

Pre-bid reply against Tender Enquiry no. 021//SAL/MMD-MAINT/2023-24 dated 17/02/2024 for SUPPLY, INSTALLATION & COMMISSIONING OF IP CCTV SYSTEM AT BRBNMPL, SALBONI

Bidder name: M/s Apollo Micro Systems Ltd.

A. IP Cameras

a. IP Based Outdoor Varifocal IR Bullet Cameras

Sl. No.	Parameter	Specifications	Page No.	Compliance (YES/NO) with remarks	BRB Comment
2	Electronic Shutter	1/10 to 1 / 10000 s or better	95	Changes Required: Request you to make it as 1/8 to 1 / 10000 s or better Justification : This seems to be specific to particular OEM. Request you to please amend as per the above suggestion as generic so that other global reputed OEM can also participate for the fair competition.	No change. As per tender
5	BLC and HLC	ON/OFF	95	Changes Required: Request you to make it BLC/HLC/Multiple Exposure Method Justification : This seems to be specific to particular OEM with old technology. Request you to please amend as per the above suggestion as generic so that other global reputed OEM can also participate for the fair competition with latest technology.	amended as "BLC and HLC or equivalent technology"
11	Lens	8-50 mm varifocal lens or better	95	Changes Required: Request you to make it as 8-47 mm Varifocal Lens, P-Iris Lens or better Justification : Request you to amend this as +- 5mm with motorized Varifocal and P-Iris or as per OEM recommendation for long range application as different OEM has different focal length so please do the necessary changes.	amended as "8-50 mm motorized varifocal lens or better"
16	Security	HTTPS encryption, 802.1x • User account and password protection • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. • Closed API authentication etc.	96	Changes Required : Request you to please make this as HTTPS encryption, 802.1x • User account and password protection • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. or Closed API authentication etc. or ISASecure ISA/IEC 62443-4-1 certified secure development Secure boot; Signed and encrypted firmware ; Justification : Request you to make the above changes to achieve cyber security with latest security features.	No change. As per tender

b. IP Based IR Indoor HD Bullet Cameras

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2	Electronic Shutter	1/10 to 1 / 10000 s or better	96	Changes Required: Request you to make it as 1/8 to 1 / 10000 s or better Justification : This seems to be specific to particular OEM. Request you to please amend as per the above suggestion as generic so that other global reputed OEM can also participate for the fair competition.	No change. As per tender
5	BLC and HLC	ON/OFF	96	Changes Required: Request you to make it BLC/HLC/Multiple Exposure Method. Justification : This seems to be specific to particular OEM with old technology. Request you to please amend as per the above suggestion as generic so that other global reputed OEM can also participate for the fair competition with latest technology.	To be amended as "BLC and HLC or equivalent technology"
15	Security	- User account and password protection - User access log - To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. - Network access control (IEEE 802.1x) - IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. - Closed API authentication etc.	97	Changes Required : Request you to please make this as HTTPS encryption, 802.1x - User account and password protection - User access log - To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. - Network access control (IEEE 802.1x) - IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. or Closed API authentication etc. or Secure Boot, Enhanced Security Mode (forces complex passwords, HTTPS and disables discovery); TLS 1.2 (256 bit cipher minimum); Justification : Request you to make the above changes to achieve cyber security with latest security features.	No change. As per tender
16. C	IP Rating & Vandelle Protection	IP55, IK10, Clear sight coating	98	Changes Required : Request you to please make this as IP67 ,IK10 Justification : This rating IP67 provides: Complete protection against ingress of dust and airborne particles. Protection against water and liquids, up to and including immersion in up to one meter of water for up to 30 minutes without affecting camera use.	To be amended as "IP55, IK10, camera and housing should be of same make"
IP Network Megapixel PTZ Full HD Camera for Indoor/Outdoor application					
8	Back Light Compensation	BLC & HLC & WDR	98	Changes Required: Request you to make it BLC/HLC/Multiple Exposure Method & WDR Justification : This seems to be specific to particular OEM with old technology. Request you to please amend as per the above suggestion as generic so that other global reputed OEM can also participate for the fair competition with latest technology.	To be amended as "BLC and HLC and WDR or equivalent technology"

24	Security	HTTPS encryption, 802.1x • User account and password protection • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. or Closed API authentication etc. • Closed API authentication etc.	99	Changes Required : Request you to please make this as HTTPS encryption, 802.1x • User account and password protection • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. or Closed API authentication etc. • or ISA Secure ISA/IEC 62443-4-1 certified secure development Secure boot; Signed and encrypted firmware; TLS, HTTPS (HTTP over TLS), Justification : Reuest you to make the above chnages to acheive cyber security with latest security features.	No change. As per tender
32	Power Source	POE 30W, 230VAC, 50 Hz, Suitable adaptor in bidder scope if camera voltage other than 230 V ,	99	Changes Required: Request you to make it IEEE 802.3bt PoE++ Type 4 Class 7 24VAC 48VDC PoE/24VAC: 51.6W, 48VDC: 48.5W or as per requiremnt Justification : This seems to be specific to particular OEM . Request you to please ammend as per the above suggestion as generic so that other global reputed OEM can also participate for the fair competetion with latest tecnology.	amended as "POE based, as per system design or manufacturer's standard"

2. Video Management System, Server & Storage

Page No	Section	Clause No.	Bid Condition	Bidder's Queries
88	9. The BOQ enumerated below is indicative but not exhaustive. The Bidder is requested to submit the detailed and exhaustive BOQ along with the configuration proposed for complete set up of IP CCTV System to meet the requirement	7	Supply, Installation and Commissioning of Camera Server / Recording server for parallel recording of IP cameras with 07 days back-up (19" rack mountable, with required OS, anti-virus software, all required licenses and accessories). - Set - 3	Do We need to Consider Paralle Recording for all cameras or Failover recording for 7 days with N:1 configuration. Please specify. Refer clause 3.2 -(C) at Page no. 79
75	c)The main component Make & model details are as mentioned below.	S/N: 3, 4 & 5	VMS Server Recording Server Failover Recording server	New system to be designed for 750 cameras.

NAS Storage						
Page No.	FEATURE	PRODUCT SPECIFICATION	COMPLIANCE (YES/NO)	Justification		
108	High Availability and Storage Processors	The Proposed Solution should be a Hybrid Storage System with concurrent support for NAS, iSCSI and Fiber Channel protocols configured with dual redundant Active-Active Controllers * Each Controller must have minimum Intel E5- 2600 minimum 8 Core Processors per controller or equivalent processor and 64GB Memory. * The Proposed Solution should be based on real time optimized operating system. (It should not be a general-purpose OS).	The offered storage operating system should not be general purpose OS and it support File,Block & Object(S3) protocol	Storage should be capable to store all type of Data, and currently its Standard protocol in all storage	amended as: "The Proposed Solution should be a Scale-Out NAS System with support for NAS, NFS V3 & V4.1, SMB 3, and S3 API natively protocols configured with dual redundant Active-Active Controllers * Each Controller must have minimum 64 physical Core Processors and total 2048 GB physical Memory * The Proposed Solution should be based on real time optimized operating system. (It should not be a general-purpose OS)."	
108	Memory and HDD Support	The controllers should have minimum 128GB memory spread across dual controllers. * The Proposed Solution should be scalable to more than 300 Drives in the same Storage Array / group of arrays without upgrading the controllers. * The Storage System should support the latest SSD, SAS and NLSAS Drives	Memory should be minimum 256GB and storage should be in scalout architecture.	Keeping in mind for future expansion and performance it should be minimum requirement.	amended as: "The controllers should have minimum 2048 GB physical memory spread across dual controllers. * The Proposed Solution should be scalable to more than 300 Drives in the same Storage Array / group of arrays without upgrading the controllers. * The Storage System should support the latest SSD, SAS and NLSAS Drives"	

Bidder Name: M/s RAMANT IT

SI No.	Tender Page No	Points	RAMAN IT Pvt Ltd Request & Clarifications	BRB Comment
1	125	(iii) Credentials of the partners of joint ventures cannot (repeat cannot) be clubbed for the purpose of compliance of PQC in supply of Goods/Equipment, and each partner must comply with all the PQC criteria independently.	Since Joint Venture is to allow multiple Bidders to meet PQC and competitive bids are allowed. We request you to relax this point and allow minimum two Bidders PO's are allowed to meet PQC.	Joint Venture will not be allowed. Pl. ref 4(1) if NIT
2	122	*Similar item implies Supply and successful installation and integration of IP CCTV camera at a single location with L2 and L3 switches, recording Servers and Centralised Storage of IP CCTV system in any security/Banking establishment.	We request to consider allidde works connected with IP CCTV Cameras work.	As per tender
3	122	The Net Worth of the Bidder Firm, a) should not be Negative as on 31/03/2023, and also b) should not have eroded by more than 30% year-on-year in the last three financial years ending 31/03/2023	we request to remove this point.	No Change
4	76	P. i.NAS storage of 2000 TB usable space after Raid 6 configuration, and required controllers and licenses	Kindly clarify. As the Surveillance environment is recommended with SAN based Storage with Active Controller. But your tender requiremnt is on NAS based storage. Which has technology limitation. Do we need to consider SAN or NAS!	As per tender
5	88	9. Supply, installation and Commissioning of L3 - Commercial Grade switch with minimum 12 x 1/10 G SFP+ ports and 36x 1/10G Base-T ports, 4x 40G QSFP+ ports with all accessories including fully Loaded (LIU, Patch panels, SFU Modules, Patch cords etc.)	Kindly clarify, the specification is missing for these mentioned item but it is mentioned in the BOQ part. Kindly confirm, do we need to consider while bidding.	BOQ point no. 09 amended as "Supply, installation and Commissioning of L3 - Commercial Grade switch with 48 x10/100/1000-Base-X ports 4 x *10G SFP+ ports. 10G SFP+ ports should be loaded with 10Gbps SFP+ Single Mode Modules based on design requirement Should be equipped with dual internal redundant power supplies for higher availability along with all accessories including fully Loaded (LIU, Patch panels, SFU Modules, Patch cords etc.)"
6	89	13. Supply and Installation of Network Monitoring, Management software and hardware with requisite Licenses.		Refer page no. 134

7	64	Payment Terms: a) 80% of the value of Material Supplied will be released upon delivery of material at site, on submission of BG of equal amount of invoice. BG shall be valid till completion of work and issuance of FAC plus claim period of 60 days. b) Balance 20% of the above Material Supplied and 100% of Installation and commissioning charges will be released upon fulfillment of all contractual obligations and issuance of work completion certificate / FAC for total IP CCTV System.	We request you to release 80% of the value of Material Supplied will be released upon delivery of material at site along with release of 100% GST of the invoice value. Since we have to pay 100% GST on 20th Day on Calendar on invoiced value.	No Change
8	72	3. Required Delivery Schedule: The complete IP based CCTV system shall be Supplied, Installed and Tested within 300 (Three Hundred) Days (including weekly off and holidays) from the date of issue of LOI/NOA. However, Senior General Manager, BRBNMPL, Salboni reserves the right to cancel/discontinue this order at any point of time, without assigning any reason thereof. The quantity mentioned above is only indicative but not exhaustive; quantity may vary as per actual requirement.	As the project Supply, Installation & Testing with integration needs more time, hence we request you to consider 360 Days for the same.	As per tender
9	69	f) shifting of existing 122 IP cameras consisting of PTZ and Fixed, outdoor and indoor cameras which includes Face Recognition cameras 2 nos., Video Analytics Cameras 57 nos. and ANPR without recording cameras of Six (06) numbers into new IP CCTV system with applicable software and hardware licenses. The existing network of OFC and switches need to be integrated with supplied system	Kindly clarify, apart from shifting the existing Video Analytics, do we need to provide additional Video Analytics! If yes kindly confirm the Quantity.	Additional video analytics is not required.
10	78	aa) System shall have provision to include Video Analytics feature, if any, in future.	Kindly clarify. Video analytics features on Server or Edge based!	amended as "VMS shall have support for both server and edge based analytics"
11	55	27.4 Escrow Arrangement: (i) The Supplier shall deposit with a third-party escrow agent mutually agreed to by the parties, a copy of Software and its source code and object code for safe keeping with instructions for it to be released forthwith to BRBNMPL	Since multiple OEM's are involved in this project and most of the OEM's will not agree to share the source code. We being System Integrators cant sign the agreement on behalf of multiple OEM's. Hence we request you to remove this point.	As per tender

S. No	Section No	Page No	Point No	Content of RFP requiring Clarification(s)	Points of clarification	BRB Comment
1	a. IP Based Outdoor Varifocal IR Bullet Cameras	95 of 217	12 c	Video Streams : Individually configurable 03 video streams H.264/H.265	Request to change parameter to " Individually configurable 03 video streams. Two stream H.264/H.265 and third stream M-JPEG	amended as "Individually configurable 03 video streams H.264/H.265 at Full HD 1920X1080"
2	b. IP Based IR Indoor HD Bullet Cameras	97 of 217	12 c	Video Streams: Individually configurable 03 video streams H.264/H.265	Request to change parameter to " Individually configurable 03 video streams. Two stream H.264/H.265 and third stream M-JPEG	amended as "Individually configurable 03 video streams H.264/H.265 at Full HD 1920X1080"
3	c. IP Network Megapixel PTZ Full HD Camera for Indoor/Outdoor application	98 of 217	4	Lens: 4.5 to 129 mm Varifocal lens or better	Every OEM has a unique zoom lens module. We suggest to include other options 6-180mm or equivalent to achieve 30x optical zoom functionality	amended as: "Lens: 4.5 to 129 mm motorized Varifocal lens or better"
4	c. IP Network Megapixel PTZ Full HD Camera for Indoor/Outdoor application	98 of 217	5	Angle of view: minimum range 2.4-60(H), 1.8-36(V)	viewing angle depends on Lens focal length and its vary for all OEM. Request to accept OEM mention data.	No change. As per tender
5	c. IP Network Megapixel PTZ Full HD Camera for Indoor/Outdoor application	98 of 217	17	Tilt Travel: -10 to 90 degree, Auto flip 180 degree	(-10) degree above horizon will show the sky, which is not required for surveillance. Request to change Tilt range 0° to 90° (auto flip). As this parameter specific to certain OEM	No change. As per tender
6	a. IP Based Outdoor Varifocal IR Bullet Cameras	95 OF 217	Electronic Shutter	1/10 to 1 / 10000 s or better	Changes Required: Request you to make it as 1/8 to 1 / 10000 s or better Justification : This seems to be specific to particular OEM. Request you to please amend as per the above suggestion as generic so that other global reputed OEM can also participate for the fair competition.	No change. As per tender
7	a. IP Based Outdoor Varifocal IR Bullet Cameras	95 OF 217	BLC and HLC	ON/OFF	Changes Required: Request you to make it BLC/HLC/Multiple Exposure Method Justification : This seems to be specific to particular OEM with old technology. Request you to please amend as per the above suggestion as generic so that other global reputed OEM can also participate for the fair competition with latest technology.	amended as "BLC and HLC or equivalent technology"
8	a. IP Based Outdoor Varifocal IR Bullet Cameras	95 OF 217	Lens	8-50 mm varifocal lens or better	Changes Required: Request you to make it as 8-47 mm Varifocal Lens, P-Iris Lens or better Justification : Request you to amend this as +- 5mm with motorized Varifocal and P-Iris or as per OEM recommendation for long range application as different OEM has different focal length so please do the necessary changes.	amended as "8-50 mm motorized varifocal lens or better"

S. No	Section No	Page No	Point No	Content of RFP requiring Clarification(s)	Points of clarification	BBB Comment
9	a. IP Based Outdoor Varifocal IR Bullet Cameras	96 OF 217	Security	HTTPS encryption, 802.1x • User account and password protection • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. • Closed API authentication etc.	Changes Required : Request you to please make this as HTTPS encryption, 802.1x • User account and password protection • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. or Closed API authentication etc. or ISASecure ISA/IEC 62443-4-1 certified secure development Secure boot; Signed and encrypted firmware ; Justification : Reuest you to make the above chnages to acheive cyber security with latest security features.	No change. As per tender
10	b. IP Based IR Indoor HD Bullet Cameras	96 OF 217	Electronic Shutter	1/10 to 1 / 10000 s or better	Changes Required: Request you to make it as 1/8 to 1 / 10000 s or better Justification : This seems to be specific to particular OEM. Request you to please ammend as per the above suggestion as generic so that other global reputed OEM can also participate for the fair competition.	No change. As per tender
11	b. IP Based IR Indoor HD Bullet Cameras	96 OF 217	BLC and HLC	ON/OFF	Changes Required: Request you to make it BLC/HLC/Multiple Exposure Method. Justification : This seems to be specific to particular OEM with old technology. Request you to please ammend as per the above suggestion as generic so that other global reputed OEM can also participate for the fair competition with latest technology.	amended as "BLC and HLC or equivalent technology"
12	b. IP Based IR Indoor HD Bullet Cameras	97 OF 217	Security	• User account and password protection • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. • Closed API authentication etc.	Changes Required : Request you to please make this as HTTPS encryption, 802.1x • User account and password protection • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. or Closed API authentication etc. orSecure Boot, Enhanced Security Mode (forces complex passwords, HTTPS and disables discovery); TLS 1.2 (256 bit cipher minimum); Justification : Reuest you to make the above chnages to acheive cyber security with latest security features.	No change. As per tender

S.No	Section No	Page No	Point No	Content of RFP requiring Clarification(s)	Points of clarification Changes Required : Request you to please make this as	BRB Comment
13	b. IP Based IR Indoor HD Bullet Cameras	98 OF 217	IP rating	IP55, IK10, Clear sight coating	Justification : This rating IP67 provides: Complete protection against ingress of dust and airborne particles. Protection against water and liquids, up to and including immersion in up to one meter of water for up to 30 minutes without affecting camera use.	amended as "IP55, IK10, camera and housing should be of same make"
14	c. IP Network Megapixel PTZ Full HD Camera for Indoor/Outdoor application	98 OF 217	Back Light Compensation	BLC & HLC & WDR	Changes Required: Request you to make it BLC/HLC/Multiple Exposure Method & WDR Justification : This seems to be specific to particular OEM with old technology. Request you to please amend as per the above suggestion as generic so that other global reputed OEM can also participate for the fair competition with latest technology.	amended as "BLC and HLC and WDR or equivalent technology"
15	c. IP Network Megapixel PTZ Full HD Camera for Indoor/Outdoor application	99 OF 217	Security	HTTPS encryption, 802.1x • User account and password protection • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses, or Closed API authentication etc. or ISA Secure ISA/IEC 62443-4-1 certified secure development Secure bootSigned and encrypted firmware, TLS, HTTPS (HTTP over TLS).	Changes Required : Request you to please make this as HTTPS encryption, 802.1x • User account and password protection • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. • Closed API authentication etc.	No change. As per tender
16	c. IP Network Megapixel PTZ Full HD Camera for Indoor/Outdoor application	99 OF 217	Power Source	POE 30W, 230VAC, 50 Hz, Suitable adaptor in bidder's scope if camera voltage other than 230 V,	Changes Required: Request you to make it IEEE 802.3bt PoE++ Type 4 Class 7 24VAC 48VDC PoE/24VAC: 51.6W, 48VDC: 48.5W or as per requirement Justification : This seems to be specific to particular OEM. Request you to please amend as per the above suggestion as generic so that other global reputed OEM can also participate for the fair competition with latest technology.	amended as "POE based, as per system design or manufacturer's standard"
17	a. Video wall	114 of 217	7 & 8	Brightness : 700 nits or more & Bezel width : 1.15(u/l) , 0.55mm(R/B) , 1.8 mm bezewidth or lesser	For 46 inch monitor, the brightness will be max 500 nits only and Bezel Width (mm) - 2.25mm(U/L), 1.25mm(R/B), kindly accept the same for 46 inch monitor.	No change. As per tender
18	VMS / Backup Application Server	106 OF 217	b	VMS / Backup Application Server	We understand that server will be N+1, please confirm	Yes. As per tender. Refer Clause no. 2(a)(5) :Fault Tolerant Architecture and Redundancy at Page no. 101
19	Video Recording Server / Camera Server	107 OF 217	c	Video Recording Server / Camera Server	We understand that server will be N+1, please confirm	Yes. As per tender. Refer Clause no. 3.2- (c) at Page no. 79

S. No	Section No	Page No	Point No	Content of RFP requiring Clarification(s)	Points of clarification	BRB Comment
20	Submission mode	6 OF 217	-	Unless otherwise specified, originals (or self-attested copies of originals - as specified therein) of specified scanned uploaded documents except Price Schedule must be physically submitted sealed in double cover before the bid submission deadline at mentioned venue. Failure to do so is likely to result in the bid being rejected. If the office is closed on the deadline for physical submission of originals, it shall stand extended to the next working day at the same time and venue.	We understand that technical and price bid will be submitted on this portal www.mstecomm.com/eprocn only, no hard copy submission, please confirm.	Hard copies in sealed cover also to be submitted except price bid.
21	EMD	11 OF 217	-	Exemption for MSEs and Start-ups	We are MSE bidder and expemted from EMD, so we have to submit NSIC or Udyam certificate in hardcopy or upload on portal in technical bid, please clarify.	Hard copies shall also to be submitted.
22	Integrity pact	11 OF 217	14	All Bidders shall have to sign the Integrity Pact with the purchaser as per format given in Section XX, otherwise, their bids are liable to be summarily rejected. Details of IEM for this tender is furnished below: -	Integrity pact have to upload on portal and hard copy also submit, please clarify.	Your understanding is correct
23	Terms and Mode of Payments	64 OF 217	15	No Advance Payment shall be made. a) 80% of the value of Material Supplied will be released upon delivery of material at site, on submission of BG of equal amount of invoice. BG shall be valid till completion of work and issuance of FAC plus claim period of 60 days. b) Balance 20% of the above Material Supplied and 100% of Installation and commissioning charges will be released upon fulfillment of all contractual obligations and issuance of work completion certificate / FAC for total IP CCTV System.	Please accept below payment terms:- 1. Supply - 90% within 30 days of receipt and acceptance of materials at site. Balance 10% against submission of Bank guarantee of equivalent amount. 2. Services: 100% within 30 days of successful installation & commissioning of the system	No Change
24			Page 67 - 13 Training	The bidder shall provide the training to BRBNMPL Employees for a period of minimum two weeks for proper operation and use of the CCTV system. The bidder should also conduct on site periodic refresher training during the period of DLP and CAMC. The training should cover detailed system administration, configuration and trouble sensing. End-user training including complete documentation shall be provided to the specified number of personnel identified by the BRBNMPL at site.	Please confirm if storage level maintenance training is required Kindly confirm Training for how many people ! Request you to confirm frequency for the same	amended as: "The bidder shall provide training which should cover detailed system administration, configuration, storage level maintenance and trouble sensing including operator level training for a period of minimum two weeks. The bidder should also conduct on site periodic refresher training during the period of DLP and CAMC. Operator level training to min. 15 nos. of personnels identified by BRBNMPL. System administration, configuration, storage level maintenance training to min. 10 nos. of personnels identified by BRBNMPL. Frequency of refresher training: Yearly"
25						
26			Page 76 - Section VII: Technical Specifications & Scope of work Point P	NAS storage of 2000 TB usable space after Raid 6 configuration, and required controllers and licenses	Request you to confirm Storage Disk Type SSD / NL-SAS	As per tender Reference "The Storage System should support the latest SSD, SAS and NLSAS Drives"- mentioned at Page no. 108-SI. No. 3

S. No	Section No	Page No	Point No	Content of RFP requiring Clarification(s)	Points of clarification	BBB Comment
27			Page 76 - Section VII: Technical Specifications & Scope of work Point P	NAS storage of 2000 TB usable space after Raid 6 configuration, and required controllers and licenses	The Solution ask is RAID 6. As we undersatnd RAID 6 can sustain dual disk failure. Similar can be achieved with different technology. Request you to change the same as RAID 6 or equivalent.	No change. As per tender
28			Page 76 - Section VII: Technical Specifications & Scope of work Point P	NAS storage of 2000 TB usable space after Raid 6 configuration, and required controllers and licenses	Please confirm which protocol supports are required for NAS.	Refer NAS detailed specifications at page no. 108 and related corrigendum
29			Page 76 - Section VII: Technical Specifications & Scope of work Point P	NAS storage of 2000 TB usable space after Raid 6 configuration, and required controllers and licenses	Considering fururictic requirement, We suggest you to consider solution capable NAS, SAN & Object Storage capability in a single box	No change. As per tender
30			Page 76 - Section VII: Technical Specifications & Scope of work Point P	24 hrs recording of one IP camera recordings shall be retrieved from NAS storage within 1 hour.	Request you to confirm Read & Write thruhgput required. Read : Ratio along with Block Size	As per system requirement and tender conditions at Page no. 108
31			Page 76 - Section VII: Technical Specifications & Scope of work Point P	24 hrs recording of one IP camera recordings shall be retrieved from NAS storage within 1 hour.	Request you to confirm FC & Ethernet Port Count & Port speed.	As per system requirement & design and tender conditions at Page no. 108
32			Page 77 - Section VII: Technical Specifications & Scope of work Point v	System shall be pentaplex i.e. it should provide facility of Viewing, Recording & Replay, backup/ transmission and remote access simultaneously. The offered system shall have facility to export the desired portion of clipping (from a desired date/time to another desired date/time) on DVD or Pen drive. Viewing of this recording shall be possible on any standard PC using standard software like windows media player etc.	Please confirm if you are looking forward to differnet storage dedicated as backup storage	As per tender
33			Page 78 - Section VII: Technical Specifications & Scope of work Point hh)	After supply, installation and commissioning of IP based CCTV system for all milestones and Acceptance of System as per Order to the satisfaction of BRENMPL, supplier shall dismantle the buyback material pertaining to existing Analog CCTV System and take back except the storage media as part of buyback offer.	As we understand you don't need any data migration from old storage to newly procedured storage as we need to keep data for 30 days only.	Data migration is not in scope
34			Page 80 - 3.2 Recording / Camera Server (C)	The bidder shall provide the storage capacity as per the above requirement for the various types of cameras and their recording duration. The bidder shall also furnish the calculations to establish that the offered storage capacity is adequate to meet the above requirement. If the offered storage capacity is found to be insufficient at any point of time, the bidder shall provide additional storage without any additional cost.	Request you to specify usable storage capacity required rather than calculating with assumptions or specifications	As per tender. Refer Page no. 108 point no. 7 (2000 TB usable storage capacity)

S. No	Section No	Page No	Point No	Content of RFP requiring Clarification(s)	Points of clarification	BRB Comment
35			Page 80 - 3.2 Recording / Camera Server (d)	All storage redundancy and mirroring capabilities shall be done using hardware solution and shall not rely on the Operating System and Server CPU to perform these functions. The Storage should support IP based replication in future. The bidder should provide details for the offered configuration: Drive type, Drive speed, Drive size, RAID group used to configure usable capacity (Data + parity + spares) along with total disks supported by the storage and balance disk space.	As you need Storage data replication, Request you to confirm if storage based replication software license to be supplied.	As per tender
36			Page 80 - 3.2 Recording / Camera Server (d)	All storage redundancy and mirroring capabilities shall be done using hardware solution and shall not rely on the Operating System and Server CPU to perform these functions. The Storage should support IP based replication in future. The bidder should provide details for the offered configuration: Drive type, Drive speed, Drive size, RAID group used to configure usable capacity (Data + parity + spares) along with total disks supported by the storage and balance disk space.	Request you to advise minimum configuration & type for below , Drive type, Drive speed, Drive size, No. RAID groups. Suggest you to also advise minimum no if Data parity & spare disk	As per system requirement and tender conditions at Page no. 108 and related corrigendum
37			Page 85 - 5 Minimum spares to be kept at site shall include but shall not restrict to the following:- 9	NAS Storage Disks - 10 qty	We have already configuring Dual Disk Parity + Spare Disk. Kindly confirm if we still need 10 disk to be kept at DC	To be kept at site
38			Page - 88 - 9 The BOQ enumerated below is indicative but not exhaustive. The Bidder is requested to submit the detailed and exhaustive BOQ along with the configuration proposed for complete set up of IP CCTV System to meet the requirement.	Storage: Supply, Installation and Commissioning of NAS Storage for 750 cameras recording for 90 days back-up. Minimum 2000 TB usable storage capacity after RAID 6 configuration and required controllers & licenses.	Kindly confirm if any specific licences required	As per tender. Requisite licenses to be provided.
39			Page - 88 - 9 The BOQ enumerated below is indicative but not exhaustive. The Bidder is requested to submit the detailed and exhaustive BOQ along with the configuration proposed for complete set up of IP CCTV System to meet the requirement.	Storage: Supply, Installation and Commissioning of NAS Storage for 750 cameras recording for 90 days back-up. Minimum 2000 TB usable storage capacity after RAID 6 configuration and required controllers & licenses.	Kindly confirm performance parameters required if any	As per Tender. Refer Page no. 76, point no. p(iii)

S. No	Section No	Page No	Point No	Content of RFP requiring Clarification(s)	Points of clarification	BBB Comment
40			Page - 108 - 2. Video Management System, Server & Storage - d. NAS Storage -	Each Controller must have minimum Intel E5-2600 minimum 8 Core Processors per controller or equivalent processor and 64GB Memory.	request you to mention no of cores for CPU than make of CPU or CPU type	amended as: "The Proposed Solution should be a Scale-Out NAS System with support for NAS, NFS V3 & V4.1, SMB 3, and S3 API natively protocols configured with dual redundant Active-Active Controllers * Each Controller must have minimum 64 physical Core Processors and total 2048 GB physical Memory * The Proposed Solution should be based on real time optimized operating system. (It should not be a general-purpose OS)."
41			Page - 108 - 2. Video Management System, Server & Storage - d. (1) NAS Storage -	The Storage System should support the latest SSD, SAS and NL-SAS Drives	Kindly confirm which type of disk to be quoted for required storage ie th edisk should be NL-SAS , SSD or NVMe	As per system requirement. Refer Page no. 108, point no. 07
42			Page - 108 - 2. Video Management System, Server & Storage - d. (1) NAS Storage -	The Proposed Solution should be based on real time optimized operating system. (It should not be a general-purpose OS).	As per your requirement for NAS & As we understand you don't need NAS solution with external header with general purpose Windows operating based NAS. You are looking forward to NAS Appliance with optimized / customised operating system . Please advise	As per tender conditions
43			Page - 108 - 2. Video Management System, Server & Storage - d. (1) NAS Storage -	The controllers should have minimum 128GB memory spread across dual controllers.	Considering 2000 TB Usable & performance requirement, please consider to make it has minimum 256 GB Usable across th edual controllers.	amended as: "The controllers should have minimum 2048 GB physical memory spread across dual controllers. * The Proposed Solution should be scalable to more than 300 Drives in the same Storage Array / group of arrays without upgrading the controllers. * The Storage System should support the latest SSD, SAS and NLSAS Drives"
44			Page - 108 - 2. Video Management System, Server & Storage - d. (2) NAS Storage - Memory and HDD Support	The Proposed Solution should be scalable to more than 300 Drives in the same Storage Array / group	Considering scalability request you to make it minimum 700 Drives in the same Storage Array without adding any additional controller. This will take care of future requirement as well.	No change. As per tender
45			Page - 108 - 2. Video Management System, Server & Storage - d. (4) NAS Storage - Total Aggregate Storage Bandwidth	The Proposed Storage System should ensure a minimum total aggregate bandwidth of 5000Mbps on a 90% Write & 10% Read Video Management Application Workload.	As we understand you are looking forward to 5000 MBps throughput, please advise if it should be Capital "B" not a Small "b". Kindly confirm ! Request you to check on throughput ask as same is on Higher Side, Kindly consider 3 GBps throughput Request you to confirm Block Size to calculate required performance	amended as "The Proposed Storage System should ensure a minimum total aggregate bandwidth of 3GBps on a 90% Write & 10% Read Video Management Application Workload."
46			Page - 108 - 2. Video Management System, Server & Storage - d. (4) NAS Storage - Total Aggregate Storage Bandwidth	The Proposed Storage System should ensure a minimum total aggregate bandwidth of 5000Mbps on a 90% Write & 10% Read Video Management Application Workload.		As per system requirement and should not degrade system performance

S. No	Section No	Page No	Point No	Content of RFP requiring Clarification(s)	Points of clarification	BRB Comment
47			Page - 108 - 2. Video Management System, Server & Storage - d. (5) NAS Storage - RAID Support	Storage System to be configured with RAID 6 protection and Global Hot Spares.	Request you to consider RAID 6 or equivalent	No change. As per tender
48			Page - 108 - 2. Video Management System, Server & Storage - d. (5) NAS Storage - RAID Support	Storage System to be configured with RAID 6 protection and Global Hot Spares.	Kindly confirm how many Global Hot Spares are required	As per system requirement and should not degrade system performance
49			Page - 108 - 2. Video Management System, Server & Storage - d. (7) NAS Storage - Storage Capacity Requirements	The Proposed Storage System should be configured with Minimum 2000TB Usable Capacity using minimum 4TB NL-SAS Drives / SSD Drivers. The usable capacity is defined as the Net storage capacity available for the application stack, after deducting the penalties imposed by storage infrastructure requirements, disk and array formatting, RAID penalties, host OS and file system penalties including overheads or any other penalties which eat away usable disk space. Drives offered for the above capacity can be of the Highest Capacity offered by the Vendor.	As we understand 2000 TB Usable Capacity is considered without deduplication, Compression, Compaction & not considering effective storage capacity. Please confirm	As per tender. 2000 TB Usable Capacity to be provided after RAID overheads, hot spares, all system requirements, system reservations etc.
50			Page - 108 - 2. Video Management System, Server & Storage - d. (7) NAS Storage - Storage Capacity Requirements	The Proposed Storage System should be configured with Minimum 2000TB Usable Capacity using minimum 4TB NL-SAS Drives / SSD Drivers. The usable capacity is defined as the Net storage capacity available for the application stack, after deducting the penalties imposed by storage infrastructure requirements, disk and array formatting, RAID penalties, host OS and file system penalties including overheads or any other penalties which eat away usable disk space. Drives offered for the above capacity can be of the Highest Capacity offered by the Vendor.	Kindly Cap the Disk Size to 4 TB only for better performance & higher throughput. With smaller disk size we can improve RAID re-building time in case of Disk failure.	amended as: " The Proposed Storage System should be configured with Minimum 2000TB Usable Capacity using minimum 8TB to not more than 10 TB NL-SAS Drives / SSD Drivers. The usable capacity is defined as the Net storage capacity available for the application stack, after deducting the penalties imposed by storage infrastructure requirements, disk and array formatting, RAID penalties, host OS and file system formatting including overheads or any other penalties which eat away usable disk space. Drives offered for the above capacity can be of the Highest Capacity offered by the Vendor."
51			Page - 108 - 2. Video Management System, Server & Storage - d. (9) NAS Storage - Storage Software Licenses	All the standard Storage Software Licenses like Unified Storage Management software for File, Block & VOLS, Snapshots, Remote Replication, Performance Optimization, Thin provisioning, QOS, Proactive Remote Support to be included.	Please confirm if you need Ransomware Protection License as well. In the present scenario this is most important	No change. As per tender
52			Page 66 - IMPORTANT CONDITIONS AT A GLANCE FOR ATTENTION OF BIDDERS - Point 2	Buyback Offer: Bidder has to quote the buyback offer for the existing Analog CCTV system as per BOQ given in Section XI: Price Schedule. Buy back items will be given only after removing data storage devices like Hard disks, Tapes etc.	we understand removing data will be done by customer.	Agreed, will be taken care by BRBNMPL

HONEYWELL AUTOMATION INDIA LIMITED						
Sr	Clause No	Page	Content as per RFP	Clarification Sought/Request for change	BRBNMPL comment	
1	22.2, 22.1, 22.2, 22.3, 22.4, 22.6	52 and 64	Clause stated on page no 64 differ from the clause stated on page no 52. On page no 64, 80% of the value of Material Supplied will be released upon delivery of material at site, on submission of BG of equal amount of invoice. BG shall be valid till completion of work and issuance of FAC plus claim period of 60 days. b) Balance 20% of the above Material Supplied and 100% of Installation and commissioning charges will be released upon fulfillment of all contractual obligations and issuance of work completion certificate / FAC for total IP CCTV System	Sir, Request to please review . As per clause stated on page 64 , BG submission equivalent amount of material cost increase the bidder investment by twice and its not feasible. We request you to please remove the BG clause as already 10% of the TCV bidder ask to deposit as Security Deposit	No change	
1	54.4.1	32	The successful tenderer, herein after referred to as purchasers, shall have to submit security deposit (SD) @ 10% of the total sale value of the contract within 5 working days of issue of the sale contract (excluding the date of issue of sale contract). The SD shall be deposited in the form of account payee demand draft drawn on any scheduled commercial bank in India in favour of Bharatiya Reserve Bank Note Mudran Private Limited or through online transfer or through other electronic mode of payment as mentioned at relevant clause of NIT in connection with EMD.	We hereby request you to allow us to furnish security deposit in the form of Bank guarantee from scheduled commercial bank. In addition request to extend days from 5 to 15 days.	Not applicable to this tender. Please refer GIT clause No.54 for Tenders for disposal of scrap (page no.38)	
2	21.10	51	statutory increase in applicable GST rate only during the original delivery period shall be to Procuring Entity's account. Any increase in the rates of GST beyond the original completion date during the extended delivery period shall be borne by the contractor. The benefit of any reduction in GST rate must be passed on to the Procuring Entity during the original and extended delivery period. However, GST rate amendments shall be considered for quoted HSN code only, against documentary evidence, provided such an increase of GST rates after the last date of bid submission	We hereby request you to allow statutory variation during the valid and approved extension of time also	No change	
3	21.10	51	statutory increase in applicable GST rate only during the original delivery period shall be to Procuring Entity's account. Any increase in the rates of GST beyond the original completion date during the extended delivery period shall be borne by the contractor. The benefit of any reduction in GST rate must be passed on to the Procuring Entity during the original and extended delivery period. However, GST rate amendments shall be considered for quoted HSN code only, against documentary evidence, provided such an increase of GST rates after the last date of bid submission	Request you to allow Statutory variation if there is any introduction of new taxes/ duties/ cess by any central govt , state Govt and local authority - Pl confirm	No change	
4	21.10	51	statutory increase in applicable GST rate only during the original delivery period shall be to Procuring Entity's account. Any increase in the rates of GST beyond the original completion date during the extended delivery period shall be borne by the contractor. The benefit of any reduction in GST rate must be passed on to the Procuring Entity during the original and extended delivery period. However, GST rate amendments shall be considered for quoted HSN code only, against documentary evidence, provided such an increase of GST rates after the last date of bid submission	We will provide certificate from a chartered accountant as a proof of discharge of our tax Liability. Request you to confirm whether it is ok	No change	
5			Are not convicted (within three years preceding the last date of bid submission) or stand declared ineligible / suspended / blacklisted / banned / debarred by appropriate agencies of Government of India from participation in Tender Processes of all of its entities, for offences mentioned in Tender Document in this regard. We have neither changed our name nor created a new "Allied Firm", consequent to the above disqualifications.	In any of cases we are never convicted but we request to amend or stand declared ineligible / suspended / blacklisted / banned / debarred by appropriate agencies of Government of India from participation in Tender Processes of all of its entities as on Bid Submission date	No change	

HONEYWELL AUTOMATION INDIA LIMITED					
Sr	Clause No	Page	Content as per RFP	Clarification Sought/Request for change	BRBNMPL comment
6	Section XI: Price Schedule	page no 142/217 & Price Schedule 129 to 144/217	Also need to have clarity on : As RFP include Buy Back .Refer Buyback item list on page no 142/217 & Price Schedule 129 to 144/217	Please confirm : 1. How the buyback material would be taken back ? 2. Is BRBNMPL will bill it to us and pay GST . Please confirm 3. We are bound to raise the invoice as per price Quoted in Table A , B C as per page no 129-141. So how Table D buyback will get adjusted.	1. Against Invoice & E way bill 2. Yes 3. Refer page No.144, Table-E
7	General Terms & Condition	Page no 43/217	2.11 Consequence of a breach of Obligations	"However, at its discretion, the Procuring Entity shall be entitled, and it shall be lawful on his part, to treat it as a breach of contract and avail any or all remedies thereunder, after the lapse of the abovementioned curing period of 21 days." Please confirm	No change
8	General Terms & Condition	Page no 43/217	3.5 Use of contract documents and information : "All deliverables, outputs, plans, drawings specifications, designs, reports, and other documents and software submitted by the contractor under this Contract shall become and remain the property of BRBNMPL and subject to laws of copyright and must not be shared with third parties or reproduced, whether in whole or part, without BRBNMPL's prior written consent. The contractor may retain a copy of such documents and software but shall not use it for any commercial purpose."	Sir, Quoted products and software are not customized and developed for the specific application. It's a off-the shelf-product, so all the rights associated with the product always be with the OEM only usage LIC issued to buyer will be the property of buyer. Please amend and remove the software & product from the list	No change
9	General Terms & Condition	Page no 43/217	3.5 Use of contract documents and information : "All deliverables, outputs, plans, drawings specifications, designs, reports, and other documents and software submitted by the contractor under this Contract shall become and remain the property of BRBNMPL and subject to laws of copyright and must not be shared with third parties or reproduced, whether in whole or part, without BRBNMPL's prior written consent. The contractor may retain a copy of such documents and software but shall not use it for any commercial purpose."	Sir, Quoted products and software are not customized and developed for the specific application. It's a off-the shelf-product, so all the rights associated with the product always be with the OEM only usage LIC issued to buyer will be the property of buyer. Please amend and remove the software & product from the list	No change
10	General Terms & Condition	Page no 44/217	4.1 Indemnities for breach of IPR Rights	REQUEST TO REMOVE THE BOLD ONE : "The contractor shall indemnify and hold harmless, free of costs, the Procuring Entity and its employees and officers from and against all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which may arise in respect of the Goods or Services provided by the contractor under this Contract, as a result of any infringement or alleged infringement of any patent, utility model, registered design, copyright, or other Intellectual Proprietary Rights (IPR) or trademarks, registered or otherwise existing on the date of the contract arising out of or in connection with: (i) Any design, data, drawing, specification, or other documents or Goods or Services provided or designed by the contractor for or on behalf of the Procuring Entity. (ii) The sale by the Procuring Entity in any country of the Services/ products produced by the Goods supplied by the contractor, and (iii) The installation of the Goods by the contractor/Delivery of the services or the use of the Goods or Services at the Procuring Entity's Site."	No change

HONEYWELL AUTOMATION INDIA LIMITED				
Sr	Clause No	Page	Content as per RFP	Clarification Sought/Request for change
11	General Terms & Condition	Page no 49/217	19.1 Modification of Contract	REQUEST TO ADD CLAUSE "Such modification of contract are subject to acceptance by supplier. Unless otherwise agreed in writing, upon performance of the change order, supplier will be entitled to invoice BRBNMPL for the costs of the change, even if the supplier has agreed to proceed with the change prior to execution of the amendment."
12	General Terms & Condition	Page no 50/217	19.4 Repeat Order	REQUEST TO AMEND AS : "By a suitable provision in the SCC, the Purchaser may reserve the right to procure additional 50% of the ordered quantity within 6 months from the date of last supply by placing repeat order against the previous order with rate and terms and conditions, as may be mutually agreed between the parties. However, both optional quantity and repeat order quantity together shall not exceed 50% of the initial ordered quantity."
13	General Terms & Condition	Page no 53/217	23.2 Delay in the Supplier's Performance	REQUEST TO AMEND AS : "Subject to the provision under GCC clause 28, any unexcused delay by the supplier in maintaining its contractual obligations towards delivery of goods and performance of services shall render the supplier liable to any of all of the following sanctions besides any administrative action: a) Imposition of liquidated damages b) Forfeiture of its performance security (to the extent applicable for such delay) and c) Termination of the contract for default after providing 30 days written notice to rectify or make up to such delay. "
14	General Terms & Condition	Page no 54/217	26.1 Termination for Default	REQUEST TO AMEND AS : "BRBNMPL, without prejudice to any other contractual rights and remedies available to it for breach of contract, such as removal from the list of registered supplier, may, by written notice of default sent to the supplier, terminate the contract in whole or in part (provided a rectification period of 30 days have been provided by notice in the event of breaches that can be rectified); " To be deleted. "(vi) Any special circumstances, which must be recorded to justify the termination of a contract."
14	General Terms & Condition	Page no 54/217	26.2 Termination for Default	REQUEST TO AMEND AS : "In the event BRBNMPL terminates the contract in whole or in part, pursuant to GCC sub-clause 26.1 above, BRBNMPL may take recourse to any one or more of the following actions: (i) Invoke the performance security after providing a notice of at least 10 days in advance; To be deleted. (ii) Invoke the risk purchase clause - BRBNMPL may procure goods and/ or services similar to those undelivered, with such terms and conditions and in such manner as it deems fit at the "Risk and Cost" of the supplier and the supplier shall be liable to BRBNMPL for the extra expenditure, if any, incurred by BRBNMPL for arranging such procurement; (iii) Any other action as deemed appropriate."

HONEYWELL AUTOMATION INDIA LIMITED					
Sr	Clause No	Page	Content as per RFP	Clarification Sought/Request for change	BRBNMPL comment
15	General Terms & Condition	Page no 55/217	27.1 Termination for Insolvency	REQUEST TO AMEND AS (To be deleted) : "In the event the supplier becomes bankrupt or otherwise insolvent or loses substantially the technical or financial capability (based on which he was selected for award of contract) or liquidation proceedings are commenced against it by a third party or by own volition, BRBNMPL reserves the right to terminate the contract, at any time, by serving written notice to the supplier, without any adverse consequence to BRBNMPL and without being liable to pay any compensation, whatsoever, to the supplier, subject to further condition that such termination will not prejudice or affect any rights of action or remedies which have accrued or will accrue prior to termination or thereafter to BRBNMPL."	No change
15	General Terms & Condition	Page no 55/217	27.1 Termination for Insolvency	To be deleted : "Upon such termination, BRBNMPL shall be deemed to be the owner of the stores/materials manufactured by the supplier and retain first right and lien over the stores/materials including the raw material purchased by the supplier for performance of the contract and require the stores/materials to be delivered under the contract, which is terminated on account of bankruptcy or insolvency or likely bankruptcy or insolvency of the supplier and such stores in possession of the supplier shall be earmarked and be delivered to BRBNMPL before the start of the bankruptcy or insolvency process."	No change
16	General Terms & Condition	Page no 55/217	28.1 Force Majeure	REQUEST TO INCLUDE : Pandemic and Extreme weather conditions	In case of pandemic, prevailing government of India guidelines will be followed at that time.
16	General Terms & Condition	Page no 56/217	28.3 Force Majeure	REQUEST TO ADD : "Except payment obligations, neither Party will be liable for any failure to meet its obligations affected by a force majeure event."	No change

Sr. No.	Page No.	Clause No.	Parameter	As per Tender	Changes Desired	Remarks (If Any)	BRB Comment
1	Page 95 of 217	10	Frame Rate	25 FPS @ 1920 x 1080 at H.265/H.264 Compression or better	50 FPS @ 1920 x 1080 at H.265/H.264 Compression or better	The cameras are required to be installed in outdoor location hence a better frame rate shall provide better scene capturing.	No change. As per tender
2	Page 95 of 217	11	Lens	8-50 mm varifocal lens or better	8-50 mm Motorized varifocal lens or better	The camera should have Motorized lens so as to control the remote Zoom and Focus functionality.	amended as "8.50 mm motorized varifocal lens or better"
3	Page 95 of 217	12 (C)	Video Streams	Individually configurable 03 video streams H.264/H.265	Individually configurable 03 video streams H.264/H.265 at Full HD 1920X1080 at 25 FPS simultaneously streamed.	All the Three Streams should be transmitted simultaneously.	amended as "Individually configurable 03 video streams H.264/H.265 at Full HD 1920X1080"
4	Page 95 of 217	15 (B)	Network Protocols support	IPv4, IPv6, TCP/IP, HTTP, DHCP, UDP, DNS, SMTP, RTP, RTSP, SNMP, UPnP, NTP, ICMP, IGMP or compatible.	IPv4, IPv6, TCP/IP, HTTP, DHCP, UDP, DNS, SMTP, RTP, RTSP, SNMP, UPnP, NTP, ICMP, IGMP, LLDP or compatible.	LLDP will showcase better connectivity and maintenance support	No change. As per tender
5	Page 96 of 217	16	Security	HTTPS encryption, 802.1x ☑ User account and password protection ☑ User access log ☑ To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. ☑ Network access control (IEEE 802.1x) ☑ IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. ☑ Closed API authentication etc.	HTTPS encryption, 802.1x ☑ User account and password protection (ability to Change the default Username and Password) ☑ User access log ☑ To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. ☑ Network access control (IEEE 802.1x) ☑ IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. ☑ Closed API authentication etc.	The organisation must ensure that default credentials of network devices and information systems such as usernames, passwords, and tokens are changed prior to their deployment or first use. All devices at User level should use USER account and use of Administrator account should be restricted to Network/System Administrators only. Guidelines on Information Security Practices for Government Entities, Issued by Indian Computer Emergency Response Team (CERT-In), Ministry of Electronics and Information Technology Government of India	No change. As per tender
6	Page 96 of 217	17 (B)	Humidity	5% to 95% RH non-condensing	5% to 90% RH non-condensing	This is good enough for CCTV Cameras	No change. As per tender
7	Page 96 of 217	17 (C)	IP Rating and Vandal Protection	IP66, IK10, should be of same make	IP66 (As per IEC 60529), IK10 (As per IEC 62262) and NEMA4X, should be of same make	The IEC standard will specify the standardization	amended as "IP66, IK10 and NEMA4X, camera and housing should be of same make"
8	Page 96 of 217	17 (D)	Power Camera	PoE (Up to 15.4 Watt), AC 24V/DC 12V/DC 24V, 100-240VAC	PoE (Up to 15.4 Watt), AC 24V/ DC 12V/DC 24V / 100-240VAC	The CCTV Cameras are available with either PoE or Low voltage like 12V / 24V only. Hence 100-240V AC should either be removed or modified	amended as "PoE based, as per system design or manufacturer's standard"
9	Page 96 of 217	18 (A)	SD card	128 GB or more	128 GB or more and should have the facility to encrypt the Video stored in the SD card.	The encryption on SD card will be suitable for any tampering	As per tender
10	To be added		Video Analytics	..	Defocus, Tampering, Motion, Loitering, Virtual Line, Entry / Exit, Appear / Disappear, Fog Detection	The Video analytics inbuilt in the camera shall ensure alarm generation in case of any such event and not missing the alert.	included as Point no. 20 at page no. 96/217. To be read as: "Video Analytics: Defocus, tampering, motion, loitering, Virtual line, Entry/Exit, Appear/Disappear"
11	To be added		Digital Image Stabilization		Supported	The DIS will ensure better image stability in case of any wind flow.	included as Point no. 21 at page no. 96/217. To be read as: "Digital/Electronic ImageStabilization: Required"
12	To be added		Defog		Supported	The Defog will ensure better image clarity in case of fog during winter seasons.	included as Point no. 22 at page no. 96/217. To be read as: "Defog: Required"
13	Page 97 of 217	10	Frame Rate	25 FPS @ 1920 x 1080 at H.265/H.264 Compression	50 FPS @ 1920 x 1080 at H.265/H.264 Compression or better	The cameras are required to be installed in outdoor location hence a better frame rate shall provide better scene capturing.	No change. As per tender
14	Page 97 of 217	11	Lens	2.8 - 12 mm varifocal lens or better	2.8 - 12 mm Motorized varifocal lens or better	The camera should have Motorized lens so as to control the remote Zoom and Focus functionality.	amended as "2.8 - 12 mm Motorized varifocal lens or better"
15	Page 97 of 217	12 (C)	Video Streams	Individually configurable 03 video streams H.264/H.265	Individually configurable 03 video streams H.264/H.265 at Full HD 1920X1080 at 25 FPS simultaneously streamed.	All the Three Streams should be transmitted simultaneously.	amended as "Individually configurable 03 video streams H.264/H.265 at Full HD 1920X1080"

Sr. No.	Page No.	Clause No.	Parameter	As per Tender	Changes Desired	Remarks (If Any)	BRB Comment
16	Page 97 of 217	14 (C)	Network Protocols support	IPv4, IPv6, TCP/IP, HTTP, DHCP, UDP, DNS, SMTP, RTP, RTSP, SNMP, UPnP, NTP, ICMP, IGMP or compatible.	IPv4, IPv6, TCP/IP, HTTP, DHCP, UDP, DNS, SMTP, RTP, RTSP, SNMP, UPnP, NTP, ICMP, IGMP, LLDP or compatible.	LLDP will showcase better connectivity and maintenance support	No change. As per tender
17	Page 97 of 217	15	Security	HTTPS encryption, 802.1x • User account and password protection • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. • Closed API authentication etc.	HTTPS encryption, 802.1x • User account and password protection (ability to Change the default Username and Password) • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. • Closed API authentication etc.	The organisation must ensure that default credentials of network devices and information systems such as usernames, passwords, and tokens are changed prior to their deployment or first use. All devices at User level should use USER account and use of Administrator account should be restricted to Network/System Administrators only. Guidelines on Information Security Practices for Government Entities, Issued by Indian Computer Emergency Response Team (CERT-In), Ministry of Electronics and Information Technology Government of India	No change. As per tender
18	Page 98 of 217	16 (B)	Humidity	5% to 95% RH non-condensing	5% to 90% RH non-condensing	This is good enough for CCTV Cameras	No change. As per tender
19	Page 98 of 217	16 (C)	IP Rating and Vandalism Protection	IP66, IK10, should be of same make	IP66 (As per IEC 60529), IK10 (As per IEC 62262) and NEBAAX, should be of same make	The IEC standard will specify the standardization	amended as "IP55, IK10, camera and housing should be of same make"
20	Page 98 of 217	16 (D)	Power Camera	PoE (Up to 15.4 Watt), AC 24V/DC 12V/DC 24V, 100-240VAC	PoE (Up to 15.4 Watt), AC 24V/DC 12V/DC 24V/100-240VAC	The CCTV Cameras are available with either PoE or Low voltage like 12V / 24V only. Hence 100-240V AC should either be removed or modified	amended as "PoE based, as per system design or manufacturer's standard"
21	Page 98 of 217	17 (A)	SD card	128 GB or more	128 GB or more and should have the facility to encrypt the Video stored in the SD card.	The encryption on SD card will be suitable for any tampering	No change. As per tender
22	To be added	To be added	Video Analytics	--	Defocus, Tampering, Motion, Loitering, Virtual Line, Entry / Exit, Appear / Disappear, Fog Detection	The Video analytics inbuilt in the camera shall ensure alarm generation in case of any such event and not missing the alert.	Included as Point no. 19 at page no. 98/217. To be read as: "Video Analytics: Defocus, tampering, motion, loitering, Virtual line, Entry/Exit, Appear/Disappear"
23	To be added	To be added	Digital Image Stabilization	--	Supported	The DJS will ensure better image stability in case of any wind flow.	Included as Point no. 20 at page no. 98/217. To be read as: "Digital/Electronic ImageStabilization: Required"
24	To be added	To be added	Defog	--	Supported	The Defog will ensure better image clarity in case of fog during winter seasons.	No change. As per tender
25	Page 98 of 217	21	Video Streams	Minimum 3 streams (min 2 Configurable Primary Streams & 1 Service stream) or better Primary Streams: min 1080p @ 25/30 fps Service Stream: min 720p/101/CI@ 15/25/30fps	Individually configurable 03 video streams H.264/H.265 at Full HD 1920X1080 at 25 FPS simultaneously streamed.	All the Three Streams should be transmitted simultaneously.	No change. As per tender. However, Better specifications will be accepted
26	Page 99 of 217	22	Network Protocol support	IPv4/IPv6, HTTP, HTTPS, TCP/IP, UDP, UPnP, ICMP, IGMP, RTSP, RTP, SMTP, NTP, DHCP, DNS, DDNS, FTP, QoS, SNMP v2c/v3, RTCP or compatible	IPv4, IPv6, HTTP, HTTPS, TCP/IP, UDP, UPnP, ICMP, IGMP, RTSP, RTP, SMTP, NTP, DHCP, DNS, DDNS, FTP, QoS, SNMP v2c/v3, RTCP, LLDP or compatible	LLDP will showcase better connectivity and maintenance support	No change. As per tender
27	Page 99 of 217	24	Security	HTTPS encryption, 802.1x • User account and password protection • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. • Closed API authentication etc.	HTTPS encryption, 802.1x • User account and password protection (ability to Change the default Username and Password) • User access log • To secure IP protocols including https and TLS (TLS1.2) that enable movement of data including passwords on secure channels. • Network access control (IEEE 802.1x) • IP address filtering to provide additional level of control by permitting access only from permitted IP addresses. • Closed API authentication etc.	The organisation must ensure that default credentials of network devices and information systems such as usernames, passwords, and tokens are changed prior to their deployment or first use. All devices at User level should use USER account and use of Administrator account should be restricted to Network/System Administrators only. Guidelines on Information Security Practices for Government Entities, Issued by Indian Computer Emergency Response Team (CERT-In), Ministry of Electronics and Information Technology Government of India	No change. As per tender

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Sr. No.	Page No.	Clause No.	Parameter	As per Tender	Changes Desired	Remarks (if Any)	BRB Comment
28	Page 99 of 217	35	Vandal Protection	IK-10	IK10 (As per IEC 62262)	The IEC standard will specify the standardization	No change. As per tender
29	Page 99 of 217	36	Ingress Protection	IP66 (Rugged Outdoor Housing)	IP66 (As per IEC 60529) and NEMA4X	The IEC standard will specify the standardization	amended as "IP66 and NEMA4X, camera and housing should be of same make"
30	Page 100 of 217	2	Distributed Architecture and Openness	The VMS shall support distributed video architecture which seamlessly integrates the video operations of numerous systems onto one virtual platform, allowing security operators to view and control all cameras, whether across a single facility or across the multiple locations. The VMS shall support seamless integration with other security and safety equipment / systems like Fire Alarm System, Access Control system, Perimeter Protection System etc so as to monitor on the GULI, alert and automatically focus the nearby CCTV camera towards the area of alarm/incident. The VMS shall support ONVIF S, G, T, M profile and integrate all cameras supporting ONVIF S profile.	The VMS shall support distributed video operations of numerous systems onto one virtual platform, allowing security operators to view and control all cameras, whether across a single facility or across the multiple locations. The VMS shall support seamless integration with other security and safety equipment / systems like Fire Alarm System, Access Control system, Perimeter Protection System etc so as to monitor on the GULI, alert and automatically focus the nearby CCTV camera towards the area of alarm/incident. The VMS shall support ONVIF S, G, T, M profile and integrate all cameras supporting ONVIF S, G, T, M profile. A Certificate from ONVIF Indicating Membership details and Membership Start Date/Month shall be Submitted as a Proof along with the technical Bid Documents	The cameras are supporting Onvif Profile S, G and T Hence the VMS should also be having the same features. Even the integration with other Security equipments will require these Profiles.	amended as "The VMS shall support distributed video architecture which seamlessly integrates the video operations of numerous systems onto one virtual platform, allowing security operators to view and control all cameras, whether across a single facility or across the multiple locations. The VMS shall support seamless integration with other security and safety equipment / systems like Fire Alarm System, Access Control system, Perimeter Protection System etc. so as to monitor on the GULI, alert and automatically focus the nearby CCTV camera towards the area of alarm/incident. The VMS shall support ONVIF S, G, T, M profile and integrate all cameras supporting ONVIF S, G, T, M profile."
31	To be added				The Offered Video Management Software (VMS) Application should have undergone Audit as per OWASP Top 10 Vulnerabilities & must Possess a Valid Application Audit Certificate from a CERT-IN Empanelled Government Auditor for the VMS, Mobile & Web Applications, to Mitigate Cyber Security Attacks. The Application must have already undergone Audit Certification/Auditing on or before the Bid Publishing Date. The Audit Certificate must be Submitted as a Documentary Evidence/Proof. The offered VMS must also be cyber security certified with FIPS-140-2 encryption from Indian body for mitigating cyber security risk. A Valid Certificate for FIPS 140-2 for the VMS Application to be submitted as a Proof. The FIPS 140-2 Certification should be done on or before the Bid Publishing Date.	This is as per the Govt. of India guidelines. https://cert-in.org.in/PDF/Application_Security_Guidelines.pdf	included at Page no. 106 as Point no. 21. To be read as: "VMS should have undergone cyber security vulnerabilities testing/audit and bidder shall submit requisite certificates"
32	To be added				13 The VMS, Software OEM shall have a direct Registered Office in India without any Collaboration, Joint Venture, Distributor, Parent Company & should be in Operational for the Last 10 Years as on the Last Date of Bid Submission. The VMS Software OEM shall also have a Dedicated Support, Research & Development (R&D) Centre in India since the Last 10 Years as on Last Day of Bid Submission.	The IPR should be in the name of OEM hence no challenge for BBMMPL in future.	No change. As per tender
33	To be added					In case a OEM claims to be Make in India.	No change. As per tender
34	To be added				The VMS OEM should have Performed Benchmark Appraisal & Achieved CMMI V2.0 Maturity Level - 3. Appraisal Certificate of CMMI V2.0 Level - 3 to be Submitted as a Proof. The OEM should be in the Possession of the Appraisal Certificate on or before the Bid Publishing Date. The Appraisal shall be Validated Online & should be Available on Public Portal on CMMI Institutes Website in the Published Appraisal Results (https://cmmiinstitute.com/learnings/appraisals/results). Any False Declarations shall lead to Bid Rejection & Blacklisting.	The OEM should have CMMI Maturity Level to ensure stable software development.	No change. As per tender

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Sr. No.	Page No.	Clause No.	Parameter	As per Tender	Changes Desired	Remarks (If Any)	BRB Comment
35		To be added			The VMS OEM should have Certifications following certifications. • ISO 9001:2015 Quality Management Certifications in the name of the OEM • ISO 27001:2013 Information Security Management Systems Certifications • ISO 14001:2015 – Environmental Management System • ISO 45001:2018 – Occupational Health & Safety Management System • ISO 27017:2015 – Information Security Control for Cloud Services • ISO 90003:2018 – Software Engineering – Guidelines for the Application of ISO 9001:2015 to Computer Software • CMMI Level - 3 • The Above Certifications are the Minimum requirements to ensure Quality OEM Participation All of these Certificates to be Submitted by the OEM for Evaluation. These Certificates should be from The Video Management Software (VMS) Application OEM's with their Name & Address reflecting in the Certificates.	The ISO certificates are for better OEM management	No change. As per tender
36	Page 108 of 217	1	High Availability and Storage Processors	The Proposed Solution should be a Hybrid Storage System with concurrent support for NAS, iSCSI and Fiber Channel protocols configured with dual redundant Active-Active Controllers • Each Controller must have minimum 4 Core Processors • minimum 8 Core Processors per controller or equivalent processor and 64GB Memory. • The Proposed Solution should be based on real time optimized operating system. (It should not be a general-purpose OS).	The Proposed Solution should be a Hybrid Storage System with concurrent support for NAS, iSCSI and Fiber Channel protocols configured with dual redundant Active-Active Controllers • Each Controller must have minimum 4 Core Processors per controller or equivalent processor and 64GB Memory. • The Proposed Solution should be based on real time optimized operating system. (It should not be a general-purpose OS). • The Storage should have minimum 3000Mbps throughput for smooth flow of Video Data.	Storage should be asked for number of IOPS and Throughput. And performance depends upon the OEM platform not specifically on a particular number cores of processor. Please remove processor core or mention 4 core minimum requirement. As Hardware RAID controller storage doesn't require more number of cores.	amended as: "The Proposed Solution should be a Scale-Out NAS System with support for NAS, NFS V3 & V4.1, SMB 3.0 and S3 API natively protocols configured with dual redundant Active-Active Controllers • Each Controller must have minimum 64 physical Core Processors and total 2048 GB physical Memory • The Proposed Solution should be based on real time optimized operating system. (It should not be a general-purpose OS)."
37	Page 108 of 217	2	Memory and HDD Support	The controllers should have minimum 128GB memory spread across dual controllers. • The Proposed Solution should be scalable to more than 300 Drives in the same Storage Array / group of arrays without upgrading the controllers. • The Storage System should support the latest SSD, SAS and NLSAS Drives	The controllers should have minimum 128GB memory spread across dual controllers. • The Proposed Solution should be scalable to more than 300 Drives in the same Storage Array / group of arrays without upgrading the controllers. • The Storage System should support the latest SSD, SAS and NLSAS Drives • Proposed storage should support scaleup and scaleout Architecture to enhance performance and capacity any point of time.	Proposed storage should support scaleup and scaleout Architecture to enhance performance and capacity any point of time.	amended as: "The controllers should have minimum 2048 GB physical memory spread across dual controllers. • The Proposed Solution should be scalable to more than 300 Drives in the same Storage Array / group of arrays without upgrading the controllers. • The Storage System should support the latest SSD, SAS and NLSAS Drives"
38	Page 108 of 217	3	Host Connectivity and Storage Backend Disk Connectivity	The offered Storage System shall be supplied with at least 8nos of 10Gb Optical Ports or 4nos x 16Gbps FC ports across dual Controllers for Host Connectivity. • The array proposed should have a minimum of 4nos x 12Gbps 2.0 SAS / SSD backend architecture. • Proposed storage should be scalable of connectivity upto 16 Ports of 25G.	The offered Storage System shall be supplied with at least 8nos of 10Gb Optical Ports or 4nos x 16Gbps FC ports across dual Controllers for Host Connectivity. • The array proposed should have a minimum of 4nos x 12Gbps 2.0 SAS / SSD backend architecture. • Proposed storage should be scalable of connectivity upto 16 Ports of 25G.	Proposed storage should be scalable in terms of connectivity where upto 20 Ports of 25G should be supported.	amended as: "The offered Storage System shall be supplied with at least 16 nos of 10Gb Optical Ports across multi Controllers for Host Connectivity. • The array proposed should have a minimum of 4nos x 12Gbps 2.0 SAS / SSD backend architecture."
39	Page 109 of 217	1	Ports Density	48 x10/100/1000- Base-T ports 4 x 10G SFP+ ports. 10G SFP+ ports should be loaded with 10Gbps SFP+ Single Mode Modules based on design requirement Should be equipped with dual internal / External redundant power supplies for higher availability	48 x10/100/1000- Base-X ports 4 x 10G SFP+ ports. 10G SFP+ ports should be loaded with 10Gbps SFP+ Single Mode Modules based on design requirement Should be equipped with dual internal / External redundant power supplies for higher availability	The connectivity of the L3 switch is majority with L2 switches over OFC hence it should have more SFP ports. For connectivity of Server and Storage shall also be over SFP Modules and in case of copper connectivity is required then a Copper Module can be used	amended as "48 x10/100/1000- Base-X ports 4 x 10G SFP+ ports. 10G SFP+ ports should be loaded with 10Gbps SFP+ Single Mode Modules based on design requirement Should be equipped with dual internal redundant power supplies for higher availability"

Sr. No.	Page No.	Clause No.	Parameter	As per Tender	Changes Desired	Remarks (If Any)	BRB Comment
40	Page 109 of 217	3	Resiliency	Should have the technology capability of Active-Active Clustering VSS/equivalent high availability technology for higher availability and resiliency. The Active - Active Virtual chassis cluster should support technology/functionalities locally or over geographically diversified locations. The proposed VSS or equivalent technology should support high availability for both Layer 2 (RIP, SM, PIM-DM) for video applications to ensure hitless failover. In case of any kind of failure in the VSS cluster the migration to secondary Active core should be seamless ensuring no real time traffic disruption. Should support sub 50ms ring resiliency as per REP/ERPS / IEEE 802.11/RRPP or equivalent to ensure no impact on video traffic during any failure across the network	Should have the technology capability of Active-Active Clustering VSS/equivalent high availability technology for higher availability and resiliency. The Active-Active Virtual-chassis-cluster-should-support-technology-functionalities-locally-or-over-geographically-diversified-locations. The proposed VSS or equivalent technology should support high availability for both Layer 2 and Layer 3 (RIP, OSPF) including for IP Multicasting (PIM-SM, PIM-DM) for video applications to ensure hitless failover / HA Mode. In case of any kind of failure in the VSS cluster/Equivalent migration to secondary Active core should be seamless ensuring no real time traffic disruption. Should support sub 50ms ring resiliency as per REP/ERPS / IEEE 802.11/RRPP or equivalent to ensure no impact on video traffic during any failure across the network	Pls. remove the RED Highlighted for better and wider participation.	No change. As per tender
41	Page 110 of 217	8	Management	Switch should be able to support management via CLI, Web Interface SNMP v1, v2, v3 support, RMON (groups 1,2,3 and 9), SNMP traps, sflow, Optical digital diagnostic monitoring as per SFF- 8472 or equivalent standards for 1G SFP and 10G SFP+ ports. Switch should be manageable through both IPv4 & IPv6. An External memory card / USB or equivalent, allowing switch firmware, configurations to be stored for backup and distribution to other switches	Switch should be able to support management via CLI, Web Interface SNMP v1, v2, v3 support, RMON (groups 1,2,3 and 9), SNMP traps, sflow, Optical digital diagnostic monitoring as per SFF- 8472 or equivalent standards for 1G SFP and 10G SFP+ ports. Switch should be manageable through both IPv4 & IPv6. An External memory card / USB or equivalent, allowing switch firmware, configurations to be stored for backup and distribution to other switches	Pls. remove the RED Highlighted for better and wider participation.	amended as "Switch should be able to support management via CLI, Web Interface SNMP v1, v2, v3 support, RMON (groups 1,2,3 and 9), SNMP traps, sflow, Optical digital diagnostic monitoring as per SFF- 8472 or equivalent standards for 1G SFP and 10G SFP+ ports. Switch should be manageable through both IPv4 & IPv6. An External memory card / USB or equivalent, allowing switch firmware, configurations to be stored for backup and distribution to other switches"
42	Page 110 of 217	9	Power Input	Should be equipped with dual internal redundant AC power supplies for higher availability	Should be equipped with dual internal / External redundant AC power supplies for higher availability	For better and wider participation.	No change. As per tender
43	Page 111 of 217	3	Port Density & Hardware Requirement	Switch should have minimum 24x100/1000 Base-T PoE ports and 4 x 10G SFP+ uplink ports. 4 nos 10G SM module should be loaded. Minimum PoE budget should be 370Watt And Inbuilt redundant power supply.	Switch should have minimum 24x100/1000 Base-T PoE ports and 4 x 10G SFP+ uplink ports. 4 nos 10G SM module should be loaded. Minimum PoE budget should be 370Watt And External / Inbuilt redundant power supply.	For better and wider participation.	amended as: "Switch should have minimum 24x100/1000 Base-T PoE ports and 4 x 10G SFP+ uplink ports. 4 nos 10G SM module should be loaded. Minimum PoE budget should be 370Watt And Inbuilt redundant power supply."
44	Page 111 of 217	7	L3 Features	Switch should have Static Routing for IPv4 & IPv6. Switch should be scalable full layer 3 functionality like RIP, OSPFv3, RIPv3, BGP, PIM and other Layer 3 Multicasting features without changing the base hardware for future scalability	Switch should have Static Routing for IPv4 & IPv6. Switch should be scalable full layer 3 functionality like RIP, OSPFv3, RIPv3, BGP, PIM and other Layer 3 Multicasting features without changing the base hardware for future scalability	For better and wider participation.	No change. As per tender
45	Page 112 of 217	12	Management & Diagnostic Features	Digital optical monitoring (DOM) as per SFF- 8472 or equivalent and UDD/D equivalent, Ping polling and Trace Route for IPv4 and IPv6	Digital optical monitoring (DOM) as per SFF- 8472 or equivalent for SFP Modules and UDD/D equivalent, Ping polling and Trace Route for IPv4 and IPv6	For better and wider participation.	No change. As per tender
46		To be added	Operating Temperature		0-50C in continuous operation of 365 days 24 hrs	For better and wider participation.	No change. As per tender
47	Page 113 of 217	10	Management	SNMPv1, v2 and v3, Web GUI, CLI, USB or equivalent memory card, IEEE1588v2 PTP, NTP	SNMPv1, v2 and v3, Web GUI, CLI, USB or equivalent memory card, IEEE1588v2 PTP, NTP	USB / SD card is not required for functionality purpose. For better and wider participation.	No change. As per tender
48	Page 113 of 217	10	Management	SNMPv1, v2 and v3, Web GUI, CLI, USB or equivalent memory card, IEEE1588v2 PTP, NTP	SNMPv1, v2 and v3, Web GUI, CLI, USB or equivalent memory card, IEEE1588v2 PTP, NTP	USB / SD card is not required for functionality purpose. For better and wider participation.	No change. As per tender
49	Page 119 of 217	14	Ambient Temperature	0 -45 Deg C	0 -40 Deg C	0-40°C Continuous, < 80 % load supports upto 50 Deg C	amended AS "0 - 40 Deg C"