i.e.

I. The price of goods (ex-works, ex-factory, ex-showroom, ex-warehouse, or off-the-shelf, as applicable), including all duties and sales and other taxes already paid or payable:
   (a) on components and raw material used in the manufacture or assembly of goods quoted ex-works or ex-factory; or
   (b) on the previously imported goods of foreign origin quoted ex-showroom, ex-warehouse, or off-the-shelf.
II. Any Indian duties, sales and other taxes which will be payable on the goods if this Contract is awarded.;
III. The price for inland transportation, insurance and other local costs incidental to delivery of the goods to their final destination.
IV. The price of other incidental services listed in Clause 11 of the Conditions of Contract.

4.3   Prices quoted by the bidder shall be fixed during the bidder's performance of the Contract and not subject to variation on any account subject to ITB Clause 25.1. An e-Bid submitted with an adjustable price quotation unless asked for shall be treated as non-responsive and rejected.

9. e-Bid Currencies

Prices shall be quoted in Indian Rupees only.

10.   Documents Establishing bidder's Qualification

10.1   Pursuant to ITB Clause 6, the bidder shall furnish, as part of its Technical e-Bid, documents establishing the bidder's qualification to perform the Contract if its e-Bid is accepted. The documentary evidence should be submitted by the bidder electronically in the PDF format.

10.2   The documentary evidence of bidder's qualification to perform the Contract if its e-Bid is accepted shall be as per Qualification Requirements specified in Section III (D) of e-tender document.

11.   Documents Establishing Goods' Conformity to e-Bid Documents

11.1   Pursuant to ITB Clause 6, the bidder shall furnish, as part of its e-Bid, documents establishing the conformity to the e-Bid documents of all goods and services which the bidder proposes to supply under the contract. The documentary evidence should be in the PDF file format.

11.2   The documentary evidence of conformity of the goods and services to the e-Bid documents shall consist of:

(a)   The brochures /leaflets /document downloaded from the internet site of the OEM of the goods offered in support of the technical specifications asked in the e-tender.

(b)   The copies of the purchase deed of the office building/receipt of the rent paid/ transfer & posting orders of engineers/any other proof of placement to the satisfaction of Purchaser should be enclosed as a documentary evidence in support of their service centers to be mentioned in the e-Bid;

(c)   An item-by-item commentary on the Purchaser's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications;

(d)   A confirmation that, if the bidder offers systems and/or other software manufactured by another company, such software operates effectively on the system offered by the bidder; and the bidder is willing to accept responsibility for its successful operations.

(e)   A confirmation that the bidder is either the owner of intellectual Property Rights in the hardware and the software items offered, or that it has proper authorization from the owner to offer them. Willful misrepresentation of these facts shall lead to the cancellation of the e-Bid/ contract without prejudice of other remedies that the Purchaser may take.

12.   e-Bid Security/Earnest Money Deposit (EMD)

12.1   Pursuant to ITB Clause 6, the bidder shall furnish, as part of its e-Bid, an e-Bid security/EMD - ₹ 10,00,000/- (Rupees Ten lakhs Only) in the form of DD/Bank

Guarantee drawn on Nationalised bank in favour of UP Electronics Corporation Ltd, Lucknow or through eTender Payment Gateway.

12.2   The e-Bid security is required to protect the Purchaser against the risk of bidder's conduct which would warrant the security's forfeiture, pursuant to ITB Clause 12.7.

12.3   The e-Bid security shall be in Indian Rupees and shall be in the following forms only:

Submitted online through e-Tender portal which shall payable in favour of U.P. Electronics Corporation Ltd at Lucknow. Bidder may submit the bid security of the above amount in the form of online payment through etender portal http://etender.up.nic.in payable in favour of UP Electronics Corporation Ltd, Lucknow.

12.4   Any e-Bid not secured in accordance with ITB Clauses 12.1 and 12.3 above shall be treated as non-responsive and rejected by the Purchaser.

12.5   Unsuccessful bidder's e-Bid security will be returned upon the written request through cheque as promptly as possible after the expiration of the period of e-Bid validity prescribed by the Purchaser, pursuant to ITB Clause 13.

12.6   The successful bidder's e-Bid security will be returned upon the bidder signing the Contract, pursuant to ITB Clause 28, and furnishing the performance security, pursuant to ITB Clause 29.

12.7   The e-Bid security may be forfeited:

(a) if a bidder (i) withdraws its e-Bid during the period of e-Bid validity specified by the bidder on the e-Bid Form; or (ii) does not accept the correction of errors pursuant to ITB Clause 22.2; or (iii) modifies its e-Bid price during the period of e-Bid validity specified by the bidder on the e-Bid form or

(b) in case of a successful bidder, if the bidder fails:
   (i)   to sign the Contract with the Purchaser in accordance with ITB Clause 28; or
   (ii)   to furnish performance security in accordance with ITB Clause 29.

13.   Period of Validity of e-Bid

13.1   e-Bid shall remain valid for 180 days after the date of e-Bid opening prescribed by the Purchaser, pursuant to ITB Clause 16. An e-Bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.

13.2   In exceptional circumstances, the Purchaser may solicit the bidder's consent to an extension of the period of e-Bid validity. The request and the response thereto shall be made in writing. A bidder may refuse the request without forfeiting its e-Bid security. A bidder granting the request will not be required nor permitted to modify its e-Bid.

14.   Format and Signing of e-Bid

14.1   The bidder shall prepare one electronic copy each of the Technical e-Bid and Financial e-Bid separately.

14.2   The e-Bid document shall be digitally signed, at the time of uploading, by the bidder or a person or persons duly authorized to bind the bidder to the Contract. The later authorization shall be indicated by a scanned copy of written power-of-attorney

accompanying the e-Bid. All the pages/ documents of the e-Bid that are to be uploaded shall be digitally signed by the person authorized to sign the e-Bid.

15. .   Submission of e-Bid

The Bid Submission module of e-Procurement website http://etender.up.nic.in   enables the bidders to submit the e-Bid online in response to this e-tender published by the Purchaser. Bid Submission can be done only from the Bid Submission start date and time till the Bid Submission end date and time given in the e-tender. Bidders should start the Bid Submission process well in advance so that they can submit their e-Bid in time. The bidders should submit their e-Bid considering the server time displayed in the e-Procurement website. This server time is the time by which the e-Bid submission activity will be allowed till the permissible time on the last/end date of submission indicated in the e-tender schedule. Once the e-Bid submission date and time is over, the bidders cannot submit their e-Bid. For delay in submission of e-Bid due to any reasons, the bidders shall only be held responsible.

The bidders have to follow the following instructions for submission of their e-Bid:

15.1   For participating in e-Bid through the e-tendering system, it is necessary for the bidders to be the registered users of the e-Procurement website https:// etender.up.nic.in.   The bidders must obtain a User Login Id and Password by registering themselves with U.P. Electronics Corporation Limited, Lucknow if they have not done so previously for registration.   Refer to details given in Invitation for e-Bid Clause 11.

15.2   In addition to the normal registration, the bidder has to register with his/her **Digital Signature Certificate (DSC)** in the e-tendering system and subsequently he/she will be allowed to carry out his/her e-Bid submission activities. Registering the Digital Signature Certificate (DSC) is a onetime activity. Before proceeding to register his/her DSC, the bidder should first log on to the e-tendering system using the User Login option on the home page with the Login Id and Password with which he/ she has registered as per clause 15.1 above.

For successful registration of DSC on e-Procurement website http://etender.up.nic.in the bidder must ensure that he/she should possess Class-2/Class-3 DSC issued by any certifying authorities approved by Controller of Certifying Authorities, Government of India, as the e-Procurement website https://etender.up.nic.in is presently accepting DSCs issued by these authorities only. The bidder can obtain User Login Id and perform DSC registration exercise as described in clauses 15.1 and 15.2 above even before e-Bid submission date starts. The Purchaser shall not be held responsible if the bidder tries to submit his/her e-Bid at the last moment before end date of submission but could not submit due to DSC registration problem.

15.3   The bidder can search for active tenders through "Search Active tenders" link, select a tender in which he/she is interested in and then move it to 'My Tenders' folder using the options available in the e-Bid Submission menu. After selecting and viewing the tender, for whom the bidder intends to e-Bid, from "My Tenders" folder, the bidder can place his/her e-Bid by clicking "Pay Offline" option available at the end of the view tender details form. Before this, the bidder should download the e-tender document and Price Schedule/Bill of Quantity (BOQ) and study them carefully. The bidder should keep all the documents ready as per the requirements of e-tender document in the PDF format

except the Price Schedule/Bill of Quantity (BOQ) which should be in the XLS format (Excel sheet).

15.4   After clicking the 'Pay Offline' option, the bidder will be redirected to the Terms and Conditions page. The bidder should read the Terms & Conditions before proceeding to fill in the Tender Fee and EMD offline payment details. After entering and saving the Tender Fee and EMD details, the bidder should click "Encrypt & Upload" option given in the offline payment details form so that "Bid Document Preparation and Submission" window appears to upload the documents as per Technical (Fee details, Qualification details, e-Bid Form and Technical Specification details) and financial (e-Bid Form and Price Schedule/BOQ) schedules/packets given in the tender details. The details of the Demand Draft or any other accepted instrument which is to be physically sent in original before opening of technical e-Bid, should tally with the details available in the scanned copy and the data entered during e-Bid submission time otherwise the e-Bid submitted will not be accepted.

15.5   Next the bidder should upload the Technical e-Bid documents for Fee details (e-tender fee and EMD), Qualification details as per "ITB Clause 10 or 21", e-Bid Form as per "Section-III(A)" and Technical Specification details as per "Section-III(C):Technical Specifications" and Financial e-Bid documents as per "Section-IV(A):e-Bid Form" and "Section-IV(B):Price Schedule/BOQ" of e-tender document. Before uploading, the bidder has to select the relevant Digital Signature Certificate. He may be prompted to enter the Digital Signature Certificate password, if necessary. For uploading, the bidder should click "Browse" button against each document label in Technical and Financial schedules/packets and then upload the relevant PDF/XLS files already prepared and stored in the bidder's computer. The required documents for each document label of Technical (Fee details, Qualification details, e-Bid Form and Technical Specification details) and financial (e-Bid Form and Price Schedule/BOQ) schedules/packets can be clubbed together to make single different files for each label.

15.6   The bidder should click "Encrypt" next for successfully encrypting and uploading of required documents. During the above process, the e-Bid documents are digitally signed using the DSC of the bidder and then the documents are encrypted/locked electronically with the DSC's of the bid openers to ensure that the e-Bid documents are protected, stored and opened by concerned bid openers only.

15.7   After successful submission of e-Bid document, a page giving the summary of e-Bid submission will be displayed confirming end of e-Bid submission process. The bidder can take a printout of the bid summary using the "Print" option available in the window as an acknowledgement for future reference.

15.8   Purchaser reserves the right to cancel any or all e-Bids without assigning any reason.

16. Deadline for Submission of e-Bid

16.1   e-Bid (Technical) must be submitted by the bidders at e-Procurement website https://etender.up.nic.in not later than the time 05.00 P.M. on 07-03-2019 (as the server time displayed in the e-Procurement website).

16.2   The Purchaser may, at its discretion, extend this deadline for submission of e-Bid by amending the e-Bid document in accordance with ITB Clause 4, in which case all rights

and obligations of the Purchaser and bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

17.   Late e-Bid

17.1   The server time indicated in the Bid Management window on the e-Procurement website https://etender.up.nic.in will be the time by which the e-Bid submission activity will be allowed till the permissible date and time scheduled in the e-tender. Once the   e-Bid submission date and time is over, the bidder cannot submit his/her e-Bid. Bidder has to start the Bid Submission well in advance so that the submission process passes off smoothly. The bidder will only be held responsible if his/her e-Bid is not submitted in time due to any of his/her problems/faults, for whatsoever reason, during e-Bid submission process.

18.   Withdrawal and Resubmission of e-Bid

18.1   At any point of time, a bidder can withdraw his/her e-Bid submitted online before the bid submission end date and time. For withdrawing, the bidder should first log in using his/ her Login Id and Password and subsequently by his/her Digital Signature Certificate on the e-Procurement website https://etender.up.nic.in. The bidder should then select "My Bids" option in the Bid Submission menu. The page listing all the bids submitted by the bidder will be displayed. Click "View" to see the details of the e-Bid to be withdrawn. After selecting the "Bid Withdrawal" option, the bidder has to click "Yes" to the message "Do you want to withdraw this bid?" displayed in the Bid Information window for the selected bid. The bidder also has to enter the bid Withdrawing reasons and upload the letter giving the reasons for withdrawing before clicking the "Submit" button. The bidder has to confirm again by pressing "Ok" button before finally withdrawing his/her selected e-Bid.

18.2   The bidder has to request the Purchaser with a letter, attaching the proof of withdrawal and submission of e-Bid security/EMD in the office of Purchaser, to return back the e-Bid security/EMD as per the manual procedure, IF ANY.

18.3   No e-Bid may be withdrawn in the interval between the deadline for submission of e-Bids and the expiration of period of e-Bid validity. Withdrawal of an e-Bid during this interval may result in the bidder's forfeiture of his/her e-Bid security, pursuant to ITB Clause 12.7.

18.4   The bidder can re-submit his/her e-Bid as and when required till the e-Bid submission end date and time. The e-Bid submitted earlier will be replaced by the new one. The payment made by the bidder earlier will be used for revised e-Bid and the new e-Bid submission summary generated after the successful submission of the revised e-Bid will be considered for evaluation purposes. For resubmission, the bidder should first log in using his/her Login Id and Password and subsequently by his/her Digital Signature Certificate on the e-Procurement website https://etender.up.nic.in. The bidder should then select "My Bids" option in the Bid Submission menu. The page listing all the bids submitted by the bidder will be displayed. Click "View" to see the details of the e-Bid to be resubmitted. After selecting the "Bid Resubmission" option, click "Encrypt & Upload" to upload the revised e-Bid documents by following the methodology provided in clauses 15.4 to 15.7.

18.5   The bidders can submit their revised e-Bids as many times as possible by uploading their e-Bid documents within the scheduled date & time for submission of e-Bids.

18.6   No e-Bid can be resubmitted subsequently after the deadline for submission of e-Bids.

(C) e-Bid OPENING AND EVALUATION OF e-Bid

19. Opening of Bids

19.1   Opening of Technical e-Bid by the Purchaser

(i)   The Purchaser will open all technical e-Bids, in the presence of bidders' representatives who choose to attend at **06.00 PM on 07-03-2019** at UP Electronics Corporation Ltd, 10 Ashok Marg, Lucknow-226001. The bidder's representatives who are present shall sign a register evidencing their attendance. In the event of the specified date of e-Bid opening being declared a holiday for the Purchaser, the e-Bids shall be opened at the appointed time and place on the next working day.

(ii)   The bidder's names and the presence or absence of requisite e-Bid security and such other details as the Purchaser at its discretion may consider appropriate, will be announced at the opening. The name of such bidders not meeting the Technical Specifications and qualification requirement shall be notified subsequently.

(iii)   The Purchaser will prepare minutes of the e-Bid opening.

19.2   Opening of Financial e-Bid

(i) After evaluation of technical e-Bid, the Purchaser shall notify those bidders whose technical e-Bids were considered non-responsive to the Conditions of the Contract and not meeting the technical specifications and Qualification Requirements indicating that their financial e-Bids will not be opened. The Purchaser will simultaneously notify the bidders, whose technical e-Bids were considered acceptable to the Purchaser. The notification may be sent by letter, fax or by e-mail.

(ii) The financial e-Bids of technically qualified bidders shall be opened in the presence of bidders who choose to attend, and date for opening of financial bids will be communicated to the Technically Qualified Bidders subsequently after completion of technical bids evaluation. The name of bidders, Unit Price quoted for various items etc will be announced at the meeting.

(iii)The Purchaser will prepare the minutes of the e-Bid opening.

20.   Clarification of e-Bid

During evaluation of e-Bid, the Purchaser may, at its discretion, ask the bidder for a clarification of his/her e-Bid. The request for clarification and the response shall be in writing.

21.   Evaluation of technical e-Bid and Evaluation Criteria

The Purchaser will examine the e-Bid to determine whether they are complete, whether they meet all the conditions of the Contract, whether required e-tender fee,   e-Bid security and other required documents have been furnished, whether the documents have been properly digitally signed, and whether the e-Bids are generally in order. Any e-Bid or e-Bids not fulfilling these requirements shall be rejected.

21.1   The bidder should be a branded/Original Equipment Manufacturer (OEM) of   RFP Items or their authorized dealer/distributor/supplier, which has been authorized by the OEM to participate in this e-tender. ==The e-Bids of bidders who are dealers/distributor/suppliers of items mentioned in RFP and have not submitted their authorization certificates from respecting equipment's Manufacturers (OEM) for this eTender shall also be rejected.==

21.2   The bidder shall submit the copies of the certificate of the trade mark registration/the authorization letter of the competent authority using the trade mark and/or certificate of registration in excise of the manufacturer for **RFP ITEMS** offered in this e-tender. In case manufacturer is exempted from excise duties by the Government, the bidder shall furnish documentary proof along with the e-Bid. The e-Bid submitted without required documentary proof shall be rejected.

21.3   The bidder/the Original Equipment Manufacturer of the **RFP ITEMS** in the e-tender shall be in the business of installation and installation for last five years. The e-Bids of the bidders not submitting duly signed & stamped evidence i.e. copies of purchase order and its satisfactory installation report of last five financial years regarding installation of **RFP ITEMS** e-Bid shall be rejected. The e-Bidders should also submit filled in Performa as per "Section III (F) - Performance Statement Form" in support of his/her experience.

21.4   All the items quoted should have minimum technical specifications given in the e-tender.

21.5   The bidder should have a Service centre at Lucknow is essential. Details of Service Centers and information on service support facilities that would be provided during and after the warranty period should be given by the bidder as per Service Support Form given in Section-III (G) of this e-tender document. The e-Bids of the bidder who do not have at least eight Service Support Centers in different Revenue Division of U.P. shall be rejected. The bidder whose e-Bid is accepted, shall also be bound to open their service centers/their service providers in all those revenue divisions/or adjacent revenue divisions for whom RFP Items are being installed within two months from the date of issue of purchase order. Bidder shall submit an undertaking to the Purchaser to this effect. If at any stage, it is found that the centers/service providers have not been opened or non-functional or have been closed down, then the e-Bid security/performance bank guarantee shall be forfeited.

21.6   The bidder should have given satisfactory warranty maintenance services of the **RFP ITEMS** products supplied by them and should submit supporting documents from its clients for the same.

21.7   The bidder should submit a notarized affidavit that the bidder's firm has not been black listed from any State/Central Government Departments/Organizations. The e-Bids of the black-listed bidders or those not submitting the required affidavit shall be rejected.

21.8   All e-Bids submitted shall also include the following:

(i)   Filled in form as per Section III (H) - Capability Statement.
(ii) Certified Copies of relevant pages of following documents:

a. Memorandum and Article of Association showing objectives of the Company/firm and authority to sign the e-Bid/contract or delegate the power to others for signing the e-Bid/contract.
b. Place of registration.
c. The power-of-attorney authorizing the bidder to sign the e-Bid/ contract.
d. PAN certificate of the company/firm.
e. GST registration certificate of the company/firm.

The e-Bids of the bidders not submitting certified copies of documents mentioned in clause 21.8 (ii) above shall be rejected.

21.9 The bids of the bidders not quoting all the items of a schedule of the tender may be rejected. It is not necessary for a Bidder to quote all schedules of Bid. But if bidder is quoting any schedule, it is must to quote all items for that schedule. Bidders must quote for all the items in a schedule in the technical bid and in the price schedule/BOQ of financial bid. The bids of bidders who will not quote for all the items in any schedule in technical and financial bids shall be rejected.

21.10 The e-Bids found to be not responsive to and not fulfilling all the conditions of the contract and not meeting Technical Specifications and Qualification Requirements to the satisfaction of Purchaser shall be rejected and may not subsequently be made responsive by the bidder by correction of the non-conformity. The e-Bids of bidders mentioning any of their conditions which are not mentioned in the e-tender document or are not in conformity with the conditions of the contract shall be rejected.

21.11 It shall be the discretion of the Purchaser to decide as to whether an e-Bid fulfils the evaluation criterion mentioned in this e-tender or not.

21.12 The bidders are advised not to mix financial bid documents with the PDF documents submitted for technical bid. The e-Bids of the bidders having financial bid document in the technical bid will out rightly are rejected.

21.13 Uttar Pradesh State Unit manufacturer bidders seeking purchase preference/price preference for their manufactured quoted goods as per the G.O. 706/18-5-2003-9(S.P.)/95, dated 11 June 2003 and 1261/18-5-2006-9(S.P.)/95 dated 22 September 2006 of Small Industries Department, Govt. of Uttar Pradesh shall have to submit the evidence that their quoted goods have been manufactured by them in a manufacturing unit in Uttar Pradesh. The bidder should also submit proof that its manufacturing unit falls into small/medium/large scale industry unit as per Govt. norms

22 **Financial Evaluation and Comparison**

22.1 The Purchaser will evaluate and compare the financial rates of individual items quoted in the price schedule/BOQ of e-Bids of those bidders whose technical e-Bids are found responsive as per the conditions of the e-tender only for those items of the bidders which have been technically accepted by the Purchaser.

22.2 No additional payments shall be made for completion of any contractual obligation beyond the quoted prices. If the supplier does not accept the correction of errors if any, its e-Bid shall be rejected and its e-Bid security may be forfeited.

22.3   No weightage/preference shall be given to the bidder quoting any higher technical specifications against the technical specifications of the items asked in the e-tender.

22.4   The Purchaser's evaluation of a Financial bid shall be based on lowest rate quoted excluding GST by the bidder including the cost of equipment – preloaded with software as indicated in the technical specification (Ex-factory/ex-warehouse/off-the-shelf price of the goods offered from within India, such price to include all costs as well as duties and taxes paid or payable on components and raw material incorporated or to be incorporated in the goods, and Excise duty on the finished goods, if payable) and price of incidental services and the cost of inland transportation, insurance and other costs within India incidental to the delivery of the goods to their final destination as mentioned in para 8.2 of ITB.

22.5   Uttar Pradesh State Unit manufacturer bidders will be given purchase preference/price preference for their manufactured quoted goods as per the G.O. 706/18-5-2003-9(S.P.)/95, dated 11 June 2003 and 1261/18-5-2006-9(S.P.)/95 dated 22 September 2006 of Small Industries Department, Govt. of Uttar Pradesh.

22.6   **Evaluation for bids shall be done total lowest bid price (excluding GST) received for all items for that schedule.**

22.7   The bidders whose technical bids would be found responsive and meeting the qualification requirements and fulfilling all conditions of the tenders, shall be considered for those items which would be technically accepted by the purchaser and whose schedule-wise bid price quoted are lowest in the bids.

23   Contacting the Purchaser

23.1   Subject to ITB Clause 20, no bidder shall contact the Purchaser on any matter relating to his/her e-Bid, from the time of the e-Bid opening to the time the Contract is awarded. If the bidder wishes to bring additional information to the notice of the Purchaser, he/she can do so in writing.

23.2   Any effort by a bidder to influence the Purchaser in its decisions on e-Bid evaluation, e-Bid comparison or contract award may result in rejection of the bidder's e-Bid.

(D) AWARD OF CONTRACT

24   Award Criteria

24.1   The Purchaser will determine to its satisfaction whether the bidder(s) that is selected as having submitted the lowest evaluated responsive bid meets the criteria specified in ITB Clause 10.2, and is qualified to perform the contract satisfactorily.

24.2   Subject to ITB Clause 26, the Purchaser will award the contract to the lowest evaluated successful Bidder whose bid has been determined to be responsive to all the conditions of the contract and meeting the Technical specification and qualification requirement of the Bidding Document.

25   Purchaser's right to vary Quantities at the Time of Award

25.1   The Purchaser reserves the right at the time of Contract award to increase up to 50% or decrease as per requirement of client department(s) the quantity of goods and services

originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions, depending upon the requirement of end-customer.

25.2 If any taxes/duties are increased/ decreased by the Government during the contract period, the same shall be adjusted mutually after submitting the proof by the successful bidder to the Purchaser.

26 Purchaser's right to accept any e-Bid and to reject any or all e-Bids

26.1 The Purchaser reserves the right to accept or reject any e-Bid, and to annul the e-Bid process and reject all e-Bids at any time prior to contract award, without thereby incurring any liability to the affected bidder or bidders.

27 Notification of Award

27.1 Prior to the expiration of the period of e-Bid validity, the Purchaser will notify the successful bidder in writing by letter/e-mail/fax, that its e-Bid has been accepted.

27.2 The notification of award will constitute the formation of the Contract.

27.3 Upon successful bidder's furnishing of performance security pursuant to ITB Clause 29, the Purchaser will promptly return e-Bid security pursuant to ITB Clause 12.

28 Signing of Contract

28.1 At the same time as the Purchaser notifies the successful bidder that its e-Bid has been accepted, the Purchaser will send the bidder the Contract Form provided in the e-Bid document, incorporating all conditions of the agreement between the parties i.e. Purchaser and successful bidder.

28.2 Within 7 days of receipt of the Contract Form, the successful bidder shall execute, sign and date the Contract and return it to the Purchaser.

29 Performance Security

29.1 Within 7 (Seven) days of the execution of the contract with the Purchaser, the successful bidder shall furnish a performance security in the form of bank guarantee for 10% amount of order value in favour of concerned department, if required, which would be valid for the period of warranty obligation from State Bank of India or its associate banks or any nationalized Bank of India or scheduled bank located in India in favour of the purchaser, in accordance with the Conditions of Contract, in the Performance Security Form provided in the bidding document or in another form acceptable to the purchaser.

29.2 In some cases for small amount orders, where the concerned department has not asked for the Bank Guarantee in its favour, UPLC may ask the successful bidder to submit performance security in favour of UP Electronics Corporation Ltd.

29.3 Failure of the successful bidder to comply with the requirement shall constitute sufficient grounds for the annulment of the award and forfeiture of the e-Bid security, in which event the Purchaser may make the award to the next lowest evaluated bidder or call for new e-Bids.

Section-II

Qualifying Criteria: Please refer to Page No. 77 to 78 of this RFP for detail.

2.1 SPECIFICATION AND SELECTION: Please refer to Page No. 78 of this RFP for detail.

VIEWING AND RECORDING: Please refer to Page No. 79 of this RFP for detail.

EDGE ANALYTICS: Please refer to Page No. 79 of this RFP for detail.

Penalty Clauses: Please refer to Page No. 79 of this RFP for detail.

SN	Qualifying Criteria	Document's Required
1	As on date of submission of the proposal, the Bidder is neither blacklisted by Central Government / State Government or instrumentalities thereof nor any criminal case against the Bidder / Its Partners / Directors / Agents pending before any court of Law.	Notarized Affidavit of neither blacklisted by Central Government / State Government or instrumentalities thereof nor any criminal case against the Bidder / Its Partners / Directors / Agents pending before any court of Law. Undertaking from authorized signatory of Bidder.
2	Authorization from the "OEM"	Authorization Certificate from the "OEM" on Letter Head
3	Bidder should submit the Power of Attorney for Authorization to sign Bidder's e-Bid Documents/ Contract by competent Authority.	Power of Attorney / Relevant Document
4	Bidder should submit the Acceptance of Terms & Conditions of e-Bid Tender Document by the Bidder on "BID FORM" **(SECTION III A)**	Form, duly signed by the authorized signatory.
5	Bidder should submit the "Schedule of Requirements" of e Tender Document duly signed by Bidder and given. **(SECTION III B)**	Form, duly signed by the authorized signatory.
6	Bidder should submit the compliance sheet of "Technical Specification" of all the Items given in Bid. **(SECTION III C)**	The Bidder should submit the Form, which should be duly signed by the authorized signatory. Technical compliance should be submitted on OEM's/Bidder letterhead.
7	Bidder should submit the "Technical e-Bid" - Bid Security Form **(SECTION III D)**	Form duly signed by the authorized signatory.
8	Bidder should submit the "Technical e-Bid" - **SECTION III(E) : CONTRACT FORM**	Form duly signed by the authorized signatory.
9	Bidder should submit the "Technical e-Bid" – Performance Statement. **(SECTION III F)**	Form duly signed by the authorized signatory.
10	Bidder should submit the "Technical e-Bid" – Service Support Details **(SECTION III G)**	Form duly signed by the authorized signatory.
11	Bidder should submit the "Technical e-Bid" – Capability Statement **(SECTION III H)**	Form duly signed by the authorized signatory.
12	Bidder should submit the "Technical e-Bid" – Performance Security Form **(SECTION III I)**	Form duly signed by the authorized signatory.
13	Bidder should submit the PAN No.	Copy of PAN Card of Bidder
14	Bidder should submit the GST No.	Copy of GST Certificated
15	Turnover	Please refer page no. 77
16	Bidder should submit the Cost of e-Bid document.	By Online payment or Scan Copy of Tender Fee in form of as desired, should uploaded with technical bid and Original Copy at the time of Technical or Financial bid Opening. If not

SN	Qualifying Criteria	Document's Required
		submitted, legal action (Cancellation of Registration and Black Listing) will be taken.
17	Bidder should submit the e-Bid security (EMD).	By Online payment or Scan Copy e-Bid security (EMD) in form of as desired, should uploaded with technical bid and Original Copy at the time of Technical or Financial bid Opening. If not submitted, legal action (Cancellation of Registration and Black Listing) will be taken.
18	The Bidder should mention the make & OEM of RFP equipments in compliance sheet.	Duly signed Compliance sheet from OEM / Bidder

Section-III

Conditions of Contract

1. Definitions

1.1   In this Contract, the following terms shall be interpreted:

(a)   "The Contract" means the agreement entered into between the Purchaser and the Supplier, as recorded in the Contract Form signed by the parties, including all the attachments and appendices thereto and all documents incorporated by reference therein;

(b)   "The Contract rates" mean the prices of various items payable to the Supplier under the Contract for the full and proper performance of its contractual obligations;

(c)   "The Goods" means all the equipment, machinery and/or other materials which the Supplier is required to supply to the Purchaser under the Contract;

(d)   "Services" means services ancillary to the supply of the Goods, such as transportation and insurance and any other incidental services, such as installation, provision of technical assistance and other obligations of the Supplier covered under the Contract;

(e)   "The Purchaser" means the organization purchasing the goods and the Purchaser is U.P. Electronics Corporation Ltd., 10, Ashok Marg, Lucknow-226001

(f)   "The Supplier" means the individual or firm supplying the Goods and Services under this Contract for the period of one year and supplier is ----------------------- ;

(g)   "The Project Site", where applicable, mean's the Departments/Institutions of State government located in different cities of U.P., where the RFP Items and other items will be supplied against the purchase orders of the Purchaser.

(h)   "Day" means calendar day.

2. Application

These Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

3. Standards

he Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications or the higher and when no applicable standard is mentioned; the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned O.E.M. of goods.

4. Patent Rights

The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in India.

5.   Performance Security

5.1   Within 7 (Seven) days of the execution of the contract with the Purchaser, the successful bidder shall furnish a performance security in the form of bank guarantee for 10% amount of order value (excluding GST) in favour of concerned department, which would be valid for the period of warranty obligation from India or its associate banks or any

nationalized Bank of India or scheduled bank located in India in favour of the purchaser, in accordance with the Conditions of Contract, in the Performance Security Form provided in the bidding document or in another form acceptable to the purchaser.

5.2   During warranty/extended warranty period, the defective item (s) or component(s) are to be replaced or repaired whatever required, shall be done by the supplier to the satisfaction of the Purchaser/user department.

5.3   The proceeds of the performance security shall be payable to the authority in favour of whom the performance bank guarantees being made as compensation for any loss resulting from the supplier's failure to complete its obligations under the Contract.

5.4   The performance security shall be denominated in Indian Rupees and shall be in the following forms only:

A Bank guarantee issued by any nationalized bank of India or a scheduled bank in India acceptable to the Purchaser, in the form provided in the e-Bid document or another form acceptable to the Purchaser/user department.

5.5   The performance security will be discharged by the Purchaser/user department and returned to the Supplier upon the written request through cheque as promptly as possible following the date of its validity or completion of the Supplier's performance obligations including any onsite warranty/extended warranty obligations, whichever is later, under the contract.

5.6   In the event of any contract amendment, the Supplier shall within 7 days of receipt of such amendment furnish the amendment to the Performance Security rendering the same valid for the duration of the Contract as amended for 60 days after the completion of performance obligations including three years comprehensive warranty obligations of all the items.

5.7   In some cases, for small amount orders, where the concerned department has not asked for the Bank Guarantee in its favour, UPLC may ask the successful bidder to submit performance security in favour of UP Electronics Corporation Ltd.

5.8   **In case, the successful bidder fail to submit the performance security then 10% amount of order value (Excluding GST) shall be deducted and it will remain with UPLC in pursuant to Warranty Services during the first payment to selected Bidder.**

6.   Inspection & Tests

Inspection and tests prior to shipment of Goods and at final acceptance are as follows:

6.1

(i)   The inspection of the Goods shall be carried out to check whether the Goods are in conformity with the technical specifications attached to the contract and the Conditions of Contract. The Purchaser will test all the equipment prior to their delivery at sites in the office/factory of the supplier and the Supplier will dispatch the inspected & tested goods by the Purchaser to the ultimate consignee along with manufacturer's warranty certificate. Complete hardware and software

as specified in Section III (B) should be supplied, installed and commissioned properly against the purchase order of the Purchaser by the supplier prior to commencement of performance tests, if not carried out by the Purchaser prior to their delivery at sites. Supply and Installation of RFP Items shall be tested at sites only after its installation. For site preparation, as stated in Clause 35 the supplier should furnish all details to the Purchaser sufficiently in advance so as to get the works completed before receipt of the equipment.

(ii) The acceptance test will be conducted by the Purchaser, their consultant or any other person nominated by the Purchaser, at its option. There shall not be any additional charges for carrying out acceptance tests. The acceptance will involve trouble-free operation during acceptance testing period. No malfunction, partial or complete failure of any part of hardware or excessive heating of motors attached to printers, drivers etc. or bugs and malfunctioning in the software should occur. All the software should be complete and no missing module/sections will be allowed. During acceptance tests, the items having the same or higher technical specifications as given in the contract shall only be accepted. The Supplier shall maintain necessary log in respect of the result of the tests to establish to the entire satisfaction of the Purchaser. An average uptake efficiency of 98% for the duration of test period shall be considered as satisfactory.

(iii) In the event of the Hardware and Software failing to pass the acceptance test, if carried out at site of installation, a period not exceeding two weeks will be given to rectify the defects and clear the acceptance test, failing which the Purchaser reserves the rights to get the equipment's replaced by the supplier at no extra cost to the Purchaser.

(iv) Successful conducts and the conclusion of the acceptance test for the installed goods and equipment shall also be the sole responsibility and at the cost of the supplier.

6.2 The inspections and tests will be conducted on the premises of the Supplier prior to delivery of the Goods at final destination. For conducting the inspection and tests at the premises of the Supplier, all reasonable facilities and assistance, including access to drawings and production data shall be furnished by the supplier at no charge to the inspectors of the Purchaser. Supplier shall intimate to the Purchaser indicating that the RFP Items equipments are ready for inspection and the Purchaser can send their representative for inspection at their premises. After receipt of such intimation from the Supplier, the Purchaser shall arrange for pre-dispatch inspection and test. After the Supply and Installation of RFP Items passes in the inspection and tests, the Supplier shall deliver and install the system and all other items at the respective sites within the time schedule given in the Schedule of Requirements.

6.3 Should any inspected or tested Goods fail to conform to the specifications, the Purchaser may reject the goods and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Purchaser.

6.4 The Purchaser's rights to inspect, test and, where necessary, reject the Goods after the Goods' arrival at Project Site shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to the Goods shipment.

6.5 **Manual and Drawing**

deleted

7. Packing

7.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the purchase order. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into Consideration where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

7.2 The packing, making and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract.

8. Delivery and Documentation

Upon delivery of the Goods, the supplier shall notify the Purchaser and the insurance company by fax the full details of the shipment including purchase order number, description of goods, quantity, name of the consignee etc. The supplier shall mail the following documents to the Purchaser: -

(a) 3 copies of the supplier's invoice showing goods description, quantity, unit price, total amount;
(b) Delivery challans duly signed & stamped by the consignee i.e. by the representatives of project sites.
(c) Manufacturers/Supplier's warranty certificate;
(d) Goods inspection report.

9. Insurance

For delivery of goods at site, the insurance shall be obtained by the supplier at their cost of the amount equal to 110% of the value of the goods from warehouse of the supplier to the final destinations of installation defined as project site on "All Risks" basis including war risks and strikes. It will be the sole responsibility of the supplier to file the claim, if any, with the Insurance Company immediately after delivery of goods at project sites.

10. Transportation

The Supplier is required under the Contract to transport the Goods to the specified destinations within U.P/other location, as required, defined as Project sites.

11. Incidental Services

The following services shall be furnished and the cost shall be included in the contract rates:
a. On-site delivery & satisfactory installation of all the items as per purchase order;
b. Furnishing all the manuals as per purchase order to the project sites; and
c. Maintenance and repair of the equipment at each location during the comprehensive warranty period including the cost of all spares.

12. Spare Parts

Supplier shall carry sufficient inventories to assure ex-stock availability of spares. Supplier shall ensure the availability of all spare parts for after sale service support for a period of at least five years including the onsite comprehensive warranty period of the items.

13. Warranty

13.1   The Supplier warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and those they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that all Goods supplied under this Contract shall have no defect arising from design materials or workmanship or from any act or omission of the Supplier that may develop under normal use of the supplied Goods in the conditions prevailing in the country of final destination.

13.2   The warranty shall be comprehensive for all the equipment, parts and components (excluding consumable items). The warranty period are given in column 3 of technical specification.   The period of warranty shall be considered from the date of installation and acceptance of goods or 3 months more than warranty period from the date of delivery at project sites, whichever occurs earlier for all the items. The supplier shall in addition comply with the performance guarantees specified under the contract.   If for reasons attributable to the supplier, these guarantees are not attained in whole or in part, the Supplier shall, make such changes, modifications and or additions to the Goods or any part thereof as may be necessary in order to attain the contractual guarantees specified in the Contract at its own cost and expense and to carry out further performance tests in accordance with CC6.

13.3   The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.

13.4   During warranty period, the defective item or component shall be replaced or repaired whatever required, by the supplier or the service centre authorised by the supplier, to the satisfaction of the user departments.

12.8   Period for correction of defects in the warranty period is 48 hrs.

13.6   The supplier shall guarantee a 99% uptime of of RFP items.

13.7   If any items give continuous trouble say two times in one month during the warranty period, the supplier shall replace those items with new one without any additional cost to Purchaser.

13.8   The Supplier must have service support centre in Lucknow.

13.9   **Maintenance service**

8.1   The maximum response time for rectification of complaint from any of the destinations specified in clause 13.9.3 below (i.e. time required from supplier's maintenance engineer to report at the installation site after a request call/fax is made or letter is written) shall not exceed 24 hours.

8.2 It is expected that the average downtime of the item will be less than half the maximum downtime (i.e. 48 hours for which an item or equipment is not usable because of inability of the supplier to repair it). In case an item is not usable beyond the stipulated maximum downtime the supplier will be required to arrange for immediate replacement of the same till it is repaired. Failure to arrange for the immediate repair/replacement with in 24 hours after registering complaint, will be liable for a penalty amount **mentioned in penalty clause**. The total amount of penalty recovered from supplier during full warranty period will be limited to the worth value of the performance security guarantee. The amount of penalty will be recovered forfeiting the Performance Security guarantee during warranty period.

8.3 Details of the supplier's service centers/service providers are given below;

(i) ……………….

(ii) ……………….

(iii) ……………….

14. Payment

Payment for Goods and Services shall be made in Indian Rupees as follows:

(i) **On Delivery: -** Ninety percent (90%) of the total price of all the goods given in the purchase order shall be paid by the Purchaser on back-to-back arrangement upon receipt of payment from the user department to the supplier, on receipt of all the inspected & tested goods at project sites and upon submission of the documents specified in Clause 8.

(ii) **On Installation: -** The remaining ten percent (10%) amount of the order value of the goods received shall be paid to the supplier as promptly as possible after successful installation of all the items and submission of all installation reports duly signed & stamped by the representatives of all the project sites, on back-to-back arrangement upon receipt of payment from the user department. The TDS as applicable will be deducted from this payment on the value of installation and warranty service charges quoted by the supplier in their e-Bid. Any other dues/outstanding shall also be recovered from this payment.

(iii) Most of the departments for which UPLC is asking bids in this tender have not provided cost of equipment in advance to UPLC. They have informed that they will provide the money only after successful delivery and installation of the ordered items, hence UPLC shall pay the amount against delivery and installation of the ordered items, to successful bidders only after same is received by UPLC from the concerned department.

15. Prices

15.1 Prices payable to the Supplier as stated in the Contract shall remain fixed during the performance of the contract. However, in the event of any increase/decrease in Government taxes/duties as applicable at the time of delivery, the prices shall be adjusted at the time of payment on submission of their proof by the supplier to the Purchaser. In case during the period of the supply, the equipment of the same specifications are being supplied in other departments on the lower rate (within a previous period of six months) by the supplier, the supplier will have to supply those equipment with matching price. In case at the time of delivery of the equipment, higher

specification equipment on the same price as quoted/approved in the e-Bid by the supplier are being supplied to other department (s), the supplier will have to supply the higher specification equipment on the quoted/approved rates.

16. Change Orders

16.1   The Purchaser may at any time, by written order given to the Supplier make changes within the general scope of the Contract in any one or more of the following:

(a)   Technical specifications where Goods to be furnished under the Contract   are   to   be specifically manufactured for the Purchaser;
(b)   the method of shipping or packing;
(c)   the place of delivery; and/or
(d)   the Service to be provided by the Supplier.

16.2   If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within seven (7) days from the date of the Supplier's receipt of the Purchaser's change order.

17. Contract Amendments

17.1   Subject to condition of contract clause 16 of the Contract, no variation in or modification of the terms of the contract shall be made except by written amendment signed by the parties.

18. Assignment

The Supplier shall not assign, in whole or in parts its obligations to perform under the Contract to any other firm except with the Purchaser's prior written consent.

19. Delivery of the Goods and Delay in the Supplier's Performance

19.1   The inspection and test of the RFP Items items shall be carried out by the Purchaser prior to its dispatch by the Supplier at final destination and for this purpose; the Supplier shall intimate to the Purchaser that the RFP Items and other items are ready for inspection and test. After receipt of such intimation from the Supplier, the Purchaser will arrange the inspection and test of the RFP Items items at the premise of Supplier. After the RFP Items pass the test, the items which are inspected and accepted during acceptance testing by the Purchaser shall be packed by the supplier and the representative of Purchaser will put a unique number, their seal and signature on each of the packet. The Supplier shall deliver the sealed unbroken packets to the project sites and install the systems and all other items at the respective sites within the time schedule given in the Schedule of Requirements.

19.2   If at any time during performance of the Contract the Supplier should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may, at its discretion, extend the Supplier's time for performance with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of the Purchase order.

18.3   Except as provided under conditions of contract clause 22 of the Contract, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to conditions of Contract unless an extension of time is agreed upon pursuant to conditions of Contract without the application of liquidated damages.

20. Liquidated Damages

20.1   Subject to conditions of Contract if the Supplier fails to deliver or install any or all of the Goods or to perform the Services within the period (s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract price, as liquidated damages, a sum equivalent to 0.5% of the delivered price of the delayed Goods or unperformed Services for each week or part thereof delay until actual delivery or installation or performance, up to a maximum deduction of 10%. Once the maximum penalty is reached, the Purchaser may consider termination of the Contract/purchase order pursuant to conditions of Contract Clause 21 of the Contract.

21. Termination for Default

21.1   The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part:

(a) if the Supplier fails to deliver any or all of the Goods within the period(s) specified in the Contract/Purchase Order, or within any extension thereof granted by the Purchaser pursuant to clause no. 19.2 above or

(b) if the Supplier fails to perform any other obligation(s) under the Contract or Purchase Order.

21.2   In the event the Purchaser terminates the Contract in whole or in part, pursuant to the conditions of contract clause no. 21.1 above, Purchaser may procure, upon such terms and in such manner as it deems appropriate. Goods or Services similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess costs for such similar Goods or Services. However, the supplier shall continue the performance of the Contract to the extent not terminated.

22. Force Majeure

22.1   Notwithstanding the provisions of conditions of contract clause no. 19, 20 & 21 above, the Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

22.2   For purpose of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes. If a Force Majeure situation arises the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

23. Termination for Insolvency

23.1 The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, if the Supplier becomes bankrupt or otherwise insolvent. In this event termination, will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Purchaser.

24. Termination for Convenience

24.1 The Purchaser, by written notice sent to the Supplier may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.

24.2 The Goods that are complete and ready for shipment at the time of Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:

(a) to have any portion completed and delivered at the Contract terms and prices; and/or

(b) to cancel the remainder and pay to the Supplier an agreed amount for partially Completed Goods.

25. Settlement of Disputes

25.1 If any dispute or difference of any kind whatsoever shall arise between the Purchaser and the Supplier in connection with or arising out of the Contract the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.

25.2 If, the parties have failed to resolve their dispute or difference by such mutual consultation within 30 (thirty) days, then aggrieved party may give notice to other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given.

25.3 Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract.

25.4

25.4.1 In case of dispute or difference arising between the Purchaser and a domestic supplier relating to any matter arising out of or connected with this agreement, such dispute or difference shall be referred to Sole Arbitrator, the Principal Secretary/Secretary, IT & Electronics Department, Govt. of U.P. or his nominee, to decide the dispute both in case of foreign supply as well as Indian supply. The provision of Arbitration and Conciliation Act, 1996 shall apply.

25.4.2 Arbitration proceedings shall be held at Lucknow, India, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be in English or Hindi.

25.4.3 The decision of the Sole Arbitrator or his nominee shall be final and binding upon both parties. The cost and expenses of arbitration proceedings will be paid as determined by the Arbitrator. However, the expenses incurred by each party in connection with the preparation, presentation etc. of its proceedings shall be borne by each party itself.

4.5   Notwithstanding any reference to arbitration herein.

(a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
(b) the Purchaser shall pay the Supplier any monies due to the Supplier.

26. Limitation of Liability

26.1   Except in cases of criminal negligence or willful misconduct, and in the case of Infringement pursuant to Clause 4 above.

(a) the Supplier shall not be liable to the Purchaser, whether in contract tort, or otherwise, for any indirect or consequential loss of damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay liquidated damages to the Purchaser; and

(b) The aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, shall not exceed the total value of items ordered under this Contract provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

27.   Governing Language

27.1   The Contract shall be written in English or Hindi language Subject to condition of contract clause 28 as below, English language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in the same language.

28.   Applicable Law

The Contract shall be interpreted in accordance with the laws of the Union of India.

29.   Notices

29.1   Any notice given by one party to the other pursuant to this Contract shall be sent to other party in writing or by e-mail or by fax and confirmed in writing to the other Party's address. For the purpose of all notices, the following shall be the address of the Purchaser and Supplier

Purchaser: U.P. Electronics Corporation Ltd,
               10, Ashok Marg,
               Lucknow (U.P.) - 226 001

Supplier: (To be filled in at the time of Contract execution)

……………………………….

……………………………….

....

29.2 A notice shall be effective when delivered or on the notice's effective date whichever is later.

30. Taxes and Duties

30.1 Suppliers shall be entirely responsible for all taxes, duties, license fees, octroi, road permits etc. incurred until delivery of the contracted Goods to the Purchaser.

31. Right to use defective equipment

If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the equipment proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such equipment until rectification of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchaser's operation.

32. Supplier Integrity

The supplier is responsible for and obliged to conduct all contracted activities in accordance with the contracts using state-of-the-art methods and economic principles and exercising all means available to achieve the performance specified in the contract.

33. Supplier's Obligations

The supplier is obliged to work closely with the Purchaser's staff, act within its own authority and abide by directives issued by the Purchaser and implementation activities. The supplier is abiding by the job safety measures prevalent in India and will free the Purchaser from all demands or responsibilities arising from accidents or loss of life the cause of which is the supplier's negligence. The supplier will pay all indemnities arising from such incidents and will not hold the Purchaser responsible or obligated. The supplier is responsible for managing the activities of its personnel and will hold itself responsible for any misdemeanors. The supplier will treat as confidential all data and information about the Purchaser, obtained in the execution of his responsibilities, in strict confidence and will not reveal such information to any other party without the prior written approval of the Purchaser.

34. Patent Right

In the event of any claim asserted by a third party of infringement of copy right, patent, trademark or industrial design rights arising from the use of the Goods or any parts thereof in the Purchaser's country, the supplier shall act expeditiously to extinguish such claim. If the supplier fails to comply and the Purchaser is required to pay compensation to a third party resulting from such infringement, the supplier shall be responsible for the compensation including all expenses (court costs and lawyer fees etc). The Purchaser will give notice to the supplier of such claim, if it is made without delay.

35. Site Preparation and Installation

In-charge of the project site is solely responsible for site preparation in compliance with the technical and environmental specifications defined by the supplier. The In-charge of project site will designate the installation site before the scheduled installation date to allow the supplier to perform a site inspection to verify the appropriateness of the sites before the installation of the Hardware and Software.

36. Hardware and Software Installation

The Supplier is responsible for all unpacking, assemblies, installations of all hardware and software, cabling between hardware units and connecting to power supplies. The supplier will test all hardware and software operations and accomplish all adjustments necessary for successful and continuous operation of the hardware and software at all installation sites.

37. Hardware and software Maintenance

The supplier will accomplish preventive and breakdown maintenance activities to ensure that all Hardware execute without defect or interruption for at least 98% up time for 24 hours a day, 7 days of the week of operation of the machine worked on a quarterly basis. If any critical component of the entire configuration is out of service for more than three days, the supplier shall either immediately replace the defective unit at its own cost. The supplier will respond to a site visit and commence repair work on the equipment within 24 hours of being notified of equipment malfunction.

38. Technical Documentation

The Technical Documentation involving detailed instruction for operation is to be delivered with every unit of the equipment supplied if mentioned in the purchase order. The language of the documentation shall be English or Hindi.

39. Transfer of the Rights of the Purchaser

All the items are purchased by the Purchaser on behalf of various offices/ institutions of Government of Uttar Pradesh for whom equipment/materials are being procured. Till successful installation and commissioning of all the items, the purchaser will be responsible for monitoring of the observance of the clauses under this contract. After successful installation & commissioning of all the items, all the rights, duties and obligations of the Purchaser under this contract, shall be exercised by the various offices/ institutions of Government of Uttar Pradesh.

SECTION IV : TECHNICAL E-BID

III(A)   e-Bid FORM

III(B)   SCHEDULE OF REQUIREMENTS

III(C)   TECHNICAL SPECIFICATIONS

III(D)   QUALIFICATION REQUIREMENTS

III(E)   BID SECURITY FORM

III(F)   CONTRACT FORM

III(G)   PERFORMANCE STATEMENT

III(H)   SERVICE SUPPORT DETAILS

III(I)   CAPABILITY STATEMENT

III(J)   PERFORMANCE SECURITY FORM

SECTION III (A) : e-Bid FORM

Date : …………………………..
IFB No.:………………………......

To :

The Managing Director,
U.P. Electronics Corporation Ltd.,
10, Ashok Marg,
Lucknow (U.P.) - 226 001

Dear Sir:

Having examined the e-Bid Documents, we, the undersigned, offer to supply and deliver …………………… *(Description of Goods and Services)* in conformity with the said e-Bid Documents and hereby undertake that we accept all the Conditions of the Contract (Section II) of the e-Bid Document and will supply the RFP Items, its installation and warranty maintenance of RFP Items related items/materials as per the Technical Specifications (Section III(C)) of the e-Bid documents for various Govt. Departments. We further undertake that we fulfill the Qualification Requirements (Section III(D)) and for this purpose we enclose the details. In addition to this, the particulars of our organization such as legal status, details of experience and past performance, service support details, capability statement and the required e-Bid security/EMD.

We further undertake, if our e-Bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements (Section III (B)).

If our e-Bid is accepted, we will obtain the performance guarantee of a bank in the form prescribed by the Purchaser for a sum equivalent to 10% of the Contract Price for the due performance of the Contract

We agree to abide by this e-Bid for the e-Bid validity period specified in Clause 13.1 of the ITB and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal contract is prepared and executed, this e-Bid, together with your written acceptance thereof and your notification of award shall constitute a binding Contract between us. All the terms and conditions of the e-tender Document are acceptable to us.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1998".

We understand that you are not bound to accept the lowest or any e-Bid you may receive.

Dated this ……….. day of …………… 20…..

_____   _____

(Signature)   *(in the capacity of)*

Duly authorized to sign e-Bid for and on behalf of _____

SECTION III (B) : SCHEDULE OF REQUIREMENTS

Item Code	Brief Description	Destination	Delivery Schedule	e-Bid Security
As per the details given in the SECTION III (C) TECHNICAL SPECIFICATIONS		VIDHAN SABHA Lucknow.	All the items shall be delivered/ installation within 4 to 8 weeks from the date of issue of the purchase order. The pre-dispatch inspection of the items shall be done by the Purchaser before delivery at final destination,	NA

SECTION III (C) TECHNICAL SPECIFICATIONS
FOR

A. CCTV System
1. **IP, Outdoor Fixed Bullet Camera with vari-focal lens (3-9/ 2.8-12 mm), colour true day / night, IR type camera.**
   Required Quantity: 107Nos.

Sn	Feature	Description	Make & Model	Compliance (Y/N)
1	Sensor	1/3"or better CMOS Progressive Scan		
2	Active Pixels	H (3000 - 3900) x V (1700- 2200)		
3	Min Sensitivity	Color mode: 0.5Lux @ F1.3 (30 IRE, AGC ON); B/W mode: 0.05 Lux@F1.3 IR ON :- 0.0 Lux @F1.3		
4	Wide Dynamic Range	120dB or better		
5	Video Resolution	H (3000 - 3900) x V (1700- 2200)		
6	Lens options	(2.8-3mm) to (9-12mm); Autofocus		
7	Shutter speed	1/30 to 1/10000 or better		
8	Video compression	H.265, MJPEG (Triple Stream)		
9	Video Analytics	Object in field, Line crossing , Enter / leave field, Loitering, Follow route, Idle / removed object, Counting, Occupancy, Crowd density estimation, Condition change, Similarity search - licenses for all these analytics to be considered with camera.		
10	Binary Input/ output	1 Input; 1 output		
11	Network Interface	IPv6, IPv4, HTTP, UDP, TCP, ICMP, IGMP, DHCP, NTP, SMTP, FTP, SAMBA, UPnP, PPPoE, DNS, DDNS, RTSP, RTP, RTCP		
12	Resolution	Triple streams H.265 H (3000 - 3900) x V (1700- 2200) at 30 fps simultaneously		
13	SD Storage	With an embedded SD card slot, (SI has to provide SD card of128GB)		
14	Operating Temperature	Between 0^0 C to $+50^0$C		
15	Operating Humidity	Less than 90%		
16	Power requirement	POE, AC24, DC12V		
17	S/N Ratio	50 db or better		
18	Regulatory	UL, CE, FCC		
19	Housing	IP66, vandal-resistant IK10 or better		
20	IR	(Inbuilt/ External) Minimum 50Mtr		

Feature	Description	Make & Model	Compliance (Y/N)
21 Applicable Protocols	ONVIF S compliance		

2. IP, Outdoor, PTZ Dome camera with 30X lens, colour true day / night, IR camera having 1920X1080 p resolution
Required Quantity: 79 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Image Sensor	1/3" or better CCD/CMOS Progressive Scan sensor		
Image Resolution	2 MP		
Application Environment	Outdoor		
Zoom Ratio	30X Optical + 12 X Digital or better		
Day/Night	Yes		
Mechanical IR Cut Filter	Yes		
IR Distance	Minimum 150 Mtrs (Internal or External)		
Aperture/ Focal Length	focal length (4.3- 4.5mm) — (129-135) mm +/- 10 % Zoom, DC iris, Auto focus		
Minimum Illumination	Color: 0.5 lux, B/W: 0 Lux with IR		
Panning and Tilting Range	Pan: 0°-360° endless; Tilt: 0°-90°		
S/N Ratio	>50dB		
Video Compression	H.265 high profile/M-JPEG		
Video Analytics	Object in field, Line crossing , Enter / leave field, Loitering, Follow route, Idle / removed object, Counting, Occupancy, Crowd density estimation, Condition change, Similarity search - licenses for all these analytics to be considered with camera.		
Maximum Frame Rate vs. Resolution	60 fps at 1920 x 1080		
Output Bit Rate	Variable bit rate; Constant bit rate		
Audio Compression	G.711		
Audio port	1 input, linear level, impedance, 1 output, linear level, impedance		
Built-in Storage	With an embedded SD card slot, (SI has to provide SD card of128GB)		
Network Port	1 x 10M/100M Ethernet Port		
Network Protocol	IPv6, IPv4, TCP, UDP, IGMP, DHCP, FTP, SNMP(v3), SMTP, NTP, RTP, RTSP, RTCP, HTTP, HTTPS, TSL, SSL, 802.1X, QoS, PPPoE, DNS, ARP, ICMP, IPv6, DDNS, UPnP		
Presets	255		
Motion Detection	Yes		
Alarm	1 alarm inputs, 1 relay output		
Shutter	Auto (1/30s ~ 1/10000s, adjustable)		
White Balance	Auto/Manual / Sodium Lamp		
WDR	120 dB		
Backlight Compensation	On/Off		
Mounting	Bracket, ceiling		
Housing Material	Cast aluminium		
Power Supply	OEM POWER SUPPLY		
ONVIF Compliant	Profile S		
Operating Temperature	Outdoor: 0°C ~+50°C		
Operating Humidity	Less than 90%		
Rating	CE, UL, FCC, IP66 or better		

3. **Video Management & Recording Software for Central control Room & Local Control Room with 200 Camera license & 12 Client license**

Required Quantity: 01 No.

Feature Description	Make & Model	Compliance (Y/N)
General requirement		
The Video Management System (VMS) specified shall be an IP video security solution that provides seamless management of digital video, audio and data across an IP network for Viewing, Recording, control and Playback of IP CCTV system. It shall have all required Life Time Licences for use of the entire system.		
The VMS shall be highly scalable and expandable to minimum 500 cameras in future.		
The proposed solution shall not require proprietary computer, server, network or storage hardware and shall provide seamless integration with third party security infrastructure, wherever possible. Software shall be Open platform network video compliant with SDKs available for integration with 3rd party systems.		
The VMS system shall be based on the latest in software programming technology. The software should be compatible with Windows Operating Systems (Windows Server 2016 / Windows 10 or later versions) and should be user friendly. The system should allow operation with PC Keyboard, Mouse, CCTV Keyboard (Joystick).		
The Video Management software should be provided with Failover feature. In case of central server failure. All Client should work independently and Recording of CCS should not be impacted by the Central server failure.		
The system shall allow the recording, live monitoring, playback of multiple archived video, audio, and data simultaneously		
The VMS shall allow for 2-way audio communication between camera unit and client, without any need of additional software licenses. i.e. Two-way audio transmitting client microphone input to remote speakers attached to IP devices.		
The VMS Audio function shall be synchronized with video.		
The VMS should support storage of RAID-6 configuration with hot swappable Hard disks. The VMS should support NFS, CIFS, iSCSI, FC and FCoE protocol.		
Centralised Monitoring of different sites: The VMS should be capable of providing Camera feeds of different buildings for viewing at one centralised geographical location in future through WAN		
The VMS should support MJPEG, MPEG -4, H.264 , H.265 video compressions. It should be able to support minimum two individually configurable H.265 streams.		
In case of Network Failover, the video should be stored in local storage.		
Offered VMS should support 64 bits OS		
Offered VMS shall have capability to multicast videos to clients		
The VMS shall support the Open Network Video Interface Forum (ONVIF) compliant Cameras and devices.		
The offered video management system should have integration with Video Wall display on 3x2 LED Panels		
Management server software		
Offered VMS data base shall have capacity to handle minimum 500 cameras.		
The Management software shall be a fully distributed solution for multi servers with centralized management.		
The management server shall be able to intelligently scan an IP network for new devices (cameras or servers etc.) simultaneously		
The system administrator shall have rights to add/delete/configure users with rights.		
It shall be possible to view the rights of each user or the cameras which can be viewed / controlled by each user.		
It shall also be possible to add/delete cameras, configure cameras, assign priorities to users, configure alarm monitors etc.		
It shall also be possible to configure user groups with different rights and assign users to user groups.		
The system shall support unified log-in throughout the system and it shall be possible for any user to log-in from any location/client and access cameras /		

recordings and other features as permissible depending on his rights assigned to his log-in.		
Redundancy of management server shall be maintained so that there shall not be single point of failover.		
Recording server software-features (DUAL RECORDING)		
Simultaneous video recording of all the IP cameras without any software limitations on the number of cameras per server		
Dual Recording required. One will be at CCS and another at LCS.		
The recording server software shall have the capability of seamlessly transferring the load of a failed recording server to the other healthy servers or the standby server. Appropriate alerts should be raised by the VMS in case of the above		
Built-in, real-time, camera-independent motion detection		
Support for both IPv4 and IPv6 addressing		
Secure HTTPS camera connection on devices supporting HTTPS		
Digital signing feature of the Recording Server's video database to verify that recorded video has not been modified or tampered with while stored in the VMS or after export to be provided and also necessary tool for verifying video tampering to be provided		
It shall be capable of pre-setting the various positions for PTZ cameras		
Logs of system, event, audit, rule and alert entries shall be consolidated from all Recording Servers at regular intervals		
Built-in map function in the Client shall be provided for an overview of the system and for instant camera preview on mouse click on the MAP.		
Alarm list with extensive filtering capabilities and an alarm preview in both Live and Playback mode		
Features of Client Software		
Client shall consist of Administrator Tool application and a Monitoring application. Client should also be able to play an archived videos. All the relevant software licenses should be included. All the client licenses should work on any work station and should not be restricted to be used with specific workstation.		
VMS Server software shall allow the client's seamless operation of all cameras regardless of the actual connection to different recording servers. VMS Software shall allow the client applications to interact with all the camera/database servers simultaneously and allow simultaneous display of live video/recorded video.		
It shall be possible to define priority based camera control rights for each camera or a group of cameras.		
Client application should provide different Video display layouts which should include Full screen, Quad, etc. It shall be possible to view live video from cameras on the surveillance system from 1 to 25 (Minimum) per screen.		
Client shall perform the following applications simultaneously without interfering with any of the Archive Server operations (Recording, Alarms, etc.)		
• Live display of cameras and audio		
• Live display of camera sequences, panoramic camera views		
• Playback of archived video		
• Instant replays of Video and Audio		
• PTZ control		
• Display and control of Maps		
• Audio announcements		
• Alarm management		
Client applications shall support any form of IP network connectivity including: LAN, WAN, VPN, Internet, and Wireless		
Client applications shall support IP Multicast and Unicast video and audio streaming as required depending on the network capabilities		
Client application shall enable playback of audio along with video.		
Client application shall be able to control the playback with play, pause, forward, and speed buttons.		
Client application shall allow operators to add identification with description to recorded clips of video or audio.		
It shall be possible to playback of recorded video simultaneously 64 cameras on		

the surveillance system, with a selection of advanced navigation tools, including an intuitive timeline browser.		
The Client shall support search of recorded video for motion event in user-specified areas of a camera image		
The VMS shall allow the administrator to capture / Export video from the workstation. The recording shall be captured in a standard format, so as to allow playback using Windows Media Player. The recording shall include audio for video sources if audio recording is used.		
The Video Management System software shall provide fast evidence export by exporting in video to various formats, including video from multiple cameras in encrypted native database format with an included viewer.		
Client application shall support digital zoom on a fixed/PTZ camera's live and recorded video streams.		
Client application shall provide management and control over the system using a standard PC mouse, joystick, keyboard or CCTV keyboard. Standard scroll mouse should be able to move the camera by merely clicking on the extremes of the picture in all directions and zoom function by scroll button. Provision of the PTZ menu on GUI will not be considered as equivalent or substitute.		
Quick overview of recorded sequences, events and bookmarks		
Supports different view layouts optimized for 4:3 and 16:9 display settings in both landscape and portrait.		
Security Requirements		
The VMS should provide the security of the system so that no unauthorised person should be able to access the video of the system. It should also have the following features:		
Role based limited access to the system- The user shall be able to access only the permitted controls and cameras etc.		
Should support Dual sign in to log in to the system administrator - Log in shall be permitted when two authorised persons login.		
Schedule based Log in. - A user shall not be able to log in beyond the defined time slot.		
Prescribing password policy related to configuration of password and duration for periodic change of password		
The user should be able to login only to the specified client workstation for the said user. However, there may be more than one user for the same client workstation.		
Threat Level Button: The VMS should be able to create a soft Threat Level button and or should be able to integrate with hard Threat Level button so that in case of emergency the button can be activated and according desired action such as blanking off of the display in the control room is achieved whereas the other displays and recording of the cameras remains affected.		
Warning of unauthorised Login: The system shall raise an alarm whenever any unauthorised attempt to login is observed.		

4. **Server with Windows Operating System Software for Video Management with Failover Server (N+N)& Recording software with Failover Server (N+N)**
    Required Quantity: Minimum 7 No.

Features	Qualifying Minimum Requirements	Make & Model	Compliance (Y/N)
Chassis	1U Rack Mountable		
CPU	2 X latest generation 10 Core Intel Xeon-Processor with Minimum of 2.4GHz Clock Speed or Higher		
Motherboard	Intel® C621 Series Chipset		
Memory	Minimum 24DIMM slots. Server Should be populated with Total 64 GB Memory & Server should be scalable upto 768GB using DDR4 Registered DIMM (RDIMM) operating at 2600 MHz		
Memory Protection	Advanced ECC with multi-bit error protection, Online spare, mirrored memory and fast fault		

	tolerance		
HDD Bays	Up to 8 Drive Bays		
Hard disk drive	2 X 900 GB SFF SAS 10 K RM Hard drives		
Controller	PCIe 3.0 based 12Gb/s SAS Raid Controller with RAID 0/1/1+0/5/50/6/60/1 Advanced Data Mirroring/10 Advanced Data Mirroring (onboard or on a PCI Express slot) Storage controller should support Secure encryption/data at rest Encryption		
Networking features	Server should support below networking cards: 10Gb 2-port Ethernet adaptor		
Interfaces	Serial - 1 Micro SD slot - 1 USB 3.0 support With Up to 5 total: 1 front, 2 internal, 2 rear, 2 internal (secure)		
Bus Slots	Three PCI-Express 3.0 slots, atleast two x16 PCIe slots		
Power Supply	Should support hot plug redundant low halogen power supplies with minimum 94% efficiency		
Fans	Redundant hot-plug system fans		
Industry Standard Compliance	ACPI 6.1 Compliant PCIe 3.0 Compliant PXE Support WOL Support Microsoft® Logo certifications USB 3.0 Support USB 2.0 Support Energy Star ASHRAE A3/A4 UEFI (Unified Extensible Firmware Interface Forum) SMBIOS Redfish API IPMI 2.0 SNMP v3 TLS 1.2 DMTF Systems Management Architecture Active Directory v1.0		
System Security	UEFI Secure Boot and Secure Start support Security feature to ensure servers do not execute compromised firmware code FIPS 140-2 validation Common Criteria certification Configurable for PCI DSS compliance Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser Support for Commercial National Security Algorithms (CNSA) mode to prevent the use of insecure algorithms		

	Tamper-free updates - components digitally signed and verified Secure Recovery - recover critical firmware to known good state on detection of compromised firmware Ability to rollback firmware Secure erase of NAND/User data TPM (Trusted Platform Module) 1.2 TPM (Trusted Platform Module) 2.0 Bezel Locking Kit option Chassis Intrusion detection optionSupport for Commercial National Security Algorithms (CNSA) Smart card (PIV/CAC) and Kerberos based 2-factor Authentication Configurable for PCI DSS compliance Secure erase of NAND		
Operating Systems and Virtualization Software Support	Microsoft Windows Server Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) VMware ClearOS		
GPU support	System should support NVIDIA's latest computational accelerators and graphics accelerators		
System tuning for performance	1. System should support feature for improved workload throughput for applications sensitive to frequency fluctuations. This feature should allow processor operations in turbo mode without the frequency fluctuations associated with running in turbo mode 2. System should support workload Profiles for simple performance optimization		
Secure encryption	System should support Encryption of the data (Data at rest) on both the internal storage and cache module of the array controllers using encryption keys. Should support local key management for single server and remote key management for central management for enterprise-wide data encryption deployment.		
Provisioning	1. Should support tool to provision server using RESTful API to discover and deploy servers at scale 2, Provision one to many servers using own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell		

Embedded Remote Management and firmware security	1. System remote management should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication 2. Server should have dedicated 1Gbps remote management port 3. Remote management port should have storage space earmarked to be used as a repository for firmware, drivers and software components. The components can be organized in to install sets and can be used to rollback/patch faulty firmware 3. Server should support agentless management using the out-of-band remote management port 4. The server should support monitoring and recording changes in the server hardware and system configuration. It assists in diagnosing problems and delivering rapid resolution when system failures occur 5. Applications to access the server remotely using popular handheld devices based on Android or Apple IOS should be available 6. Remote console sharing upto 6 users simultaneously during pre-OS and OS runtime operation, Console replay - Console Replay captures and stores for replay the console video during a server's last major fault or boot sequence. Microsoft Terminal Services Integration, 128 bit SSL encryption and Secure Shell Version 2 support.Should provide support for AES and 3DES on browser.Should provide remote firmware update functionality.Should provide support for Java free graphical remote console. 7. Should support managing multiple servers as one via Group Power Control Group Power Capping Group Firmware Update Group Configuration Group Virtual Media Group License Activation 8. Should support RESTful API integration 9. System should support embedded remote support to transmit hardware events directly to OEM or an authorized partner for automated phone home support	
Server Management	Software should support dashboard view to quickly scan the managed resources to assess the overall health of the data center. It should provide an at-a-glance visual health summary of the resources user is authorized to view.	
	The Dashboard minimum should display a health summary of the following: • Server Profiles • Server Hardware • Appliance alerts	
	The Systems Management software should	

		Make & Model	Compliance (Y/N)
	provide Role-based access control		
	Management software should support integration with popular virtualization platform management software like vCenter, and SCVMM		
	Should help provide proactive notification of actual or impending component failure alerts on critical components like CPU, Memory and HDD.		
	Should provide an online portal that can be accessible from anywhere. The portal should provide one stop, online access to the product, support information and provide information to track warranties, support contrast and status. The Portal should also provide a Personalized dashboard to monitor device heath, hardware events, and contract and warranty status. Should provide a visual status of individual devices and device groups. The Portal should be available on premise (at our location - console based) or off premise (in the cloud).		
	Should help to proactively identify out-of-date BIOS, drivers, and Server Management agents and enable the remote update of system software/firmware components.		
	The Server Management Software should be of the same brand as of the server supplier.		

5. **290 TB Usable capacities SAN Storage for 30 days recording of 200 Camera at full resolution and full frame rate.**
   Required Quantity: 1 No.

Paramater	Functionality	Make & Model	Compliance (Y/N)
Operating System & Clustering Support	1. The storage array should support industry-leading Operating System platforms including: *Windows 2012 / 2016, HPE-UX, VMware and* Linux. 2. Offered Storage Shall support all above operating systems in Clustering.		
Capacity & Scalability	1. The Storage Array shall be offered with 290 **TB Usable** (RAID6) Capacity using NL SAS drives 2. For effective power saving, Storage subsystem shall be supplied with 2.5" Small form factor SFF drives however storage subsystem shall also support LFF drives with the addition of required disk enclosures. 3. Storage shall be scalable to minimum of 190 number of SAS SFF drives.		
Front-end Ports	1. Offered Storage system shall be supplied with minimum of Dual 16Gbps FC ports and Dual 10Gbps ISCSI ports per controller. 2. Offered storage shall have flexibility to use all above ports either as FC or ISCSI by replacing the requisite SFP. Vendors shall provide the additional SFP accordingly. In case, vendor doesn't support this feature, then every controller shall be populated upfront with 4 x 16Gbps FC ports and 4 x 10Gbps ISCSI ports.		

Architecture	The storage array should support dual, redundant, hot-pluggable, active-active array controllersfor high performance and reliability		
No Single point of Failure	Offered Storage Array shall be configurable in a No Single Point of configuration including Array Controller card, Cache memory, FAN, Power supply etc.		
Disk Drive Support	1. Storage system shall also support maximum of 1.8TB Enterprise SAS Drives, 3.2TB SSD and 12TB near line SAS drives. 2. Offered storage array shall also have support for self-encrypted SAS and near line SAS drives.		
Cache	1. Offered Storage Array shall be given with Minimum of 8GB cache per controller in a single unit. 2. Cache shall be backed up in case of power failure for indefinite time either using batteries or capacitors or any other equivalent technology. 3. Offered Storage shall also have optional support for Flash cache using SSD / Flash drives. Offered storage shall support at-least 8TB Flash Cache. Vendor shall offer at least 6TB Flash cache. 4. Offered Flash cache shall be tuned for random read operations and shall remain activated even at less than 70% of random average read workload.		
Raid Support	1. Offered Storage Subsystem shall support Raid 0, 1 , 1+0 , 5 and Raid 6 2. All Raid Sets shall support thin provisioning. Vendor shall offer the license of thing provisioning for complete supported capacity of the array. 3. Thin provisioning shall be supported with offered Flash Cache.		
Point in time and clone copy	1. Offered Storage array shall be configured with array based Snapshot and clone functionality and shall be configured for minimum of 512 snapshot licenses. 2. Offered Storage array shall support at-least 512 point in time copies (Snapshots) and 128 Clone copies		
Replication	1. Offered storage subsystem shall support storage based replication to DR location. License for maximum supported capacity of the array shall be offered. 2. Offered storage subsystem shall support replication to multiple storage array of the same family in fan-out mode. At least 1:4 mode shall be supported.		
Virtualization and Thin provisioning	1. Offered storage shall be offered and configured with virtualization capability so that a given volume can be striped across all spindles of given drive type within a given disk pool. Disk pool shall support all listed raid sets of Raid 1, Raid 5 and Raid 6. 2. Offered Storage shall be offered and configured with Thin Provisioning capability.		
Data Tiering	Offered Storage shall also be configured for Sub-Lun Data tiering in real time fashion across different type of drives within a given pool like SSD, SAS, NL-SAS etc. License shall be configured for maximum supported capacity of the array.		

Features	Qualifying Minimum Requirements	Make & Model	Compliance (Y/N)
Global and dedicated Hot Spare	1. Offered Storage Array shall support Global hot Spare for offered Disk drives. 2. Atleast 2 Global hot spare drive shall be configured for every 30 drives. 3. Storage subsystem shall also have the flexibility to assign dedicated spare for raid sets.		
Logical Volume & Performance	1. Storage Subsystem shall support minimum of 512 Logical Units. Storage Array shall also support creation of more than 100TB volume at controller level. 2. Offered Storage shall have inbuilt performance management software. Configuration Dashboard shall show overall IOPS and MB/sec performance.		
Load Balancing &Muti-path	1. Multi-path and load balancing software shall be provided, if vendor does not support MPIO functionality of Operating system.		

6. **34 TB usable capacity NAS Storage for 32 Cameras 30 days recording**
7. **148 TB usable capacity NAS Storage for 125 Cameras 30 days recording**
8. **57 TB usable capacity NAS Storage for 53 Cameras 30 days recording**
9. **8 TB usable capacity NAS Storage for 9 Cameras 30 days recording**
Required Quantity: 1 No. of each

Features	Qualifying Minimum Requirements	Make & Model	Compliance (Y/N)
No. of Storage Units	1) 34 TB usable capacity NAS Storage for 32 Cameras 30 days recording 2) 148 TB usable capacity NAS Storage for 125 Cameras 30 days recording 3) 57 TB usable capacity NAS Storage for 53 Cameras 30 days recording 4) 8 TB usable capacity NAS Storage for 9 Cameras 30 days recording		
Rack mount	NAS Controller Should be rack mounted with a form factor of not more than 2U		
Processor	Dual processor of hexa Core each. Shall be Intel Bronze 3104 - 1.7Ghz with 8.25MB L3 Cache or higher.		
Memory	32GB DDR4 RAM or higher, scalable to 384GB DDR4 RAM		
Hard Drives	Shall be supplied with minimum as above Usable Capacity with NL SAS drives in Raid 5. Offered NAS Storage shall have separate dedicated SSD drives for Operating system in Raid 1+0. Hard drives shall be M2 form factor.		
Storage expandability	1. Offered NAS controller shall support at-least 16 internal LFF Slots and shall be offered with at-least 12 LFF Slots. 2. Offered storage shall also have capability to attach additional drive enclosures. NAS shall support at-least 300TB of external capacity using 10TB drives.		
Network Connectivity	Min. 4 X 1Gbps auto sensing NICs ports and shall be further scalable to additional 8 numbers of 10Gbps Ethernet port.		

Protocols support	TCP/IP, ISCSI, FTP, FTPS, CIFS/SMB 3.1.1, HTTP, HTTPS, NFS 4.1, WebDev etc.		
Fault Tolerance for internal drives	Offered NAS shall support Raid 0, Raid 1, Raid 1+0, Raid 5 and Raid 6 for internal drives. Offered Raid controller shall have minimum of 4GB flash back write cache.		
Fault Tolerance for external drives	Offered NAS shall support Raid 0, Raid 1, Raid 1+0, Raid 5 and Raid 6 for external drives. Supported Raid controller shall have minimum of 4GB flash back write cache.		
Network Client Types Support	Should support Windows 10, Windows 2012, 2016, , HP-UX, AIX, SOLARIS, Linux etc.		
Operating System	Microsoft Windows Storage Server 2016 - 64 bit edition (NAS optimized) including powered OS drivers		
De-duplication	Offered NAS shall have block based De-duplication which can be enabled for all required volumes. De-duplication engine shall have: 1. Flexibility to decide the multiple schedules when de-duplication process can be run. 2. Flexibility to limit the time period of de-duplication process so that production operations remains intact. 3. Flexibility to bypass the recent files under the de-duplication process so that production operations remains intact. 4. License for De-duplication shall be provided. 5. Shall support more than 64TB of file system for de-duplication.		
File screening and quota management	1. Offered NAS shall have support for file screening so that administrator can ensures that users shall not be able to store unwanted files on offered NAS device. 2. Offered NAS shall have Quota management for both Volume and Directory. 3. Software for both File screening as well as Quota management shall be provided.		
File Management	1. Shall have flexibility to expire or move files to different folder / Location / Volumes / drives on the basis of polices like day of creation / modification / access of on the basis of file pattern like extension. 2. Shall also be able to expire or move files to different folder / Location / Volumes / Drives on the basis of content classification within files.		
SAN storage (iSCSI based)	Integrated iSCSI for block access over LAN.		
Snapshots	Point in time copies of your data to guard against data corruption.		
Encryption and compression	Shall have support for encryption and Compression. License for both of same shall be offered.		

Group	Specification Item	Detailed Specification		
Replication		Offered NAS shall also be supported with leading NAS replication software's in the industry		
Power Supply and FAN		Offered NAS shall also have Hot Plug redundant power supply and FAN		

10. Video Wall in 3x2 Matrix using 55" LCD Monitor
Required Quantity: 1 No.

Group	Specification Item	Detailed Specification	Make & Model	Compliance (Y/N)
System	Display wall	It shall be made up of multiple LCD modules stacked up in 3(R)rows and 2(C) columns to achieve a video wall		
	Display technology	Liquid Crystal Display		
	Display size and resolution	The diagonal size of each display unit/ module shall be 55" with a native resolution of at least 1920x1080 pixels		
	Combined bezel gap	Should be 3.5 mm		
	Light source	LED		
	Brightness	500 Cd/m2 ± 10% or better		
	Color	Shall offer in excess of 16 million colors.		
	Response time	8ms		
	Viewing angle	H:178° V:178°		
	Contrast ratio	should be minimum 4000:1		
	Architecture	The control box and power supply should be in the same housing to ensure quick swapping of module for repair with minimum downtime		
Signal Interface	Input terminals	1x Digital DVI-I (include Analog RGB)		
		1x Digital HDMI		
		1x BNC CVBS video		
		1x RS232C Dsub-9		
		1x RS422 RJ45		
		1x Ethernet RJ45		
		Micro USB (WiFi connect port)		
	Output terminals	1x Digital DVI-D		
		1xRS422, RJ-45		

	Component input compatibility	480i, 480P, 720P, 1080i, 1080P		
	Scan rate	Fh : 30~75KHz		
		Fv : 50~85Hz		
	Video compatibility	NTSC, PAL, SECAM		
	Timing compatibility	720x400 @ 70Hz, 85HZ		
		VGA @60Hz, 72Hz, 75Hz, 85Hz		
		SVGA @60Hz, 70Hz, 75Hz, 85Hz		
		XGA @ 60Hz, 70Hz, 75Hz, 85Hz		
		SXGA+ @60 Hz, 75 Hz		
		UXGA @60 Hz		
		HDTV @ 50 Hz,60 Hz		
User controls	Power control:	1 AC power ON/OFF switch		
	Wire control:	RS232C/ RS422 input		
	LED indicator	System indicator display to show system status		
	IR remote	IR remote		
	OSD style	list type OSD format		
	On Screen display	Input selection, picture, image and tiling should be adjusted using OSD		
	Colour adjustment	User should able to adjust the primary & secondary colours for color alignment and fine tuning		
	OSD Languages	English		
	Wall control & monitoring	Video wall should equipped with a wall control & monitoring system		
		System should be based on Python-Django framework with web browser architecture		
		Should able to control & monitor individual LCD module , multiple LCD modules and multiple video walls		
		System should able to schedule the system parameter/ properties in daily , sequentially and periodically mode.		
		Should provide a virtual remote on screen to control the videowall		
		Status log file should be downloadable in CSV format as per user convenience		
Electrical	AC power input range	90~240VAC, 50/60Hz, 5A max.		
	Power consumption	Normal operating should be < 209 W		

		Standby mode < 2 W at 110VAC		
System Reliability	Operating temperature	0~40°C		
	Operating relative humidity	20~80%		
	MTBF	>= 50,000 hours		
	CONTROLLER			
		The Controller should be able to make all the 6 LCD behave as one logical area. It should be possible to display any or all the inputs on the video wall in any desired configuration. Should be possible to increase the no.of inputs if desired at a later stage		
	Architecture	Should be based on Server architecture		
	Operating System	Windows 7 or higher -64 bit		
	RAM	16GB or higher		
	HDD	500 GB or higher		
	RAID	RAID should be provided		
	Chip	Intel Xeon or better		
	Power Supply	Dual Redundant Power Supply		
	Output	6 DVI inputs		
	Inputs	6 DVI Inputs, Dual LAN		
	Chassis	19" rack mount industrial chassis		
	Unix/Linux Emulation	Should be possible to display images from Unix/Linux workstation		
	Wall Management Software	Software to be provided to manage the layout on the display		
	Wall management SW			
	Client & Server based Architecture	Should supports Multi client/Console control the Wall layouts		
	Scaling and display	Software enable user to display, multiple sources up to any size and anywhere on the display wall.		
	RS232, TCP/IP	RS232 & TCP/IP support should be available for other interfaces		
	Remote Control	Wall can be control from Remote PC through LAN		
	Layout Management	Should support for Video, RGB, DVI, ,Internet Explorer, Desktop Application and Remote Desktop Monitoring Layouts		
	Scenarios	Software should able to Save and Load desktop layouts from Local or remote machines		
	Layout Scheduler	All the Layouts can be scheduled as per user convenience		
		Software should support auto launch of Layouts according to specified time		

Features	Description	Make & Model	Compliance (Y/N)
	event by user		
Launch Application	Software should able to Support		
Integration with touch Interface	system can able to work with 3rd party touch interfaces (Creston ,AMX)		
User friendly	Software should be user friendly		
Protocol	VNC		
Interface	LAN		
Scaling and display	Display of multiple sources up to any size, everywhere on the wall		
Multi View	Supports multiple view of portions or regions of Desktop, Multiple Application Can view from single desktop simultaneously		
Control operator workstations	Software should able to Support		
Multiple concurrent client users	Software should able to Support		

11. PC Workstation For Client software with Required Operating Systems & Antivirus
Required Quantity: 11 Nos.

Features	Description	Make & Model	Compliance (Y/N)
Processor	Intel processor Core™ i7/Xeon, 3 GHz or better (7th Generation or latest)		
RAM	16 GB of RAM or better		
Ethernet Port	Minimum 1- Gigabit Ethernet Port		
HDD	1TB		
Graphics card	NVIDIA QUADRO 4 GB video card		
Operating System	MS Windows 10 or latest		
DVD R/W Drive	DVD R/W Drive		
USB interface	4 USB interface ports.		
Keyboard and Mouse	USB Keyboard and Mouse		
VMS Client Software	Should be supplied with Required VMS Client software		

12. 20" LED Monitor For Operator Desk Computer –CCS
Required Quantity: 11 Nos.

Features	Description	Make & Model	Compliance (Y/N)
Display Screen	20" LED Monitor		
Diagonal Screen	20 inch		
Resolution	Full HD (1920 W x 1080 H)		
Viewing Angle	160 degrees or more		
Inputs	VGA/DVI/HDMI		
Power Requirement	AC 110-240V, 50/60Hz		
Accessories	All standard Accessories with Pedestal/Wall Mount		

13. 24-Port 100/1000 Base-X Stackable Switch & 4 SFP+ Ports and dual Hot swap PSU bays
Required Quantity: 2 Nos.

S.No		Specifications	Make & Model	Compliance (Y/N)
1	Port Density	Switch with a) 24 1G SFP slots equipped with 12x1G Base-T modules& b) 4 x1G/10G SFP+ slots Should equipped with internal redundant power supplies		
2	Switching Capacity	Should support switching fabric of 288Gbps or more		
3	Hardware redundancy	Two or more Switches in stack should be capable to operate as one logical L3 Virtual switch with synchronisation of L3 & L2 protocols for higher availability with stacking bandwidth of min 160Gpbs per switch. Switch should be supplied with required stacking cables		
4	Layer 2 Features	Support 802.1D, 802.1S, 802.1w, Rate limiting Support 802.1X Security standards Support 802.1Q VLAN encapsulation, IGMP v1,v2 and v3 snooping, MLD snooping Support up to 4096 VLANs Support IGMP Snooping and IGMP Querying Support Multicasting Should support Loop protection and Loop detection, and root protection		
5	Layer 3 Features	Should support Static routing, Support RIP for IPv4 and RIPng for IPv6 Support OSPFv2 for IPv4 & OSPFv3 for IPv6 Support PIM for IPv4 SM, DM and SSM, PIMv6-SM, IEEE 802.3az Support VRRP for IPv4 & VRRPv3 for IPv6 Support IPV4 & IPV6 dual stack		
6	VLAN	Support 802.1Q Tagged VLAN, port based VLANs and Private VLAN Support IEEE 802.3ac VLAN tagging IEEE 802.1v VLAN classification by protocol and port IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q) Switch must support dynamic VLAN Registration or equivalent Switch should support VLAN trunking or equivalent		

7	Management	Switch needs to have a console port for management via a console terminal or PC Must have support SNMP V1, V2 and V3 Should support 4 groups of RMON Should have accessibility using Telnet, SSH, Console access, easier software upgrade through network using TFTP etc. Configuration management through CLI, GUI based software utility or using web interface, Support USB interface for taking backup of software release files configurations Support SNMPv6, Telnetv6 and SSHv6, DHCPv6 relay, DHCPv6 client, NTPv6 client and server, Duplicate Address Detection Support NTP/SNTP Support SDN openflow v1.3 from day-1		
8	Resiliency	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 Support ITU-T G.8032 for sub 50ms ring protection Support PVST+ compatibility mode Support STP root guard		
9	Security	Should support ACLs, VLAN ACL's Support DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI), Support MAC address filtering and MAC address lock-down, Support Tri-authentication: MAC-based, web-based and IEEE 802.1x,Support DHCPv4 (server, relay and client Support sflow, Port mirroring		
10	Manageability	Should support centralised management Instant Access/equivalent technology for Zero touch configuration of faulty switch upon replacement with spare switch, backup of running configuration of all other switches in network		
11	Interoperability	For ease of operations, all switches, SFP's of same OEM		

14. 24-Port 100/1000X SFP Stackable Switch with 4 SFP+ Ports and 2 fixed power supplies.
Required Quantity : 5 Nos.

S.No		Specifications	Make & Model	Compliance (Y/N)
1	Port Density	Switch with a) 24 1G SFP slots & b) 4 x1G/10G SFP+ slots Should equipped with internal redundant power supplies		
2	Switching Capacity	Should support switching fabric of 128Gbps or more		
3	Hardware redundancy	Two or more Switches in stack should be capable to operate as one logical L3 Virtual switch with synchronisation of L3 & L2 protocols for higher availability. Switch should be supplied with required stacking cables		
4	Layer 2 Features	Support 802.1D, 802.1S, 802.1w, Rate limiting Support 802.1X Security standards Support 802.1Q VLAN encapsulation, IGMP v1,v2 and v3 snooping, MLD snooping Support up to 4096 VLANs Support IGMP Snooping and IGMP Querying Support Multicasting Should support Loop protection and Loop detection, and root protection		
5	Layer 3 Features	Should support Static routing, Support RIP for IPv4 and RIPng for IPv6 Support OSPFv2 for IPv4 & OSPFv3 for IPv6 Support PIM for IPv4 SM, DM and SSM, PIMv6-SM, IEEE 802.3az Support VRRP for IPv4 & VRRPv3 for IPv6 Support IPV4 & IPV6 dual stack		
6	VLAN	Support 802.1Q Tagged VLAN, port based VLANs and Private VLAN Support IEEE 802.3ac VLAN tagging IEEE 802.1v VLAN classification by protocol and port IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q) Switch must support dynamic VLAN Registration or equivalent Switch should support VLAN trunking or equivalent		

7	Management	Switch needs to have a console port for management via a console terminal or PC Must have support SNMP V1, V2 and V3 Should support 4 groups of RMON Should have accessibility using Telnet, SSH, Console access, easier software upgrade through network using TFTP etc. Configuration management through CLI, GUI based software utility or using web interface, Support USB interface for taking backup of software release files configurations Support SNMPv6, Telnetv6 and SSHv6, DHCPv6 relay, DHCPv6 client, NTPv6 client and server, Duplicate Address Detection Support NTP/SNTP Support SDN openflow v1.3 from day-1		
8	Resiliency	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 Support ITU-T G.8032 for sub 50ms ring protection Support PVST+ compatibility mode Support STP root guard		
9	Security	Should support ACLs, VLAN ACL's Support DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI), Support MAC address filtering and MAC address lock-down, Support Tri-authentication: MAC-based, web-based and IEEE 802.1x, Support DHCPv4 (server, relay and client Support sflow, Port mirroring		
	Interoperability	For ease of operations, all switches of same OEM		

15. Layer 2 Switch with 16 x 10/100/1000T PoE ports and 2 x 100/1000X SFP ports.
Required Quantity: 10 Nos.

S.No		Specifications	Make & Model	Compliance (Y/N)
1	Port Density	Switch with a) 16x 1G Base-TPoE+ ports & additional 2 x1G SFP slots		
2	Switching Capacity	Should support switching fabric of 36Gbps or more		
3	PoE	Should support PoE as per IEEE 802.3at with PoE budget of 240W to feed power to cameras		
4	Layer 2 Features	Support 802.1D, 802.1S, 802.1w, Rate limiting Support 802.1X Security standards Support 802.1Q VLAN encapsulation, IGMP v1,v2 and v3 snooping, MLD snooping Support IGMP Snooping and IGMP Querying Support Multicasting Should support Loop protection and Loop detection, and root protection		

5	Layer 3 Features	Should support Static routing, RIP, IPV4 & IPV6 dual stack		
6	VLAN	Support 802.1Q Tagged VLAN, port based VLANs and Private VLAN Support IEEE 802.3ac VLAN tagging IEEE 802.1v VLAN classification by protocol and port IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q) Switch must support dynamic VLAN Registration or equivalent Switch should support VLAN trunking or equivalent		
7	Management	Switch needs to have a console port for management via a console terminal or PC Must have support SNMP V1, V2 and V3 Should support 4 groups of RMON Should have accessibility using Telnet, SSH, Console access, easier software upgrade through network using TFTP etc. Configuration management through CLI, GUI based software utility or using web interface, Support USB interface for taking backup of software release files configurations/memory card Support SNMPv6, Telnetv6 and SSHv6, DHCPv6 relay, DHCPv6 client, NTPv6 client and server, Duplicate Address Detection Support NTP/SNTP, PTP Support SDN openflow v1.3 from day-1, SIM of 16 switches		
8	Resiliency	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 Support ITU-T G.8032 for sub 50ms ring protection Support PVST+ compatibility mode Support STP root guard		
9	Security	Should support ACLs, VLAN ACL's Support DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI), Support MAC address filtering and MAC address lock-down, Support Tri-authentication: MAC-based, web-based and IEEE 802.1x, Support DHCPv4 (relay and client) Support sflow, Port mirroring		
10	Interoperability	For ease of operations, all switches of same OEM. Should support operating temperature of 0-50C		

16. Layer 2 Switch with 8 x 10/100/1000T PoE ports and 2 x 100/1000X SFP ports
Required Quantity: 15 Nos.

S.No		Specifications	Make & Model	Compliance (Y/N)
1	Port Density	Switch with a) 8x 1G Base-TPoE+ ports & b) additional 2 x1G SFP slots		
2	Switching Capacity	Should support switching fabric of 20Gbps		

		or more		
3	PoE	Should support PoE as per IEEE 802.3at with PoE budget of 120W to feed power to cameras		
4	Layer 2 Features	Support 802.1D, 802.1S, 802.1w, Rate limiting Support 802.1X Security standards Support 802.1Q VLAN encapsulation, IGMP v1,v2 and v3 snooping, MLD snooping Support IGMP Snooping and IGMP Querying Support Multicasting Should support Loop protection and Loop detection, and root protection		
5	Layer 3 Features	Should support Static routing, Support IPV4 & IPV6 dual stack		
6	VLAN	Support 802.1Q Tagged VLAN, port based VLANs and Private VLAN Support IEEE 802.3ac VLAN tagging IEEE 802.1v VLAN classification by protocol and port IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q) Switch must support dynamic VLAN Registration or equivalent Switch should support VLAN trunking or equivalent		
7	Management	Switch needs to have a console port for management via a console terminal or PC Must have support SNMP V1, V2 and V3 Should support 4 groups of RMON Should have accessibility using Telnet, SSH, Console access, easier software upgrade through network using TFTP etc. Configuration management through CLI, GUI based software utility or using web interface, Support USB interface for taking backup of software release files configurations/memory card Support SNMPv6, Telnetv6 and SSHv6, DHCPv6 relay, DHCPv6 client, NTPv6 client and server, Duplicate Address Detection Support NTP/SNTP, PTP Support SDN openflow v1.3 from day-1, SIM of 16 switches		
8	Resiliency	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 Support ITU-T G.8032 for sub 50ms ring protection Support PVST+ compatibility mode Support STP root guard		

| 9 | Security | Should support ACLs, VLAN ACL's Support DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI), Support MAC address filtering and MAC address lock-down, Support Tri-authentication: MAC-based, web-based and IEEE 802.1x, Support DHCPv4 (relay and client) Support sflow, Port mirroring | | |
| 10 | Interoperability | For ease of operations, all switches of same OEM Should support operating temperature of 0-50C | | |

17. 1000BaseLX SFP (10km with SMF, 1310nm)
Required Quantity: 90 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
FORM FACTOR	SFP		
FIBER TYPE	SMF		
NUMBER OF FIBERS	2 (Rx, Tx)		
SPEED	1000Mbps		
Rx WAVELENGTH	1310 nm		
Tx WAVELENGTH	1310 nm		
MAX DISTANCE	10 km		
CONNECTOR TYPE	LC		
TEMPERATURE	0°C to 70°C		

18. 10km 1310nm 10GBase-LR SFP+ - Hot Swappable
Required Quantity: 12 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
FORM FACTOR	SFP+		
FIBER TYPE	SMF		
NUMBER OF FIBERS	2 (Rx, Tx)		
SPEED	10G		
Rx WAVELENGTH	1310 nm		
Tx WAVELENGTH	1310 nm		
MAX DISTANCE	10 km		
CONNECTOR TYPE	LC		
TEMPERATURE	- 40°C to 85°C		

19. 1000BaseT SFP (100m with UTP)
Required Quantity: 40 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
FORM FACTOR	SFP		
SPEED	10/100/1000T		
MAX DISTANCE	100 m		
CONNECTOR TYPE	RJ-45		
TEMPERATURE	0°C to 70°C		

20. NMS with PC/Workstation & 20" LED Monitor with 500 nodes License
Required Quantity: 1 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Network Discovery	The NMS should be able to discover the network using an IP Range Scan, from a Start and End IP Address & also features SNMP Smart Scan which discover all devices on the network by querying the "Bridge Table" on a core router.		
inventory reporting	Should have feature of integrated inventory reporting including hardware inventory, reports on installed software and updates, warranty reports, and more.		
Network Mapping	Should be able to automatically generate Layer 2/3 network maps of core infrastructure, Windows infrastructure, and more. Network maps should be helpful to visualize networks and quickly isolate the root cause of performance problems. The NMS should also display real-time status information for each device on the map so that Network administrators can click on any device to drill-down to a dashboard displaying detailed performance data.		
Network Monitoring	The NMS should continuously monitor the availability and performance of IP devices. It should also monitors wireless Devices, servers, printers and anything with an IP address that can be accessed with standard monitoring protocols including Ping, SNMP, WMI, and SSH.		
Alerts	The NMS should be able to provide real-time alerts via email, text, and logging when an IP device changes state (e.g., from an up state to a down state) or when a performance threshold is exceeded.		
Network Report	It should deliver an easy-to-customize reporting environment. Use should be able to select views generated NMS		
Operating System Support	Microsoft Windows 7 Professional, Enterprise/Ultimate editions (32-bit and 64-bit)		
PC Workstation with 20" LED Monitor	Intel Corei7,8GB RAM, 1TB HDD, DVDR/W, Keyboard & Mouse and 20" LED Monitor		

21. 42U Server Rack for CCS
Required Quantity: 1 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Size	42U, 19'', 800 x 1000 mm or better		
Material	Surface mount steel body with 04 heavy duty casters attached to the bottom		
Doors	Front & Rear perforated doors with perforation for proper air flow.		
Cooling	230 VAC fan on ceiling- Min 4 Nos.		
Locking system	Front & Rear door lock & key		
Roof panel	Foamed-on seal, removable. Cable entry Provision & fan mounting provision.		
Side panels	Sheet steel, with foamed-on seal and fixing screws with earthing options.		
Power Strip	19'' mountable with min 20 no's sockets of 5/15 Amp		
Accessories	All necessary accessories for mounting		
Cable Manager	04 Nos. 19'' mountable Cable Manager		

22. 27U server Rack for LCS
Required Quantity: 1 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Size	27U, 19'', 800 x 1000 mm or better		
Material	Surface mount steel body with 04 heavy duty casters attached to the bottom		
Doors	Front & Rear perforated doors with perforation for proper air flow.		
Cooling	230 VAC fan on ceiling- Min 4 Nos.		
Locking system	Front & Rear door lock & key		
Roof panel	Foamed-on seal, removable. Cable entry Provision & fan mounting provision.		
Side panels	Sheet steel, with foamed-on seal and fixing screws with earthing options.		
Power Strip	19'' mountable with min 15 no's sockets of 5/15 Amp		
Accessories	All necessary accessories for mounting		
Cable Manager	04 Nos. 19'' mountable Cable Manager		

23. 17U Server Rack for LCS
Required Quantity: 3 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Size	17U, 19'', 600 x 1000 mm or better		
Material	Surface mount steel body with 04 heavy duty casters attached to the bottom		
Doors	Front & Rear perforated doors with perforation for proper air flow.		
Cooling	230 VAC fan on ceiling- Min 4 Nos.		
Locking system	Front & Rear door lock & key		
Roof panel	Foamed-on seal, removable. Cable entry Provision & fan mounting provision.		
Side panels	Sheet steel, with foamed-on seal and fixing screws with earthing options.		
Power Strip	19'' mountable with min 10 no's sockets of 5/15 Amp		
Accessories	All necessary accessories for mounting		
Cable Manager	04 Nos. 19'' mountable Cable Manager		

24. 9U Rack for field switch
Required Quantity: 17 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Size	9U, 19'', 600 x 600 mm with Cam Lock & PU Gasket		
Type	Single steel sheet construction, wall Mount		
Doors	Front side tinted glass		
Cooling	230 VAC fan on ceiling		
Locking system	Front door lock & key		
Power Strip	19'' mountable with min. 6 Nos. sockets of 5 Amp		
Accessories	All necessary accessories for mounting		
Cable Manager	02 Nos. 19'' mountable Cable Manager		

25. Power Distribution Board with 1 DP & 8 SP MCB
Required Quantity: 17 Nos.

Description	Make & Model	Compliance (Y/N)
Compact DB Which occupy minimum space		
Raised neutral link for easy wiring		
Suitable for surface & flush mounting		
Detachable din bar with end stoppers for easy assembly of breakers		
Supplied with fully shielded bus-bars		
Level marks for providing indication for fitment in wall		
Supplied with masking sheet to protect components from cement during plastering		
Supplied with masking sheet to protect components from cement during plastering		
MCB: 32A DP MCB: 01 Nos. ; 6A SP MCB : 08 Nos.		

26. 6-Port LIU with accessories For Field Location
Required Quantity: 17 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Height	1 U		
No. of Fiber ports	06		
Material	Powder coated Steel with graphite finish, Rear, side & base access for Incoming / Outgoing Fiber cables		
Type	Single Mode SC Type		
Cable Management rings	Management rings within the system to accommodate excess Fibre cordage behind the through adapters and maintain Fiber bend radius.		
Adaptor Slots	Built in Slots for SC simplex adaptors and SC Duplex adaptors.		
Sliding cover	Panel cover is of slide out for easy maintenance		
Accessories	3 No's, Duplex Coupler, with all other necessary accessories for mounting and splicing, fully loaded		

27. 24-Port LIU with accessories For CCS
Required Quantity: 6 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Height	1 U		
No. of Fiber ports	24		
Material	Powder coated Steel with graphite finish, Rear, side & base access for Incoming / Outgoing Fiber cables		
Type	Single Mode SC Type		
Cable Management rings	Management rings within the system to accommodate excess Fiber cordage behind the through adapters and maintain Fiber bend radius.		
Adaptor Slots	Built in Slots for SC simplex adaptors and SC Duplex adaptors.		
Sliding cover	Panel cover is of slide out for easy maintenance		
Accessories	12 No's, Duplex Coupler, with all other necessary accessories for mounting and splicing, fully loaded		

28. 24-Port Cat-6 Patch Panel
Required Quantity: 25 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Cat-6, 24 port ,modular UTP Connectors		
Material type	Fire retardant cold rolled steel(CRS)		
Jacks	Copper plated		
Panel	Powder coated steel		

Port identification	Front & Rear labelling for port & panel identification		
Accessories	Supporting Accessories for Integrated bend –limiting strain relief for cable entry		

29. Optical fibre patch cord
Required Quantity: 100 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	9/125 μm, Single mode Duplex Patch Cord		
Size	Min 1 meter		
Cable	9/125 μm, SM, Duplex Zip cord.		
Connectors	The optical Fiber patch leads shall comprise of Single mode 9/125μm Fiber with 2x Fiber connectors terminated at one end and 2x Fiber connectors at other end of the patch cord.		
Cable Sheath	LSZH		

30. single mode pigtails
Required Quantity: 300 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	SC 9/125μmSingle Mode		
Jacket Material	LSZH		
Operating Temperature	-10°C to +60°C		
Size	Min 1 Meter		

31. Cat-6 Patch Cord-1Mtr
Required Quantity: 250 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	1 Mtrs UTP CAT 6 Patch cord		

32. Cat-6 Patch Cord-2Mtr
Required Quantity: 130 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	2 Mtrs UTP CAT 6 Patch cord		

33. Cat-6 I/O with Gang Box
Required Quantity: 200 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	1 port with SMB, face plate and accessories for CAT-6		

34. 6 Mtrs. Height camera pole
Required Quantity: 08 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Hexagonal Pole		
Height	6 meter		
Material	Mild Steel (MS) duly galvanized min 250 mm outer diameter, anti-climb in construction.		
Thickness	Min 3 mm		
Accessories	All necessary accessories for mounting		

35. 5 Mtrs. Height camera pole
Required Quantity: 13 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Seamless Cylindrical Pole		
Height	5 meter		
Material	Mild Steel (MS) duly galvanized min 250 mm outer diameter, anti-climb in construction.		
Thickness	Min 3 mm		
Accessories	All necessary accessories for mounting		

36. 3 Mtrs. Height camera pole
Required Quantity: 8 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Seamless Cylindrical Pole		
Height	3 meter		
Material	Mild Steel (MS) duly galvanized min 250 mm outer diameters, anti-climb in construction.		
Thickness	Min 3 mm		
Accessories	All necessary accessories for mounting		

37. Terminal box for Camera end
Required Quantity: 186 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Pole/Wall mountable weather proof Junction Box		
Management	Grommet entries for Fiber, copper, and power cables		
Safety	Lockable door with latches and hex nut		
Size	enough space in single unit to place media converter, PoE adapter, power cable &fibre termination		

38. 6 Core single mode armoured optical fibre cable
Required Quantity: 8000 Mtrs.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Single mode		
Fiber Type	6 core		
Core Diameter @ 1310nm	9 + 0.6 μm		
Construction	UV Stabilised Polyethylene (HDPE)		
Max. Bending Radius	20 X Overall diameter		
Max. Tensile Strength-Short Term	1500N		
Max. Crush Resistance-Short Term	2000N/10 cm		
Attenuation at 1310 nm	0.35 dB/km		
Outer Sheath	HDPE		
Fiber protection(Tubes)	Polybutylene Terephthalate (PBT)		
Operating Temperature range	-40°C -+70°C		

39. Outdoor Cat-6 Network Cable
Required Quantity: 8500 Mtrs.

Feature	Description	Make & Model	Compliance (Y/N)
Category	Outdoor Unshielded Twisted pair ,Cat-6 Cable		
Conductor	Solid 0.58 23 AWG Bare Solid Copper		
Primary Insulation:	HDPE		
Nominal O.D	1.0mm		
Sheath Type	Inner: LS0H, Outer: FR PVC (UV) Black		
Operating Temp	-40ºC to 70ºC		
Mutual Capacitance	5.6nF/100m Nominal		
Contact Resistance	10 mΩ Max		
Standards	UL Listed		

40. Cat-6 Network Cable
Required Quantity: 305 Mtrs.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Twisted pair category 6 TIA/EIA 568-B, 2-1 CAT 6 Ethernet cable		
Standard	UL verified for CAT 6 specifications		

41. 3 Core X 2.5 sq mm armoured Power cable
Required Quantity: 5100 Mtrs.

Feature	Description	Make & Model	Compliance (Y/N)
Category	3x 2.5 sqmm armoured Cable		
Material	Annealed Bare Electrolytic Grade, Copper conductor as per IS:8130/84, Multistrand conductor		
Insulation Material	Extruded PVC type B or Better as per IS 5831		
Inner Sheath material	Extruded PVC,		
Armouring Material & Size	G.I Steel round wire as per IS 3975		
Outer Sheath	Extruded PVC		
Insulation resistance	≥ 1 M ohm per phase with respect to ground & between the phases		
Certification	As per applicable IS code		

42. 3 Core X 1.5 sqmm Unarmoured Power cable
Required Quantity: 1000 Mtrs.

Feature	Required Parameters	Make & Model	Compliance (Y / N)
Category	3 x 1.5 sqmm multi strand copper wire		
Material	Annealed Bare Electrolytic Grade, Copper conductor, Multistrand conductor		
Insulation Material	Extruded PVC type B or Better as per IS 5831		
Outer Sheath	Extruded PVC		
Insulation resistance	≥ 1 M ohm per phase with respect to ground & between the phases		
Certification	As per applicable IS code		

43. HDPE Conduit 32mm
Required Quantity: 8000 Mtrs.

Feature	Required Parameters	Make & Model	Compliance (Y / N)
The PLB HDPE duct shall be meeting the following specifications:			
Outer diameter	40 mm + 0.4 mm.		
Wall Thickness	3.5+ 0.2 mm		
Tensile strength at yield	20 N / sq. mm or better {when tested at a machine speed of 50 mm/min}.		
Test Pressure	6 Kg/cm2 minimum		
Internal coefficient of friction	0.06 (max) when tested with respect of optical fibre cable		
Internal coefficient of friction	0.06 (max) when tested with respect of optical fibre cable		
Thickness of the inner layer	Minimum 0.28 mm, Maximum 0.42 mm		
PLB HDPE Duct Accessories	Accessories like plastic coupler, end plug, cable sealing plug, and end cap as required for jointing the ducts shall be supplied by the contractor along with the duct. No part of the accessories shall be made of metal.		

44. Wooden Console to accommodate Video wall in 3x2 Matrix having each 55'' LCD Monitor
Required Quantity: 1 Lot

Description	Make & Model	Compliance (Y/N)
Wooden console to accommodate 01 Nos. of Video Wall having 06 Nos. of 55" LED Monitor		

45. Split Air Conditioner-2 Tons
Required Quantity: 2 Nos.

Feature	Required Parameters	Make & Model	Compliance (Y/N)
Type	Split Type		
Main Input Voltage	230 V (± 20%), 50 Hz.		
Power Consumption	2 ton		
Stabilizer	Reputed Makes		
Accessories	With complete accessories for installation and termination , stabilizers, metal clad porcelain plug & sockets(20A Each) with metallic box etc.		

Note :   L1 Bidder selection will be done on Total Bid amount (Excluding GST).

SECTION III(D) : BID SECURITY FORM

Whereas _____ (Name of the Bidder) (Hereinafter called "the Bidder") has submitted its bid dated _____ (Date of Submission of bid) for the supply of _____ (name and description of the goods)

(Hereinafter called "the Bid")

KNOW ALL People by these presents that WE _____ (Name of the Bank) of _____ (name of the country), having our registered offices at _____ (address of Bank) (hereinafter called "the Bank"), are bound unto _____ (name of the Purchaser) (hereinafter called "the Purchaser") in the sum of its successors, and assigns by these presents. Sealed with the common seal of the said Bank this _____ Day of _____ 20___

The CONDITIONS of this obligation are :
1. if the Bidder
    a. withdraws its bid during the period of bid validity specified by the Bidder on the Bid Form; or
    b. does not accept the correction of errors in accordance with the ITB; or
    c. modifies its bid price during the period of bid validity specified by the bidder on the bid form; or
2. if the Bidder, having been notified of the acceptance of its bid by the Purchaser during the period of bid validity :
    a. fails or refuses to execute the Contract Form if required; or
    b. fails or refuses to furnish the performance security in accordance with the ITB;

We undertake to pay the Purchaser up to the amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in the demand the Purchaser will note that the amount claimed by it is due to it, owing to occurrence or one or both of the two conditions, specifying the occurred conditions.

                    Seal and signature of the bidder_____
                    with Name of Authorised
                    Official signing the tender document

SECTION III(E) : CONTRACT FORM

This Agreement is made on ----- day of ------ in the year 2019 at Lucknow.

BETWEEN

UP Electronics Corporation Ltd., a Govt Company, registered under the Companies Act, 1956, and having its registered office at 10-Ashok Marg, Lucknow, India." (Hereinafter referred to as "the Purchaser**")** which expression shall unless repugnant to the context or meaning thereof include its successors, legal representatives and permitted assigns) of the ONE PART.

AND

-----------------------------------(Name of Supplier Company/firm), a proprietary/ partnership firm / Public/ Private Limited company having its registered office -------------------- ------- of (City & Country of Supplier) (Hereinafter called "the Supplier" which expression shall unless repugnant to the context or meaning thereof include its successors, legal representatives and permitted assigns) on the OTHER PART.

2   WHEREAS the Purchaser is desirous to purchase certain RFP Items, their delivery, installation and onsite maintenance warranty services and has accepted a bid tendered by the Supplier for the supply of these goods and services in the sum of Rs ………… (contract price in words and figures) (hereinafter called the "Contract Price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

(1.) In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to in the Tender Document of UPLC Tender No …………………….

(2.) The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:

    (a) the e-Bid Form and approved rates;
    (b) the Schedule of Requirements;
    (c) the Technical Specifications;
    (d) the Conditions of Contract; and

(3.) In consideration of the payment to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the goods and services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

(4.) The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the goods and services and the remedying of defects therein, the value of ordered items on the Contract rates or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

DELIVERY & INSTALLATION SCHEDULE :

3   All the items shall be delivered and installation within 4 to 8 from the date of issue of the purchase order and installed within one month thereafter or as specified in the respective Purchase Order. The pre dispatch inspection of the items shall be done by the Purchaser before delivery at final destination. The Delivery and Installation Reports of the supplied material shall be required to be furnished to the purchaser for release of payment.

ARBITRATION

4   In case of any dispute/difference between the parties in relation to this Agreement, the matter shall be referred for Arbitration to the person nominated by MD UPLC, who will be the Sole Arbitrator to decide the dispute/difference between the parties.   The decision of Arbitrator shall be final and binding on both the parties.   The Courts will have exclusive Jurisdiction at Lucknow.

5   In WITNESS whereof the parties hereto caused this Agreement to be executed in accordance with their respective laws and signed on their respective behalf by their duly authorized officials at the place and on the date first herein above-written.

On behalf of Purchaser   **On behalf of Supplier**

1.   ----------------------------   **1.**   -------------------
----
(Name of Authorised person, designation)   (Name of Authorized person, designation) Signed,
sealed and delivered by the said)   Signed, sealed and delivered by the said)
         --------------------------   -----------------------
         --------------------------   -----------------------
         --------------------------   -----------------------
2.   --------------------------------   **2.**   -----------------------------------

         --------------------------   -----------------------
         --------------------------   -----------------------
         --------------------------   -----------------------

         in the presence of

1.   ----------------------------------   **1.**   ---------------------------------
         --------------------------   -------------------------
         --------------------------   -------------------------
         --------------------------   -------------------------

SECTION III(F) : PERFORMANCE STATEMENT FORM

Proforma for Performance Statement (for a period of last three financial years)

Name of Company/Firm……………………………………….

Order placed by (Full address of Purchaser)	Order No & Date	Description & Quantity of ordered	Value of Order (₹)	Date of Completion of Delivery		Remarks indicating reasons for late delivery, if any	Has the ordered equipment been satisfactorily installed & function-in?
				As per Contract	Actual		
1	2	3	4	5	6	7	8

Signature and Seal of the E-Bidder
With name of the authorized person

SECTION III(G) : SERVICE SUPPORT DETAILS

| Sl No | Name & Complete address of Service Centre (Only e-Bidders service centre) | Service Centre Details | | | | | | | Types of RFP Items and other items serviced in last 3 years |
		Name of Head Person & Contact Number	Phone/ Fax No/ E-mail address	Status of office working days & Hours	No of HW Engineers	No of SW Engineers	No of HW Staff	Value of Min. Stock Available at all times	
1	2	3	4	5	6	7	8	9	10

Note: The copies of Purchase deed of office building or Agreement of tenancy with receipt of rent paid and transfer & posting orders of engineers or any proof of placement of service engineer to the satisfaction of the Purchaser, should be enclosed as documentary evidence of service centre.

Signature and Seal of the bidder……………………………………………….
With name of Authorized person
Signing the document.

SECTION III (H) : CAPABILITY STATEMENT (CS)

1.   (a) Name and complete mailing address of the business/sales office of the bidder.

       (b) Name of Authorized Official

       (c) Phone:

       (d) Fax:

       (e) E-mail:

       (f) Principal place of business

       (g) Website of Bidder's Firm

2.   Strength of business/sales office of bidder:

       (i)   No. of Marketing personnel:

       (ii)   No. of Technical personnel:

       (iv)   No. of Service Engineers

       (v)   No. of Supporting personnel:

3.   Classification   [   ]
       Manufacturer(OEM)/ or authorized Dealer/Agent/Supplier

4.   Complete mailing address of manufacturing plant of RFP Items/ Other Items:

       ----

5.   Type of equipment manufactured and supplied by OEM of RFP Items/ Other Items during the last 3 financial years:-

Year	Name of equipment	Capacity/Size	Nos. Manufactured	No. of RFP Items / Other Items supplied in India

6.   Type of equipment supplied during the last 3 financial years other than those covered under above :

Year	Name of equipment	Capacity/Model	Name of manufacturer and country of origin	Total No. of RFP Items / other items installed in India

7.	Turnover of the bidder's company in last three financial years:
	(**Please fill the figures. Do not quote "As per enclosures"**)

Financial year	Turn Over ₹ in crores	Profit ₹ in crores (after taxation)	Remarks
2015-16			
2016-17			
2017-18			

8.	Validity date of ISO Certifications of OEMs/Dealers/Agent/Supplier, if any

9.	The e-Bidder should clearly confirm that all the facilities exist in his office/factory for inspection and testing of all the RFP Items and related items quoted in the e-Bid and these will be made available to the Purchaser or his representative for inspection. Also provide details of methodology, testing equipment & diagnostic tools available for testing of all the technical specifications of the offered items and their proper functioning.
	--
	--

10.	Details of Manpower available at the factory/ plant:
	1.	Quality assurance

	2.	Production

	3.	Marketing

	4.	Service

	5.	Spare Parts

	6.	Administrative

11.	Names of three buyers to whom similar equipments were supplied in the last three financial years and to whom reference may be made by the Purchaser regarding the bidder's performance for timely completion of delivery, installation and after sales service support:

A.	(i)	Complete address of the buyer:
		………………………………………………….
	(ii)	Name & designation of contact person
		………………………………………….
	(iii)	Mobile/Phone/Fax No./E-mail
		address:………………………………………..

B.	Complete address of the buyer:
		………………………………………………….
	(ii)	Name & designation of contact person
		………………………………………….
	(iii)	Mobile/Phone/Fax No./E-mail
		address:………………………………………..

C.	Complete address of the buyer:

....

(ii)   Name & designation of contact person

....

(iii)   Mobile/Phone/Fax No./E-mail

        address:..

12.   (a) Whether the e-Bidder has a manufacturing unit in the state of Uttar Pradesh (Yes/No)

      (b) If yes, the manufacturing unit falls into which type of industry unit (Small/Medium/Large Scale) as per govt. norms.

      (c) If yes, name of items alongwith item code of e-tendered items which have been manufactured by your firm and quoted in this e-tender.

13.   Details of Service Centers of the e-Bidder in Uttar Pradesh only:

Sl. No.	Address of Service Centre	Name and Contact No of Service Engineer	Details of supporting documents submitted for proof of Service Centre
1			
2			
3			
4			
5			

Seal and signature of the bidder_____
with Name of Authorized
Official signing the agreement.

SECTION III (I) : PERFORMANCE SECURITY FORM

Ref:
Date:
Bank Guarantee No:

To : U.P. Electronics Corporation Ltd
       10, Ashok Marg,
       Lucknow 226001

WHEREAS …………………………………….(Name & address of Supplier) hereinafter called "the Supplier" having been placed the Purchase Order No ……………dated ………… by U.P. Electronics Corporation Limited, 10-Ashok Marg, Lucknow (hereinafter called "the customer") for the supply of (Description of Goods and Services) and having been made full payment against the same to the Supplier, we …………………………(Name & address of branch office as well as Head Office of the Bank) (hereinafter referred to as "the Bank) do hereby affirm that we are Guarantors and responsible on behalf of the Supplier and undertake as under:-

  i.   To indemnify and keep indemnified the customer to the sum of Rs ………………/- (Rupees ……………………) only for the losses and damages that may be caused to or suffered by the customer in the event of continuous and consistent non-performance of the (Equipment and materials to be mentioned exactly as mentioned in the Purchase Order/Work Order) supplied by the supplier against above referred Purchase Order issued by the customer.

 ii.   The guarantee herein contained shall remain in full force and effect till the expiry of warranty period i.e. up to ……………………….. for the material supplied by the supplier.

iii.   The Guarantee shall not in any way be affected by the change in the constitution of the supplier or us nor shall be affected by the change in the constitution, amalgamation, absorption or reconstruction of the customer or otherwise, but shall ensure for and be available to and enforceable by the absorbing, amalgamation or reconstructed company of the Customer.

Notwithstanding anything contained hereinbefore:

  1.   Our liability under this Bank Guarantee shall not exceed Rs ………………/- (Rupees ……………………)

  2.   This Bank Guarantee shall be valid up to ………………..

  3.   We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only, and only if you serve upon us a written claim or demand on or before …………………. upon your first written demand declaring the Supplier to be in default under the Contract and without cavil or argument any sums within the limit of ------------------ only   as aforesaid, without your needing to prove or to show grounds or reasons for your reasons for your demand or the sum specified therein.

                                    Signature and Seal of Guarantors Bank

                                    ……………………………….
                                    ……………………………….
                                    Date…………………2019……………………
                                    ………….

Scope of Work and Terms & Conditions of RFP

for Vidhan Shabha Surveillance with additional 186 nos of CCTV Cameras with integration with existing CCTV Camera Infrastructure

BRIEF SCOPE OF WORK:

OBJECTIVE: This document is the functional and Technical requirement for proposed procurement of additional CCTV for Vidhan Sabha Buildings at Lucknow.

FOREWORD

➢ Over the last decade CCTV surveillance and the evidence obtained have become increasingly vital tools in the prevention, investigation and detection of crime and terrorism.

➢ With the advent of high resolution Megapixel IP Cameras and modular storage systems, grainy and low resolution images are no longer acceptable. It is expected that the surveillance system detect, identify and recognize perpetrators and perceived threats based on threat assessments and capability matrix as mentioned in the document further.

➢ Resilient and redundant network architecture with an optical fibre (already laid down at some places} backbone ensures integrity of CCTV signals.

➢ Redundant data storage of images and timely backups to ensure data integrity.

1.3   Brief Explanation:

▪ CCTV cameras are installed at various key locations. Depending on the junction site conditions, IP IR PTZ and Bullet cameras are being proposed.

▪ Video stream captured through these cameras are sent to the control room for storage and monitoring purposes through the optical fibre network spread across the location.

▪ UTP cables are being used to connect the cameras to the optical fibre network through the managed switches placed at various field locations. An online UPS is positioned along with the master switches to enable supply of uninterrupted power to the camera and the switches, thereby eliminating chances of power surging.

▪ At the control room, the optical fibres directly terminate at the master switches through the SFP modules. The video stream is then routed to the Recording Server through another managed switch. The master switches are been designed in the redundant or failover mode so that in case of failover of one switch , the other switch will smoothly take over the operations without any interruptions .

▪ An online UPS of 15 KVA had been considered for supplying uninterrupted power to the Switches, Display and Client PCs.

▪ Security personnel can view the live feeds on the video wall connected through the client PC.

▪ A video management software (VMS) will be loaded on the client PC for information processing and effective video management services.

1.4 ELIGIBILITY CRITERIA

➢ The VMS Software and Cameras shall be from the same OEM.

➢ The bidder should have implemented similar systems (CCTV) in any of the Govt Building / High Courts/ Secretariat Buildings/ Airports/ Railways/ Metros/ Prisons/ High Risk Zones (Global Experience). Documentary proof & evidence about execution of such similar works and its completion certificate & satisfactory performance certificate should be enclosed along with the technical bid; without which the bid shall be summarily rejected.

➢ The Letter of Authority (Manufacturer Authorization Form-MAF) from the respective principals/ OEMs for supply, installation, testing, commissioning & maintenance support must be enclosed along with the technical bid, without which the bid shall not be considered.

➢ The firm/ bidder shall be responsible for the delivery & handover of the entire project. The compliance of terms & conditions should be adhered as per the RFP.

➢ The Firm/ bidder should have completed similar works during the period between 01.04.2013 to 31.12.2018 of minimum value of not less than 80% of estimated contract value against one single order OR Two orders of similar works each costing not less than 50% of estimated contract value OR Three orders of similar works each costing not less than 40% of estimated contract value. These should be submitted along with the **completion certificate mentioning satisfactory performance**, without which the bid shall not be considered and shall be summarily rejected.

➢ The firm/ bidder should be in the business of supply, installation, testing, commissioning & maintenance of CCTV systems **for at least last 05 years**.

➢ OEM of major equipments should have at least **05 years** experience.

➢ The bidder shall have liquid assets-must be at least 50% of the estimated contract value.

➢ Minimum average annual turnover for the last three years must be more than 100% of the estimated contract value **(Rs 5 Crore)**.

➢ Bidder should have Positive NET WORTH mentioned in the ~~latest~~ audited balance sheet- must be at least 100% of the value of offered work in last three years.

➢ The bidder should have completed a public infrastructure security job having minimum 200 nos. IP cameras. Documentary evidence in the form of Order Copy/ Completion Certificate/ Performance Certificate shall be furnished along with the technical bid, else wise the bid shall not be considered.

➢ The bidder must have Proven Track Record & Experience in deploying surveillance solution for large buildings, office complexes and must have used similar solution in India.

➢ The bidder ~~shall~~ will provide a single platform to achieve all functionalities as mentioned in the functional requirement document.

- The OEM of CCTV System (cameras and software) shall have own service centre in India from last 5 years. ~~Documentary evidence in the form of Order Copy/ Completion Certificate/ Performance Certificate shall be furnished along with the technical bid, else wise the bid shall not be considered~~. **Detail of service centre confirming live, on Company Letter Head by authorised signatory should be uploaded with technical Bid**

- The OEM of CCTV system (cameras and software) shall be incorporated under Company Act 1956. And shall be in the same business from last 5 years. Documentary evidence in the form of Order Copy/ Completion Certificate/ Performance Certificate shall be furnished along with the technical bid, else wise the bid shall not be considered
- **Documentary Proof of the same should be uploaded with technical Bid if Bidder is OEM else the bidder will submit** Order Copy/ Completion Certificate/ Performance Certificate **copy, executed by OEM.**

- The OEM (Camera and VMS) and bidder should be ISO9001: 2015 **or better** certificated.

2.1 SPECIFICATION AND SELECTION

The requirements listed in the following represent the minimum requirements for surveillance systems, if they are to be considered state-of-the-art technology:

2.1.1 Video surveillance has to deliver live video with a minimum resolution of full resolution at full frame rate at H.265 compression in order to guarantee that persons and objects can be identified properly in the live video.

2.1.2 Video Surveillance System has to record the camera video streams at 1080p (1920x1080) and 5 MP resolution at H.265 compression in order to guarantee that persons and objects can be identified properly in the recorded videos.

2.1.3 In case of central server failure. All Client should work independently and Recording of the police station should not be impacted by the Central server failure.

2.1.4 The system has to allow for simultaneous display and storage of the live videos as well as the display of the stored videos without the risk of losing data.

2.1.5 To reduced costs, the system should not require additional power lines for the camera's power supply. Instead, power should be supplied via the network cabling (e.g. Power-over-Ethernet) for all fixed cameras. Power Injectors shall be used to power up PTZ cameras.

2.1.6 The system needs to be able to operate in outdoor applications at temperatures up to +50° C. This will reduce power consumption to a minimum, thus providing for cost-efficient protection of the whole system using uninterruptible power supplies. Outdoor cameras shall be protected by surge/ lighting protection equipment. Such equipment shall be modular and be kept together with the camera housing/outdoor weatherproof junction box which in turn shall have proper earthing as per statutory norms.

2.1.7 The fixed cameras should not have to rely on any moving parts such as auto iris, mechanical filters, motors, fans or similar. This ensures that the complete system is highly reliable and maintenance-free.

2.1.8 The surveillance cameras need to be able to record videos on the SD memory card in case of network connectivity from camera to the recording server fails.

2.1.9 The video surveillance system shall support ONVIF profile S to integrate other IP cameras seamlessly.

2.1.10 The housing and the materials have to be chosen in such a way that the cameras have a life expectancy of at least seven years.

Detailed specifications and compliance requirements are available in another section of this document.

2.2 VIEWING AND RECORDING

2.2.1 The video surveillance system must provide Digitally Signed recordings and audit trails for evidence purpose.

2.2.2 The video surveillance system shall have sufficient storage to record all cameras for 30 days. The bidders must provide a minimum **290 TB Usable capacity SAN Storage for 30 days recording of 200 Camera at 1080P for PTZ and 5MP for Fixed, 30FPS for CCS and NAS for LCS (Details are in Technical specs).**

2.3   EDGE ANALYTICS

2.3.1   The cameras   should have all standard analytics for detection and raise an alarm as given in the technical specifications for VMS.

2.3.2   Cameras shall be provided with edge based (Embedded) VCA (Video Content Analysis). The software offered shall support built-in tamper monitoring to detect camera hooding/masking, blinding, defocusing and repositioning. Image stabilization to remove jitter from shaking video sources such as cameras mounted on poles or simple vibrations

2.3.3   Shall have broad range of detecting tasks and object filters available

2.3.4   Shall support automatic classification of person, bike, car, truck

2.3   Penalty Clauses

A) Penalty amount per equipment/problem per day of delay.	
i) Rectification of the problems/defect within 24 Hrs.	Rs. 0.00
ii) By not rectifying the problem per equipment per day.	Rs. 1000/- per day per equipment.
iii) By not rectifying the problem and even not providing the standby equipment after 72 hours.	Rs. 2000/- per equipment per day.
iv) Standby arrangement is allowed only for 10 days, further delay without any valid/genuine reason beyond 10 days by which the equipment is to be returned, the firm will be penalized @ RS. 5000/- PER DAY PER EQUIPMENT. Action for forfeiture of security money / pending bills / legal action / black listing of the contractual firm can be taken.	
v) On not doing preventive maintenance of per camera/per quarter.	Rs. 500/- per week per equipment.

3. Technical Specifications

F. CCTV System

46. **IP, Outdoor Fixed Bullet Camera with vari-focal lens (3-9/ 2.8-12 mm), colour true day / night, IR type camera.**

Required Quantity : 107Nos.

Sn	Feature	Description	Make & Model	Compliance (Y/N)
1	Sensor	1/3"or better CMOS Progressive Scan		
2	Active Pixels	H (3000 - 3900) x V (1700- 2200)		
3	Min Sensitivity	Color mode: 0.5Lux @ F1.3 (30 IRE, AGC ON); B/W mode: 0.05 Lux@F1.3 IR ON :- 0.0 Lux @F1.3		
4	Wide Dynamic Range	120dB or better		
5	Video Resolution	H (3000 - 3900) x V (1700- 2200)		
6	Lens options	(2.8-3mm) to (9-12mm); Autofocus		
7	Shutter speed	1/30 to 1/10000 or better		
8	Video compression	H.265, MJPEG (Triple Stream)		
9	Video Analytics	Object in field, Line crossing , Enter / leave field, Loitering, Follow route, Idle / removed object, Counting, Occupancy, Crowd density estimation, Condition change, Similarity search - licenses for all these analytics to be considered with camera.		
10	Binary Input/ output	1 Input; 1 output		
11	Network Interface	IPv6, IPv4, HTTP, UDP, TCP, ICMP, IGMP, DHCP, NTP, SMTP, FTP, SAMBA, UPnP, PPPoE, DNS, DDNS, RTSP, RTP, RTCP		
12	Resolution	Triple streams H.265 H (3000 - 3900) x V (1700- 2200) at 30 fps simultaneously		
13	SD Storage	With an embedded SD card slot, (SI has to provide SD card of128GB)		
14	Operating Temperature	Between 0^0 C to +50^0C		
15	Operating Humidity	Less than 90%		
16	Power requirement	POE, AC24, DC12V		
17	S/N Ratio	50 db or better		
18	Regulatory	UL, CE, FCC		
19	Housing	IP66, vandal-resistant IK10 or better		
20	IR	(Inbuilt/ External) Minimum 50Mtr		
21	Applicable	ONVIF S compliance		

Feature	Description	Make & Model	Compliance (Y/N)
	Protocols		

47. IP, Outdoor, PTZ Dome camera with 30X lens, colour true day / night, IR camera having 1920X1080 p resolution

Required Quantity: 79 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Image Sensor	1/3" or better CCD/CMOS Progressive Scan sensor		
Image Resolution	2 MP		
Application Environment	Outdoor		
Zoom Ratio	30X Optical + 12 X Digital or better		
Day/Night	Yes		
Mechanical IR Cut Filter	Yes		
IR Distance	Minimum 150 Mtrs (Internal or External)		
Aperture/ Focal Length	focal length (4.3- 4.5mm) — (129-135) mm +/- 10 % Zoom, DC iris, Auto focus		
Minimum Illumination	Color: 0.5 lux, B/W: 0 Lux with IR		
Panning and Tilting Range	Pan: 0°-360° endless; Tilt: 0°-90°		
S/N Ratio	>50dB		
Video Compression	H.265 high profile/M-JPEG		
Video Analytics	Object in field, Line crossing , Enter / leave field, Loitering, Follow route, Idle / removed object, Counting, Occupancy, Crowd density estimation, Condition change, Similarity search - licenses for all these analytics to be considered with camera.		
Maximum Frame Rate vs. Resolution	60 fps at 1920 x 1080		
Output Bit Rate	Variable bit rate; Constant bit rate		
Audio Compression	G.711		
Audio port	1 input, linear level, impedance, 1 output, linear level, impedance		
Built-in Storage	With an embedded SD card slot, (SI has to provide SD card of128GB)		
Network Port	1 x 10M/100M Ethernet Port		
Network Protocol	IPv6, IPv4, TCP, UDP, IGMP, DHCP, FTP, SNMP(v3), SMTP, NTP, RTP, RTSP, RTCP, HTTP, HTTPS, TSL, SSL, 802.1X, QoS, PPPoE, DNS, ARP, ICMP, IPv6, DDNS, UPnP		
Presets	255		
Motion Detection	Yes		
Alarm	1 alarm inputs, 1 relay output		
Shutter	Auto (1/30s ~ 1/10000s, adjustable)		
White Balance	Auto/Manual / Sodium Lamp		
WDR	120 dB		
Backlight Compensation	On/Off		
Mounting	Bracket, ceiling		
Housing Material	Cast aluminium		
Power Supply	OEM POWER SUPPLY		
ONVIF Compliant	Profile S		
Operating Temperature	Outdoor: 0°C ~+50°C		
Operating Humidity	Less than 90%		
Rating	CE, UL, FCC, IP66 or better		

48. **Video Management & Recording Software for Central control Room & Local Control Room with 200 Camera license & 12 Client license**

Required Quantity: 01 No.

Feature Description	Make & Model	Compliance (Y/N)
General requirement		
The Video Management System (VMS) specified shall be an IP video security solution that provides seamless management of digital video, audio and data across an IP network for Viewing, Recording, control and Playback of IP CCTV system. It shall have all required Life Time Licences for use of the entire system.		
The VMS shall be highly scalable and expandable to minimum 500 cameras in future.		
The proposed solution shall not require proprietary computer, server, network or storage hardware and shall provide seamless integration with third party security infrastructure, wherever possible. Software shall be Open platform network video compliant with SDKs available for integration with 3rd party systems.		
The VMS system shall be based on the latest in software programming technology. The software should be compatible with Windows Operating Systems (Windows Server 2016 / Windows 10 or later versions) and should be user friendly. The system should allow operation with PC Keyboard, Mouse, CCTV Keyboard (Joystick).		
The Video Management software should be provided with Failover feature. In case of central server failure. All Client should work independently and Recording of CCS should not be impacted by the Central server failure.		
The system shall allow the recording, live monitoring, playback of multiple archived video, audio, and data simultaneously		
The VMS shall allow for 2-way audio communication between camera unit and client, without any need of additional software licenses. i.e. Two-way audio transmitting client microphone input to remote speakers attached to IP devices.		
The VMS Audio function shall be synchronized with video.		
The VMS should support storage of RAID-6 configuration with hot swappable Hard disks. The VMS should support NFS, CIFS, iSCSI, FC and FCoE protocol.		
Centralised Monitoring of different sites: The VMS should be capable of providing Camera feeds of different buildings for viewing at one centralised geographical location in future through WAN		
The VMS should support MJPEG, MPEG -4, H.264 , H.265 video compressions. It should be able to support minimum two individually configurable H.265 streams.		
In case of Network Failover, the video should be stored in local storage.		
Offered VMS should support 64 bits OS		
Offered VMS shall have capability to multicast videos to clients		
The VMS shall support the Open Network Video Interface Forum (ONVIF) compliant Cameras and devices.		
The offered video management system should have integration with Video Wall display on 3x2 LED Panels		
Management server software		
Offered VMS data base shall have capacity to handle minimum 500 cameras.		
The Management software shall be a fully distributed solution for multi servers with centralized management.		
The management server shall be able to intelligently scan an IP network for new devices (cameras or servers etc.) simultaneously		
The system administrator shall have rights to add/delete/configure users with rights.		
It shall be possible to view the rights of each user or the cameras which can be viewed / controlled by each user.		
It shall also be possible to add/delete cameras, configure cameras, assign priorities to users, configure alarm monitors etc.		
It shall also be possible to configure user groups with different rights and assign		

users to user groups.		
The system shall support unified log-in throughout the system and it shall be possible for any user to log-in from any location/client and access cameras / recordings and other features as permissible depending on his rights assigned to his log-in.		
Redundancy of management server shall be maintained so that there shall not be single point of failover.		
Recording server software-features (DUAL RECORDING)		
Simultaneous video recording of all the IP cameras without any software limitations on the number of cameras per server		
Dual Recording required. One will be at CCS and another at LCS.		
The recording server software shall have the capability of seamlessly transferring the load of a failed recording server to the other healthy servers or the standby server. Appropriate alerts should be raised by the VMS in case of the above		
Built-in, real-time, camera-independent motion detection		
Support for both IPv4 and IPv6 addressing		
Secure HTTPS camera connection on devices supporting HTTPS		
Digital signing feature of the Recording Server's video database to verify that recorded video has not been modified or tampered with while stored in the VMS or after export to be provided and also necessary tool for verifying video tampering to be provided		
It shall be capable of pre-setting the various positions for PTZ cameras		
Logs of system, event, audit, rule and alert entries shall be consolidated from all Recording Servers at regular intervals		
Built-in map function in the Client shall be provided for an overview of the system and for instant camera preview on mouse click on the MAP.		
Alarm list with extensive filtering capabilities and an alarm preview in both Live and Playback mode		
Features of Client Software		
Client shall consist of Administrator Tool application and a Monitoring application. Client should also be able to play an archived videos. All the relevant software licenses should be included. All the client licenses should work on any work station and should not be restricted to be used with specific workstation.		
VMS Server software shall allow the client's seamless operation of all cameras regardless of the actual connection to different recording servers. VMS Software shall allow the client applications to interact with all the camera/database servers simultaneously and allow simultaneous display of live video/recorded video.		
It shall be possible to define priority based camera control rights for each camera or a group of cameras.		
Client application should provide different Video display layouts which should include Full screen, Quad, etc. It shall be possible to view live video from cameras on the surveillance system from 1 to 25 (Minimum) per screen.		
Client shall perform the following applications simultaneously without interfering with any of the Archive Server operations (Recording, Alarms, etc.)		
• Live display of cameras and audio		
• Live display of camera sequences, panoramic camera views		
• Playback of archived video		
• Instant replays of Video and Audio		
• PTZ control		
• Display and control of Maps		
• Audio announcements		
• Alarm management		
Client applications shall support any form of IP network connectivity including: LAN, WAN, VPN, Internet, and Wireless		
Client applications shall support IP Multicast and Unicast video and audio streaming as required depending on the network capabilities		
Client application shall enable playback of audio along with video.		
Client application shall be able to control the playback with play, pause,		

forward, and speed buttons.		
Client application shall allow operators to add identification with description to recorded clips of video or audio.		
It shall be possible to playback of recorded video simultaneously 64 cameras on the surveillance system, with a selection of advanced navigation tools, including an intuitive timeline browser.		
The Client shall support search of recorded video for motion event in user-specified areas of a camera image		
The VMS shall allow the administrator to capture / Export video from the workstation. The recording shall be captured in a standard format, so as to allow playback using Windows Media Player. The recording shall include audio for video sources if audio recording is used.		
The Video Management System software shall provide fast evidence export by exporting in video to various formats, including video from multiple cameras in encrypted native database format with an included viewer.		
Client application shall support digital zoom on a fixed/PTZ camera's live and recorded video streams.		
Client application shall provide management and control over the system using a standard PC mouse, joystick, keyboard or CCTV keyboard. Standard scroll mouse should be able to move the camera by merely clicking on the extremes of the picture in all directions and zoom function by scroll button. Provision of the PTZ menu on GUI will not be considered as equivalent or substitute.		
Quick overview of recorded sequences, events and bookmarks		
Supports different view layouts optimized for 4:3 and 16:9 display settings in both landscape and portrait.		
Security Requirements		
The VMS should provide the security of the system so that no unauthorised person should be able to access the video of the system. It should also have the following features:		
Role based limited access to the system- The user shall be able to access only the permitted controls and cameras etc.		
Should support Dual sign in to log in to the system administrator - Log in shall be permitted when two authorised persons login.		
Schedule based Log in. - A user shall not be able to log in beyond the defined time slot.		
Prescribing password policy related to configuration of password and duration for periodic change of password		
The user should be able to login only to the specified client workstation for the said user. However, there may be more than one user for the same client workstation.		
Threat Level Button: The VMS should be able to create a soft Threat Level button and or should be able to integrate with hard Threat Level button so that in case of emergency the button can be activated and according desired action such as blanking off of the display in the control room is achieved whereas the other displays and recording of the cameras remains affected.		
Warning of unauthorised Login: The system shall raise an alarm whenever any unauthorised attempt to login is observed.		

49. **Server with Windows Operating System Software for Video Management with Failover Server (N+N)& Recording software with Failover Server (N+N)**

Required Quantity: Minimum 7 No.

Features	Qualifying Minimum Requirements	Make & Model	Compliance (Y/N)
Chassis	1U Rack Mountable		
CPU	2 X latest generation 10 Core Intel Xeon-Processor with Minimum of 2.4GHz Clock Speed or Higher		
Motherboard	Intel® C621 Series Chipset		

Memory	Minimum 24DIMM slots. Server Should be populated with Total 64 GB Memory & Server should be scalable upto 768GB using DDR4 Registered DIMM (RDIMM) operating at 2600 MHz		
Memory Protection	Advanced ECC with multi-bit error protection, Online spare, mirrored memory and fast fault tolerance		
HDD Bays	Up to 8 Drive Bays		
Hard disk drive	2 X 900 GB SFF SAS 10 K RM Hard drives		
Controller	PCIe 3.0 based 12Gb/s SAS Raid Controller with RAID 0/1/1+0/5/50/6/60/1 Advanced Data Mirroring/10 Advanced Data Mirroring (onboard or on a PCI Express slot) Storage controller should support Secure encryption/data at rest Encryption		
Networking features	Server should support below networking cards: 10Gb 2-port Ethernet adaptor		
Interfaces	Serial - 1 Micro SD slot - 1 USB 3.0 support With Up to 5 total: 1 front, 2 internal, 2 rear, 2 internal (secure)		
Bus Slots	Three PCI-Express 3.0 slots, atleast two x16 PCIe slots		
Power Supply	Should support hot plug redundant low halogen power supplies with minimum 94% efficiency		
Fans	Redundant hot-plug system fans		
Industry Standard Compliance	ACPI 6.1 Compliant PCIe 3.0 Compliant PXE Support WOL Support Microsoft® Logo certifications USB 3.0 Support USB 2.0 Support Energy Star ASHRAE A3/A4 UEFI (Unified Extensible Firmware Interface Forum) SMBIOS Redfish API IPMI 2.0 SNMP v3 TLS 1.2 DMTF Systems Management Architecture Active Directory v1.0		

System Security	UEFI Secure Boot and Secure Start support Security feature to ensure servers do not execute compromised firmware code FIPS 140-2 validation Common Criteria certification Configurable for PCI DSS compliance Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser Support for Commercial National Security Algorithms (CNSA) mode to prevent the use of insecure algorithms		
	Tamper-free updates - components digitally signed and verified Secure Recovery - recover critical firmware to known good state on detection of compromised firmware Ability to rollback firmware Secure erase of NAND/User data TPM (Trusted Platform Module) 1.2 TPM (Trusted Platform Module) 2.0 Bezel Locking Kit option Chassis Intrusion detection optionSupport for Commercial National Security Algorithms (CNSA) Smart card (PIV/CAC) and Kerberos based 2-factor Authentication Configurable for PCI DSS compliance Secure erase of NAND		
Operating Systems and Virtualization Software Support	Microsoft Windows Server Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) VMware ClearOS		
GPU support	System should support NVIDIA's latest computational accelerators and graphics accelerators		
System tuning for performance	1. System should support feature for improved workload throughput for applications sensitive to frequency fluctuations. This feature should allow processor operations in turbo mode without the frequency fluctuations associated with running in turbo mode 2. System should support workload Profiles for simple performance optimization		
Secure encryption	System should support Encryption of the data (Data at rest) on both the internal storage and cache module of the array controllers using encryption keys. Should support local key management for single server and remote key management for central management for enterprise-wide data encryption deployment.		
Provisioning	1. Should support tool to provision server using RESTful API to discover and deploy servers at scale 2, Provision one to many servers using own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell		

Embedded Remote Management and firmware security	1. System remote management should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication 2. Server should have dedicated 1Gbps remote management port 3. Remote management port should have storage space earmarked to be used as a repository for firmware, drivers and software components. The components can be organized in to install sets and can be used to rollback/patch faulty firmware 3. Server should support agentless management using the out-of-band remote management port 4. The server should support monitoring and recording changes in the server hardware and system configuration. It assists in diagnosing problems and delivering rapid resolution when system failures occur 5. Applications to access the server remotely using popular handheld devices based on Android or Apple IOS should be available 6. Remote console sharing upto 6 users simultaneously during pre-OS and OS runtime operation, Console replay - Console Replay captures and stores for replay the console video during a server's last major fault or boot sequence. Microsoft Terminal Services Integration, 128 bit SSL encryption and Secure Shell Version 2 support.Should provide support for AES and 3DES on browser.Should provide remote firmware update functionality.Should provide support for Java free graphical remote console. 7. Should support managing multiple servers as one via Group Power Control Group Power Capping Group Firmware Update Group Configuration Group Virtual Media Group License Activation 8. Should support RESTful API integration 9. System should support embedded remote support to transmit hardware events directly to OEM or an authorized partner for automated phone home support	
Server Management	Software should support dashboard view to quickly scan the managed resources to assess the overall health of the data center. It should provide an at-a-glance visual health summary of the resources user is authorized to view.	
	The Dashboard minimum should display a health summary of the following: • Server Profiles • Server Hardware • Appliance alerts	

		Make & Model	Compliance (Y/N)
The Systems Management software should provide Role-based access control			
Management software should support integration with popular virtualization platform management software like vCenter, and SCVMM			
Should help provide proactive notification of actual or impending component failure alerts on critical components like CPU, Memory and HDD.			
Should provide an online portal that can be accessible from anywhere. The portal should provide one stop, online access to the product, support information and provide information to track warranties, support contrast and status. The Portal should also provide a Personalized dashboard to monitor device heath, hardware events, and contract and warranty status. Should provide a visual status of individual devices and device groups. The Portal should be available on premise (at our location - console based) or off premise (in the cloud).			
Should help to proactively identify out-of-date BIOS, drivers, and Server Management agents and enable the remote update of system software/firmware components.			
The Server Management Software should be of the same brand as of the server supplier.			

50. **290 TB Usable capacities SAN Storage for 30 days recording of 200 Camera at full resolution and full frame rate.**
   Required Quantity: 1 No.

Paramater	Functionality	Make & Model	Compliance (Y/N)
Operating System & Clustering Support	1. The storage array should support industry-leading Operating System platforms including: *Windows 2012 / 2016, HPE-UX, VMware and* Linux. 2. Offered Storage Shall support all above operating systems in Clustering.		
Capacity & Scalability	1. The Storage Array shall be offered with 290 **TB Usable** (RAID6) Capacity using NL SAS drives 2. For effective power saving, Storage subsystem shall be supplied with 2.5" Small form factor SFF drives however storage subsystem shall also support LFF drives with the addition of required disk enclosures. 3. Storage shall be scalable to minimum of 190 number of SAS SFF drives.		

Front-end Ports	1. Offered Storage system shall be supplied with minimum of Dual 16Gbps FC ports and Dual 10Gbps ISCSI ports per controller. 2. Offered storage shall have flexibility to use all above ports either as FC or ISCSI by replacing the requisite SFP. Vendors shall provide the additional SFP accordingly. In case, vendor doesn't support this feature, then every controller shall be populated upfront with 4 x 16Gbps FC ports and 4 x 10Gbps ISCSI ports.		
Architecture	The storage array should support dual, redundant, hot-pluggable, active-active array controllersfor high performance and reliability		
No Single point of Failure	Offered Storage Array shall be configurable in a No Single Point of configuration including Array Controller card, Cache memory, FAN, Power supply etc.		
Disk Drive Support	1. Storage system shall also support maximum of 1.8TB Enterprise SAS Drives, 3.2TB SSD and 12TB near line SAS drives. 2. Offered storage array shall also have support for self-encrypted SAS and near line SAS drives.		
Cache	1. Offered Storage Array shall be given with Minimum of 8GB cache per controller in a single unit. 2. Cache shall be backed up in case of power failure for indefinite time either using batteries or capacitors or any other equivalent technology. 3. Offered Storage shall also have optional support for Flash cache using SSD / Flash drives. Offered storage shall support at-least 8TB Flash Cache. Vendor shall offer at least 6TB Flash cache. 4. Offered Flash cache shall be tuned for random read operations and shall remain activated even at less than 70% of random average read workload.		
Raid Support	1. Offered Storage Subsystem shall support Raid 0, 1 , 1+0 , 5 and Raid 6 2. All Raid Sets shall support thin provisioning. Vendor shall offer the license of thing provisioning for complete supported capacity of the array. 3. Thin provisioning shall be supported with offered Flash Cache.		
Point in time and clone copy	1. Offered Storage array shall be configured with array based Snapshot and clone functionality and shall be configured for minimum of 512 snapshot licenses. 2. Offered Storage array shall support at-least 512 point in time copies (Snapshots) and 128 Clone copies		
Replication	1. Offered storage subsystem shall support storage based replication to DR location. License for maximum supported capacity of the array shall be offered. 2. Offered storage subsystem shall support replication to multiple storage array of the same family in fan-out mode. At least 1:4 mode shall be supported.		

Features	Qualifying Minimum Requirements	Make & Model	Compliance (Y/N)
Virtualization and Thin provisioning	1. Offered storage shall be offered and configured with virtualization capability so that a given volume can be striped across all spindles of given drive type within a given disk pool. Disk pool shall support all listed raid sets of Raid 1, Raid 5 and Raid 6. 2. Offered Storage shall be offered and configured with Thin Provisioning capability.		
Data Tiering	Offered Storage shall also be configured for Sub-Lun Data tiering in real time fashion across different type of drives within a given pool like SSD, SAS, NL-SAS etc. License shall be configured for maximum supported capacity of the array.		
Global and dedicated Hot Spare	1. Offered Storage Array shall support Global hot Spare for offered Disk drives. 2. Atleast 2 Global hot spare drive shall be configured for every 30 drives. 3. Storage subsystem shall also have the flexibility to assign dedicated spare for raid sets.		
Logical Volume & Performance	1. Storage Subsystem shall support minimum of 512 Logical Units. Storage Array shall also support creation of more than 100TB volume at controller level. 2. Offered Storage shall have inbuilt performance management software. Configuration Dashboard shall show overall IOPS and MB/sec performance.		
Load Balancing &Muti-path	1. Multi-path and load balancing software shall be provided, if vendor does not support MPIO functionality of Operating system.		

51. 34 TB usable capacity NAS Storage for 32 Cameras 30 days recording
52. 148 TB usable capacity NAS Storage for 125 Cameras 30 days recording
53. 57 TB usable capacity NAS Storage for 53 Cameras 30 days recording
54. 8 TB usable capacity NAS Storage for 9 Cameras 30 days recording
Required Quantity: 1 No. of each

Features	Qualifying Minimum Requirements	Make & Model	Compliance (Y/N)
No. of Storage Units	5) 34 TB usable capacity NAS Storage for 32 Cameras 30 days recording 6) 148 TB usable capacity NAS Storage for 125 Cameras 30 days recording 7) 57 TB usable capacity NAS Storage for 53 Cameras 30 days recording **8)** 8 TB usable capacity NAS Storage for 9 Cameras 30 days recording		
Rack mount	NAS Controller Should be rack mounted with a form factor of not more than 2U		
Processor	Dual processor of hexa Core each. Shall be Intel Bronze 3104 - 1.7Ghz with 8.25MB L3 Cache or higher.		
Memory	32GB DDR4 RAM or higher, scalable to 384GB DDR4 RAM		

Hard Drives	Shall be supplied with minimum as above Usable Capacity with NL SAS drives in Raid 5. Offered NAS Storage shall have separate dedicated SSD drives for Operating system in Raid 1+0. Hard drives shall be M2 form factor.		
Storage expandability	1. Offered NAS controller shall support at-least 16 internal LFF Slots and shall be offered with at-least 12 LFF Slots. 2. Offered storage shall also have capability to attach additional drive enclosures. NAS shall support at-least 300TB of external capacity using 10TB drives.		
Network Connectivity	Min. 4 X 1Gbps auto sensing NICs ports and shall be further scalable to additional 8 numbers of 10Gbps Ethernet port.		
Protocols support	TCP/IP, ISCSI, FTP, FTPS, CIFS/SMB 3.1.1, HTTP, HTTPS, NFS 4.1, WebDev etc.		
Fault Tolerance for internal drives	Offered NAS shall support Raid 0, Raid 1, Raid 1+0, Raid 5 and Raid 6 for internal drives. Offered Raid controller shall have minimum of 4GB flash back write cache.		
Fault Tolerance for external drives	Offered NAS shall support Raid 0, Raid 1, Raid 1+0, Raid 5 and Raid 6 for external drives. Supported Raid controller shall have minimum of 4GB flash back write cache.		
Network Client Types Support	Should support Windows 10, Windows 2012, 2016, , HP-UX, AIX, SOLARIS, Linux etc.		
Operating System	Microsoft Windows Storage Server 2016 - 64 bit edition (NAS optimized) including powered OS drivers		
De-duplication	Offered NAS shall have block based De-duplication which can be enabled for all required volumes. De-duplication engine shall have: 1. Flexibility to decide the multiple schedules when de-duplication process can be run. 2. Flexibility to limit the time period of de-duplication process so that production operations remains intact. 3. Flexibility to bypass the recent files under the de-duplication process so that production operations remains intact. 4. License for De-duplication shall be provided. 5. Shall support more than 64TB of file system for de-duplication.		

Group	Specification Item	Detailed Specification	Make & Model	Compliance (Y/N)
File screening and quota management	1. Offered NAS shall have support for file screening so that administrator can ensures that users shall not be able to store unwanted files on offered NAS device. 2. Offered NAS shall have Quota management for both Volume and Directory. 3. Software for both File screening as well as Quota management shall be provided.		
File Management	1. Shall have flexibility to expire or move files to different folder / Location / Volumes / drives on the basis of polices like day of creation / modification / access of on the basis of file pattern like extension. 2. Shall also be able to expire or move files to different folder / Location / Volumes / Drives on the basis of content classification within files.		
SAN storage (iSCSI based)	Integrated iSCSI for block access over LAN.		
Snapshots	Point in time copies of your data to guard against data corruption.		
Encryption and compression	Shall have support for encryption and Compression. License for both of same shall be offered.		
Replication	Offered NAS shall also be supported with leading NAS replication software's in the industry		
Power Supply and FAN	Offered NAS shall also have Hot Plug redundant power supply and FAN		

55. Video Wall in 3x2 Matrix using 55" LCD Monitor
Required Quantity: 1 No.

Group	Specification Item	Detailed Specification	Make & Model	Compliance (Y/N)
System	Display wall	It shall be made up of multiple LCD modules stacked up in 3(R)rows and 2(C) columns to achieve a video wall		
	Display technology	Liquid Crystal Display		
	Display size and resolution	The diagonal size of each display unit/ module shall be 55" with a native resolution of at least 1920x1080 pixels		
	Combined bezel gap	Should be 3.5 mm		
	Light source	LED		
	Brightness	500 Cd/m2 ± 10% or better		
	Color	Shall offer in excess of 16 million colors.		
	Response time	8ms		

	Viewing angle	H:178° V:178°		
	Contrast ratio	should be minimum 4000:1		
	Architecture	The control box and power supply should be in the same housing to ensure quick swapping of module for repair with minimum downtime		
Signal Interface	Input terminals	1x Digital DVI-I (include Analog RGB)		
		1x Digital HDMI		
		1x BNC CVBS video		
		1x RS232C Dsub-9		
		1x RS422 RJ45		
		1x Ethernet RJ45		
		Micro USB (WiFi connect port)		
	Output terminals	1x Digital DVI-D		
		1xRS422, RJ-45		
	Component input compatibility	480i, 480P, 720P, 1080i, 1080P		
	Scan rate	Fh : 30~75KHz		
		Fv : 50~85Hz		
	Video compatibility	NTSC, PAL, SECAM		
	Timing compatibility	720x400 @ 70Hz, 85HZ		
		VGA @60Hz, 72Hz, 75Hz, 85Hz		
		SVGA @60Hz, 70Hz, 75Hz, 85Hz		
		XGA @ 60Hz, 70Hz, 75Hz, 85Hz		
		SXGA+ @60 Hz, 75 Hz		
		UXGA @60 Hz		
		HDTV @ 50 Hz,60 Hz		
User controls	Power control:	1 AC power ON/OFF switch		
	Wire control:	RS232C/ RS422 input		
	LED indicator	System indicator display to show system status		
	IR remote	IR remote		
	OSD style	list type OSD format		

	On Screen display	Input selection, picture, image and tiling should be adjusted using OSD		
	Colour adjustment	User should able to adjust the primary & secondary colours for color alignment and fine tuning		
	OSD Languages	English		
	Wall control & monitoring	Video wall should equipped with a wall control & monitoring system		
		System should be based on Python-Django framework with web browser architecture		
		Should able to control & monitor individual LCD module , multiple LCD modules and multiple video walls		
		System should able to schedule the system parameter/ properties in daily , sequentially and periodically mode.		
		Should provide a virtual remote on screen to control the videowall		
		Status log file should be downloadable in CSV format as per user convenience		
Electrical	AC power input range	90~240VAC, 50/60Hz, 5A max.		
	Power consumption	Normal operating should be < 209 W		
		Standby mode < 2 W at 110VAC		
System Reliability	Operating temperature	0~40°C		
	Operating relative humidity	20~80%		
	MTBF	>= 50,000 hours		
	CONTROLLER			
	The Controller should be able to make all the 6 LCD behave as one logical area. It should be possible to display any or all the inputs on the video wall in any desired configuration. Should be possible to increase the no.of inputs if desired at a later stage			
	Architecture	Should be based on Server architecture		
	Operating System	Windows 7 or higher -64 bit		
	RAM	16GB or higher		
	HDD	500 GB or higher		
	RAID	RAID should be provided		
	Chip	Intel Xeon or better		
	Power Supply	Dual Redundant Power Supply		
	Output	6 DVI inputs		

	Inputs	6 DVI Inputs, Dual LAN		
	Chassis	19" rack mount industrial chassis		
	Unix/Linux Emulation	Should be possible to display images from Unix/Linux workstation		
	Wall Management Software	Software to be provided to manage the layout on the display		
	Wall management SW			
	Client & Server based Architecture	Should supports Multi client/Console control the Wall layouts		
	Scaling and display	Software enable user to display, multiple sources up to any size and anywhere on the display wall.		
	RS232, TCP/IP	RS232 & TCP/IP support should be available for other interfaces		
	Remote Control	Wall can be control from Remote PC through LAN		
	Layout Management	Should support for Video, RGB, DVI, ,Internet Explorer, Desktop Application and Remote Desktop Monitoring Layouts		
	Scenarios	Software should able to Save and Load desktop layouts from Local or remote machines		
	Layout Scheduler	All the Layouts can be scheduled as per user convenience		
		Software should support auto launch of Layouts according to specified time event by user		
	Launch Application	Software should able to Support		
	Integration with touch Interface	system can able to work with 3rd party touch interfaces (Creston ,AMX)		
	User friendly	Software should be user friendly		
	Protocol	VNC		
	Interface	LAN		
	Scaling and display	Display of multiple sources up to any size, everywhere on the wall		
	Multi View	Supports multiple view of portions or regions of Desktop, Multiple Application Can view from single desktop simultaneously		
	Control operator workstations	Software should able to Support		
	Multiple concurrent client users	Software should able to Support		

56. PC Workstation For Client software with Required Operating Systems & Antivirus
Required Quantity: 11 Nos.

Features	Description	Make & Model	Compliance (Y/N)
Processor	Intel processor Core™ i7/Xeon, 3 GHz or better (7th Generation or latest)		
RAM	16 GB of RAM or better		
Ethernet Port	Minimum 1- Gigabit Ethernet Port		
HDD	1TB		
Graphics card	NVIDIA QUADRO 4 GB video card		
Operating System	MS Windows 10 or latest		
DVD R/W Drive	DVD R/W Drive		
USB interface	4 USB interface ports.		
Keyboard and Mouse	USB Keyboard and Mouse		
VMS Client Software	Should be supplied with Required VMS Client software		

57. 20" LED Monitor For Operator Desk Computer –CCS
Required Quantity: 11 Nos.

Features	Description	Make & Model	Compliance (Y/N)
Display Screen	20" LED Monitor		
Diagonal Screen	20 inch		
Resolution	Full HD (1920 W x 1080 H)		
Viewing Angle	160 degrees or more		
Inputs	VGA/DVI/HDMI		
Power Requirement	AC 110-240V, 50/60Hz		
Accessories	All standard Accessories with Pedestal/Wall Mount		

58. 24-Port 100/1000 Base-X Stackable Switch & 4 SFP+ Ports and dual Hot swap PSU bays
Required Quantity: 2 Nos.

S.No		Specifications	Make & Model	Compliance (Y/N)
1	Port Density	Switch with a) 24 1G SFP slots equipped with 12x1G Base-T modules& b) 4 x1G/10G SFP+ slots Should equipped with internal redundant power supplies		
2	Switching Capacity	Should support switching fabric of 288Gbps or more		
3	Hardware redundancy	Two or more Switches in stack should be capable to operate as one logical L3 Virtual switch with synchronisation of L3 & L2 protocols for higher availability with stacking bandwidth of min 160Gpbs per switch. Switch should be supplied with required stacking cables		
4	Layer 2 Features	Support 802.1D, 802.1S, 802.1w, Rate limiting Support 802.1X Security standards Support 802.1Q VLAN encapsulation, IGMP v1,v2 and v3 snooping, MLD snooping Support up to 4096 VLANs Support IGMP Snooping and IGMP Querying Support Multicasting		

		Should support Loop protection and Loop detection, and root protection		
5	Layer 3 Features	Should support Static routing, Support RIP for IPv4 and RIPng for IPv6 Support OSPFv2 for IPv4 & OSPFv3 for IPv6 Support PIM for IPv4 SM, DM and SSM, PIMv6-SM, IEEE 802.3az Support VRRP for IPv4 & VRRPv3 for IPv6 Support IPV4 & IPV6 dual stack		
6	VLAN	Support 802.1Q Tagged VLAN, port based VLANs and Private VLAN Support IEEE 802.3ac VLAN tagging IEEE 802.1v VLAN classification by protocol and port IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q) Switch must support dynamic VLAN Registration or equivalent Switch should support VLAN trunking or equivalent		
7	Management	Switch needs to have a console port for management via a console terminal or PC Must have support SNMP V1, V2 and V3 Should support 4 groups of RMON Should have accessibility using Telnet, SSH, Console access, easier software upgrade through network using TFTP etc. Configuration management through CLI, GUI based software utility or using web interface, Support USB interface for taking backup of software release files configurations Support SNMPv6, Telnetv6 and SSHv6, DHCPv6 relay, DHCPv6 client, NTPv6 client and server, Duplicate Address Detection Support NTP/SNTP Support SDN openflow v1.3 from day-1		
8	Resiliency	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 Support ITU-T G.8032 for sub 50ms ring protection Support PVST+ compatibility mode Support STP root guard		

9	Security	Should support ACLs, VLAN ACL's Support DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI), Support MAC address filtering and MAC address lock-down, Support Tri-authentication: MAC-based, web-based and IEEE 802.1x,Support DHCPv4 (server, relay and client Support sflow, Port mirroring		
10	Manageability	Should support centralised management Instant Access/equivalent technology for Zero touch configuration of faulty switch upon replacement with spare switch, backup of running configuration of all other switches in network		
11	Interoperability	For ease of operations, all switches, SFP's of same OEM		

59. 24-Port 100/1000X SFP Stackable Switch with 4 SFP+ Ports and 2 fixed power supplies.
Required Quantity : 5 Nos.

S.No		Specifications	Make & Model	Compliance (Y/N)
1	Port Density	Switch with a) 24 1G SFP slots & b) 4 x1G/10G SFP+ slots Should equipped with internal redundant power supplies		
2	Switching Capacity	Should support switching fabric of 128Gbps or more		
3	Hardware redundancy	Two or more Switches in stack should be capable to operate as one logical L3 Virtual switch with synchronisation of L3 & L2 protocols for higher availability. Switch should be supplied with required stacking cables		
4	Layer 2 Features	Support 802.1D, 802.1S, 802.1w, Rate limiting Support 802.1X Security standards Support 802.1Q VLAN encapsulation, IGMP v1,v2 and v3 snooping, MLD snooping Support up to 4096 VLANs Support IGMP Snooping and IGMP Querying Support Multicasting Should support Loop protection and Loop detection, and root protection		
5	Layer 3 Features	Should support Static routing, Support RIP for IPv4 and RIPng for IPv6 Support OSPFv2 for IPv4 & OSPFv3 for IPv6 Support PIM for IPv4 SM, DM and SSM, PIMv6-SM, IEEE 802.3az Support VRRP for IPv4 & VRRPv3 for IPv6 Support IPV4 & IPV6 dual stack		
6	VLAN	Support 802.1Q Tagged VLAN, port based VLANs and Private VLAN Support IEEE 802.3ac VLAN tagging IEEE 802.1v VLAN classification by protocol and port IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q) Switch must support dynamic VLAN Registration or equivalent Switch should support VLAN trunking or equivalent		

7	Management	Switch needs to have a console port for management via a console terminal or PC Must have support SNMP V1, V2 and V3 Should support 4 groups of RMON Should have accessibility using Telnet, SSH, Console access, easier software upgrade through network using TFTP etc. Configuration management through CLI, GUI based software utility or using web interface, Support USB interface for taking backup of software release files configurations Support SNMPv6, Telnetv6 and SSHv6, DHCPv6 relay, DHCPv6 client, NTPv6 client and server, Duplicate Address Detection Support NTP/SNTP Support SDN openflow v1.3 from day-1		
8	Resiliency	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 Support ITU-T G.8032 for sub 50ms ring protection Support PVST+ compatibility mode Support STP root guard		
9	Security	Should support ACLs, VLAN ACL's Support DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI), Support MAC address filtering and MAC address lock-down, Support Tri-authentication: MAC-based, web-based and IEEE 802.1x, Support DHCPv4 (server, relay and client Support sflow, Port mirroring		
	Interoperability	For ease of operations, all switches of same OEM		

60. Layer 2 Switch with 16 x 10/100/1000T PoE ports and 2 x 100/1000X SFP ports.
Required Quantity: 10 Nos.

S.No		Specifications	Make & Model	Compliance (Y/N)
1	Port Density	Switch with a) 16x 1G Base-TPoE+ ports & additional 2 x1G SFP slots		
2	Switching Capacity	Should support switching fabric of 36Gbps or more		
3	PoE	Should support PoE as per IEEE 802.3at with PoE budget of 240W to feed power to cameras		
4	Layer 2 Features	Support 802.1D, 802.1S, 802.1w, Rate limiting Support 802.1X Security standards Support 802.1Q VLAN encapsulation, IGMP v1,v2 and v3 snooping, MLD snooping Support IGMP Snooping and IGMP Querying Support Multicasting Should support Loop protection and Loop		

		detection, and root protection		
5	Layer 3 Features	Should support Static routing, RIP, IPV4 & IPV6 dual stack		
6	VLAN	Support 802.1Q Tagged VLAN, port based VLANs and Private VLAN Support IEEE 802.3ac VLAN tagging IEEE 802.1v VLAN classification by protocol and port IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q) Switch must support dynamic VLAN Registration or equivalent Switch should support VLAN trunking or equivalent		
7	Management	Switch needs to have a console port for management via a console terminal or PC Must have support SNMP V1, V2 and V3 Should support 4 groups of RMON Should have accessibility using Telnet, SSH, Console access, easier software upgrade through network using TFTP etc. Configuration management through CLI, GUI based software utility or using web interface, Support USB interface for taking backup of software release files configurations/memory card Support SNMPv6, Telnetv6 and SSHv6, DHCPv6 relay, DHCPv6 client, NTPv6 client and server, Duplicate Address Detection Support NTP/SNTP, PTP Support SDN openflow v1.3 from day-1, SIM of 16 switches		
8	Resiliency	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 Support ITU-T G.8032 for sub 50ms ring protection Support PVST+ compatibility mode Support STP root guard		
9	Security	Should support ACLs, VLAN ACL's Support DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI), Support MAC address filtering and MAC address lock-down, Support Tri-authentication: MAC-based, web-based and IEEE 802.1x, Support DHCPv4 (relay and client) Support sflow, Port mirroring		
10	Interoperability	For ease of operations, all switches of same OEM. Should support operating temperature of 0-50C		

61. Layer 2 Switch with 8 x 10/100/1000T PoE ports and 2 x 100/1000X SFP ports
Required Quantity: 15 Nos.

S.No		Specifications	Make & Model	Compliance (Y/N)
1	Port Density	Switch with a) 8x 1G Base-TPoE+ ports & b) additional 2 x1G SFP slots		
2	Switching Capacity	Should support switching fabric of 20Gbps or more		
3	PoE	Should support PoE as per IEEE 802.3at with PoE budget of 120W to feed power to cameras		
4	Layer 2 Features	Support 802.1D, 802.1S, 802.1w, Rate limiting Support 802.1X Security standards Support 802.1Q VLAN encapsulation, IGMP v1,v2 and v3 snooping, MLD snooping Support IGMP Snooping and IGMP Querying Support Multicasting Should support Loop protection and Loop detection, and root protection		
5	Layer 3 Features	Should support Static routing, Support IPV4 & IPV6 dual stack		
6	VLAN	Support 802.1Q Tagged VLAN, port based VLANs and Private VLAN Support IEEE 802.3ac VLAN tagging IEEE 802.1v VLAN classification by protocol and port IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q) Switch must support dynamic VLAN Registration or equivalent Switch should support VLAN trunking or equivalent		
7	Management	Switch needs to have a console port for management via a console terminal or PC Must have support SNMP V1, V2 and V3 Should support 4 groups of RMON Should have accessibility using Telnet, SSH, Console access, easier software upgrade through network using TFTP etc. Configuration management through CLI, GUI based software utility or using web interface, Support USB interface for taking backup of software release files configurations/memory card Support SNMPv6, Telnetv6 and SSHv6, DHCPv6 relay, DHCPv6 client, NTPv6 client and server, Duplicate Address Detection Support NTP/SNTP, PTP Support SDN openflow v1.3 from day-1, SIM of 16 switches		

8	Resiliency	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 Support ITU-T G.8032 for sub 50ms ring protection Support PVST+ compatibility mode Support STP root guard		
9	Security	Should support ACLs, VLAN ACL's Support DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI), Support MAC address filtering and MAC address lock-down, Support Tri-authentication: MAC-based, web-based and IEEE 802.1x, Support DHCPv4 (relay and client) Support sflow, Port mirroring		
10	Interoperability	For ease of operations, all switches of same OEM Should support operating temperature of 0-50C		

62. 1000BaseLX SFP (10km with SMF, 1310nm)
Required Quantity: 90 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
FORM FACTOR	SFP		
FIBER TYPE	SMF		
NUMBER OF FIBERS	2 (Rx, Tx)		
SPEED	1000Mbps		
Rx WAVELENGTH	1310 nm		
Tx WAVELENGTH	1310 nm		
MAX DISTANCE	10 km		
CONNECTOR TYPE	LC		
TEMPERATURE	0°C to 70°C		

63. 10km 1310nm 10GBase-LR SFP+ - Hot Swappable
Required Quantity: 12 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
FORM FACTOR	SFP+		
FIBER TYPE	SMF		
NUMBER OF FIBERS	2 (Rx, Tx)		
SPEED	10G		
Rx WAVELENGTH	1310 nm		
Tx WAVELENGTH	1310 nm		
MAX DISTANCE	10 km		
CONNECTOR TYPE	LC		
TEMPERATURE	- 40°C to 85°C		

64. 1000BaseT SFP (100m with UTP)
Required Quantity: 40 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
FORM FACTOR	SFP		
SPEED	10/100/1000T		
MAX DISTANCE	100 m		
CONNECTOR TYPE	RJ-45		
TEMPERATURE	0°C to 70°C		

65. NMS with PC/Workstation & 20" LED Monitor with 500 nodes License
Required Quantity: 1 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Network Discovery	The NMS should be able to discover the network using an IP Range Scan, from a Start and End IP Address & also features SNMP Smart Scan which discover all devices on the network by querying the "Bridge Table" on a core router.		
inventory reporting	Should have feature of integrated inventory reporting including hardware inventory, reports on installed software and updates, warranty reports, and more.		
Network Mapping	Should be able to automatically generate Layer 2/3 network maps of core infrastructure, Windows infrastructure, and more. Network maps should be helpful to visualize networks and quickly isolate the root cause of performance problems. The NMS should also display real-time status information for each device on the map so that Network administrators can click on any device to drill-down to a dashboard displaying detailed performance data.		
Network Monitoring	The NMS should continuously monitor the availability and performance of IP devices. It should also monitors wireless Devices, servers, printers and anything with an IP address that can be accessed with standard monitoring protocols including Ping, SNMP, WMI, and SSH.		
Alerts	The NMS should be able to provide real-time alerts via email, text, and logging when an IP device changes state (e.g., from an up state to a down state) or when a performance threshold is exceeded.		
Network Report	It should deliver an easy-to-customize reporting environment. Use should be able to select views generated NMS		
Operating System Support	Microsoft Windows 7 Professional, Enterprise/Ultimate editions (32-bit and 64-bit)		
PC Workstation with 20" LED Monitor	Intel Corei7,8GB RAM, 1TB HDD, DVDR/W, Keyboard & Mouse and 20" LED Monitor		

66. 42U Server Rack for CCS
Required Quantity: 1 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Size	42U, 19'', 800 x 1000 mm or better		
Material	Surface mount steel body with 04 heavy duty casters attached to the bottom		
Doors	Front & Rear perforated doors with perforation for proper air flow.		
Cooling	230 VAC fan on ceiling- Min 4 Nos.		
Locking system	Front & Rear door lock & key		
Roof panel	Foamed-on seal, removable. Cable entry Provision & fan mounting provision.		
Side panels	Sheet steel, with foamed-on seal and fixing screws with earthing options.		
Power Strip	19'' mountable with min 20 no's sockets of 5/15 Amp		
Accessories	All necessary accessories for mounting		
Cable Manager	04 Nos. 19'' mountable Cable Manager		

67. 27U server Rack for LCS
Required Quantity: 1 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Size	27U, 19'', 800 x 1000 mm or better		
Material	Surface mount steel body with 04 heavy duty casters attached to the bottom		
Doors	Front & Rear perforated doors with perforation for proper air flow.		
Cooling	230 VAC fan on ceiling- Min 4 Nos.		
Locking system	Front & Rear door lock & key		
Roof panel	Foamed-on seal, removable. Cable entry Provision & fan mounting provision.		
Side panels	Sheet steel, with foamed-on seal and fixing screws with earthing options.		
Power Strip	19'' mountable with min 15 no's sockets of 5/15 Amp		
Accessories	All necessary accessories for mounting		
Cable Manager	04 Nos. 19'' mountable Cable Manager		

68. 17U Server Rack for LCS
Required Quantity: 3 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Size	17U, 19'', 600 x 1000 mm or better		
Material	Surface mount steel body with 04 heavy duty casters attached to the bottom		
Doors	Front & Rear perforated doors with perforation for proper air flow.		
Cooling	230 VAC fan on ceiling- Min 4 Nos.		
Locking system	Front & Rear door lock & key		
Roof panel	Foamed-on seal, removable. Cable entry Provision & fan mounting provision.		
Side panels	Sheet steel, with foamed-on seal and fixing screws with earthing options.		
Power Strip	19'' mountable with min 10 no's sockets of 5/15 Amp		
Accessories	All necessary accessories for mounting		
Cable Manager	04 Nos. 19'' mountable Cable Manager		

69. 9U Rack for field switch
Required Quantity: 17 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Size	9U, 19'', 600 x 600 mm with Cam Lock & PU Gasket		
Type	Single steel sheet construction, wall Mount		
Doors	Front side tinted glass		
Cooling	230 VAC fan on ceiling		
Locking system	Front door lock & key		
Power Strip	19'' mountable with min. 6 Nos. sockets of 5 Amp		
Accessories	All necessary accessories for mounting		
Cable Manager	02 Nos. 19'' mountable Cable Manager		

70. Power Distribution Board with 1 DP & 8 SP MCB
Required Quantity: 17 Nos.

Description	Make & Model	Compliance (Y/N)
Compact DB Which occupy minimum space		
Raised neutral link for easy wiring		
Suitable for surface & flush mounting		
Detachable din bar with end stoppers for easy assembly of breakers		
Supplied with fully shielded bus-bars		
Level marks for providing indication for fitment in wall		
Supplied with masking sheet to protect components from cement during plastering		
Supplied with masking sheet to protect components from cement during plastering		
MCB: 32A DP MCB: 01 Nos. ; 6A SP MCB : 08 Nos.		

71. 6-Port LIU with accessories For Field Location
Required Quantity: 17 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Height	1 U		
No. of Fiber ports	06		
Material	Powder coated Steel with graphite finish, Rear, side & base access for Incoming / Outgoing Fiber cables		
Type	Single Mode SC Type		
Cable Management rings	Management rings within the system to accommodate excess Fibre cordage behind the through adapters and maintain Fiber bend radius.		
Adaptor Slots	Built in Slots for SC simplex adaptors and SC Duplex adaptors.		
Sliding cover	Panel cover is of slide out for easy maintenance		
Accessories	3 No's, Duplex Coupler, with all other necessary accessories for mounting and splicing, fully loaded		

72. 24-Port LIU with accessories For CCS
Required Quantity: 6 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Height	1 U		
No. of Fiber ports	24		
Material	Powder coated Steel with graphite finish, Rear, side & base access for Incoming / Outgoing Fiber cables		
Type	Single Mode SC Type		
Cable Management rings	Management rings within the system to accommodate		

Feature	Description	Make & Model	Compliance (Y/N)
	excess Fiber cordage behind the through adapters and maintain Fiber bend radius.		
Adaptor Slots	Built in Slots for SC simplex adaptors and SC Duplex adaptors.		
Sliding cover	Panel cover is of slide out for easy maintenance		
Accessories	12 No's, Duplex Coupler, with all other necessary accessories for mounting and splicing, fully loaded		

73. 24-Port Cat-6 Patch Panel
Required Quantity: 25 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Cat-6, 24 port ,modular UTP Connectors		
Material type	Fire retardant cold rolled steel(CRS)		
Jacks	Copper plated		
Panel	Powder coated steel		
Port identification	Front & Rear labelling for port & panel identification		
Accessories	Supporting Accessories for Integrated bend –limiting strain relief for cable entry		

74. Optical fibre patch cord
Required Quantity: 100 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	9/125 μm, Single mode Duplex Patch Cord		
Size	Min 1 meter		
Cable	9/125 μm, SM, Duplex Zip cord.		
Connectors	The optical Fiber patch leads shall comprise of Single mode 9/125μm Fiber with 2x Fiber connectors terminated at one end and 2x Fiber connectors at other end of the patch cord.		
Cable Sheath	LSZH		

75. single mode pigtails
Required Quantity: 300 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	SC 9/125μmSingle Mode		
Jacket Material	LSZH		
Operating Temperature	-10°C to +60°C		
Size	Min 1 Meter		

76. Cat-6 Patch Cord-1Mtr
Required Quantity: 250 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	1 Mtrs UTP CAT 6 Patch cord		

77. Cat-6 Patch Cord-2Mtr
Required Quantity: 130 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	2 Mtrs UTP CAT 6 Patch cord		

78. Cat-6 I/O with Gang Box
Required Quantity: 200 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	1 port with SMB, face plate and accessories for CAT-6		

79. 6 Mtrs. Height camera pole
Required Quantity: 08 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Hexagonal Pole		
Height	6 meter		
Material	Mild Steel (MS) duly galvanized min 250 mm outer diameter, anti-climb in construction.		
Thickness	Min 3 mm		
Accessories	All necessary accessories for mounting		

80. 5 Mtrs. Height camera pole
Required Quantity: 13 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Seamless Cylindrical Pole		
Height	5 meter		
Material	Mild Steel (MS) duly galvanized min 250 mm outer diameter, anti-climb in construction.		
Thickness	Min 3 mm		
Accessories	All necessary accessories for mounting		

81. 3 Mtrs. Height camera pole
Required Quantity: 8 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Seamless Cylindrical Pole		
Height	3 meter		
Material	Mild Steel (MS) duly galvanized min 250 mm outer diameters, anti-climb in construction.		
Thickness	Min 3 mm		
Accessories	All necessary accessories for mounting		

82. Terminal box for Camera end
Required Quantity: 186 Nos.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Pole/Wall mountable weather proof Junction Box		
Management	Grommet entries for Fiber, copper, and power cables		
Safety	Lockable door with latches and hex nut		
Size	enough space in single unit to place media converter, PoE adapter, power cable &fibre termination		

83. 6 Core single mode armoured optical fibre cable
Required Quantity: 8000 Mtrs.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Single mode		
Fiber Type	6 core		
Core Diameter @ 1310nm	9 + 0.6 μm		
Construction	UV Stabilised Polyethylene (HDPE)		
Max. Bending Radius	20 X Overall diameter		
Max. Tensile Strength-Short Term	1500N		
Max. Crush Resistance-Short Term	2000N/10 cm		
Attenuation at 1310 nm	0.35 dB/km		
Outer Sheath	HDPE		
Fiber protection(Tubes)	Polybutylene Terephthalate (PBT)		
Operating Temperature range	-40°C -+70°C		

84. Outdoor Cat-6 Network Cable
Required Quantity: 8500 Mtrs.

Feature	Description	Make & Model	Compliance (Y/N)
Category	Outdoor Unshielded Twisted pair ,Cat-6 Cable		
Conductor	Solid 0.58 23 AWG Bare Solid Copper		
Primary Insulation:	HDPE		
Nominal O.D	1.0mm		
Sheath Type	Inner: LS0H, Outer: FR PVC (UV) Black		
Operating Temp	-40ºC to 70ºC		
Mutual Capacitance	5.6nF/100m Nominal		
Contact Resistance	10 mΩ Max		
Standards	UL Listed		

85. Cat-6 Network Cable
Required Quantity: 305 Mtrs.

Feature	Description	Make & Model	Compliance (Y/N)
Type	Twisted pair category 6 TIA/EIA 568-B, 2-1 CAT 6 Ethernet cable		
Standard	UL verified for CAT 6 specifications		

86. 3 Core X 2.5 sq mm armoured Power cable
Required Quantity: 5100 Mtrs.

Feature	Description	Make & Model	Compliance (Y/N)
Category	3x 2.5 sqmm armoured Cable		
Material	Annealed Bare Electrolytic Grade, Copper conductor as per IS:8130/84, Multistrand conductor		
Insulation Material	Extruded PVC type B or Better as per IS 5831		
Inner Sheath material	Extruded PVC,		
Armouring Material & Size	G.I Steel round wire as per IS 3975		
Outer Sheath	Extruded PVC		
Insulation resistance	≥ 1 M ohm per phase with respect to ground & between the phases		
Certification	As per applicable IS code		

87. 3 Core X 1.5 sqmm Unarmoured Power cable
Required Quantity: 1000 Mtrs.

Feature	Required Parameters	Make & Model	Compliance (Y / N)
Category	3 x 1.5 sqmm multi strand copper wire		
Material	Annealed Bare Electrolytic Grade, Copper conductor, Multistrand conductor		
Insulation Material	Extruded PVC type B or Better as per IS 5831		
Outer Sheath	Extruded PVC		
Insulation resistance	≥ 1 M ohm per phase with respect to ground & between the phases		
Certification	As per applicable IS code		

88. HDPE Conduit 32mm
Required Quantity: 8000 Mtrs.

Feature	Required Parameters	Make & Model	Compliance (Y / N)
The PLB HDPE duct shall be meeting the following specifications:			
Outer diameter	40 mm + 0.4 mm.		
Wall Thickness	3.5+ 0.2 mm		
Tensile strength at yield	20 N / sq. mm or better {when tested at a machine speed of 50 mm/min}.		
Test Pressure	6 Kg/cm2 minimum		
Internal coefficient of friction	0.06 (max) when tested with respect of optical fibre cable		
Internal coefficient of friction	0.06 (max) when tested with respect of optical fibre cable		
Thickness of the inner layer	Minimum 0.28 mm, Maximum 0.42 mm		
PLB HDPE Duct Accessories	Accessories like plastic coupler, end plug, cable sealing plug, and end cap as required for jointing the ducts shall be supplied by the contractor along with the duct. No part of the accessories shall be made of metal.		

89. Wooden Console to accommodate Video wall in 3x2 Matrix having each 55" LCD Monitor
Required Quantity: 1 Lot

Description	Make & Model	Compliance (Y/N)
Wooden console to accommodate 01 Nos. of Video Wall having 06 Nos. of 55" LED Monitor		

90. Split Air Conditioner-2 Tons
Required Quantity: 2 Nos.

Feature	Required Parameters	Make & Model	Compliance (Y/N)
Type	Split Type		
Main Input Voltage	230 V (± 20%), 50 Hz.		
Power	2 ton		

Consumption			
Stabilizer	Reputed Makes		
Accessories	With complete accessories for installation and termination , stabilizers, metal clad porcelain plug & sockets(20A Each) with metallic box etc.		

4. BOQ

S.N.	Item Description	Qty	Unit
A	**CCTV System**		
1	IP, Outdoor Fixed Bullet Camera with varifocal lens	107	Nos.
2	IP, Outdoor, PTZ Dome camera with 30X lens	79	Nos.
3	Video Management & Recording Software for Central control Room & Local Control Room with 200 Camera license & 12 Client license	1	Set.
4	Server with Windows Operating System Software for Video Management & Recording software	11	Nos.
5	290 TB Usable capacity SAN Storage for 30 days recording of 200 Camera at 1080P, 25FPS.	1	No.
6	34 TB usable capacity NAS Storage for 32 Cameras 30 days recording	1	No.
7	148 TB usable capacity NAS Storage for 125 Cameras 30 days recording	1	No.
8	57 TB usable capacity NAS Storage for 53 Cameras 30 days recording	1	No.
9	8 TB usable capacity NAS Storage for 9 Cameras 30 days recording	1	No.
10	Video Wall in 3x2 Matrix using 55" LCD Monitor	1	Nos.
11	PC Workstation For Client software with Required Operating Systems & Antivirus	11	Nos.
12	20" LED Monitor For Operator Desk Computer -CCS	11	Nos.
Core Switch			
13	24-Port 100/1000 Base-X Stackable Switch & 4 SFP+ Ports and dual Hot swap PSU bays	2	Nos.
Aggregation Switch			
14	24-port 100/1000X SFP stackable switch with 4 SFP+ ports and 2 fixed power supplies.	5	Nos.
Access Switch			
15	Layer 2 Switch with 16 x 10/100/1000T PoE ports and 2 x 100/1000X SFP ports.	10	Nos.
16	Layer 2 Switch with 8 x 10/100/1000T PoE ports and 2 x 100/1000X SFP ports	15	Nos.
Transceiver			
17	1000BaseLX SFP (10km with SMF, 1310nm)	90	Nos.
18	10km 1310nm 10GBase-LR SFP+ - Hot Swappable	8	Nos.
19	1000BaseT SFP (100m with UTP)	40	Nos.
Others			
20	NMS with PC/Workstation & 20" LED Monitor-500 nodes License	1	Nos.
21	Online 15 KVA UPS for CCS	1	Nos.
22	42U Server Rack for CCS	1	Nos.
23	36U server Rack for LCS	1	Nos.
24	17U Server Rack for LCS	3	Nos.
25	9U Rack for field switch	17	Nos.
26	Power Distribution Board with 1DP & 8SP MCB	17	Nos.
27	6-Port LIU with accessories For Field Location	17	Nos.
28	24-Port LIU with accessories For CCS	6	Nos.
29	24-Port Cat-6 Patch Panel	25	Nos.
30	Optical fibre patch cord	100	Nos.
31	Single Mode Pigtails	300	Nos.
32	Cat-6 Patch Cord-1Mtr	250	Nos.
33	Cat-6 Patch Cord-2Mtr	130	Nos.
34	Cat-6 I/O with Gang Box	200	Nos.
35	6 Mtrs. height camera pole	8	Nos.
36	5 Mtrs. height camera pole	13	Nos.
37	3 Mtrs. height camera pole	8	Nos.
38	Terminal box for Camera end	186	Nos.
39	6 Core single mode armoured optical fibre cable	8000	Mtrs.
40	Outdoor Cat-6 Network Cable	8500	Mtrs.
41	Cat-6 Network Cable	305	Mtrs.
42	3 Core X 2.5 sqmm armoured Power cable	5100	Mtrs.
43	3 Core X 1.5 sqmm Unarmoured Power cable	1000	Mtrs.
44	HDPE Conduit 32mm	8000	Mtrs.

45	Wooden Console to accommodate Video wall in 3x2 Matrix having each 55" LCD Monitor	1	Lot
46	Split Air Conditioner-2 Tons	2	Nos.
47	Accessories (PVC Conduit, RJ45 Connectors, Lugs for Power cable, Fixing Screw, Fasteners etc.)	1	Lot
48	Cable laying in pvc conduit/soft soil	14500	Mtrs.
49	Trenching of Hard/soft soil	8000	Mtrs
50	OFC Splicing	300	Nos.
51	Foundation & Erection of Camera Pole	29	Nos.
52	Technical Documentation	1	Lot
53	Training	1	Lot
54	Installation, Testing & Commissioning	1	Lot
55	Warranty for complete project 5 years	1	Lot
56	Manpower At Central control room timing-9:00Hrs-21:00Hrs upto 5 years.	1	Lot
Total		8334	

Note: -

1) **Apart from above BOQ, Bidder need to consider required additional equipment / services to ensure completeness of project.**

2) **Refer Annexe A for cameras locations**