



आईटीआईलिलिटेड / ITI LIMITED

एमएसपी कर्नाटक / MSP KARNATAKA / क्षेत्रीयकार्यालय / Regional Office

एफ -100, दूसरीमंजिल F-100, 2nd Floor, पूर्वीविंग / East Wing

□□□□□□□□□□, बंगलौर / Dooravaninagar, BANGALORE – 560016

CIN No: L32202KA1950GOI000640

Ref: MSP-KTK/IT-MKTG/M/EOI-40/22-23

Date: 06/01/2023

Due Date for Submission of EOI is 19/01/2023 before 14:30 Hrs.

ईओआई/ Expression of Interest-2022-23/DEC-22

ITI LIMITED, a Central Govt. PSU under the Ministry of IT & Communication invites EOI from Empaneled Partners (ITiSP) who are selected through our corporate EOI vide Ref: ITI/CORP-CM-ITiSP Dated: 01.06.2020. The interested vendors who are not empaneled are required to get empaneled through our website “ www.itiltd.in “.

ITI Limited Inviting an Expression of interest (EOI) for Selection of Business Associate (BA) for “Supply, Installation, Testing Commissioning Training, Three Years Standard Warranty and 5 Years CAMC for CCTV Surveillance System” to end customer.

ईओआईसंदर्भसंख्या। /E O I REFERENCE NO.	MSP-KTK/IT-MKTG/M/EOI-40/22-23, Dated:06-01-2023
ईओआई @ बैंगलोरजिाकरनेकीअंलििलिलिऔरसिय Last date & Time for submission of EOI @ Bangalore	19-01-2023 @ 13:00Hrs
ईओआईखुिनेकासियऔरलदनांक@आईटीआईलिलिटेड, बैंगलोर Opening Time & Date of EOI @ ITI Limited, Bangalore	19-01-2023 @ 14:30 Hrs
कायाकावर्ान / Description of the work	Supply, Installation, Testing Commissioning Training, Three Years Standard Warranty and 5 Years CAMC for CCTV Surveillance System
Tender ref No. / Link	HQDR 2020 001760
लनलवदाशुल्क / Tender Fee	NA
बयानारालश / Earnest Money Deposit.	The bidder should submit 2,00,000/- if selected as BA through Demand Draft
ईएिडीवैधिता /EMD VALIDITY	180 Days or it will be retained till PBG received
पीबीजी /Performance Security/Security Deposit	Back to Back basis
Processing Fee	Will be intimated later
लनलवदािल्य (लवज्ञालपि) / Tender/EoI Value (Estimated)	1 Cr.
अनुबंधनकाि /Contract period	20 Weeks
रखरखावअवधि /Maintenance Period	3 Years Warranty and 5 Years Annual Maintenance
□□□□ □□□□□□ □□□□□□□□ □□□□ / EoI document cost	Non-refundable processing fee of Rs. 3,540.00 (inclusive of GST) (Rupees Three Thousand Five Hundred Forty only) in form of demand

draft drawn on any scheduled bank in favour of
“ITI Limited, Bangalore”, payable at Bangalore

(Or)

Through NEFT Bank details as follows.

State Bank of India,
Dooravaninagar Br, Bangalore 560016
A/c No. 39171445527
IFSC Code - SBIN0001438

You may contact if any queries, details given below.

**The Additional General Manager,
ITI Limited,
MSP-Karnataka / Regional Office
F-100, 2nd Floor, Dooravaninagar,
Bengaluru-560016.
Ph No. : 080-25660522 , 080-25660530
Email ID: ajayaerpul_crp@itiltd.co.in
naganandini_robg@itiltd.co.in**

Pre Bid Queries

The bidder should submit the pre bid queries through aforesaid e-mail or on before 10.01.2023 @ 1500 Hours.

After evaluation of EOI, the eligible Empaneled Parter (ITiSP) will be called for further Techno-Commercial discussion for above scope of work. Finally selected Empaneled Parter (ITiSP) will be asked to submit EMD and Tender Cost as per end customer tender conditions.

> Regarding EoI/Tender Submission – submission can be done through online ITI Limited Tender wizard portal.

<https://itilimited.euniwizarde.com>

Important

Bids received without end customer tender document, EMD & EoI document cost which liable for rejection in stage-1 bid opening. It is mandatory for back to back work.

The tender documents can be downloaded from the Company website www.itiltd.in or <https://itilimited.euniwizarde.com> and from Government portal eprocure.gov.in

Corrigendum: Any corrigendum/addendum/errata in respect of the above tender shall be made available at our official website www.itiltd.in. / CPPP or <https://itilimited.euniwizarde.com> No further press advertisements will be given. Hence, all bidders are advised to check the ITI ltd website regularly. Documents submitted in connection with Pre-Qualification will be treated confidential and will not be returned.

- The Bidders (For both Technical and Financial Part of the Bid) would be subjected to an Online / e-Tendering process. The prospective Bidders are requested to go through <https://itilimited.euniwizarde.com> to ensure the entire e-Tendering Process and follow the Registration and Bidding Process on <https://itilimited.euniwizarde.com> as defined in the document. In case of any clarifications on e-tender portal, bidders may contact the portal administrators of <https://itilimited.euniwizarde.com>.
- The Technical Bid and financial bid shall be uploaded in e-procurement site of ITI Limited (<https://itilimited.euniwizarde.com/>). For submission of online bid and procedure to be followed, visit <https://itilimited.euniwizarde.com>.
- All prospective Bidders have to register in our e-procurement portal (<https://itilimited.euniwizarde.com>)

ITI Ltd, MSP-Karnataka reserves the right to accept or reject in part or full, any or all the applications for this tender without assigning any reason.

Note : Bidder should review all the below clauses and compliance to be indicated YES / NO or else bid liable for rejection.

Sl.no	Ref No:	Date:	
		Compliance YES / NO	Page No.
1	Name of the Organization (Company/Partnership firm/Proprietorship concern, etc.)		
	<u>Eligibility Criteria:</u>		
A	The Business Associate shall be Company incorporated /registered in India under Companies Act 1956/2013/ proprietorship/ partnership firm/ Limited Liability Partnership (LLP).		
B	The Business Associate should having experience and successfully completed the Supply, Installation, Testing & Commissioning of CCTV surveillance system and IT infrastructure/networking/IT/ITES to any State Government, Central Government organizations/ PSUs, or any reputed corporate companies.		
C	<p>The Business Associate must have successfully completed any of the following during last 05 (five) years.</p> <ul style="list-style-type: none"> ➤ Three similar works each costing not less than the amount equal to 40% of advertised value of the tender, Or ➤ Two similar works each costing not less than the amount equal to 50% of advertised value of the tender, Or ➤ One similar work each costing not less than the amount equal to 80% of advertised value of the tender <p>Similar works means Supply, Installation, Testing & Commissioning of CCTV surveillance system and IT infrastructure/networking/IT/ITES”.</p>		

	(Order copies and client satisfactory certificate should furnish along with Annexure-IV)		
D	The Business Associate should have a local office. Undertaking to be furnish for setup local office within 15 days from the date of instruction from ITI/end customer.		
E	The Business Associate should have minimum average annual turnover of 30% of the estimated project values during each of the last three financial years (i.e. 2020-21,2019-20, 2018-19)		
F	The Business Associate should obtain the MAF on ITI LIMITED from eligible OEM and submit the same.		
G	The Business Associate should study and understand the end customer tender and undertake the all clause-by-clause compliance of the end customer tender terms & conditions, technical compliance on company letterhead.		
H	The Business Associate should have valid ISO certificates i.e. ISO 9001:2015.		
I	Bids received without end customer tender processing fees (undertaking), EMD (undertaking) & EoI document cost the bid will be rejected and there is no exemption allowed, it is mandatory for back to back works/services.		
J	The BA should submit the all duly filled annexures.		
K	The bidder should comply the local contend (Make in India) and also land border sharing with OEM shall remain according to the Government Memorandum/circulars.		
2	Certificate reference of registration (Copy to be enclosed).		
3	Date of Incorporation/Registration.		
A	<i>Memorandum and Articles of Association/partnership deed (Copy to be enclosed)</i>		
B	<i>Contact Details of the Bidder (Contact person name with designation, Telephone Number, FAX,E- mail and Web site address.</i>		
4	Nature/type of work for which firm is registered.		
5	GST Registration no. (please enclose the certificate copy)		
6	PAN No. with IT returns (Please enclose the certificate copy).		
7	Annual turnover for last 3 Financial Years As per audited accounts.		
	a) Year..... (value to be indicated)		
	b) Year(value to be indicated)		
	c) Year(value to be indicated)		
8	Annual Profit For last 3 financial Years for		

	Audited accounts.		
	a) Year (value to be indicated)		
	b) Year (value to be indicated)		
	c) Year (value to be indicated)		
9	Net worth as per audited accounts for last financial year in Lakhs. (Should have positive) (Issued byCA)		
10	Solvency certificate issued during the last six months (copy to be submitted)		
11	Past experience of handling projects/similar works(Business category – wise Please enclose the Copies of PO’s completion/appreciation letters.		
12	Amount and details of PO’s received.		
13	Amount and details of PO Executed/completed Along with completion certificates.		
14	Previous experience with ITI Limited if any.		
15	Product/Project wise business projection for the next two years with value.		
16	Acceptance for submitting: A. Tender cost, Transaction Fee, EMD (selected bidder will be asked to submit theTender cost, Transaction Fee, EMD). B. PBG/SD, Corpus fund (Selected bidder will be asked to submit the PBG/SD at the timeLOA/LOI).		
17	Acceptance for all technical, payment and otherTender terms and conditions including SD/PBG of end customer on fully back-to-back basis.		
18	Additional credit period to ITI Limited if any, from the date of payment received from customer.		
19	Man power details:		
	a) Technical (Require to submit manpower details as per EOI).		
	b) Non-technical – (Require to submit manpower details as per EOI).		

20	<p>I. Supply: ITI reserves the right to take up 30% of supply portion of work.</p> <p>II. Installation & Commissioning:</p> <p>a. ITI reserves the right to take up the 30% of work on its own which will be decided at the time of contract agreement/PO on bidder and Margin shared to ITI Limited will be on balance 70% portion of the proportionate work only.</p> <p>b. Accepting of testing and commissioning will be back-to-back basis.</p> <p>III. AMC Services:</p> <p>a. ITI Products: AMC will be done by ITI Limited</p> <p>b. Non ITI Products: ITI Limited reserves the right to take up the 30% portion of work on its own which will be decided at the time of contract agreement/PO on bidder and ITI Limited margin will be shared on balance 70% portion of the proportionate work only.</p> <p>IV. AMC Materials:</p> <p>a. Rates to be arranged from OEM by ITiSPs</p> <p>V. WARRANTY: Back-to-back as per terms and conditions of the end customer.</p>		
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21	<p>A. After submitting the offer to ITI Limited, if ITI Limited stood L1 and ITiSP refuse to execute the project the EMD will be forfeited & work will be executed at the risk and cost of ITiSP</p> <p>B. After issuing the LOA if ITiSP failed to submit the SD/PBG within stipulated time specified in LOA, LOA will be deemed as cancelled and the work will be executed at the risk and cost of the ITiSP and EMD will be forfeited.</p> <p>C. IF the ITiSP failed to execute the project even after submission of SD/PBG, the project will be executed by ITI Limited at the risk and cost of ITiSP and SD/PBG, EMD will be forfeited.</p> <p>D. LD/Penalty: ITI Limited will have the full right to impose LD/Penalty on ITiSP/Bidder if the performance of ITiSP/Bidder is not satisfactory, irrespective of end customer terms and conditions.</p>		
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22	Acceptance of validity of the quote as per the Terms and conditions of the RFP/Tender of the endcustomer.		
23	Any tax payment, which cannot be passed on to ITiSP as per back-to-back terms, will be paid by ITI Limited to ITiSP, as and when the same will bereceived by ITI Limited from end customer.		
24	ITiSP/Bidder should Indemnify the entire PO value of end customer, if awarded on them.		
25	ITiSP/Bidder should have office at Bangalore.		
26	<i>The bidder should not be blacklisted by any Central /State Government Department or Central/State Public Sector Units (PSUs) in Indiaas on submission of EOI proposal. (Self-Certification for Non-Block-listing as per theEligibility may be submitted. (Annexure - B)</i>		
27	After awarding LOA while executing the project, ifany advance payment received by ITI Limited from end customer, same can be released to ITiSP/Bidder against 110% of Bank Guarantee.		
28	ITiSP has to submit Notarized Power of Attorneyfor Signing the EOI document and Board resolution for the same.		
29	Proof of concept (POC), Technical demonstration/Presentations to be arranged by theselected Bidder/ITiSP as per the end customer.		
30	a. ITiSP should have strategic partnershipwith OEM to ensure in time supply of materials. b. <i>To provide undertaking for support warranty and Post warranty maintenance (documentary proof should be enclosed).</i>		
31	ITiSP/Bidder should submit the undertaking for OEM qualification criteria as per end customer.		
32	ITiSPs should be ready to submit the techno/commercial compliance and Price Bid of end customer within one day of intimation to them.		
33	Please mention the corporate empanelment ref. No and enclose the copy of the same		
34	Sub contract of works in any form will not be allowed.		

35	Additional Works Clause: The Business Associate hereby should agree that any additional supply/works/services required as per the end customer tender / ITI EoI, which are not within the Scope of Work, the Business Associate shall first provide a proposal/quotation for the additional supply/works/services. Upon both parties and either ITI or end customer agreeing to the proposal, the Business Associate shall proceed with the works on mutual agreed terms & conditions. The same EoI is applicable for any additional supply/works/services		
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Annexure-I

Undertakings (To be in Bidder's Letter Head)M/s do here by undertake the following:

1. to work with ITI as per this EOI and Customer Tender terms and conditions. Also we agree to implement the project (scope of work as per Tender terms and conditions including investment) covering warranty & post-warranty services, maintenance etc, in the event of ITI winning the contract on back-to-back basis.
2. to submit tender fee, EMD (while submitting the bid to the customer) towards bid security (Bank Guarantee / Demand Draft/Online Payment from any Nationalized / Scheduled Bank) & Performance Bank Guarantee to customer / ITI (as decided by ITI) as per Customer Tender terms & conditions. Where ITI is exempted from providing EMD & PBG or allowed to submit Corporate Guarantee in place of Bank Guarantee to customer, we will provide EMD (while submitting the bid to the customer) & PBG to ITI as per customer tender terms.
3. that we will be equipped with the required manpower with qualifications, certifications and experience as required in the customer tender.
4. that we will be able to give the proposed solution as required by the end customer.
5. to get required certificate & support (warranty & post-warranty/ maintenance) in the name of ITI from the OEM as per customer tender requirement.
6. to obtain relevant statutory licenses for operational activities.
7. to sign Consortium Agreement /Teaming Agreement, Integrity Pact with ITI for addressing the customer tender as per customer's tender terms and conditions.
8. to indemnify ITI from any claims / penalties / statutory charges, liquidated damages, with legal expenses etc as charged by the customer.
9. undertake to arrange to sign agreement with OEM and ITI as per customer tender requirement
10. that OEMs who meet the eligibility and other conditions as per customer tender requirement, will be finalized by us and produce the required eligibility documents and other related documents of the OEM for customer bid submission.
11. hereby agree to take the responsibilities covered in the agreement (on back-to-back basis) to be signed between ITI & OEM (if required) as per customer tender conditions.
12. to provide Bank Guarantee (110% of value for the period till the advance is settled) for getting the advance payment if any, back-to-back.
13. not to partner with any other organization for addressing this EOI/tender.
14. to accept payment terms on back-to-back basis. Penalties, if any, will be borne by us.

15. here by agree that ITI may take any punitive action as deemed fit, including forfeiture of EMD / Security submitted by us, if it is found that any of the documents / information provided by us (to meet the tender requirement including eligibility) is wrong/ forged/ misleading at any stage of tender processing / evaluation. The decision of ITI regarding forfeiture of the EMD shall be final and shall not be called upon question under any circumstances are not blacklisted by Central Govt./ any State or UT Govt/ PSU/ organized sector in India as on submission of EOI proposal.

SPECIAL TERMS AND CONDITIONS

1. The bid preferably should be spiral bounded and each page should be serial numbered
2. ITI reserves the right to split the balance orders (after taking out the ITI portion) in 70%: 30% ratio between H1 and H2 (Highest margin bidders) for speeding up the work, provided H2bidder matches H1 margins offered, and wherever technically feasible.
3. All activities like Proof of concept on “No Cost No Commitment” (NCNC) basis wherever applicable will be the responsibility of agencies.
4. ITiSP should be willing to impart required training to ITI engineers for undertaking services & execution of project.
5. ITiSPs will be responsible for any shortcoming in the BOM and the same should be rectified free of cost.
6. ITiSP should be willing to provide TOT for manufacture of offered products in ITI.
7. ITiSP should be willing to sign an exclusive agreement with ITI for smooth execution of the project.
8. All commercial terms will be as per the RFP/PO.
9. All CVC circulars/Statutory guidelines as applicable needs to be followed.
10. Margin to ITI would be payable on supply, I&C and AMC services undertaken by the selected agency for the project.
11. All experiences regarding eligibility criteria will be pertaining to experience in India only. Experience outside India will not be eligible for qualifying under this tender.
12. The technical bid must contain the whole EOI documents duly signed and stamped and marked as “Accepted & Complied” in all the pages by the bidder as an acceptance of all the EOI terms & conditions.
13. Undertaking (on Letterhead) to work with ITI as per EOI/Tender terms and conditions including warranty & post-warranty services and implementation of the project in the event of ITI winning the contract.
14. Undertaking (on Letterhead) of ‘No Objection/No Claim/No Compensation’ from ITI Limited if this EOI is cancelled at any stage of evaluation process by ITI or the tender is cancelled by the end Customer.
15. Cost of EOI: The bidder shall bear all costs associated with the preparation and submission of his offer against this EOI, including cost of presentation for the purposes of clarification of the offer, if so desired by ITI. ITI will, in no case be responsible or liable for those costs, regardless of the conduct or outcome of the EOI process.
16. Amendment of EOI: At any time prior to the last date for receipt of offers, ITI, may, for any

reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the EOI document by an amendment. In order to provide prospective bidder reasonable time in which to take the amendment into account in preparing their offers, ITI may, at their discretion, extend the last date for the receipt of offers and/or make other changes in the requirements set out in the Invitation for EOI.

17. Disclaimer: ITI and/or its officers, employees disclaim all liability from any loss or damage, whether foreseeable or not, suffered by any person acting on or refraining from acting because of any information including statements, information, forecasts, estimates or projections contained in this document or conduct ancillary to it whether or not the loss or damage arises in connection with any omission, negligence, default, lack of care or misrepresentation on the part of ITI and/or any of its officers, employees.
18. ITI will not consider any or all of the bids if they are not meeting EOI requirements. However, clarification in this regard, if required, will be given. The interested ITiSP may like to discuss the customer tender related information, EOI Bidding Conditions, Bidding Process and clarifications, if any with the concerned officials
19. After awarding the LOI, the vendor has to submit the required PBG within stipulated time. Late submission of PBG will attract penalty as per norm

Annexure - II

मूल्य बोली / PRICE BID

Note: Price bid should submit in itilimited.euniwizarde portal under financial tab i.e Cover-2. If bidder submit price bid in Technical bid the bid liable for rejection.

SCHEDULE OF QUANTITIES			
VENDOR NAME			
BID SEQUENCE	Description of Item		Rate W/o Tax
Stage-I			
I st	Quoted Margin to ITI, (Percentage of A)	B	
II nd	Lump sum/ Itemized (BoQ) details of Supply & Service items as per the SoR and SoW in INR	A	₹ -
Stage II			
Bid Evaluation	Absolute Value of Margin (A*B/100)	C	0
	Overall Quoted Price (A-C)	D	0
GRAND TOTAL			0

S No	Item Description	Qty	UOM	Unit Price	Amount	Tax	Total Price
CCTV Cameras							
1	Indoor fixed dome Camera (IP based HDTV) with built-in IR-LEDs Source for day / night surveillance with PoE and necessary accessories like Ceiling / wall mount and power supply adapter as per the Detailed Technical Specification.	5	Nos		₹ -		₹ -
2	Outdoor Bullet Camera (IP based HDTV) with built-in IR-LEDs Source for day / night surveillance with PoE and necessary accessories like Pole Mount and power supply adapter as per the	38	Nos		₹ -		₹ -

	Detailed Technical Specification.						
3	Outdoor Speed dome PTZ Camera with day/night vision and built in IR Illuminators with necessary accessories like Wall / Pole Mount and power supply adapters as per the Detailed Technical Specification.	4	Nos		₹ -		₹ -
4	Outdoor Heavy Duty Pan & Tilt (PT) Head unit with Zoom Camera with Built in IR illuminators with all necessary accessories like Midspan, Wall / Pole Mount and power supply adapters as per the Detailed Technical Specification.	2	Nos		₹ -		₹ -
PA System							
5	Outdoor Network Horn Speaker along with accessories like Pole Mount as per the Detailed Technical Specification.	2	Nos		₹ -		₹ -
6	IP Programming Mic as per the Detailed Technical Specification.	1	Nos		₹ -		₹ -
SERVER, STORAGE, VMS, DISPLAY SYSTEMS							
7	Rack Mount Network Server , 2 x Intel 4210, 2.4 GHz, 2 sockets, 10-core Processors ,RAM 64GB DDR4 , Keyboard, Mouse, 1.2TB storage OS (Windows Server 2021 64-bit Std), Anti- virus (for 3 years) and as per the detailed technical specification.	2	Nos		₹ -		₹ -

8	Primary Storage Box for 30 Days Recording with 50 TB Usable Capacity and as per the detailed technical specification.	1	Nos		₹ -		₹ -
9	Video Management Software (VMS) with 100 Cameras License (Minimum 3 Yrs. Maintenance) and scalable up to unlimited cameras License to install in Two Servers. ONVIF compliant. High end / Corporate version for Centralized Management for Managing the Multi-Sites of different Networks and different OEM Cameras and as per the detailed technical specification.	1	Sets		₹ -		₹ -
10	Desktop Workstations for Client Monitoring along with i7 series latest processor or better, 3.6GHz or higher, 12-core or more., RAM 64GB DDR4, HDD 2x1TB SSD in RAID 1, 4GB graphics card, Keyboard, Mouse, Active Speakers, DVD-RW Combo, OS Windows 11, Antivirus (for 3 years) and as per the detailed technical specification.	2	Nos		₹ -		₹ -
11	Monitors 27 Inch size for Client Workstations as per the detailed technical specification.	2	Nos		₹ -		₹ -
12	Rack Mount Monitor (RKM) 17 Inch size for Servers as per the detailed technical specification.	1	Nos		₹ -		₹ -
13	8- port Rack Mount Keyboard (KVM) Switch as per the	1	Nos		₹ -		₹ -

	detailed technical specification.						
NETWORK COMPONENTS							
14	Network Switch 24/28-port L3 Manageable & Stackable combo Switch as per the detailed technical specification.	2	Nos		₹ -		₹ -
15	Network Switch 24-port L2 PoE enabled Manageable with minimum 4 SFP Port as per the detailed technical specification.	3	Nos		₹ -		₹ -
16	Network Switch 28-port L2 Fibre Switch for Distribution with Minimum 4 Nos Fiber Uplink as per the detailed technical specification.	4	Nos		₹ -		₹ -
17	1G SFP Module as per the detailed technical specification.	70	Nos		₹ -		₹ -
18	1G Copper Module as per the detailed technical specification.	4	Nos		₹ -		₹ -
19	Midspan For Indoor Cameras & SIP Mic as per the detailed technical specification.	4	Nos		₹ -		₹ -
20	Midspan For Outdoor Fixed Cameras and PTZ's, Speakers as per the detailed technical specification.	46	Nos		₹ -		₹ -
21	SFP Modules for Outdoor Cameras Midspans as per the detailed technical specification.	46	Nos		₹ -		₹ -
22	Ethernet (LAN) Surge Protectors as per the detailed technical specification.	46	Nos		₹ -		₹ -
23	Single Pole Surge Protectors for Power line as per the detailed technical specification.	46	Nos		₹ -		₹ -

24	Indoor Power Distribution Box with 4 MCBs as per the detailed technical specification.	5	Nos		₹ -		₹ -
25	Indoor Wall mount 12U height Equipment Rack , 550mm width x 600mm depth and as per the detailed technical specification.	7	Nos		₹ -		₹ -
26	Server Rack 42U Height with wheels, 800mm (width) x 1000mm (depth), Two Power Strips, 10 Pair L-Angles, Equipment Tray 4 Nos, Front glass door and other accessories as per the detailed technical specification.	1	Nos		₹ -		₹ -
27	Weather Proof Outdoor Pole mount Junction Box with IP 66 rated and all SS screws & nuts as per the detailed technical specification.	42	Nos		₹ -		₹ -
28	MCB 2 Pole Miniature circuit breakers 9 KA / 10 KA breaking capacity with universal screw conforming to IS 8828 with latest amendments as per the detailed technical specification.	42	Nos		₹ -		₹ -
29	RCCB 1 No 2 Pole 25 A 240V IP 20 protected terminals with 35 sq mm terminals confirming to IS Standards Part No 4118 51 as per the detailed technical specification.	42	Nos		₹ -		₹ -
30	Hotdip Galvanized Outdoor Pole (6m height) and all SS screws & nuts as per the detailed technical specification.	40	Nos		₹ -		₹ -
31	Pole Earth Kit as per IS- 3043 standard and all SS screws & nuts as per	40	Nos		₹ -		₹ -

	the detailed technical specification.					
32	Pole Earth Kit as per IS- 3043 standard and all SS screws & nuts for terrace camera as per the detailed technical specification.	2	Nos		₹ -	₹ -
33	CAT 6 UTP Cable (Unarmored) as per the detailed technical specification. (Actuals / Variable Quantity)	305	Mtrs		₹ -	₹ -
34	6 Core OFC Single Mode (Armored) as per the detailed technical specification. (Actuals / Variable Quantity)	10000	Mtrs		₹ -	₹ -
35	Power Cable 3 Core 1.5 Sqmm (Armored) , ISI/ISO Mark as per the detailed technical specification. (Actuals / Variable Quantity)	3000	Mtrs		₹ -	₹ -
36	Power Cable 3 Core 1.5 Sqmm (Unarmored) , ISI/ISO Mark as per the detailed technical specification. (Actuals / Variable Quantity)	300	Mtrs		₹ -	₹ -
37	Power Cable 3 Core 2.5 Sqmm (Unarmored) , ISI/ISO Mark as per the detailed technical specification. (Actuals / Variable Quantity)	300	Mtrs		₹ -	₹ -
38	Power Cable 4 Core 4 Sqmm (Armored) , ISI/ISO Mark as per the detailed technical specification. (Actuals / Variable Quantity)	300	Mtrs		₹ -	₹ -
39	Prefabricated Polyethylene (PLB HDPE) Pipe , ISI/ISO Mark as per the detailed technical specification. (Actuals / Variable Quantity)	10000	Mtrs		₹ -	₹ -

40	CAT-6 LAN STP patch Cords 5m Length as per the detailed technical specification. (Actuals / Variable Quantity)	46	Nos		₹ -		₹ -
41	CAT-6 LAN STP patch Cords 2m Length as per the detailed technical specification. (Actuals / Variable Quantity)	48	Nos		₹ -		₹ -
42	CAT-6 LAN patch Cords 5m Length as per the detailed technical specification. (Actuals / Variable Quantity)	10	Nos		₹ -		₹ -
43	CAT-6 LAN patch Cords 2m Length as per the detailed technical specification. (Actuals / Variable Quantity)	15	Nos		₹ -		₹ -
44	2 Core Single mode OFC patch Cords, 2m Length, LC-LC Duplex connectors (as per site condition) as per the detailed technical specification. (Actuals / Variable Quantity)	120	Nos		₹ -		₹ -
45	2 Core Single mode OFC patch Cords, 3m Length, LC-LC Duplex connectors (as per site condition) as per the detailed technical specification. (Actuals / Variable Quantity)	10	Nos		₹ -		₹ -
46	Fully loaded 6 port LIU (including Splicing tray, LC-Duplex Adapter, Pig tails etc.) to mount inside Outdoor Junction Box as per the detailed technical specification.	44	Nos		₹ -		₹ -
47	Fully loaded 24 port LIU (including Splicing tray, LC- Duplex Adapter, Pig tails etc.) Rack Mount as per the detailed technical specification.	18	Nos		₹ -		₹ -

48	12 port LIU as per the detailed technical specification.	3	Nos		₹ -		₹ -
49	CAT 6 24 Port UTP patch panel Rack Mount as per the detailed technical specification.	5	Nos		₹ -		₹ -
50	PVC Channel (18mm size) as per the detailed technical specification for routing the Indoor CAT-6 LAN cables and power cables. (Actuals / Variable Quantity)	150	Mtrs		₹ -		₹ -
51	PVC pipes 25mm diameter as per the detailed technical specification for routing the Indoor CAT-6 LAN cables and power cables, (Actuals / Variable Quantity)	150	Mtrs		₹ -		₹ -
52	Standard Cable Route Markers as per the detailed technical specification. (Actuals / Variable Quantity)	120	Nos		₹ -		₹ -
LABOUR WORKS							
53	Labour works/charges for Splicing of OFC cable cores (Actuals / Variable Quantity)	640	Nos		₹ -		₹ -
54	Labour charges for Laying the HDPE pipe (Actuals / Variable Quantity)	10000	Mtrs		₹ -		₹ -
55	Labour charges for Laying the OFC cable in the HDPE pipe (Actuals / Variable Quantity)	10000	Mtrs		₹ -		₹ -
56	Labour charges for Laying the Armored Power cable in the HDPE pipe (Actuals / Variable Quantity)	3600	Mtrs		₹ -		₹ -
57	Labour Charges for Laying cables in the existing cable trench at indoor and outdoor areas (Actuals / Variable Quantity)	305	Mtrs		₹ -		₹ -

58	Labour Charges for fixing the PVC Channels and routing the LAN Cables (Actuals / Variable Quantity)	150	Mtrs		₹ -		₹ -
59	Labour Charges for fixing the PVC pipes and routing the Power Cables (Actuals / Variable Quantity)	150	Mtrs		₹ -		₹ -
60	Labour Charges Fixing of cable route markers (Actuals / Variable Quantity)	120	Nos.		₹ -		₹ -
61	Labour Charges for Pit Digging in hard soil (earth work) of size 400mm (width) by 750mm (depth) for routing the HDPE pipe and re- filling mud after laying the pipe (Actuals / Variable Quantity)	3000	RMT		₹ -		₹ -
62	Labour Charges for Pit Digging in hard soil (earth work) of size 600mm (width) by 600mm (length) by 1000mm (depth) for erection of the outdoor poles and filling with cement concrete and properly bed finish above ground level. And also cable ducts (pipes) should be done in the concrete bed for routing the cables (Actuals / Variable Quantity)	40	Nos		₹ -		₹ -
63	Labour Charges for Earth Pit Digging in rocky soil to carryout Earthing for outdoor poles (1m away from poles), wiring and finishing with confirming to IS- 3043 standard (Actuals / Variable Quantity)	40	Nos		₹ -		₹ -

64	Labour Charges for Plate Earthing for Heavy Duty PTZ located in Terrace, wiring and finishing with confirming to IS- 3043 standard (Actuals / Variable Quantity)	2	Nos		₹ -		₹ -
65	Installation, Testing, Commissioning, Integration and Configuration of CCTV Surveillance System. Installation Charges which includes termination of cables, fixing of cameras, installation, erection of poles, testing, configuration, documentation and commissioning.	1	Lot		₹ -		₹ -
66	Training of Dept personnel at site (3 Years)						
66.1	1st Year	1	Year		₹ -		₹ -
66.2	2nd Year	1	Year		₹ -		₹ -
66.3	3rd Year	1	Year		₹ -		₹ -
67	Warranty for the system (3 Years) after Installation & Commissioning						
67.1	1st Year	1	Year		₹ -		₹ -
67.2	2nd Year	1	Year		₹ -		₹ -
67.3	3rd Year	1	Year		₹ -		₹ -
68	Training of Dept personnel at site (4th year to 8th year)						
68.1	4th Year	1	Year		₹ -		₹ -
68.2	5th Year	1	Year		₹ -		₹ -
68.3	6th Year	1	Year		₹ -		₹ -
68.4	7th Year	1	Year		₹ -		₹ -
68.5	8th Year	1	Year		₹ -		₹ -
69	CAMC for 5 Years (after 3 years of standard warranty)						
69.1	4th Year	1	Year		₹ -		₹ -
69.2	5th Year	1	Year		₹ -		₹ -

69.3	6th Year	1	Year		₹ -		₹ -
69.4	7th Year	1	Year		₹ -		₹ -
69.5	8th Year				₹ -		₹ -

Additional Items

70					₹ -		₹ -
71					₹ -		₹ -
72					₹ -		₹ -
73					₹ -		₹ -
74					₹ -		₹ -
75					₹ -		₹ -
76					₹ -		₹ -
77					₹ -		₹ -
78					₹ -		₹ -
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93					₹ -		₹ -
94					₹ -		₹ -
95					₹ -		₹ -
96					₹ -		₹ -
97					₹ -		₹ -
98					₹ -		₹ -
99					₹ -		₹ -
100					₹ -		₹ -

Note:

a. The Lowest offer shall be arrived by considering all the cost elements of tender including Supply, Installation, Commissioning, 3 year standard warranty, **8 years** Training cost, 5 years CAMC costs plus applicable taxes and duties.

b. Vendor shall quote all the items as per BOQ. In addition to this, if vendor found that few additional item/s required for implementation of CCTV system as per above scope, vendor shall quote additional item in respective

table with justification for requirement of additional items along with Make, Model & technical specifications of each items with cost breakup. The price shall be quoted accordingly in the respective Line item in BOQ.

Important Instruction: Any Additional items required to be mentioned from S.No. 70-100 Rows.

c. The entire project shall be completed within 20 weeks from the date of issue of order.

d. Warranty/CAMC cost quoted for each year separately should not be less than 3% of the total supply cost.

e. The L1 vendor shall be arrived based on the quantity indicated in the Price bid template. However, the payment shall be made at actuals wherever it is indicated as actuals/ variable quantity

Signature of authorized person of the bidder:

Place: Date:

Full Name in Block Letter:

Seal of Company.....

DECLARATION

I/We hereby declare that all statements made in this application form for empanelment of Business Associate is true/complete and correct to the best of my/our knowledge. In the event of any information found false at any time, the purchase order / work allotted on our firm deemed to be cancelled.

Date

Seal of the company

Note:

1. For any queries / clarifications feel free to contact our office in any working days or through our email ID: rohead_rob@itild.co.in

2. Terms and conditions for related Tender/enquiry will be sent to you/Published in our web site / CPP Portal.

Signature

Name and Designation.

Check list / list of enclosures.

1. Copy of registration of unit (with partnership deed or memorandum articles).
2. Copy of income Tax Clearance certificate.
3. Copy of Sales Tax registration Certificate.
4. Copy of GST registration Certificate.
5. Copy of the latest balance sheet/annual report.
6. Proof of annual turnover/financial capacity (Certificate issued by CA).
7. Proof of experience details/credentials.(As per Eligibility Criteria)
8. Proof of experience with ITI/Public sector/Government/Corporate sector etc. `
9. Copy of solvency certificate.(Within six months).
10. Copy of Net worth Certificate for last six months Issued by CA.
11. Notarized Copy of power of attorney of signing authority.
12. Certification/awards received (if, any).
- 13. Tender should be submitted with a covering letter, duly signed and stamped on each page with page No.**
14. Compliance to all the EOI terms.
15. EOI should be addressed and submitted in a sealed envelope duly super scribing EOI Ref. No. and date to the following address.

PRE-CONTRACT INTEGRITY PACT**GENERAL**

This pre-bid pre-contract agreement (hereinafter called the Integrity Pact) is made on day of the month of, between, ITI Limited, ITI Bhavan, Dooravaninagar, Bangalore – 560016, India, (hereinafter called the "BUYER", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and M/s (*address of the Bidder*) (hereinafter called the "BIDDER " which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the BUYER proposes to invite Expression of Interest (EoI) for selection/ empanelment of technology partner for a technical tie-up with ITI for the marketing/manufacturing of (*name of the product*) and the BIDDER is willing to participate in the EoI as per the terms and conditions mentioned thereon;

WHEREAS the BIDDER is a private company/public company/Government undertaking/partnership company (*strike off whichever is not applicable*), constituted in accordance with the relevant law in the matter and the BUYER is a PSU under the Department of Telecommunications, Ministry of Communications & IT, Government of India.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to: -

Enabling the BUYER to select/ empanel a technology partner for the marketing/ manufacturing of (name of the product) through the EoI in a transparent and corruption free manner, and

Enabling BIDDERS to abstain from bribing or Indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the BUYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

1. **Commitments of the BUYER**
 - 1.1 The BUYER undertakes that no official of the BUYER, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, 'organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.
 - 1.2 The BUYER will during the pre-contract stage, treat all BIDDERS alike, and will provide to all

BIDDERS the same information and will not provide any such information to any particular BIDDER, which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.

1.3 All the officials of the BUYER will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

2 In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with full and verifiable facts and the same is prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

3 Commitments of BIDDER

3.1 The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following: -

- a) The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
- b) The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or, execution of the contract or any other contract with the Government for showing or forbearing to show favour or disfavor to any person in relation to the contract or any other contract with the Government.
- c) BIDDERS shall disclose the name and address of agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.
- d) BIDDERS shall disclose the payments to be made by them to agents/ brokers or any other intermediary, in connection with this bid/contract.
- e) The BIDDER further confirms and declares to the BUYER that the BIDDER is the original manufacturer/ integrator and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such, intercession, facilitation or

recommendation.

- f) The BIDDER either while presenting the bid or during pre-contract negotiations or before signing the contract, shall 'disclose any payments he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- g) The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- h) The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- i) The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the BUYER as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- j) The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- k) The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- l) If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the BUYER, or alternatively, if any relative of an officer of the BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender. The term 'relative' for this, purpose would be as defined in Section 6 of the Companies Act 1956.
- m) The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER.

4 Previous Transgression

4.1 The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any 'corrupt practices envisaged hereunder or with any Public-Sector Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.

4.2 The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

5 Sanctions for Violations

5.1 Any breach of the aforesaid provisions by the BIDDER or anyone employed by it or acting on its

behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following actions, wherever required: -

- a) To immediately call off the pre-contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.
- b) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
- c) To cancel all or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation/rescission.
- d) To recover all sums paid in violation of this Pact by the BIDDER(s) to any middleman or agent or broker with a view to securing the contract.

5.2 The BUYER will be entitled to take all or any of the actions mentioned above, also on the Commission by the BIDDER or anyone employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the Indian Penal code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

5.3 The decision of the BUYER to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Independent Monitor(s) appointed for the purposes of this Pact.

6 Independent Monitors

6.1 The BUYER appoints Independent Monitor (hereinafter referred to as Monitor) for this Pact in consultation with the Central Vigilance Commission.

6.2 The task of the Monitor shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

6.3 The Monitor shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

6.4 Both the parties accept that the Monitor have the right to access all the documents relating to the project/procurement, including minutes of meetings.

6.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.

6.6 The BIDDER(s) accept(s) that the Monitor has the right to access without restriction to all Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER with confidentiality.

6.7 The BUYER will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.

6.8 The Monitor will submit a written report to the designated Authority of BUYER within 8 to 10 weeks from the date of reference or intimation to him by the BUYER / BIDDER and, should the occasion arise, submit proposals for correcting problematic situations.

7 Facilitation of Investigation

7.1 In case of any allegation of violation of any provisions of this Pact or payment of commission, the BUYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

8 Law and Place of Jurisdiction

8.1 This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the BUYER.

9 Other Legal Actions

9.1 The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

10 Validity

10.1 The validity of this Integrity Pact shall be from date of its signing and extend up to the contract period with the BUYER in case a contract is signed. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

10.2 Should one or several provisions of this Pact turn out to be invalid, the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

11 The parties hereby sign this Integrity Pact.

BUYER
Name of the Officer.
Designation
ITI Limited (address)
Place:
Date:

BIDDER
CHIEF EXECUTIVE OFFICER
M/s (address)
Place:
Date:

Witness:

1.
2.

1.
2.

WORK EXPERIENCE

Sr. No	Description	Details by the tenderer	Remarks, If any
1	Name of the Work		
2	Value of the work		
3	Letter of Award No and Date		
4	Original Period of completion		
5	Extended period of completion		

Instructions to Bidders/Business Associates for online bidding

The bidders are required to submit soft copies of their bid electronically on the e-Wizard Portal using valid Digital Signature Certificates. Below mentioned instructions are meant to guide the bidders for registration on the e-Wizard Portal, prepare their bids in accordance with the requirements and submit their bids online on the e-Wizard Portal. For more information, bidders may visit the Portal (<https://itilimited.euniwizarde.com>)

1. REGISTRATION PROCESS ON ONLINE PORTAL

- a) Bidders to enroll on the e-Procurement module of the portal [https://itilimited.euniwizarde.com/](https://itilimited.euniwizarde.com) by clicking on the link “Bidder Enrolment”.
- b) The bidders to choose a unique username and assign a password for their accounts. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. This would be used for any communication from the e-Wizard Portal.
- c) Bidders to register upon enrolment, with their valid Digital Signature Certificate (Class III Certificates with signing and Encryption key) issued by any Certifying Authority recognized by CCA India with their profile.
- d) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse.
- e) Bidder then logs in to the site through the secured log-in by entering their user ID/password and the password of the DSC / e-Token.
- f) After registration send mail to Helpdesk: helpdeskeuniwizarde@gmail.com for Account activation.
- g) As per portal norms Registration Fee will be applicable.

2. TENDER DOCUMENTS SEARCH

- a) Various built-in options are available in the e-Wizard Portal like Department name, Tender category, Estimated value, Date, other keywords, etc. to search for a tender published on the Online Portal.
- b) Once the bidders have selected the tenders they are interested in, they may download the required documents/tender schedules. These tenders can be moved to the respective ‘Interested tenders’ folder.
- c) The bidder should make a note of the unique Tender No assigned to each tender, in case they want to obtain any clarification/help from the Helpdesk.

3. BID PREPARATION

- a) Bidder should take into account any corrigendum published on the tender document before submitting their bids.
- b) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid.
- c) Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that needs to be submitted. Any deviations from these may lead to rejection of the bid.

d) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document/schedule and generally, they can be in PDF/XLSX/PNG, etc. formats.

4. BID SUBMISSION

a) Bidder to log into the site well in advance for bid submission so that he/she uploads the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.

b) The bidder to digitally sign and upload the required bid documents one by one as indicated in the tender document.

c) Bidders to note that they should necessarily submit their financial bids in the prescribed format given by department and no other format is acceptable.

d) The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, the opening of bids, etc. The bidders should follow this time during bid submission.

e) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data, which cannot be viewed by unauthorized persons until the time of bid opening.

f) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.

g) Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.

h) The off-line tender shall not be accepted and no request in this regard will be entertained whatsoever.

i) As per portal norms Tender Processing Fee will be applicable.

5. AMENDMENT OF BID DOCUMENT

At any time prior to the deadline for submission of proposals, the department reserve the right to add/modify/delete any portion of this document by the issuance of a Corrigendum, which would be published on the website and will also be made available to the all the Bidder who has been issued the tender document. The Corrigendum shall be binding on all bidders and will form part of the bid documents.

6. ASSISTANCE TO BIDDERS

a) Any queries relating to the tender document and the terms and conditions contained there in should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

b) Any queries relating to the process of online bid submission or queries relating to e- Wizard Portal, in general, may be directed to the 24x7 e-Wizard Helpdesk. The contact number for the helpdesk is 8448288994/86/87/89/88/81/90/92/82 011-49606060, 07903269552, 9355030608, 9055030613, 7903810198, 9355030606, 9315620706, 9355030623, 9355030628, 8800526452, 9205898228, 9122643040, 9355030604, eprochelpdesk.01@gmail.com, eprochelpdesk.44@gmail.com, eprochelpdesk.06@gmail.com

c) The tender inviting authority has the right to cancel this e-tender or extend the due date of receipt of the bid(s).

d) The bid should be submitted through e-Wizard portal <https://itilimited.euniwizarde.com/> only.

e) All payments should be done through e-Wizard Payment gateway.

Annexure-VI

Detailed Technical Specifications:				
1	Indoor Wall Mountable Dome IP based HDTV Camera with built-in IR-LEDs Source for day / night surveillance		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
1.01	Image Sensor	: 1/2.7" to 1/3" Progressive scan CMOS or better		
1.02	Lens	: Motorised Varifocal Lens, 3.5–8.5 mm or better, Auto/DC-Iris control, remote zoom, IR corrected or better Shall support for Day / Night function automatically with removal of infrared(IR) cut-filter		
1.03	Horizontal field/angle of view Camera Angle Adjustment	: 95° - 40° or better Pan ±170°, tilt ± 50°, rotation ±170° or better		
1.04	Illumination / Sensitivity	Color: 0.2 lux or better B/W: 0.05 lux or better Optimized inbuilt IR, highly efficient LEDs with adjustable intensity and angle of illumination. Range up to 30 m or better		
1.05	Shutter Time	1/15000 s to 2 s or better		
1.06	Resolution Support	H.264, MJPEG, or Better 1920x1080 @ 25fps or better		
1.07	Resolution Support	4 Independent Full HD Streams with variable/configurable frame rate/bit rate & Bandwidth for Live Pre-view and Recording or better (Documnetary evidence to be provided from the OEM)		
1.08	Audio Input / Output	Should support Audio through External microphone input or line input		
1.09	Image Settings	Exposure control (including automatic gain control), exposure zones, WDR: up to 120 dB , defog, overlays for image and text or better		
1.10	Security	Password protection, IP address assignment , access log, Certificate Management, brute force delay protection, signed firmware, secure boot or higher		

1.11	Protocols Support	1. Camera shall allow assigning IPv4 address either statically or through DHCP. 2. Camera shall allow access via http/https 3. Camera shall be configured to sync time with NTP 4. Camera shall be ONVIF compliant and shall support ONVIF Profile S,G & T or better		
1.12	Analytics	Should include for Video Motion Detection, active tampering alarm detection : Should have Support for Analytics, external input, supervision of input, edge storage events		
1.13	Memory	Should have Minimum 512 MB RAM, 512 MB Flash Should support SD/SDHC/SDXC cards upto 2 TB		
1.14	Connectivity	1. RJ45 100BASE-TX 2. Shall support PoE		
1.15	Certifications and Approvals	CE, MTBF >100,000 h or better (Certificates to be provided from OEM)		
1.16	Certifications and Approvals	IP52-rated, IK08-rated impact resistance casing or better Operating Temp 0 deg to 50 deg C or better		
1.17	Accessories	: Power supply/Adapters (if required), Pendant Mounting/Bracket kit to be provided, Drill template, user's & Installation manual, Management tools All accessories to be provided from the same OEM.		
2	Outdoor Bullet IP based HDTV Camera with built-in IR-LEDs Source for day / night surveillance		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
2.01	Image Sensor	: 1/2.7" to 1/3" Progressive scan CMOS or better		
2.02	Lens	: Motorised Varifocal Lens, 4.5 –137 mm or better, Auto/DC-Iris control, remote zoom, IR corrected or better Shall support for Day / Night function automatically with		

		removal of infrared(IR) cut-filter		
2.03	Horizontal field/angle of view	: 60-2° or better Should support for Autofocus, Remote focus and zoom		
2.04	Illumination / Sensitivity	Color: 0.2 lux or better B/W: 0.05 lux or better 0 lux with IR illumination on Optimized inbuilt IR with power-efficient, long-life 850 nm IR LEDs Range of reach 60 m or better		
2.05	Shutter Time	: 1/15000 s to 2 s or better		
2.06	Resolution Support	H.264, MJPEG, or Better 1920x1080 @ 25fps or better		
2.07	Resolution Support	4 Independent Full HD Streams with variable/configurable frame rate/bit rate & Bandwidth for Live Pre-view and Recording or better (Documnetary evidence to be provided from the OEM)		
2.08	Audio Input / Output	: Should support Audio in Simplex Mode through External microphone input or line input		
2.09	Image Settings	Exposure control (including automatic gain control), exposure zones, WDR: up to 120 dB , defog, overlays for image and text or better		
2.10	Security	Password protection, IP address assignment , access log, Certificate Management, brute force delay protection, signed firmware, secure boot or higher		
2.11	Protocols Support	1. Camera shall allow assigning IPv4 address either statically or through DHCP. 2. Camera shall allow access via http/https 3. Camera shall be configured to sync time with NTP 4. Camera shall be ONVIF compliant and shall support ONVIF Profile S,G & T or better		
2.12	Analytics	: Should include for Video Motion Detection, active tampering alarm detection : Should Support for Analytics, external input, supervision of		

		input, edge storage events, virtual inputs through API		
2.13	Memory	Should have Minimum 1024 MB RAM, 512 MB Flash		
2.14	Connectivity	1. RJ45 100BASE-TX 2. Shall support PoE		
2.15	Certifications and Approvals	: CE, MTBF >100,000 h or better (Certificates to be provided from OEM)		
2.16	Certifications and Approvals	: IP66-rated, IK10 rated impact resistance casing or better Operating Temp 0 deg to 50 deg C or better		
2.17	Accessories	: Power supply/Adapters (if required), other Mounting/Bracket kit, Drill template, user's & Installation manual, Management tools All accessories to be provided from the same OEM.		
2.18	Mount type	: Pole Mount kits to be provided Supported for 50–150 mm: 50–150 mm (2–6 in) Pair of marine-grade (SS316L) stainless steel straps Cable ties, Screws or better The Pole Mount Kit should be from the same OEM as the camera manufacturer to ensure compatibility		
3	Outdoor IR PTZ IP based HDTV Camera with built-in IR-LEDs Source for day / night surveillance		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
3.01	Image Sensor	: 1/2.7" to 1/3" Progressive scan CMOS or better		
3.02	Lens	: Motorized Varifocal, 4.5-135 mm or better, Autocontrol, IR corrected or better Shall support for Day / Night function automatically with removal of infrared (IR) cut-filter		
3.03	Horizontal field/angle of view	: 55-3° or better Should support for Autofocus, Auto Iris		
3.04	Illumination / Sensitivity	Color: 0.1 lux or better B/W: 0.05 lux or better 0 lux with IR illumination on Optimized inbuilt IR with		

		power-efficient, long-life 850 nm IR LEDs Range of reach 250 m or better		
3.05	Shutter Time	: 1/30000 s to 2 s or better		
3.06	Resolution Support	H.264, MJPEG, or Better 1920x1080 @ 25fps or better		
3.07	Resolution Support	4 Independent Full HD Streams with variable/configurable frame rate/bit rate & Bandwidth for Live Pre-view and Recording or better (Documnetary evidence to be provided from the OEM)		
3.08	PTZ	Pan 0 - 360°, Pan Speed 1°–120°/s or better tilt +15 to - 90° or better, Tilt Speed 1°–100°/s or better Optical Zoom 30x or better Auto flip, 256 preset positions, speed dry / wiper		
3.09	Image Settings	Exposure control (including automatic gain control), exposure zones, WDR: up to 120 dB , defog, overlays for image and text or better		
3.10	Security	Password protection, IP address assignment , access log, Certificate Management, brute force delay protection, signed firmware, secure boot or higher		
3.11	Protocols Support	1. Camera shall allow assigning IPv4 address either statically or through DHCP. 2. Camera shall allow access via http/https 3. Camera shall be configured to sync time with NTP 4. Camera shall be ONVIF compliant and shall support ONVIF Profile S,G & T or better		
3.12	Analytics	: Should include for Video Motion Detection, active tampering alarm detection : Should Support for Analytics, external input, supervision of input, edge storage events, virtual inputs through API		
3.13	Memory	Should have Minimum 1024 MB RAM, 512 MB Flash		

3.14	Connectivity	1. RJ45 100BASE-TX 2. Shall support PoE		
3.15	Certifications and Approvals	: CE, MTBF >100,000 h or better (Certificates to be provided from OEM)		
3.16	Certifications and Approvals	: IP66-rated, IK10 rated impact resistance casing or better Operating Temp 0 deg to 50 deg C or better		
3.17	Accessories	: Power supply/Adapters (if required), other Mounting/Bracket kit, Drill template, user's & Installation manual, Management tools All accessories to be provided from the same OEM.		
3.18	Mount type	: Pole Mount kits to be provided Supported for 50–150 mm: 50–150 mm (2–6 in) Pair of marine-grade (SS316L) stainless steel straps Cable ties, Screws or better The Pole Mount Kit should be from the same OEM as the camera manufacturer to ensure compatibility		
4	Outdoor Heavy Duty IR PTZ IP based HDTV Camera with built-in IR-LEDs Source for day / night surveillance		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
4.01	Image Sensor	: 1/1.9" to 1/3" RGB Progressive scan CMOS or better		
4.02	Lens	: Motorized Varifocal, 6.8 to 200 mm, or better, Autocontrol, IR corrected or better Shall support for Day / Night function automatically with removal of infrared (IR) cut-filter		
4.03	Horizontal field/angle of view	: 55-3° or better Should support for Autofocus, Auto Iris		
4.04	Illumination / Sensitivity	Color: 0.1 lux or better B/W: 0.05 lux or better 0 lux with IR illumination on Optimized inbuilt IR with power-efficient, long-life 850 nm IR LEDs Range of reach 400 m or better		
4.05	Shutter Time	: 1/30000 s to 2 s or better		

4.06	Resolution Support	H.264, MJPEG, or Better 1920x1080 @ 25fps or better		
4.07	Resolution Support	4 Independent Full HD Streams with variable/configurable frame rate/bit rate & Bandwidth for Live Pre-view and Recording or better (Documnetary evidence to be provided from the OEM)		
4.08	PTZ	Pan 0 - 360°, Speed , 1°-100°/s tilt +90 to - 90° or better, 1°- 100°/s Optical Zoom 30x or better Auto flip, 256 preset positions, speed dry / wiper		
4.09	Image Settings	Exposure control (including automatic gain control), exposure zones, WDR: up to 110 dB , defog, overlays for image and text or better		
4.10	Security	Password protection, IP address assignment , access log, Certificate Management, brute force delay protection, signed firmware, secure boot or higher		
4.11	Protocols Support	1. Camera shall allow assigning IPv4 address either statically or through DHCP. 2. Camera shall allow access via http/https 3. Camera shall be configured to sync time with NTP 4. Camera shall be ONVIF compliant and shall support ONVIF Profile S,G & T or better		
4.12	Analytics	: Should include for Video Motion Detection, active tampering alarm detection : Should Support for Analytics, external input, supervision of input, edge storage events, virtual inputs through API		
4.13	Memory	Should have Minimum 1024 MB RAM, 512 MB Flash		
4.14	Connectivity	1. RJ45 100BASE-TX 2. Shall support PoE		
4.15	Certifications and Approvals	: CE, MTBF >100,000 h or better (Certificates to be provided from OEM)		

4.16	Certifications and Approvals	: IP66-rated, IK10 rated impact resistance casing, MIL-STD-810-G or better Operating Temp 0 deg to 50 deg C or better		
4.17	Pan and tilt motors	Pan and tilt motors to actively compensate for changes in load conditions induced by external forces such as high winds.		
4.18	Accessories	: Power supply/Adapters (if required), other Mounting/Bracket kit, Drill template, user's & Installation manual, Management tools All accessories to be provided from the same OEM.		
4.19	Mount type	: Pole Mount kits to be provided Supported for 50–150 mm: 50–150 mm (2–6 in) Pair of marine-grade (SS316L) stainless steel straps Cable ties, Screws or better The Pole Mount Kit should be from the same OEM as the camera manufacturer to ensure compatibility		
5	Outdoor Horn Speaker		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
5.01	Audio streaming	: One-way/two-way (mono)		
5.02	Audio compression	: AAC LC 8/16/32/48 kHz, G.711 PCM 8 kHz, G.726 ADPCM 8 kHz, WAV, MP3 in mono/stereo from 64 kbps to 320 kbps. Constant and variable bit rate. sampling rate from 8 kHz up to 48 kHz.s		
5.03	Audio input/output	: Built-in microphone (can be disabled Mechanically)		
5.04	Built-in microphone specification	: 50 Hz - 12 kHz		
5.05	Speaker max sound pressure level	: Greater than 121 dB		
5.06	Speaker Frequency response	: 280 Hz - 12.5 kHz		
5.07	Speaker Coverage pattern	: 70 deg horizontal by 100 deg vertical or better coverage		
5.08	Built-in Amplifier	: Minimum 7 W Class D Amplifier or better		

5.09	Network security	: Should support Password Protection, IP address filtering, HTTPS encryption, IEEE 802.1X Network access control, Digest authentication, User access log		
5.10	Network protocols	1. Speaker shall allow assigning IPv4 address either statically or through DHCP. 2. Speaker shall allow access via http/https 3. Speaker shall be configured to sync time with NTP 4. Speaker shall support SIP Protocol or better		
5.11	Programming Interface	: Open API for software integration		
5.12	Intelligent audio	: Auto Speaker Test		
5.13	Event triggers	: Call, Virtual inputs		
5.14	Event actions	: Play audio clip, Send Auto Speaker Test, Status LED		
5.15	Installation tests	: Should have built in Test tone		
5.16	Casing	: Impact-resistant aluminum, IP66-, NEMA 4X-rated, and MIL-STD-810G 509.5-rated.		
5.17	Memory	: 256 MB RAM & 512 MB Flash or better		
5.18	Connectors	1. RJ45 100BASE-TX, 2. Shall support PoE. 3. I/O: 4-pin 2.5 mm terminal block for one input and one output 4. Dedicated Fiber Connectivity via SFP Port (Long Range 10KM or better SM SFP Modules to be provided SFP Modules shall be from the same make as the camera manufacturer)		
5.19	Operating conditions	: 0°C to 50 °C or better		
5.20	Voice announcement	Up to 50 pre-recorded voice announcements through Audio Player. Voice announcement through built-in SIP support for connection to any IP telephone /VoiP system and VAPIX support.		
5.21	Certifications and Approvals	: UL, IEC, EN, NEMA		

5.22	Certifications and Approvals	: MTBF >100,000 h (Certificates to be provided from OEM)		
5.23	Camera Integration	The network Speaker shall be preferably from the same OEM as the Camera Manufacturer to ensure compatibility		
5.24	Mount type	: Pole Mount kits to be provided Supported for 50–150 mm: 50–150 mm (2–6 in) Pair of marine-grade (SS316L) stainless steel straps Cable ties, Screws or better The Pole Mount Kit should be from the same OEM as the camera manufacturer to ensure compatibility		
6	Programming Mic for Network Speaker		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
6.01	Audio streaming	Two-way, full duplex		
6.02	Audio compression	G.711 PCM 8 kHz, G.722 or better		
6.03	Audio input/output	Mic-in, line-in, line-out, headphones out or better		
6.04	SNR	91 dB or better		
6.05	Frequency response	20 Hz - 20 kHz (+/- 0.5 dB) or better		
6.06	Maximum output voltage	Relay contact 250 V AC / 220 V DC 2A or better		
6.07	Speaker component	2 x 1 W stereo (built-in), 8 Ohm or better		
6.08	Max sound pressure level	86 dB (+/- 3 dB) or better		
6.09	Protocols Support	1. Mic shall allow assigning IPv4 address either statically or through DHCP 2. Mic shall allow access via http/https 3. Mic shall be configured to sync time with NTP 4. Mic shall support SIP protocol.		
6.10	VoIP	Support for Session Initiation Protocol (SIP) for integration with Voice over IP (VoIP) systems. Peer to peer or integrated with SIP/PBX. Tested with: 2N PBX		

		Supported SIP features: NAT (STUN)		
6.11	Power	8 W, Power over Ethernet (PoE) IEEE 802.3af 25 W, external power adapter		
6.12	Connectors	Power: 12 V DC / 2 A main adapter connector RJ45 10BASE-T/100BASE-TX PoE with Auto-MDIX function 2 x 3.5 mm Universal Audio Jack line and mic input 1 x 3.5 mm audio line out		
6.13	Operating conditions	0 °C to 40 °C (32 °F to 104°F)		
6.14	Certifications and Approvals	EMC EN 55032, EN 55024, FCC Part 15 Subpart B Class A Safety EN/UL 62368-1 or better		
6.15	Prerequisite	Programming Mic shall be preferably from the same OEM as the Camera Manufacturer to ensure compatibility		
7	Rack Mountable Server		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
7.01	Chassis	2U Rack Mountable		
7.02	Processor	2 x Xeon Silver 4310 12C 2.10 Ghz or better		
7.03	L3 Cache Memory	18 MB cache or better		
7.04	Memory	128GB (8*16GB) Fully buffered DDR4 @3200 R ECC RAM or better Vendor shall quote for 64GB memory or better per processor.		
7.05	Memory Scalability	32 DIMM Slots (16 DIMMS per CPU, 8 Channels with 2 DIMMS per Channel) Scalibility upto 3TB or better		
7.06	Drive Bays	8 Hot Plug 2.5" Hard Disk Bays or better		
7.07	Hard Disk Drivers	6x600GB 12G SAS 15k RPM Hot Plug (2.5") Enterprise Hard Disk 2x960 GB Hot Plug SSD SATA/SAS for OS or better		
7.08	SAN Interface	Dual Port 16 Gbps or better SAN FC/iSCSI host bus adapter or better		
7.09	Drive Contoller	Integrated or add-on SAS Controller or better		
7.10	RAID Contoller	Integrated or add-on RAID Controller SAS/SATA		

		12Gbit/s, 8 Ports RAID LEVEL 0,1,10,5,50,6,60 or better		
7.11	Optical Drive	DVD-RW Combo with dual layer write capability or better		
7.12	Graphics	Integrated Graphics Controller or better		
7.13	Network	4x1GB integrated NIC 2 X 1Gb + 2 X 10Gb add on Card or better		
7.14	Bus Slots	5 PCIExpress slots PCIe 4.0 x8 - 2 Nos. PCIe 3.0 x16- 3 Nos.		
7.15	I/O ports and connectors	4 USB Ports		
7.16	OS certification	windows server 2019, Redhat Linux and VMWare		
7.17	Operating System	Windows Server 2019 64-bit Standard Version (with latest service pack) with license or latest version		
7.18	Antivirus software	Pre - installed with 3-year license, software		
7.19	Other Accessories	Redundant power supply with cooling fans, Indian Standard power cord system recovery, Drivers & Utilities DVDs, Networking Cables		
7.20	Defective Media Retention	Keep your hard drive policy		
7.21	Monitoring, Analytics, and Performance	Should have monitoring & analytics feature for the offered server/chassis along with its sub-components to predict, prevent, and auto-resolve problems and by providing automating case creation and log file submission for the problems that can't be autoresolved.		
8	Storage: 50 TB Usable Storage		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
8.01	Controller	Dual active controller with automated I/O path failover or better		
8.02	Front end Ports	Should have minimum of 2 * 25 Gbps iSCSI and 2 * 16 Gbps FC Ports per Controllers.		
8.03	Back end Ports	The storage system should have minimum 2x12Gbps backend ports per controller.		
8.04	Management Software	Must include Storage Manager software, to centrally manage all Storage subsystems, Multi-path		

		(Load Balancing & Failover), LUN masking and should Support RAID migration on to the vacant space available		
8.05	O/S Support	Apple Mac OS,CentOS Linux,IBM AIX,Microsoft Windows Server Novell SUSE Linux Enterprise Server,Oracle Enterprise Linux Oracle Solaris,Red Hat Enterprise Linux ,Ubuntu Linux,VMware ESX		
8.06	Scalability	It Should be scalable upto 180 no of HDD in same storage or expendable upto 1 PB usable capacity.		
8.07	Capacity	Offered SAN Array shall be configured for 50TB usable on 7.2K RPM dual ported NL-SAS HDD on RAID 6 . Hot spare drive will be 1 spares extra per 30 drives if any		
8.08	Raid Controllers	Dual, both Active, minimum 64 GB cache across the two Controllers (32 GB per Controller). Cache should be controller based not drive based.		
8.09	Protocol Support	FC,iSCSI		
8.10	Cache Safety	Cache should be mirrored and battery-backed-up /disk-destaged,to provide protection of data for 72 hours or more.		
8.11	Drive Interface	The stoarge should have 12Gbps Drive interface or higher		
8.12	Supported Drives, Mixed Drives	Should support SSD, SAS, NL-SAS, 12 GBPs Drives in same enclousure.		
8.13	RAID levels	The stoarge should support 0, 1, 5, 6 and 10 RAID levels.		
8.14	Fans and power Supplies	Redundant, hot-swappable power supplies and fans		
8.15	Rack Support	Suitable for industry-standard Racks and PDUs		
8.16	Data Services	Should include data Snapshot, Thin provisioning, Volume cloning or equivalent features for the offered capacity of the storage array. The proposed system should also include storage based replication software		

8.17	Alerts	Automated alerts for Improving service response times.		
8.18	Others	All required cable and connectors to be supplied		
8.19	Certification	OEM should be in leader of Gartner Magic Quadrant from last 3 years.		
9	Digital Video Management software(1 Base License + 100 Device Licenses with 3 Years of Software Updates Support)		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
9.001	General	The Video Management System shall be a fully distributed solution, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices, servers and users and must empower a flexible rule-based system driven by schedules and events.		
9.002	General	VMS shall already support IP cameras from at least fifty (50) major vendors and a minimum of 9000 Certified Devices Bidders shall clearly list in their proposal the brands and models already integrated into VMS.		
9.003	General	VMS shall support IP Network Horn Speakers, Management of Cameras Speakers should be possible from within the VMS without use of Web Browser		
9.004	General	To ensure openness, VMS and cameras may or may not be from the same manufacturer.		
9.005	General	VMS shall manage Password of cameras directly from software management tool.		
9.006	General	VMS shall support installation and ability to run on virtualized windows servers		
9.007	General	VMS shall have API based integration with the major camera vendors in order to support features such as, up to 3 Multi-streams, SD Card storage sync, Camera based supported		

		Edge Analytics, Camera I/O support, Camera Audio support		
9.008	General	VMS manufacturer shall provide their SDK (or any other integration means) libraries and documentation) to ensure a seamless integration with any other system		
9.009	General	VMS shall be open to any standard storage technologies integration.		
9.010	General	VMS shall be open to any video wall system integration.		
9.011	General	VMS shall have the possibility to integrate external Video Analytics systems.		
9.012	General	The VMS system shall be a scalable client – server architecture built using well known operating systems		
9.013	General	The VMS system shall enable recording to be done at the aggregation sites and shall allow the local Control center to import selected video’s on demand.		
9.014	General	Aggregation site types shall be categorized according to function and size as per the table below.		
9.015	General	To facilitate the VMS system architecture, the BIDDER shall ensure that sufficient capacity is designed into the data communications & telecommunications infrastructure to deliver the required functionality, along with the ability to allocate and reserve resources (including bandwidth).		
9.016	General	The VMS system shall be compatible to single and multiple processor servers. The server processor & hardware shall be optimized in all cases.		
9.017	General	The VMS system shall cluster the processing & memory load across several machines. The failure of any one server in the		

		solution shall not cause a failure in the entire system.		
9.018	General	The VMS system device drivers shall be stored separately to the central core application to ensure any instability in 3rd party SDKs do not affect the core application.		
9.019	General	The VMS management server shall be able to intelligently scan an IP network for new devices (cameras or servers) along with automatic model detection.		
9.020	General	Network infrastructure and installation are the responsibility of the Bidder. Network components both active and required for the successful implementation of the video surveillance detailed in this tender shall be provided by the Bidder. The network infrastructure shall meet the streaming requirement of the project without any bottlenecks. The network infrastructure shall support UDP multicast, UDP unicast and TCP transmission.		
9.021	General	The VMS system shall provide an integrated secure, scalable and easily accessible software-based solution for the management of the existing & future physical security infrastructure		
9.022	General	The VMS system shall provide a powerful and efficient management interface for all the security systems across all monitored sites.		
9.023	General	The Video Management System shall be a fully distributed solution, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices, servers and users and must empower a flexible rule-based		

		system driven by schedules and events.		
9.024	General	The Video Management System shall contain recording servers used for recording video feeds and for communicating with cameras and other devices. The recording servers shall process the recordings and playback the video streams.		
9.025	General	The Video Management System shall include a federated architecture allowing clients on the host system with the right user rights to view video sources belonging to multiple independent Video Management Systems simultaneously, as if they were on The Video Management System shall contain a management server that shall be the central manager of the system and control recording servers, cameras, devices and users. The management server shall handle the initial client login, system configuration and logging.		
9.026	General	The management server shall allow access to a system manager from where the administrator can configure and manage all servers, cameras and users.		
9.027	General	The system shall allow the management server to be installed on multiple servers within a cluster of servers ensuring that another server in the cluster automatically takes over in case the first server fails.		
9.028	General	The Video Management System shall support installation and ability to run on virtualized Windows® servers.		
9.029	General	The Video Management System shall allow an unlimited number of cameras to be connected to each recording server and an unlimited number of recording		

		servers to be connected to each management server across multiple sites, if required.		
9.030	General	The Video Management System shall support high availability of recording servers. A failover option shall provide standby support for recording servers with automatic synchronization to ensure maximum uptime and minimum risk of lost data.		
9.031	General	The Video Management System shall support a versatile rule system including scheduled or event-driven actions with numerous options including support to time profiles.		
9.032	General	The Video Management System shall support Microsoft Windows XP Professional, Microsoft Windows Server 2003, Microsoft Windows Server 2008, Microsoft Windows Vista (Business/Enterprise/Ultimate) and Microsoft Windows 7 (Business/Enterprise/Ultimate) with the latest patches and service packs installed. The system must use DirectX and .NET Framework.or latest available software		
9.033	General	The Video Management System software shall include multicast and multi-streaming support.		
9.034	General	The Video Management System shall include automatic camera discovery.		
9.035	General	The Video Management System shall support archiving for optimizing recorded data storage through unique data storage solutions by combining performance and scalability with cost efficient long-term video storage.		
9.036	General	The Video Management System shall incorporate fully integrated matrix functionality for distributed viewing of any camera in the system from any computer with the client viewer.		

9.037	General	The Video Management System shall incorporate intuitive map functions allowing for multilayered map environment. The map functionality shall allow for the interactive control of the complete surveillance system, at-a-glance overview of system integrity, and seamless drag-and-drop integration with video wall module option.		
9.038	General	The Video Management System shall support 56-bit encryption of video for export purposes.		
9.039	General	The Video Management System shall support full two-way audio between clients and remote devices. Two-way audio integration shall support the following features and functions:		
9.040	General	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.		
9.041	General	The Video Management System shall show full awareness of the system through audit logs and shows user activity through comprehensive logs.		
9.042	General	The Video Management System shall include support for a framework data module designed to integrate multiple third party Video Content Analysis (VCA) solutions seamlessly into client viewer environments.		
9.043	General	The Video Management System shall include a Software Development Kit (SDK) that offers important capabilities for integrating the Video Management System with third party software and applications.		
9.044	General	The Video Management System shall include a stand-alone viewer application to be included with video exported		

		from the client viewer application. The viewer application shall allow recipients of the video to browse and playback the exported video without installing separate software on their computers.		
9.045	General	The system shall, after desired retention days, the video feeds will be overwritten unless it is flagged or marked by the authorities for investigation or any other purpose. The video feeds of all relevant cameras capturing the incident in question can be stored until the authorities deem it good for deletion.		
9.046	General	The Video Management System shall include support for Active Directory to allow users to be added to the system. Use of Active Directory requires that a server running Active Directory, acting as a domain controller, to be available on the network.		
9.047	General	The Video Management System shall be designed to support each component on the same computer for efficiency in smaller systems, or each component on separate systems for large system deployments.		
9.048	Edge Storage	Edge storage shall secure that when a lost or broken connection is back up, the data stored on the camera's internal storage shall be retrieved and stored in the media database.		
9.049	Edge Storage	Edge storage shall secure that after recovery from a malfunction it shall be possible to play back and view the video, and audio recorded by the device, while the malfunction persisted		
9.050	Bookmarking	A bookmarking feature shall be included in the Video Management System, allowing the client viewer users to mark incidents on live and/or playback video streams.		

9.051	Privacy Masking	The Video Management System shall support privacy masking. The VMS should have an option for permanent or Lifiable Masking.		
9.052	Optimized Video Archiving	Administrators shall be able to select a storage container for each device and move a device from one storage container to another, or move all recordings inclusive archives to the new storage container, or delete them all.		
9.053	Optimized Video Archiving	Administrators shall be provided with an overview of the defined storage containers, their archives with path, and free and used space on the drives for each device, including the used storage space in the recording database, and in archives.		
9.054	Optimized Video Archiving	Video Management Software shall allow to optimize the writing performance of the storage by distributing the real time recording performance on the recording servers internal disk initially for at least 6 hours and archive at different schedule to SAN/NAS/DAS from recording servers. BIDDER should specify the number of Internal disk required for each recording server depending on the camera numbers.		
9.055	Optimized Video Archiving	Video management software shall also have ability to optimize bandwidth requirement on cloud based storage solution by Recording at local site recording server for at least 24 hours and archive to cloud on schedule basis from different recording servers at different time profile in order to utilize minimum bandwidth.		
9.056	Failover Support	The system shall support automatic failover for recording servers. This functionality must be accomplished by a failover server that shall work as a standby unit, which takes over in the event that one of a group		

		of designated recording servers fails. Recordings shall be synchronized back to the original recording server once it is back online.		
9.057	Failover Support	The system shall support multiple failover servers for a group of recording servers.		
9.058	Failover Support	The system shall provide monitoring of all failover servers from the graphical alarm management module.		
9.059	Failover Support	The system shall provide seamless access to recordings on the failover Server for all clients through the same client views once the services are fully started.		
9.060	Multicast Support	The system shall support multicasting of video feeds to client workstations in order to conserve network resources. Multicasting should be enabled from the recording servers and not directly from the cameras. Thus the IGMP network would be necessary only for the switches where server and clients are connected.		
9.061	Multicast Support	Multicasting shall send a single stream of video to multiple clients, where the stream may be decoded and displayed on all clients simultaneously. This functionality shall support virtual matrix configurations.		
9.062	Multicast Support	The infrastructure provided for the system shall support Internet Group Management Protocol (IGMP) for each remote network.		
9.063	Multicast Support	The system shall automatically switch to unicast, if the client fails to connect to the multicast stream.		
9.064	Multi-streaming Support	The recording server must accept, display and record individual streams of video from each camera that supports it, for example, display a stream in H.264 format and record another stream in MPEG4 format. The		

		intent of this functionality shall be providing independent streams of video from the camera to the server with different resolution, encoding and frame rate.		
9.065	Multi-streaming Support	Multi-streaming support shall allow the system to be configured with H.264 with a high frame rate for live viewing and shall allow the system to be configured with high resolution H.264 at low frame rates for recording and playback.		
9.066	Multi-streaming Support	The system shall allow recorded video to be recorded at 8fps.		
9.067	SNMP Support	The system shall act as an SNMP agent which can generate an SNMP trap as a result of rule activation in addition to other existing rule actions.		
9.068	SNMP Support	The system shall be able to utilize Microsoft Windows SNMP Service for triggering of SNMP traps.		
9.069	NAT Firewall Support	The system shall support port forwarding, which must allow clients from outside of a Network Address Translation (NAT) firewall to connect to recording servers without using a VPN.		
9.070	NAT Firewall Support	Each recording server shall be mapped to a specific port and this port must be forwarded through the firewall to the recording server's internal IP address.		
9.071	Management Server Redundancy	The management server shall provide a resilient system solution based on Windows Server Clustering, to secure maximum uptime.		
9.072	Alarms Support	The alarm support shall allow for continuous monitoring of the operational status and event-triggered alarms from servers, cameras and other devices.		
9.073	Alarms Support	The alarm support shall provide a real-time overview of alarm status, or technical problems, while allowing for immediate		

		visual verification and troubleshooting.		
9.074	Matrix Functionality	The system shall include an integrated matrix solution for distributing video to any computer with the client viewer installed. A computer on which the matrix-triggered images can be shown must be known as a matrix recipient.		
9.075	Matrix Functionality	The client viewer shall provide remote users with a comprehensive suite of features:		
9.076	Matrix Functionality	It shall be possible to view live video from cameras on the surveillance system from 1 to 100 per view.		
9.077	Matrix Functionality	It shall be possible to playback recordings from cameras on the surveillance system, with a selection of advanced navigation tools, including an intuitive timeline browser.		
9.078	Matrix Functionality	It shall be possible to create and switch between an unlimited number of views, each able to display video from up to 100 cameras from multiple servers at a time. The system shall allow views to be created which are only accessible to the user, or to groups of users based on 37 different layouts optimized for 4:3, 4:3 Portrait, 16:9 and 16:9 Portrait display ratios.		
9.079	Matrix Functionality	It shall be possible to access views of cameras on any PC with a client viewer application installed.		
9.080	Matrix Functionality	It shall be possible to use multiple screens as well as floating windows for displaying different views simultaneously.		
9.081	Matrix Functionality	It shall be possible to quickly substituting one, or more of a view's cameras with other cameras.		
9.082	Matrix Functionality	It shall be possible to view images from several cameras in sequence in a single camera position in a view – a so called carousel.		

9.083	Matrix Functionality	It shall be possible to view video from selected cameras in greater magnification and/or higher quality in a designated hotspot.		
9.084	Matrix Functionality	It shall be possible to receive and send video through the matrix functionality.		
9.085	Matrix Functionality	It shall be possible to include HTML pages and static images (for example, maps, or photos) in views.		
9.086	Matrix Functionality	It shall be possible to control PTZ cameras.		
9.087	Matrix Functionality	It shall be possible to use digital zoom on live as well as recorded video.		
9.088	Matrix Functionality	It shall be possible to activate manually triggered events.		
9.089	Matrix Functionality	It shall be possible to activate external outputs (e. g. lights and sirens).		
9.090	Matrix Functionality	It shall be possible to use sound notifications for attracting attention to detected motion.		
9.091	Matrix Functionality	It shall be possible to get quick overview of sequences with detected motion.		
9.092	Matrix Functionality	It shall be possible to get quick overviews of alerts.		
9.093	Matrix Functionality	It shall be possible to quickly search selected areas of video recording for motion.		
9.094	Matrix Functionality	It shall be possible to skip gaps during playback of recordings.		
9.095	Matrix Functionality	It shall be possible to configure and use several different joysticks.		
9.096	Matrix Functionality	It shall be possible to print images, with optional comments.		
9.097	Matrix Functionality	It shall be possible to copy images for subsequent pasting into word processors, email, etc.		
9.098	Matrix Functionality	It shall be possible to export recording (for example, for use as evidence) in AVI, JPEG and database formats.		
9.099	Matrix Functionality	It shall be possible to use pre-configured as well as customizable keyboard shortcuts to speed up common actions.		

9.100	Matrix Functionality	It shall be possible to insert overlay buttons, for example, for activation of speakers, events, outputs, movement of cameras etc.		
9.101	Matrix Functionality	It shall be possible to use a sequence function that lists thumbnail images representing recorded sequences from an individual camera or all cameras in a view.		
9.102	Matrix Functionality	It shall be possible to use a forced playback mode allowing the user to playback recorded video from inside the 'live' mode while viewing 'live' video.		
9.103	Matrix Functionality	The client viewer shall support the use of 3-axis USB joysticks for control of pan, tilt, zoom and auxiliary camera functions.		
9.104	Matrix Functionality	The client viewer shall support the use of multimedia control devices, which are capable of emulating keystrokes, for the efficient review of recorded video.		
9.105	Matrix Functionality	The client viewer shall support the use of keyboard shortcuts for control of standard features. It shall allow the user to program numerical keyboard shortcuts for camera views. The shortcut number shall be displayed with the view description in the live and playback displays. The shortcut shall allow the user to change views with 2 to 3 keyboard entries.		
9.106	Matrix Functionality	The client viewer shall support Nvidia GPU based video decoding to improve video rendering performance and up to 75% reduction in CPU load of the workstation running Client software. The use of Nvidia GPU based video rendering shall also make client ready for 4K/UHD camera technology. Bidder to provide the list of Certified GPU's		

9.107	Matrix Functionality	The client viewer shall have the capability to receive multicast streams. The client viewer shall have the capability to detect if the network becomes unreliable and to automatically switch to unicast to ensure that the operator is able to receive video.		
9.108	Matrix Functionality	The operator shall have the ability to use digital zoom where the zooming is performed in the image only on any number of cameras simultaneously. This functionality shall be the default for fixed cameras. The use of digital zoom shall have no affect on recording, or other users.		
9.109	Map Functions	Built-in map function in the client viewer shall provide an intuitive overview of the system and shall offer integrated access to all system components.		
9.110	Map Functions	Map function shall be able to use standard graphical file formats including: jpg, gif, png, tif, etc.		
9.111	Map Functions	It shall be possible to use any number of layered maps, and it shall be possible to easily drag-and-drop and point-and-click definition of cameras, servers, microphones, speakers, I/O devices, hot-zones, and PTZ camera presets.		
9.112	Map Functions	Hot zones shall be allowed for intuitive navigation between different map levels.		
9.113	Map Functions	Map function shall support instant camera preview when moving the mouse pointer over a specific camera.		
9.114	Map Functions	Map function shall support central overview of the surveillance system via an alarm list containing alarm indicators of high, medium or low prioritized alarms. Furthermore the alarms shall be categorized by the following states; new, in progress, on hold, or closed. Alarms must be possible to		

		acknowledge by right-clicking elements on maps.		
9.115	Remote Client Viewer	The web-based remote client viewer shall offer live view of up to 16 cameras, including PTZ control with joystick, fisheye (360 degrees) cameras and event/output activation. The playback function shall give the user concurrent playback of up to 16 recorded videos with date, alert sequence, or time searching.		
9.116	Remote Client Viewer	The web-based remote client viewer shall offer quick overviews of sequences with detected motion.		
9.117	Remote Client Viewer	The web-based remote client viewer shall be able to generate and export evidence in AVI (movie clip) and JPG (still image) formats.		
9.118	Remote Client Viewer	The system shall support the use of separate networks, VLANs, or switches for connecting the cameras to the recording servers providing physical network separation from the clients, and facilitate the use of static IP addresses for the devices.		
9.119	Remote Client Viewer	The system shall support H.264, MPEG-4 (Part 2), MPEG-4 ASP, MxPEG, and MJPEG compression formats for all analog cameras connected to encoders, and all IP cameras connected to the system.		
9.120	Remote Client Viewer	The system shall support dual-streaming cameras and shall cover the following compression formats: H.264, MPEG-4 (Part 2) and MJPEG.		
9.121	Remote Client Viewer	The recording server shall utilize high performance ISCSI, SCSI, SAS and SSD disk drives for online recording storage and shall allow the use of lower cost SATA drives for the RAID arrays for online archive storage. Use of online archiving		

		shall ensure that data always is readily available. Use of tape-backup systems shall not be acceptable.		
9.122	Remote Client Viewer	The system shall allow the frame rate, bit rate and resolution of each camera to be configured independently for recording. The system shall allow the user to configure groups of cameras with the same frame rate, bit rate and resolution for efficient set-up of multiple cameras simultaneously.		
9.123	Remote Client Viewer	The recording server(s) shall have the ability to support multiple Network Interface Cards (NIC) and shall support connection to the cameras on a network separate from the client viewer, management server and system manager.		
9.124	Remote Client Viewer	The recording server shall have the ability to accept the full frame rate supplied by the cameras, while recording a lower frame rate yet still shall make the higher frame rate available to the clients for live viewing.		
9.125	Remote Client Viewer	The Recording server shall have the ability to handle Video Motion detection on Nvidia GPU to optimize the server requirement.		
9.126	Remote Mobile App	Shall be available on internet as an application for compatible smartphone and Tablets		
9.127	Remote Mobile App	Shall support Android as well as Apple IOS softwares, with respective smart phones		
9.128	Remote Mobile App	Full screen video supported, cameras shuffle from left to right or right to left supported		
9.129	Remote Mobile App	Digital pinch to zoom supported		
9.130	Remote Mobile App	Control of PTZ from mobile app		
9.131	Remote Mobile App	Use of the mobile device's camera as a camera in the VMS		
9.132	Licensing	VMS shall have simplified licensing module with single		

		base license which may include Unlimited Management, Recording and Failover servers across multiple sites.		
9.133	Licensing	VMS shall support unlimited Thick clients, Web Clients and remote clients whenever and where ever required for free of cost without any activation needed.		
9.134	Licensing	VMS shall have licensing based on Camera MAC ID and not server-based licenses. Any replacement of faulty camera should not affect the total available licenses.		
9.135	Licensing	VMS Shall allow to combine multiple sites with different management servers under one parent management server without any additional cost. This should allow customer to manage and monitor cameras centrally without need to log-in to individual sites.		
9.136	Licensing	VMS recording videos shall not be dependent on Microsoft SQL database		
9.137	Licensing	VMS shall allow parallel / DR site recording of single camera without any additional license cost.		
9.138	Licensing	VMS should support ONVIF Profile S, G, T & Q or higher		
9.139	Licensing	VMS shall be a full member of ONVIF or affiliated to a Full member		
9.140	Licensing	VMS Should support a minimum throughput of 3 Gbps or higher		
9.141	Licensing	<i>Vendor to provided detailed Storage calculation for a period of 30 days at 15FPS for Motion Based recording for Indoor Cameras and Continuous recording for Outdoor Cameras at Full HD Resolution (1920 x 1080) H.264 codec with Medium Image Complexity for all the cameras certified by VMS vendor</i>		

10	Desktop Workstation for Monitoring		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
10.01	Chassis	Tower		
10.02	Processor	Intel i7 12th Gen 12 core Processor with Base Frequency of 2.1 Ghz or higher		
10.03	L3 Cache Memory	25 MB L3 cache or better		
10.04	Memory	32GB (2*16GB) Fully buffered DDR4 @3200 SDRAM or better		
10.05	Memory Scalability	DIMM slots 4, scalable upto 128 GB		
10.06	Drive Bays	1 slim ODD; One 5.25" ODD; One 2.5" HDD; Two 3.5" HDD or higher		
10.07	Hard Disk Drivers	2 x 1TB for M.2 Disks Drive in Raid 1 Config or better		
10.08	Optical Drive	DVD-RW Combo with dual layer write capability		
10.09	Graphics	T600 4GB graphics or better		
10.10	Network	2x1GB Ethernet Adapter in addition to integrated NIC		
10.11	Bus Slots	4 PCIExpress slots, atleast 2 with PCIe 3.0, expandable or better		
10.12	I/O ports and connectors	4 USB Ports or better		
10.13	Keyboard	USB 2.0 Standard keyboard should be from the same make as the Workstation		
10.14	Mouse	USB 2.0 optical scroll mouse should be from the same make as the Workstation		
10.15	OS certification	Windows Certified Hardware (Certification to be provided)		
10.16	Operating System	Windows 11 Pro 64 bit		
10.17	Other Accessories	Indian Standard power cord system recovery, Drivers & Utilities DVDs		
10.18	Defective Media Retention	Keep your hard drive policy		
10.19	Antivirus software	Pre - installed with 3-year license, software		
11	27" Monitor		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	

11.01	Monitor	27-inch IPS, Micro Edge LED Backlit or better Resolution 2560x1440 @ 60Hz or better Aspect Ratio 16:9 or better Viewing Angle Up to 178° horizontal/178° vertical or better Brightness 350 cd/m ² or better Contrast Ratio 1,000:1 or better Response Time 5 ms or better Connector Types (1) DisplayPort™ 1.2 (2) HDMI 1.4 (3) VGA		
11.02	Monitor	Tilt Range -5° to + 22° vertical or better Swivel Range 45°L to 45°R or better Display height adjustment: Adjustment Range: 150 mm or better Pivot Rotation Yes, 90° clockwise and counter-clockwise or better		
12	17" Rack monitor		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
12.01	Form Factor	1U rack mount		
12.02	KVM Cable	6 ft. combo KVM cable (VGA, PS/2, and USB) for VGA video input, keyboard and touchpad		
12.03	DVI Video Cable	6 ft. male to male DVI video cable (DVI-D, single link)		
12.04	USB Port	USB 2.0 pass thru port on front of unit to connect external devices		
12.05	Display Size	17.3" TFT		
12.06	Panel Type	Active Matrix TFT LCD with LED backlight unit		
12.07	Max. Resolution Support	1920x1080 @60 Hz (Full HD 1080P)		
12.08	DDC Support	DDC / DDC2 / DDC2B		
12.09	Contrast Ratio	650:1 or better		
12.10	Brightness (cd/m ²)	300 nits or better		
12.11	Supported Colors	16.7 Million		
12.12	Multi-Platform	DVI-D, VGA, USB and/or PS/2		
12.13	Keyboard/ Mouse	104 Keyboard / Touchpad		
12.14	Operation Temperature	0~40 °C		

12.15	Certifications	FCC, CE, VCCI, UL, and ROHS		
13	8 port KVM Switch with 8 Nos of 2 Meter VGA KVM COMBO CABLES		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
13.01	Supported console users	1		
13.02	Channel ports (female RJ-45)	8		
13.03	Female USB-A ports (for keyboard/mouse)	2		
13.04	Female DVI-I ports (for video output)	1		
13.05	Channel LEDs (white, but turn green when accessed)	8		
13.06	Video support	1920 x 1200@75Hz (VGA) 1920 x 1080@60Hz (DVI) DDC2B		
13.07	Servers	Control up to 256 servers by cascading		
13.08	Power	DC 12V/5.42A (65W)		
13.09	MTBF	> 300,000 hrs		
13.10	Operating Temperature	0–50°C		
13.11	Firmware Upgrade Port	Micro USB female		
14	L3 Core Switch 24-port 10/100/1000T and 100/1000 SFP stackable switch with 4 SFP+ ports and dual hotswap PSU bays with Rack Mount Kit		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
14.01	Switch Architecture	Shall equipped with minimum 24 x 1G SFP slots and 24 x 1G Base T Slots additionally 4 1G/10G SFP/SFP+ Slots uplink. Fibre slots should be backward compatible i.e., 100FX/1000FX. 4 10G SFP+ ports should also support 1G SFP based on network requirement.		
14.02	Switch Architecture	Shall equipped with 2x40G SFP+ slots		
14.03	Switch Architecture	Internal Hot swappable Redundant Power Supply Equipped		
14.04	Switching Capacity	Should support switching fabric of 288Gbps or more		
14.05	Forwarding rate	Should support min forwarding rate of 214 Mpps or higher		

14.06	Hardware redundancy & Resiliency	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 with stacking bandwidth of min 160Gbps per switch		
14.07	Hardware redundancy & 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		
14.08	Layer 2 Features	Support 802.1D, 802.1S, 802.1w, Rate limiting		
14.09	Layer 2 Features	Support 802.1X Security standards		
14.10	Layer 2 Features	Support 802.1Q VLAN encapsulation, IGMP v1,v2 and v3 snooping, MLD snooping		
14.11	Layer 2 Features	Support up to 4096 VLANs		
14.12	Layer 2 Features	Support IGMP Snooping and IGMP Querying		
14.13	Layer 2 Features	Should support STP, RSTP, MSTP, ITU-T G.8032		
14.14	Layer 3 Features	Should support Static routing,		
14.15	Layer 3 Features	OSPFv2 for IPv4 & OSPFv3 for IPv6		
14.16	Layer 3 Features	BGP for IPv4 & IPv6		
14.17	Layer 3 Features	PIM for IPv4 SM, DM and SSM, PIMv6-SM		
14.18	VLAN	Should Support 802.1Q Tagged VLAN, port based VLANs and Private VLAN		
14.19	VLAN	Should Support IEEE 802.1v VLAN classification by protocol and port		
14.20	VLAN	Should Support IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q)		
14.21	VLAN	Should Support dynamic VLAN Registration or equivalent		
14.22	VLAN	Should Support VLAN trunking or equivalent,		
14.23	Management	Switch needs to have a console port for management via a console terminal or PC		

14.24	Management	Must have support SNMP V1, V2 and V3		
14.25	Management	Should support 4 groups of RMON		
14.26	Management	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,		
14.27	Management	Support SNMPv6, Telnetv6 and SSHv6, DHCPv6 relay, DHCPv6 client, NTPv6 client and server,		
14.28	Management	Support NTP/SNTP,SDN openflow v1.3		
14.29	Security	Should support ACLs, VLAN ACL's		
14.30	Security	Support DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI), Support MAC address filtering and MAC address lock-down,		
14.31	Security	Support Tri-authentication: MAC-based, web-based and IEEE 802.1x,		
14.32	Security	Support DHCPv4 client		
14.33	Security	Support sflow/netflow, Port mirroring		
14.34	Environment	Operating Temperature- 0 to 50 C		
14.35	Interoperability	For ease of operations, all the switches and fiber modules (on switch end) should be from OEM		
15	Distribution Switch 24-port 10/100/1000T PoE+ Edge Switch with 4 SFP+ ports and fixed power supply with Rack Mount Kit		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
15.01	Ports	Shall be equipped with minimum 24 x 10/100/1000 Base-T and additional 4 x 100/1000x SFP ports. Uplink ports should backward compatible with 100 Mbps. Should support minimum 370 watts PoE budget that supports 802.3at		
15.02	Layer 2 Features	Should support STP, RSTP, MSTP, IGMP v1/v2/v3		

		snooping, STP root guard, Voice VLAN, loop protection, MLD snooping (MLDv1 and v2), IEEE 802.3ac, IEEE 802.1v, 16k MAC Table or more		
15.03	Resilience	Should support IEEE 802.17/equivalent for sub 50ms ring protection		
15.04	Security	Should support ACL, DHCP (relay and client), IP Source guard, DAI, Private VLAN, Authentication (MAC, Web and IEEE 802.3x), sflow, SSLv2 and SSLv3, TACACS+		
15.05	Management	CLI, GUI, USB / SD Card interface for taking backup of software release files configurations, Digital optical monitoring.		
15.06	Features	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		
15.07	Certifications and Approvals	Should support UL, cUL Should Support and operating Temp of Minum 50 deg C		
15.08	Interoperability	For ease of integration all switches should be from the same OEM		
16	Distribution Switch 28-port 100/1000x SFP fixed power supplies with Rack Mount Kit		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
16.01	Ports	Shall be equipped with minimum 28 x 100/1000x SFP PORTS Uplink ports should backward compatible with 100 Mbps.		
16.02	Layer 2 Features	Should support STP, RSTP, MSTP, IGMP v1/v2/v3 snooping, STP root guard, Voice VLAN, loop protection, MLD snooping (MLDv1 and v2), IEEE 802.3ac, IEEE 802.1v, 16k MAC Table or more, PVST+ compatibility mode		
16.03	Resilience	Should support IEEE 802.17/equivalent for sub 50ms ring protection		

16.04	Security	Should support ACL, DHCP (relay and client), IP Source guard, DAI, Private VLAN, Authentication (MAC, Web and IEEE 802.3x), sflow, SSLv2 and SSLv3, TACACS+, LAG,		
16.05	Management	CLI, GUI, USB / SD Card interface for taking backup of software release files configurations, Digital optical monitoring,		
16.06	Features	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		
16.07	Certifications and Approvals	Should support UL, cUL Should Support and operating Temp of Minum 50 deg C		
16.08	Interoperability	For ease of integration all switches should be of same OEM		
17	1G SFP Module		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
17.01	Fiber Type	SMF		
17.02	Connector Type	LC		
17.03	Maximum Distance	10 km or better		
17.04	WAVELENGTH Tx/Rx (nm)	1310		
17.05	TRANSMIT (dBm) Min / Max	-9 to -3		
17.06	RECEIVE SENSITIVITY (dBm)	-20 or better		
17.07	Power Budget (dB)	11 or better		
17.08	OVERLOAD (dBm)	-3		
17.09	Operating Temp	0°C to 70°C (32°F to 158°F)		
17.10	Operating Humidity	0 to 85% non-condensing		
17.11	Compatibility	SFP Module should be from the same switch Manufacturer to ensure compatibility		
18	Copper 1G SFP Module		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
18.01	Fiber Type	10/100/1000T		
18.02	CONNECTOR TYPE	RJ45		

18.03	MAXIMUM DISTANCE	100m		
18.04	Operating Temp	0°C to 70°C (32°F to 158°F)		
18.05	Operating Humidity	0 to 85% non-condensing		
18.06	Compatibility	SFP Module should be from the same switch Manufacturer to ensure compatibility		
19	Midspan for Indoor Cameras & SIP Mic		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
19.01	Data rate	1000 Mbps or better		
19.02	Power	AC input voltage: 100 to 240 V AC AC frequency: 50–60 Hz Output Supported for upto 48 V DC (max 16 W/port)		
19.03	Connectors	Shielded RJ45, EIA 568A and 568B Power connector : Vendor shall quote for Indian 3 Pin Power cables compatible with Midspan to support 220VAC with 50/60Hz		
19.04	Mounting	DIN rail Mount Clips to be provided		
19.05	Operating conditions	0 °C to 40 °C or better, Humidity max 90% RH (non-condensing)		
19.06	Certifications and Approvals	IEC/EN/UL or better		
19.07	Compatibility	The midspan & SFP Module shall be preferrably from the same OEM as that of the camera manufacturer to ensure compatibility		
20	Midspan for Outdoor Fixed Cameras, Horn Speaker & Heavy Duty PTZ Camera with inbuilt SFP Slot		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
20.01	Data rate	1000 Mbps or better		
20.02	Power	AC input voltage: 100 to 240 V AC AC frequency: 50–60 Hz Output Supported for upto 55 V DC (max 60 W)		

20.03	Connectors	Shielded RJ45, EIA 568A and 568B SFP slot Power connector : Vendor shall quote for Indian 3 Pin Power cables compatible with Midspan to support 220VAC with 50/60Hz		
20.04	Mounting	DIN rail Mount Clips to be provided		
20.05	Operating conditions	0 °C to 45 °C or better, Humidity max 90% RH (non-condensing)		
20.06	Certifications and Approvals	IEC/EN/UL or better		
20.07	Switching capacity	1.25 Gbps or better		
20.08	Compatibility	The midspan & SFP Module shall be preferably from the same OEM as that of the camera manufacturer to ensure compatibility		
21	1G SFP Module for Camera Midspan		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
21.01	Fiber Type	SMF		
21.02	Connector Type	LC duplex		
21.03	Protocol Support	Gigabit Ethernet		
21.04	Switching Capacity	1.25 Gbps or better		
21.05	Transceiver type	Single mode		
21.06	Max. Distance	10 km		
21.07	Wave length Tx/Rx (nm)	1310		
21.08	Operating Temp	0°C to 70°C (32°F to 158°F)		
21.09	Operating Humidity	0 to 85% non-condensing		
21.10	Compatibility	SFP Module shall be preferably from the same OEM as the camera manufacturer to ensure compatibility		
22	Ethernet (LAN) Surge Protector		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
22.01	Casing	Weatherproof metal enclosure or better		
22.02	Connectors	RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE		

22.03	Power	Surge Handling Capability: 10 kV, 5 kA to ground in 8/20 μ s 800 V, 100 A PoE Input Power: 95 W (max) Input Current: 2 A (max)		
22.04	Operating conditions	: 0 deg to 50 deg C		
22.05	Approvals	IEC 60529, NEMA 250 Type 4X, UL 497B, WEEE or better		
22.06	Protection type	IP66 or better		
22.07	Compatibility	Surge Protector shall be preferably from the same OEM as the camera manufacturer to ensure compatibility		
23	Single Pole Surge Protector		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
23.01	Nominal voltage	230V AC +/- 10%		
23.02	Max. continuous operating voltage	270V AC or better		
23.03	Nominal discharge surge current In (8/20 μ s)	20 kA or better		
23.04	Max. discharge surge current I _{max} (8/20 μ s)	40kA or better		
23.05	Temperature range:	0°C to +50°C or better		
23.06	Protection type	IP20 or better		
23.07	Test standards	IEC 61643-11 / EN 61643-11 / UL1449 certified		
24	Indoor Power Distribution Box with MCBs			
	Power Distribution Box		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
24.01	Box type	Factory fabricated sheet metal enclosure with ISI mark		
24.02	Design and Size / Dimension	Distribution box shall be designed & fabricated to accommodate minimum Nos of Single Phase Two pole MCBs as indicated in the BOQ and Bus bar with Neutral link & Earthing strip		
24.03	Body Finish	Body Finish : Powder coat		
24.04	Voltage Rating	Voltage rating : 220 to 270V AC, 50Hz		

24.05	Current Rating	Current rating : 5Amps to 20Amps		
24.06	Inlet & Outlet	Inlet & Outlet : Inlet shall accommodate upto 16Amps (2.5Sqmm) 3 core power cable with grommet and each outlet shall accommodate 5Amps / 6Amps (1.5Sqmm) 3 core power cable with grommet of minimum Nos as indicated in the BOQ		
24.07	No of Inlet & Outlets	No. of Inlet & outlet : inlet - 1 No and outlets Nos as indicated in the BOQ		
	Miniature Circuit Breaker (MCB)		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
24.08	No. of MCBs in each Power distribution Box	10 Nos		
24.09	No. of Pole	Two pole MCBs		
24.10	Rated Capacity	6Amps, 230-240V AC, 50Hz		
24.11	Standard Conformity	IEC 60947-1 / ISI/CE		
25	12U Indoor Wall Mount Rack		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
25.01	Height	12U		
25.02	Width	550mm		
25.03	Depth	600mm		
25.04	Color	Grey		
25.05	Accessories	Cooling fans (4 X 90 CFM), cable management and mounting accessories, AC mains channel, Surge protected power strip rack mountable with 6x 5A/ 15A Dual sockets: 2nos Trays 2 Nos		
25.06	Standard	Conforms to DIN 41494		
25.07	Construction	Welded		
25.08	Front Door	Lockable Toughended Glass Door		
25.09	Basic Frame	Steel		
25.10	Side Panels	Integrated with Top and Bottom		
25.11	Equipment Mounting	DIN Standard Slots		
25.12	Mounting Angle	19" Mounting angle made of formed steel		
25.13	Standard Finish	Powder coated finish meeting ASTM standards		

25.14	Top & Bottom Cover	Welded to Frame, Vented and Cable entry exit cut outs		
25.15	Static Load	40 Kgs or better		
25.16	Certifications	UL Certified		
26	Server Rack 42U		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
26.01	Height	42U		
26.02	Width	800mm		
26.03	Depth	1200mm		
26.04	Color	Grey		
26.05	Accessories	Cooling fans (4 X 90 CFM), cable management and mounting accessories, AC mains channel, Caster wheels with brake Surge protected Vertical Power Distribution Unit with 12 x 5/15 sockets Round Pin, 230 Volts AC, 32 Amp with Plug 2nos & Surge protected Vertical Power Distribution Unit with 12 C13-14 sockets , 230 Volts AC, 32 Amp with Plug 2nos, Trays 2 Nos		
26.06	Standard	Conforms to DIN 41494		
26.07	Construction	Welded		
26.08	Front Door	Lockable Toughended Glass Door		
26.09	Rear Door	Hexagonal Perforated Doors		
26.10	Basic Frame	Steel		
26.11	Side Panels	Vented Side Panels		
26.12	Equipment Mounting	DIN Standard Slots		
26.13	Mounting Angle	19" Mounting angle made of formed steel		
26.14	Standard Finish	Powder coated finish meeting ASTM standards		
26.15	Top & Bottom Cover	Welded to Frame, Vented and Cable entry exit cut outs		
26.16	Static Load	750 Kgs or better		
26.17	Certifications	UL Certified		
27	IP66 OUTDOOR JUNCTION BOX		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
27.01	Junction Box	Outdoor, rated IP 66 or better		
27.02	Material	Enclosure: Sheet steel Door: Sheet steel, all-round foamed-in PU seal		

27.03	Surface finish	Enclosure and door: Dipcoat primed, powder-coated on the outside, textured paint Mounting plate: Zinc-plated		
27.04	Impact Protection	IK08		
27.05	Size	500mm x 210 mm x 500mm (W x D x H)		
27.06	Mount	Pole Mount accessory from Manufacturer of Junction box to be provided		
27.07	Rail	DIN Rail Kit to be provided to mount MCB in the Junction Box		
27.08	Provision for placing Surge arrester, MCB, DB, midspan, Splice Tray and other accessories shall be provided.			
27.09	All cables should be run internally through the pole.			
27.10	Network and Electrical cables should be laid independently through 2 different PVC pipes.			
27.11	There should be provision to lay power and STP cables from bottom to top of the pole through high quality PVC pipe with appropriate pipe holders.			
28	MCB		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
28.01	Poles	DP (Double Pole)		
28.02	Breaking Capacity	10 kA		
28.03	Current Rating	6 Amps		
28.04	Input Voltage	230 / 400 V AC		
28.05	IP Rating	IP20 or better		
28.06	Certification	IEC 60947-2		
28.07	Terminals	35 sq mm terminals		
28.08	Mounting	DIN Rail Mountable		
29	RCCB		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
29.01	Poles	DP (Double Pole)		
29.02	Sensitivity	100 mA		
29.03	Current Rating	25 A		
29.04	Input Voltage	240 V		
29.05	IP Rating	IP20 or better		
29.06	Certification	ISI marked as per IS 12640-1		
29.07	Terminals	35 sq mm terminals		
29.08	Mounting	DIN Rail Mountable		
30	Hot Dip Galvanized Outdoor Pole (6 mtrs)		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	

30.01	Material	Aluminum / MS		
30.02	Height	6 Mtrs		
30.03	Wind loads for design	As per IS875 for Tirunelveli, Tamil Nadu		
30.04	Metal protection treatment for Monopole	HOT DIP Galvanized confirming BS EN ISO 1461 and two or more layers of epoxy coating		
	Accessories	: SS (Stainless Steel) Screws and Nuts for fixing the Arms, Outdoor Junction Box etc.		
30.05	<p>Accessibility option for installation and maintenance of cameras:</p> <p>1. Provision for Outdoor Junction fixing on the Pole to be provided</p> <p>2. Provision for Cable Entry : Suitable holes to be done for cable entry at bottom (input cables) and top(camera) before Galvanized coating</p> <p>3. Gasket/groumet for cable entry holes: Suitable Gasket/groumet should provide to protect of water Seepage</p> <p>4. Outreach Arm: Arms fixed to Poles for mounting the Cameras</p> <p>5. Length of the Arm : Length 1m with mounting brackets for outdoor fixed bullet cameras and Speed dome cameras (according to site condition)</p>			
31	Pole Earthing Kit		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
31.01	Material	Maintenance free rod earth pit		
31.02	Rod Construction	Low carbon copper coated earth rod of 2000 MM electrode having diameter of 17.2 mm with copper coating thickness of 250micron tested as per IEC 62561-2		
31.03	Clamp	universal clamp made of SS to connect rod with flat conductor		
31.04	Earthing Compound	Earth conductivity enhancing compound shall be of 25 kg/pit tested as per IEC 62561-7, TCLP tested The compound should be highly conductive non-corrosive compound around rod electrode to get the desired earth resistance value as low as possible and as per soil condition but not less than 3 meters .		
31.05	Earth Inspection Chamber	The above arrangements shall be provided with Heavy duty earth chamber of 5000kg load		

		bearing capacity to ensure the safety of earthing system		
31.06	Certification	UL Listed & CPRI Certification		
32	Pole Earthing Kit for Terrace		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
32.01	Material	Maintenance free rod earth pit		
32.02	Rod Construction	Low carbon copper coated earth rod of 2000 MM electrode having diameter of 17.2 mm with copper coating thickness of 250micron tested as per IEC 62561-2		
32.03	Clamp	universal clamp made of SS to connect rod with flat conductor		
32.04	Earthing Compound	Earth conductivity enhancing compound shall be of 25 kg/pit tested as per IEC 62561-7, TCLP tested The compound should be highly conductive non-corrosive compound around rod electrode to get the desired earth resistance value as low as possible and as per soil condition but not less than 3 meters .		
32.05	Earth Inspection Chamber	The above arrangements shall be provided with Heavy duty earth chamber of 5000kg load bearing capacity to ensure the safety of earthing system		
32.06	Certification	UL Listed & CPRI Certification		
33	Cat-6 4 pair UTP cable (rolls of 305 Meters)		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
33.01	Jacket Material	Low Smoke Zero Halogen (LSZH)		
33.02	Conductor Material	Bare copper		
33.03	Insulation Material	Polyolefin		
33.04	Cable Length	305 m		
33.05	Diameter Over Jacket, nominal	5.842 mm		
33.06	Jacket Thickness	0.559 mm		
33.07	ANSI/TIA Category	6		
33.08	Characteristic Impedance	100 ohm		
33.09	dc Resistance Unbalance, maximum	5%		
33.10	dc Resistance, maximum	7.61 ohms/100 m		

33.11	Delay Skew, maximum	45 ns		
33.12	Mutual Capacitance	5.6 nF/100 m @ 1 kHz		
33.13	Nominal Velocity of Propagation (NVP)	68%		
33.14	Operating Frequency, max	400 MHz		
33.15	Operating Voltage, maximum	80 V		
33.16	Transmission Standards	ANSI/TIA-568-C.2 CENELEC EN 50288-6-1 ISO/IEC 11801 Class E		
33.17	Safety Voltage Rating	300 V		
33.18	Dielectric Strength, minimum	1500 Vac 2500 Vdc		
33.19	Smoke Test Method	IEC 61034-2		
33.20	Acid Gas Test Method	IEC 60754-2		
33.21	Flame Test Method	IEC 60332-3-22		
33.22	Operating Temperature	-20 °C to +60 °C		
33.23	Cable Type	U/UTP (unshielded)		
33.24	Pairs, quantity	4		
33.25	Conductor Gauge, singles	23 AWG		
33.26	Pulling Tension, maximum	11 kg		
33.27	Regulatory Compliance/Certifications	RoHS 2011/65/EU ISO 9001:2015		
34	6 Core OFC (6 core SM outdoor armoured direct burial)		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
34.01	Type of cable	6F UNITUBE ARMoured OPTICAL FIBER CABLE		
34.02	Standards	EN 50173 ISO/IEC 11801 ANSI/TIA-568-C.3 Telcordia GR-409		
34.03	Fiber	SINGLE MODE FIBER		
34.04	Fiber Size	9/125/250 (OS2)		
34.05	No. of Fibers / Loose Tubes	6F		
34.06	Fiber Identification	Blue, Orange, Green, Brown, Grey & White		
34.07	OPTICAL PARAMETERS - SM			
34.08	Attenuation @ 1310nm dB/Km	< 0.34 (MAX)		
34.09	Attenuation @ 1550nm dB/Km	< 0.22 (MAX)		
34.10	Attenuation @ 1380 - 1386nm	< 0.31 (MAX)		
34.11	Point of Discontinuity dB	< 0.1		

34.12	Cut-off wavelength	< 1260		
34.13	Chromatic Dispersion@ 1310 nm (ps/nm x km)	< 3.5		
34.14	Core / Mode-Field (um)	9		
34.15	Cladding (um)	125		
34.16	Coating (um)	250		
34.17	Material	PBTP		
34.18	Diameter	3 +/- 0.2		
34.19	Loose Tube Gel	WATER BLOCKING GEL		
34.20	Jacketing Material	HDPE		
34.21	Armouring	CORRUGATED STEEL TAPE		
34.22	MS Tape Thickness	> 0.15		
34.23	Minimum Installation bend Radius (mm)	200		
34.24	Minimum Service Bend Radius(mm)	160		
34.25	Tensile Strength (N)	1250		
34.26	Maximum Crush Resistance(N)	3000		
34.27	Operating Temp	-20 to 70 Deg C		
35	Power Cable 3 Core 1.5 Sqmm (Armored)		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
35.01	Type	Armored outdoor application		
35.02	Number of Cores	3 Cores		
35.03	Nominal Area	1.5 sqmm		
35.04	Current Carrying Capacity	14A or better		
35.05	Conductor Material	Copper		
35.06	Armored type	Corrugated/Galvanized Steel Braid Armor		
35.07	Shielded	Shield drain wire		
35.08	Insulation Material	PVC with 0.6mm thickness or better		
35.09	DC resistance	Maximum 13.3 ohm/km or better		
35.10	Voltage rating	shall have rating up to 1100Volts		
35.11	Standards	Cable shall be IS 694 and ISI/ISO standard Mark		
36	Power Cable 3 Core 1.5 Sqmm (UnArmored)		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
36.01	Type	Indoor Application		
36.02	Number of Cores	3 Cores		

36.03	Nominal Area	1.5 sqmm		
36.04	Current Carrying Capacity	14A or better		
36.05	Conductor Material	Copper		
36.06	Insulation Material	PVC with 0.6mm thickness or better		
36.07	DC resistance	Maximum 13.3 ohm/km or better		
36.08	Voltage rating	shall have rating up to 1100Volts		
36.09	Standards	Cable shall be IS 694 and ISI/ISO standard Mark		
37	Power Cable 3 Core 2.5 Sqmm (UnArmored)		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
37.01	Type	Indoor Application		
37.02	Number of Cores	3 Cores		
37.03	Nominal Area	2.5 sqmm		
37.04	Current Carrying Capacity	18A or better		
37.05	Conductor Material	Copper		
37.06	Insulation Material	PVC with 0.7mm thickness or better		
37.07	DC resistance	Maximum 7.98 ohm/km or better		
37.08	Voltage rating	shall have rating up to 1100Volts		
37.09	Standards	Cable shall be IS 694 and ISI/ISO standard Mark		
38	Power Cable 4 Core 4 Sqmm (Armored)		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
38.01	Type	Armored outdoor application		
38.02	Number of Cores	4 Cores		
38.03	Nominal Area	4 sqmm		
38.04	Current Carrying Capacity	30A or better		
38.05	Conductor Material	Copper		
38.06	Armored type	Corrugated/Galvanized Steel Braid Armor		
38.07	Shielded	Shield drain wire		
38.08	Insulation Material	PVC with 1mm thickness or better		
38.09	DC resistance	Maximum 4.7 ohm/km or better		
38.10	Voltage rating	shall have rating up to 1100Volts		

38.11	Standards	Cable shall be IS 694 and ISI/ISO standard Mark		
39	HDPE Pipe		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
39.01	Type	HDPE		
39.02	Size	50mm diameter or better		
39.03	Material Grade	2.5 to 3mm		
39.04	Purpose / Application	Routing the Outdoor Fiber cables, power cables, CAT6		
39.05	Standard	ISI mark standard		
40	Cat 6 STP Patch Chord Grey Color		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
40.01	Length	5 Meters		
40.02	Conductor Material	Stranded Copper		
40.03	Conductor Diameter	26 AWG		
40.04	Insulation Material	HDPE		
40.05	Jacket Type	LSZH Sheath		
40.06	Plug	50μ'' Gold Plated Contact STP Jacks		
40.07	Standard	ANSI EIA/TIA 568-C.2		
40.08	Color	Grey		
41	Cat 6 STP Patch Chord Grey Color		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
41.01	Length	2 Meters		
41.02	Conductor Material	Stranded Copper		
41.03	Conductor Diameter	26 AWG		
41.04	Insulation Material	HDPE		
41.05	Jacket Type	LSZH Sheath		
41.06	Plug	50μ'' Gold Plated Contact STP Jacks		
41.07	Standard	ANSI EIA/TIA 568-C.2		
42	Cat 6 SL Series Patch cord		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
42.01	Cord Length,	5 Meters		
42.02	ANSI/TIA Category	6		
42.03	Environmental Space	Low Smoke Zero Halogen (LSZH)		
42.04	Operating Temperature	-20 °C to +60 °C		
42.05	Relative Humidity	Up to 93%, non-condensing		

42.06	Safety Standard	UL 1863		
42.07	Cable Type	U/UTP (unshielded)		
42.08	Interface, connector A	RJ45 plug		
42.09	Interface, connector B	RJ45 plug		
42.10	Jacket Color	Yellow		
42.11	Conductor Type	Stranded		
42.12	Conductor Gauge, stranded	24 AWG		
42.13	Plug Insertion Life, minimum	750 times		
42.14	Wiring	T568B		
42.15	Regulatory Compliance/Certifications	RoHS 2011/65/EU		
43	Cat 6 SL Series Patch cord		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
43.01	Cord Length,	2 Meters		
43.02	ANSI/TIA Category	6		
43.03	Environmental Space	Low Smoke Zero Halogen (LSZH)		
43.04	Operating Temperature	-20 °C to +60 °C		
43.05	Relative Humidity	Up to 93%, non-condensing		
43.06	Safety Standard	UL 1863		
43.07	Cable Type	U/UTP (unshielded)		
43.08	Interface, connector A	RJ45 plug		
43.09	Interface, connector B	RJ45 plug		
43.10	Jacket Color	Blue		
43.11	Conductor Type	Stranded		
43.12	Conductor Gauge, stranded	24 AWG		
43.13	Plug Insertion Life, minimum	750 times		
43.14	Wiring	T568B		
43.15	Regulatory Compliance/Certifications	RoHS 2011/65/EU		
44	LC-LC Singlemode Duplex Patch Cord		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
44.01	Fiber Type	OS2		
44.02	Total Fibers, quantity	2		
44.03	Jacket Color	Yellow		
44.04	Fiber Mode	Singlemode		
44.05	Cord Length	2.00 m		
44.06	Diameter Over Jacket	1.80 mm		

44.07	Environmental Space	Low Smoke Zero Halogen (LSZH)		
44.08	Interface, connector A	LC/UPC		
44.09	Interface, connector B	LC/UPC		
44.10	Polarity	Pairs, flipped		
44.11	Insertion Loss, maximum	0.30 dB		
44.12	Return Loss, minimum	45.0 dB		
44.13	Regulatory Compliance/Certifications	RoHS 2011/65/EU		
45	LC-LC Singlemode Duplex Patch Cord		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
45.01	Fiber Type	OS2		
45.02	Total Fibers, quantity	2		
45.03	Jacket Color	Yellow		
45.04	Fiber Mode	Singlemode		
45.05	Cord Length	3.00 m		
45.06	Diameter Over Jacket	1.80 mm		
45.07	Environmental Space	Low Smoke Zero Halogen (LSZH)		
45.08	Interface, connector A	LC/UPC		
45.09	Interface, connector B	LC/UPC		
45.10	Polarity	Pairs, flipped		
45.11	Insertion Loss, maximum	0.30 dB		
45.12	Return Loss, minimum	45.0 dB		
45.13	Regulatory Compliance/Certifications	RoHS 2011/65/EU		
46	6 Port LIU loaded with SM Pigtail		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
46.01	Fiber Mode	Singlemode		
46.02	Fiber Type	OS2		
46.03	Finish	Powder coated		
46.04	Material Type	Aluminum with Power Coating		
46.05	Functionality	Patching Splicing		
46.06	Interface, front	LC Duplex		
46.07	Splice Trays Included, quantity	1		
46.08	Splicing Type	Heat shrink, single fiber fusion		
46.09	Form Factor	Compact DIN Rail Mountable		
46.10	Total Ports, quantity	6 ports		
46.11	Regulatory Compliance/Certifications	RoHS Compliant		

47	24Port LIU loaded with SM Pigtail		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
47.01	Fiber Mode	Singlemode		
47.02	Fiber Type	OS2		
47.03	Finish	Powder coated		
47.04	Material Type	Steel		
47.05	Shelf Movement	Sliding		
47.06	Body Style	Symmetrical		
47.07	Functionality	Patching Splicing		
47.08	Interface, front	LC		
47.09	Splice Trays Included, quantity	1		
47.10	Splicing Type	Heat shrink, single fiber fusion		
47.11	Form Factor	Rack Mountable 1U		
47.12	Total Ports, quantity	24 Ports		
47.13	Insertion Loss, maximum	0.30 dB		
47.14	Return Loss, minimum	45.0 dB		
47.15	Regulatory Compliance/Certifications	RoHS 2011/65/EU		
48	12 Port LIU loaded with SM Pigtail		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
48.01	Fiber Mode	Singlemode		
48.02	Fiber Type	OS2		
48.03	Finish	Powder coated		
48.04	Material Type	Steel		
48.05	Shelf Movement	Sliding		
48.06	Body Style	Symmetrical		
48.07	Functionality	Patching Splicing		
48.08	Interface, front	LC		
48.09	Splice Trays Included, quantity	1		
48.10	Splicing Type	Heat shrink, single fiber fusion		
48.11	Form Factor	Rack Mountable 1U		
48.12	Total Ports, quantity	12 Ports		
48.13	Insertion Loss, maximum	0.30 dB		
48.14	Return Loss, minimum	45.0 dB		
48.15	Regulatory Compliance/Certifications	RoHS 2011/65/EU		
49	Cat 6 24-port loaded, Modular Jack Panel, 1U		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	

49.01	ANSI/TIA Category	6		
49.02	Flammability Rating	UL 94 V-0		
49.03	Operating Temperature	-10 °C to +60 °C		
49.04	Safety Standard	cUL RCM UL		
49.05	Total Ports, quantity	24 Port Fully Loaded		
49.06	Cable Type	Unshielded		
49.07	Panel Style	Straight		
49.08	Material Type	High-impact, flame retardant, thermoplastic Powder-coated steel		
49.09	Regulatory Compliance/Certifications	RoHS 2011/65/EU ISO 9001:2015		
50	PVC Channel		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
50.01	Type	PVC Channel		
50.02	Size	18mm width		
50.03	Purpose / Application	Routing the Indoor CAT-6 LAN cables and power cables		
50.04	Standards	ISI mark standard		
51	PVC Pipes		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
51.01	Type	PVC Pipes		
51.02	Size	25mm Diameter		
51.03	Purpose / Application	Routing the Indoor CAT-6 LAN cables and power cables		
51.04	Standards	ISI mark standard		
52	Cable Router Markers		Specify the Make, Model, Part number & URL of the offered product for all items including accessories	
52.01	Type	Rectangle / Triangle shape with Mounting rod		
52.02	Size	Suitable for Writing the cables details		
52.03	Purpose / Application	Installing along the outdoor cable routes above the cable trenches		
53	Fiber cable terminations			
53.01	FO cable termination shall be planned keeping the redundancy in the network			
53.02	12-core Multimode cable to be terminated in racks/ Junction boxes			
53.03	After each termination, FO performance shall meet industry standard and report of the same shall be submitted.			

53.04	Provision shall be made to keep armored cable loops at possible locations as per structure cable standards.		
54	Labour Works		
54.01	Labour components generally required for laying, fixing and termination activities related with cables and racks shall be included as per the BOQ. The quantity mentioned in the tender are tentative figures. For the items which are mentioned as "actuals / variables" in the BOQ, Payment will be made as per actuals based on the site inspection.		
54.02	Cable laying activities with in the Campus should be as instructed by the Site incharge / Department representantive.		
54.03	Cable route markers shall be supplied and fixed with concrete by the vendor through the network cable path and should be labeled with colour markings which are clearly visible, distinguishable and long durable irrespective of climate conditions.		
55	Commissioning and Documentation:		
55.01	After installation, the supplier shall submit a report with full details of the setup with facility layout, camera locations, system architecture, network cable routing diagram and operational and maintenance document of the overall system.		
55.02	Vendor shall provide three sets of the Operation & Configuration manuals.		
55.03	Vendor shall provide authorization (OEM) letters/ certificates for supply and service from manufacturer for hardware & software items including IP Based Audio System, Network Switches, Cameras, Servers, Software and Workstations etc .		
55.04	Vendor shall provide OEM certificate/letter for service support during standard warranty period. In case, any of the manufacturers provides comprehensive support for more than three years, for any item, the same shall be provided to the Department.		
55.05	Installation of cameras, network, recording and commissioning shall be done as per the guidance of Department Engineer at ISRO Antenna station, Palayamkottai in accordance with the detailed layout of the proposed setup enclosed in this indent. In case of any defects arise during installation due to improper installation practices, by vendors/ their representatives, the same have to be replaced / rectified at free of cost. All accessories required to complete the installation is the responsibility of the vendor.		
55.06	Training: Training has to be provided for user about the system configuration & operations. Vendor shall provide the operation manual to all the participants.		
55.07	Failure conditions of all Active and Passive elements to be demonstrated before acceptance of the system.		
55.08	Diagram of the cable routing to be provided after the installation.		