Features	Specifications	Response (Y/N)	Remarks
Video			
General	The OEM should have spares Depot in India .		
	The endpoint should be interoperable other reputed endpoints .		
	The VC system should be standard based with separate camera system and HD audio video Interfaces. No PC based solution is accepctable.		
Video Standards	Latest video standards H.264, H.265 or higher.		
	Should support Packet Loss Handling/Video Error Concealment		
	It should support H.323 and SIP standards .		
	Should support H.460.18, H.460.19 Firewall Traversal protocols		Documentary Proof
	Should support all standard video protocols .		
	Should support all standard audio protocols (G.711,G.722 etc).		
	Should have built in accoustic echo canceller with noise reduction .		
	Should support H.239 and BFCP protocols		
	Should support audio from PC/laptop used for content sharing		
Video Frame Rate	It should support 1080p 60 fps, 1080p 30 fps, 720p 60 fps and 720p 30fps resolution		Documentary Proof
Video Features	Ability to send and receive two live simultaneous video sources in a single call, so that the image from the main camera and PC or document camera can be seen simultaneously.		
	It should transmit and receive both particpants view and content simutaneously to and fro from the far end location at 1080p 60fps		
	The system must have the ability to pair mobile devices such as Tablets and Smartphones based on iOS and Android platforms and platforms newly introduced in future so that these devices can be used to share the presentation using mobile device and also permit to : 1) View the Presentaion that is being shown in the VC call. 2) Add and disconnect call. 3) Take snapshot of the presenetation being shown		
	The system must have the ability to pair with laptop for sending content without any wires to the VC system.		
	Must support Miracast and Apple Airplay.		
Video Input	Should have at least 2 x HDMI inputs to connect Full HD cameras.		Documentary Proof
	Must have 1 additional HDMI inputs to connect two laptops/PC/Camera for presentations supporting upto 4K 30fps Resolution including 1080p 60fps.		Documentary Proof
	Should support the ability to view and share presentations at a resolution of 1080p30, 4K 15 fps		
	All inputs should support 1080p 60fps		Documentary Proof
	Should have audio and video outputs to connect to two High Definition monitors with minimum five meters connecting cables .		Documentary Proof
	Should have input to connect directly a laptop/PC for content/presentations at 4K resolution along with audio and video using HDMI/HD interfaces .Suitable connecting cable of 15 meters length for connecting laptop/desktop using HDMI and VGA interfaces should be provided .In case any converters are required for the purpose the same has to be provided by the service provider .		Documentary Proof
	The system must have the ability to pair with laptop for sending content without any wires to the VC system		Documentary Proof
	Must have at least 1 USB -C input for Content Sharing @1080p30fps, 4K 15 fps with a cable length of at least 10 meters .		

	Audio and Video Error Concealment over IP		Documentary Proof
Video Output	Should have at least 2 no.'s of HDMI output to connect Full High Definition display devices for both Video and Content.(Dual Monitor Support). The codec should support upto 4K 60fps resolution.		Documentary Proof
	It is desirable to have a third HDMI input so that a dedicated can be provided on the table for the chairperson to view the content.		
	When not in a VC call, it should be possible to view presentation from two laptops on each of the screen so that users can collaborate		Documentary Proof
Audio			
Audio standards supported	G.711, G.722, G.722.1, 64 kbps MPEG-4 AAC-LD standard must be supported..		
	It should support 20kHz or better bandwidth with crystal clear audio and stereo sound.		
Other features	Noise Reduction, Automatic Gain control, Acoustic Echo Canceller, Active Lip synchronization on every mic input .		Documentary Proof
	Should support 6 Microphone inputs to connect 6 microphones . Every microphone must have mute button .		
	The pick up of the microphones should be at least 10 feet from the microphone. Microphone should be omnidirectional.		
	Instant adaptation echo cancellation		
Audio Inputs	The device must support the ability to connect a ceiling microphones such as a Seinheiser or Shure Tile microphone using AES67 or Dante.		
	Echo Cancellation for every input must be available.		
	Should have at least 6 microphones inputs to connect 6 microphones .		
Audio Outputs	Should support digital main audio output with the HDMI and EP interface		
	Automatic Gain Control		
Camera	1 LAN /Ethernet--10/100/1000 Mbps full duplex		
	Should work with IPv4 and IPv6 addressing schemes		
	The system should allow speaker Track to be turned off and manual zoom on to the speaker if he is beyond the tracking area		Documentary Proof
	The Camera and codec should be from the same manufacturer.		
	Date and Time Support over NTP		
	Serial/Ethernet control port for integrating with external control system		
	Down speeding feature over IP		
Bandwidth	H323/SIP upto 8 Mbps point-to-point.		
Network Capabilities	Packet Loss Based Downspeeding		
H.323/ IP Features	IP Precedence, QoS--DiffServe		
PTZ Camera	An additional PTZ camera must be provided to zoom onto the chairperson and should have a resolution of at least 4K.		
	The PTZ camera must have a Pan range: +/- 170 degrees Tilt range: -20 degrees to +90 degrees		
	The PTZ Camera must have at least 10X optical Zoom and 5X digital Zoom so that the chairperson is captured with Full HD clarity.		
	When the chairperson is speaking the camera must automatically capture the chairperson and this video must be sent to the far end.		
Camera Control	Both Cameras must work as part of the Speaker tracking solution such that when the chairperson is speaking then the PTZ camera must zoom in and capture the video of the chairperson.		

	It should be possible to combine the video from both the main camera and the PTZ camera and send the videos from both the cameras simultaneosuly as a stiched image.		
	Auto Network Address Translation(NAT) support		
	Standards based- Packet Loss Recovery feature		
	System should support IPv4 and IPv6 from day one.		
	Should support URI and IP Dialling		
	Support for H.245 DTMF tones in H.323		
Security			
Menu Control	Password protected system menu		
Encryption of video call	ITU-T standards based Encryption of the video call		
	Call should be encrypted end-to-end on IP		
	Should support Standards-based: H.235 v3 and AES Encryption via Automatic key generation and exchange. The same should be available in a call with Video with presentation (dual video)		
	Media Encryption (H.323, SIP): AES-128, AES-256		
	Ability to manually turn encryption ON/ OFF should be there.		
	Automatic key generation and exchange		
Management	System Management using HTTPS and SSH		
Camera			
	4K UltraHD camera		
	7x Zoom		
	Should have at least two or more HD cameras to automatically detect active speakers in the conference room. The camera should also have face detection mechanism to enable automatic framing of participants.		Documentary Proof
	The camera should automatically detect who in the room is speaking and select the best camera framing for that person. And when no one is speaking it should automatically select the best group framing.		Documentary Proof
	Should have the ability to turn OFF speaker tracking if need be.		
	The system should be capable of providing metrics such as participant count that could be used for resource utilization, return on investment reports.		
	The camera should have the capability to capture the people in the room in Frames mode, such that when there is an empty space between two people , this empty space is removed and the two people are shown in two different frames with a virtual line between these two people. The Frames mode must support at least 4 frames and should mainatin spatiality of the room such that a person on the left is always seen on the left and the one on right is always seen on the right side.		Documentary Proof
	The cameras should be suitable for a large conference room of about 15 m in length		Documentary Proof
	1920 x 1080 pixels progressive @ 60fps		Documentary Proof
	The Camera and codec should be from the same manufacturer.		Documentary Proof
	Should have at least 80 degrees horizontal field of view.		Documentary Proof
Directory services	Should support Local and Global directories		
	Should support LDAP and H.350 protocols for directory transfer.		Documentary Proof
Multipoint Capability	Should support built-in Multiconference capability to connect at least 1+3 sites at 720p 30fps in a continuous presence mode. The necessary licenses should be provisioned for the same .		
	All sites must be visible in a continuous presence mode with rate matching and transcoding such that different sites may connect at different speeds and protocols and still mainatin a resolution of at least 720p		

User Interface	In order to provide a good user experience, the unit must be equipped with an intuitive Touch Screen/Panel for controlling the VC unit. Additional panels for chairperson shall be required at all locations .		
	Must have ability to browse the directory, serach a contact, Enable / disable speaker tracking, change layouts, mute/ unmute, increase-decrease volume.		
	Must support IPv4 and IPv6 from day one.		
	The user should have the ability to select between two presentation sources such as a fixed PC and a laptop from the user interface. Users should also have the ability to share presentation wirelessly.		
	The Touch Interface should be able to provide Room information such as display Room Temperature, humidity, air quality, ambient light etc		
	Must have the capabilty to integrate with external control systems to control Blinds, Lights, air conditioning using the API's . The User interface must have the necessary icons for controlling the external devices		
USB Passthrough	It should be possible to connect the Codec (directly or via external device) to a PC/Laptop and Make use of Camera, Mic and Display to work with any Soft Client applications such as Webex, Zoom, MS Teams, Vidyo, etc		

Place :

Date :

Authorized Signatory
Name :
Designation :

Features	Specifications	Response (Y/N)	Remarks
General Specifications	The VC system should be standard based with separate camera system and HD audio video Interfaces. No PC based solution is acceptable.		
	The Solution must have codec, cameras, speakers along with cable management and Display, all designed as a part of single unit.		
	The solution must consist of 85 inches LED screen either provided by the OEM or certified by the OEM. The unit must be wall mountable and should be supplied with all the accessories to mount on the wall.		
	The system should be an integrated system with Codec, Dual HD 1080p camera, Mic, Touch Panel, cables (including power cables), Two 85" LCD/LED and a floor mount kit.		
	The 85" screens (two), codec, cameras, microphones, floor/wall mounted kit should be from same OEM with a single OEM part code. The system should not be a locally fabricated unit.		Documentary Proof
Video Standards	Latest video standards H.264, H.265 or higher		
	H.264 Video Error Concealment		
	It should support H.323 and SIP standards .		
	Should support H.460.18, H.460.19 Firewall Traversal protocols		Documentary Proof
	Should support all standard video protocols .		
	Should support all standard audio protocols (G.711,G.722 etc).		
	Should have built in accoustic echo canceller with noise reduction .		
	Should support H.239 and BFCP protocols with 1080p		
	The system should be capable giving HD 1080p @60fps. The system should deliver 1080p@60fps in motion and in sharpness video mode from day one.		
	Should support H.323, SIP at least 6 Mbps point-to-point		
	Should support audio from PC/laptop used for content sharing		
Video Frame Rate	It should support 1080p 60 fps, 1080p 30 fps, 720p 60 fps and 720p 30fps resolution		Documentary Proof
Video Features	Ability to send and receive two live simultaneous video sources in a single call, so that the image from the main camera and PC or document camera can be seen simultaneously.		
	It should transmit and receive both particpants view and content simultaneously to and fro from the far end location at 1080p 60fps		
	The system must have the ability to pair mobile devices such as Tablets and Smartphones based on iOS and Android platforms and platforms newly introduced in future so that these devices can be used to: 1) View the Presentaion that is being shown in the VC call. 2) Add and disconnect call. 3) Take snapshot of the presenetation being shown		
	The system must have the ability to pair with laptop for sending content without any wires to the VC system.		
	Must support Miracast and Apple Airplay		
Screen and layout	Native 16:9 Widescreen		
	Advanced Screen Layouts so as to view the presentation and presenter in different quadrants and sizes.		
	Local Auto Layout		
	Must have a total of at least 3 HD Inputs. The system should support 2 HD Cameras (1080P) and 2 PC Inputs (One HDMI and one DVI/VGA) for presentation sharing		Documentary Proof

	Additionally, the unit must have at least two HDMI/DVI outputs to connect additional displays.		Documentary Proof
	The system should support Video resolutions from CIF to HD 1080p@60fps. The PC resolution should be WXGA or 720p		Documentary Proof
Video Input	Should have at least 2 x HDMI inputs to connect Full HD cameras.		Documentary Proof
	Should have input to connect directly a laptop/PC for content/presentations at 4K resolution along with audio and video using HDMI/HD interfaces .Suitable connecting cable of 15 meters length for connecting laptop/desktop using HDMI and VGA interfaces should be provided .In case any converters are required for the purpose the same has to be provided by the service provider .		Documentary Proof
	The system must have the ability to pair with laptop for sending content without any wires to the VC system		Documentary Proof
	Must have at least 1 USB -C input for Content Sharing @1080p30fps, 4K 15 fps with a cable length of at least 10 meters .		
	Audio and Video Error Concealment over IP		Documentary Proof
Audio Standards	Should support G.711, G.722, G.722.1, 64 kbps 20KHz MPEG-4 AAC-LD or equivalent standards .		
	CD-Quality audio		
	Acoustic echo canceller		Documentary Proof
	Automatic Gain Control (AGC) on every microphone input		Documentary Proof
	Automatic Noise Reduction		Documentary Proof
	Active lip synchronization		Documentary Proof
	Should have at least 6 microphones inputs to connect 6 microphones .		
	The system should have minimum one additional Audio line-in Input to connect PC audio and line in audio		
	Built-in wide band audio speaker and amplifier system to the far end audio and line-in audio. No external audio system is acceptable. The unit must provide a sound output of at least 200W		
Camera	4K UltraHD camera		
	7x Zoom		
	Dual cameras must provide the ability of automatically tracking the speaker in a meeting room and zooming onto that person. Automatic handover from one camera to another such that both the cameras can seek an active speaker. External disturbances and noise such as mobile phone ringing should not cause the camera to move. The camera tracking mode must be such that in the event the far end is talking, the cameras must automatically zoom out to capture the entire room.		
	The camera should use Voice and face detection to zoom in and frame an active speaker in a room		
	The system should allow speaker Track to be turned off and manual zoom on to the speaker if he is beyond the tracking area		
	The system should be capable of providing metrics such as participant count that could be used for resource utilization, return on investment reports.		

	The camera should have the capability to capture the people in the room in Frames mode, such that when there is an empty space between two people , this empty space is removed and the two people are shown in two different frames with a virtual line between these two people. The Frames mode must support at least 4 frames and should mainatin spatiality of the room such that a person on the left is always seen on the left and the one on right is always seen on the right side.		
	The Camera and codec should be from the same manufacturer.		
	Should have at least 80 degrees horizontal field of view.		
	The system must have the ability to pair mobile devices such as Tablets and Smartphones based on iOS and Android platforms and platforms newly introduced in future so that these devices can be used to:		
	i. View the Presentation that is being shown in the VC call.		
	ii. Add and disconnect call.		
	iii. Take snapshot of the presentation being shown		
	If the above feature is not available natively, additional component can be provided to achieve the same, without any additional cost.		
	The system must have the ability to pair with laptop for sending content without any wires to the VC system.		
PTZ Camera	An additional PTZ camera must be provided to zoom onto the chairperson and should have a resolution of at least 4K.		
	The PTZ camera must have a Pan range: +/- 170 degrees Tilt range: -20 degrees to +90 degrees		
	The PTZ Camera must have at least 10X optical Zoom and 5X digital Zoom so that the chairperson is captured with Full HD clarity.		
	When the chairperson is speaking the camera must automatically capture the chairperson and this video must be sent to the far end.		
Camera Control	Both Cameras must work as part of the Speaker tracking solution such that when the chairperson is speaking then the PTZ camera must zoom in and capture the video of the chairperson.		
	It should be possible to combine the video from both the main camera and the PTZ camera and send the videos from both the cameras simultaneosuly as a stiched image.		
Dual Stream	The system should have the capability to support H.239 in H.323 and BFCP for SIP Mode		
	The system should support WXGA or higher resolution during H.239 call		
Security / Network / Directory Services / Others	The system should support AES Encryption. H.239 capability should be supported in an encrypted call. AES encryption is required for complete secure call between locations		
	The system should have features such as QoS, standards based packet loss based downspeeding, TCP/IP, DHCP, Auto gatekeeper discovery, Dynamic layout and lip-sync buffering,		
	H.245 DTMF tones in H.323,		
	Date and Time support via NTP		
	URI and IP Dialing		
	The administration of the Video endpoint should be through Web Interface using HTTPS		
	1 x LAN/Ethernet (RJ-45) 10/100/1000 Mbit		
	The same system should support 60 frames per second in 1080p call from day one		
	Total management via embedded SNMP, Telnet, SSH/XML/SOAP		

	Remote software upload: via web server/SCP/HTTP, HTTPS, Remote control and on-screen menu system		
	Support for local directory (My Contacts), Received Calls, Placed Calls		
	The video endpoint should be accompanied with Power Cable, LAN Cable, DVI to VGA Cable, Power adaptors if any, DVI to HDMI cables , HDMI to HDMI Cables		
	Must have the capabilty to integrate with external control systems to control Blinds, Lights, air conditioning using the API's . The User interface must have the necessary icons for controlling the external devices		
	Must support IPv4 and IPv6 from day one.		
Network Interfaces	1 LAN /Ethernet--10/100/1000 Mbps full duplex		
	Should work with IPv4 and IPv6 addressing schemes		
	IP address Conflict Warning		
	Date and Time Support over NTP		
	Serial/Ethernet control port for integrating with external control system		
Network Capabilities	Packet Loss Based Downspeeding		
H.323/ IP Features	IP Precedence, QoS--DiffServe		
	IP adaptive bandwidth management (including flow control)		
	Auto Gatekeeper discovery		
	Auto Network Address Translation(NAT) support		
	Standards based- Packet Loss Recovery feature		
	System should support IPv4 and IPv6 from day one.		
	Should support URI Dialling		
	Support for H.245 DTMF tones in H.323		
Security			
Menu Control	Password protected system menu		
Encryption of video call	ITU-T standards based Encryption of the video call		
	Call should be encrypted end-to-end on IP		
	Should support Standards-based: H.235 v3 and AES Encryption via Automatic key generation and exchange. The same should be available in a call with Video with presentation (dualvideo)		
	Media Encryption (H.323, SIP): AES-128, AES-256		
	Ability to manually turn encryption ON/ OFF should be there.		
	Automatic key generation and exchange		
Management	System Management using HTTPS and SSH		
Directory services	Should support Local and Global directories		
	Should support LDAP and H.350 protocols for directory transfer.		Documentary Proof
Multipoint Capability	Should support built-in Multiconference capability to connect at least 1+4 sites at 720p30fps in a continuous presence mode. The licenses should be provisioned from day one .		
	All sites must be visible in a continuous presence mode with support for dynamic bandwidth allocation still mainatin a resolution of at least 720p		
User Interface	In order to provide a good user experience, the unit must be equipped with an intuitive Touch Screen/Panel for controlling the VC unit. Additional panels for chairperson shall be required at all locations .		
	Must have ability to browse the directory, serach a contact, Enable / disable speaker tracking, change layouts, mute/ unmute, increase-decrease volume.		
	Must support IPv4 and IPv6 from day one.		
	The user should have the ability to select between two presentation sources such as a fixed PC and a laptop from the user interface. Users should also have the ability to share presentation wirelessly.		
	The Touch Interface should be able to provide Room information such as display Room Temperature, humidity, air quality, ambient light etc		

	Must have the capabilty to integrate with external control systems to control Blinds, Lights, air conditioning using the API's . The User interface must have the necessary icons for controlling the external devices		
USB Passthrough	It should be possible to connect the Codec (directly or via external device) to a PC/Laptop and Make use of Camera, Mic and Display to work with any Soft Client applications such as Webex, Zoom, MS Teams, Vidyo, etc		
SIP Features	Should support URI and IP Dialing		
	The endpoints must support SIP in addition to H323 protocol.		
	Calls can be made on SIP and H323 without having to restart or reconfigure the endpoint.		
	The endpoint must register with any standard SIP server.		
	Must support data sharing capability in SIP calls for dual stream transmit and receive.		
Microsoft Team Room	The device must be MTR certified.		
Centralized Management	Should be provided with a Cloud Regsitration licences to register the device and to manage the device. Must support secure connection using HTTPS and SSH to the device		

Place :   **Authorized Signatory**
                                                              Name :
Date :   **Designation :**

Sr No.	Features	Response (Yes/No)	Remarks
1	A SIP based call control server with call control functionality distributed across WAN for enhanced redundancy.		
2	The solution should allow for business to business (B2B) video calls using SIP/H.323 with other organizations without bypassing existing firewalls.		
3	The solution should allow provisioning of gateways with redundant power supplies.		
4	The call control system should be fully redundant solution with NO single point of failures & should provide 1:1 redundancy. Both the server should do call processing all the time and act as backup in case of the failure of one server.		
5	The call control should support clustering over WAN		
6	The call control system should support IPv4 and IPv6 from day one.		
7	The proposed call control server should provide support for standards based SIP Client and Video Conferencing endpoints to provide centralized management and unified dial plan.		
8	Conference Bridge—provides software conference bridge resources that can be used by IP EPABX.		
9	The system should support creation of users and their authentication locally and via an integration with LDAP.		
10	Open API should be provided when required which will help to develop customized IP applications which will integrate with call processing.		
11	It is required to provide Survivable Call Control functionality so that the survivable system at the remote location i.e. Media Gateway shall provide fall back call control service in case the remote site looses all connectivity to the main Call Control system placed. It is expected that the survivability call control system will provide a minimal set of essential telephony features to the end-users that could be a subset of the feature that are available from the main call control system.		
12	All the appliances in the call control system should have dual redundant and hot swappable power supply and fans for high availability.		
13	All appliances in the call control system should have hot swappable storage media to ensure high availability.		
14	Support for configuration database (contains system and device configuration information, including dial plan)		

15	Having inbuilt administration web based administration. No additional thick client for administration on the Admin PC. Should also support HTTPS for management.		
16	Access to the system should be secure for the purpose of access over IP network. The protection of signaling connection over IP by means of authentication, Integrity and encryption should be carried out using TLS.		
17	There should be provision of defining password aging, one time passwords. Provision shall be available to bar unauthorized user to connect to the system. The system should monitor and report the following types of security \ violation login Violations, authorization code violation Station security code violations etc.		
18	IP Phones should not support direct, external initiated, connections via HTTP, telnet, FTP, TFTP or any other protocol as means to prevent distributed Denial of Service attack exploitation, except those required for routine firmware upgrades.		
19	Role Based Account Management to define different levels of administrator access depending on specific function responsibility		
20	The system should support complete encryption capabilities with the ability to encrypt all traffic (media and call control signalling) between IP phones, softphones, call controllers, gateways and all other associated endpoints using a strong encryption algorithm (AES, IPSec and SRTP, for example).		
21	All management traffic between the remote console/session and control server should be encrypted (SSH for Direct Command Line Sessions, Interface, HTTPS (SSL) for Web Sessions, SFTP for File Transfer Etc.).		
22	Should support SSL for LDAP directory integration.		
23	All Hardware & Software with license required for providing above Security measures must be incorporated.		
24	The System should have IP capability for interfacing & Communicating with Voice, Video and Data infrastructure		
25	The architecture should support a minimum of 500 VC systems per Server		
26	The System should have GUI support web based management console		
27	System backups: The management system should have the provisioning for taking manual as well as scheduling of automatic periodic backup of complete system & data.		

28	The call control system should provide integrated video telephony features to the users so that user with IP Phone / Soft phone and video telephony end point should be able to place video calls with the same user model as audio calls.		
29	The users should be able to transfer video calls as audio calls		
30	Call-Server should provide a common control agent for signaling, configuration, and serviceability for voice or video end points.		
31	Call control system should handle CODEC and video capabilities of the endpoints, bandwidth negotiation to determine if video/audio call can take place.		
32	SIP Video endpoints which should inherit the functionality of audio calls which gives the user the same call model for both video and audio calls.		
33	Call-Server should have the infrastructure to handle codec and video capabilities of the endpoints, bandwidth negotiation to determine if video/audio call can take place, single point of administration, management of media devices such as gateways and MCUs.		
34	Call-Server should provide a common control agent for signalling, configuration, and serviceability for voice or video end points.		
35	The Call Control solution must have Firewall Traversal capabilities to support at least 100 calls. All registered VC devices must be able to make SIP calls to the internet traversing through the Firewalls using H.460.18 and H.460.19 protocols.		
36	The Firewall Traversal solution must allow external SIP devices to join into meetings hosted on to the MCU.		
37	The complete solution including MCU, Recording Solution and Firewall Traversal deployed as a part of complete solution.		
38	All components should be from same OEM for better interop and integration.		
39	Hardware and Software of the MCU Solution should be from same OEM		
40	The MCU must be a secure and non-windows appliance-based server.		
41	All necessary hardware to support the required capacity needs to be supplied from day one.		
42	The MCU must also support Full HD mode and it must provide a capacity of connecting at least 240 participants @1080p30.		
43	The MCU must be able to host at least 10 simultaneous conferences each having different capacities restricted by the maximum port capacity of the MCU		

44	The MCU should have the capability to host meetings with internal and external participants in a secure way		
45	The MCU solution should support H323 and SIP protocols.		
46	The MCU must support the concept of virtual meeting rooms to users who Hosts meeting frequently. Such meeting rooms should support dialling in from standard based video end points, internal and external users and browser based clients.		
47	The MCU should be able to maintain the dynamic resource allocation capacity for 1080p, 720p and SD participants simultaneously without having to reboot or change any configuration.		
48	The MCU should have Chat Functionality for WebRTC Users during Meeting		
49	The MCU should display a security icon on the endpoint if the conference is secure.		
50	The administrator should be able to specify maximum resolution for main video and content for a meeting.		
51	Video conferencing endpoints deployed at other organization must be able to take part in video conferencing. The endpoints can be of various makes such as Poly, Cisco, Avaya etc using open standards.		
52	Interoperability with all organization must be possible using standards based dialling methodology using the Internet.		
53	The MCU should be able to integrate with Call Control system using SIP.		
54	The hardware proposed for MCU, Gatekeeper, Firewall Traveral, should have Redundant Power Supply Day one.		
55	Should support H.263/ H.264 video algorithms		
56	Should support video resolution from SD to Full HD to join into a conference		
57	The proposed MCU should be able to combine HD and SD in the same conference without degrading the HD resolution from and to the HD endpoints. The MCU shall interoperate with multiple vendors' endpoints.		
58	Along with the support for basic algorithms like G.711 and G.722.1 the MCU should also support wideband Audio protocols like MPEG 4 AAC - LC and MPEG 4 AAC - LD		
59	The MCU should support transcoding of different Audio/video Protocols.		
60	MCU should be able to combine HD and SD in the same conference without degrading the HD resolution from and to the HD endpoints.		

61	The MCU should have H.239/BFCP protocol for sending and receiving dual video streams (Presenter + Presentation).		
62	At least 25 sites to be seen simultaneously on the screen in traditional Continuous Presence mode.		
63	The MCU must also support advanced continuous presence such that the site that is "on-air" to be seen on a larger window and the other sites are seen in smaller quadrants.		
64	The MCU must be a secure Non-PC Hardware with a strong operating system. The Hardware and software must be from the same OEM.		
65	The MCU should support 128 Bit strong AES encryption for calls and H.235 for authentication		
66	The MCU must support encryption.		
67	At least 1 LAN /Ethernet--10/100/1000 Mbps full duplex and dedicated serial/USB connection for maintenance/upgrade.		
68	The MCU should support creating Custom Layout with Max 25 Sites on screen day one.		
69	The Recording System shall be compatible and integrate with proposed MCU and should be from same OEM. The MCU management should have Recording Button, which should start and stop the recording.		
70	The Recording System should be Virtual/OEM appliance with an Industry Standard Server provided with all the necessary accessories		
71	Records conferences at Full HD 1080p30 resolution with content		
72	The System should have min 200 hrs Recording storage capacity		
73	The System should support to recording to external storage such as a network file system (NFS)		
74	Bidder should provide license to record min 10 concurrent conference calls from day one, which can be extended to adding additional license in future		
75	Ability to record presentation or video from a live dual stream		
76	Ability to record calls up to 1080p30 high-definition (HD) resolution		
77	Support for H.323/SIP endpoints, multipoint control units (MCUs),		

Place :   **Authorized Signatory**

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Date :   **Designation :**

Sr No.	Features	Response (Yes/No)	Remarks
1	The Collaboration platform must be a OEM offered solution to register, manage, control all the Video Conferencing endpoints.		
2	The VC devices must register to the Collaboration Platform is a easy and intuitive method such that the Cloud Collaboration Platform must provide Registration, Admission and Control -RAS for the VC devices.		
3	All communication between the VC device and the cloud collaboration platform must be encrypted.		
4	Only devices that are configured and allowed to register by the administrator must be able to register using a secure verification methodology with secure certificates pushed onto the device for encryption.		
5	Once registered, the Collaboration Platform must allow SIP calls and Conference calls to be joined by the VC device. Every VC device must have a unique SIP URI which can be resolved over the internet. Thus B2B call must be provided by the platform.		
6	Inventory of all the devices registered onto the platform. This date must include the sl.no. of the codec, sl.no. of the peripherals such as cameras , Microphones etc.		
7	IP address, Name of the device, software versions, template applied.		
8	Ability to view and modify the configuration.		
9	Status of the device i.e Online, offline, in a all etc		
10	Errors on the device and suggested action to remedy them.		
11	Usage of the VC device: How many calls were made using what platform, whether the device was used for call or only for presentation.		
12	Detailed analytics: What methodology was used for presentation, what was the call quality, which meeting was joined in.		
13	Trends and usage over a period of time such as weeks and months.		
14	The Collaboration Platform must have readily available connectors for Calendar Integration such as O365 and Google Calendar. It should also have a connector for MS Exchange with secure connection.		
15	The users should be provided with a One Button to Start Meeting in order to start a pre-booked meeting so that the user can merely press the button and join into the meeting and not have to put in the meeting Id and password.		

16	All the VC devices must be enabled with a Voice Command systems such that the user can give Voice Commands to execute actions such as Connect a meeting, disconnect a meeting, Increase/decrease volume , start/Stop presentation etc.		
17	Advanced features such as digital name tag-which identify the persons face based on the photos uploaded by the user on collaboration platform portal and preferred name/designation must be available.		
18	Scheduling Calls		
18.1	The solution must have the ability to schedule calls natively or through a third party portal		
18.2	The above feature should allow the user to check avaialable VC rooms, devices and users and book the same in case they are free		
18.3	An automated e-mail notification should be sent to the requester and invitees on successful booking of the call.		
18.4	Permit scheduling of conferences from 3 months in advance		
18.5	Viewing avaialability of slots		
18.6	View avaialability of meeting rooms		
18.7	Providing a conference title while scheduling the meeting		
18.8	Drop down display of the various locations from where the user can select the location for the desired conference		
18.9	The e-mail should contain MS Outlook calendering details		
18.10	The users must be able to book VC meetings using Outlook such that the user can check the availability of a device for a particular day/time and then book according to free/busy status.		
18.11	Permits editing of conference scheduling even after doing the initial booking anytime till the end of the conference		

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Technical Specifications for Collaboration Client for Computer/laptop/Mobile device for Virtual meeting room for Cloud Video Bridge

Sr No.	Features	Response (Yes/No)	Remarks
1	The collaboration platform should provide an app for the user that provides the user to collaborate with high-quality audio, video, and web conferencing.		
2	The tool should have the capability for document, application, and desktop sharing		
3	The tool should have the capability for annotation on a presentation that is being shared, in a meeting. The user should also have the functionality to co-annotate with two users being able to co-annotate on the same document/presentation.		
4	The tool should provide High-quality video ; full-screen video; up to 25 simultaneous video participants to be seen on the screen and voice-activated switching. Other layouts such as a prominent window for speaker and other participants being seen in equal sized quadrants must be there.		
5	The tool should support meetings and recording capabilities including downloadable recordings and playback		
6	The tool should have Start, join, schedule, and attend online meetings from mobile devices		
7	The solution should allow for H.323 and SIP based hardware based Video conference endpoints deployed in conference rooms with a PTZ Camera and codec to seamlessly join as a participant into the meeting with other users connected on the web conference using a web camera, Internet and audio speakers and microphone.		
8	Must allow at least 100 SIP calls in each session.		
9	The solution should allow for the users connected on the web based tool to share video, audio and content with the hardware based Video conferencing device and vice versa.		
10	Video Resolution: main video up to 1080p at 30 fps		
11	Single, dual, and multiscreen standards-based video conferencing systems		
12	Advanced Encryption Standard (AES) 128-bit encryption		
13	**Signaling protocol support:** H.323/SIP, TLS		
14	**Media protocol support:** RTP, sRTP, and RTCP		
15	**Content share (dual video) protocol support:** Binary Floor Control Protocol (BFCP)/H.239		
	The users connected in to the web meeting from desktop should be able to connect on audio using any of the following methods:		

16	The users connected in to the web meeting from desktop should be able to connect on audio using any of the following methods:		
	Computer audio		
	Call back or Dial In with Telephone Service Provider (PSTN) audio (desirable)		
	The users connected in to the web meeting from desktop/laptop/ipad should be able to dial into the meeting or the server should call the user back on audio.		
17	The solution should support the following advanced security features such as :		
	Personal Identification Number (PIN)-protected access into meetings from video endpoint		
	Meeting lock/unlock for added privacy to prevent unintended participants from joining		
	Authenticated access into meetings on desktop and mobile apps		
18	During the meeting , the user should be able to have the following controls		
	See all meeting participants in a unified participant list		
	Drop participants		
	Record sessions with video, audio, and content for future reference, training, or demonstrations. A capacity of 500 MB per host must be provided.		
	Mute, unmute audio of participants		
	Should have Live captions in English		
19	The web conferencing users and users joining from SIP/H.323 video conferencing endpoint should be able to have multiparty meeting.		
20	Host of the meeting must be able to control features such as : Mute participants, Expel participants, Set the layout that is being viewed by the participants, Allow or restrict presentation sharing		
21	Users must be able to have features such as: Raise hand, Chat with other participants or host, Emojis to be shared during meetings, gesture control for emojis, ability to share entire screen or application during meetings.		
22	Collaboration Features should also be aligned with Bank's requirements:		
	Breakout Rooms		
	Mac, Windows, Linux, iOS and Android		
	Group messaging and presence		
	Screen share any iPad/iPhone app		
	Co – annotation on shared screen		
	Keyboard/ mouse control		
	White boarding		

23	Confidential and important meetings need to be hosted only on the on-premise MCU node such that no media is sent to the cloud. This is required for meeting marked as confidential.		
24	Only Video conferencing devices should be able to join Confidential meetings and soft clients should not be allowed to join such meetings.		
25	Recording of confidential meetings should not be done on cloud and should be done using an on-premise recorder. At least 10 such conference should be recorded simultaneously.		
26	The single meeting should have around 1000 web based users joining from desktop/laptop etc.		
27	The solution should be sized for 300 Host ID's on a concurrent basis with each host having upto 1000 attendes. Hardware Based endpoints should register to the same cloud.		
28	The data centre where the conferencing solution is hosted must be SOC 2 compliant		
29	Data at rest/data in transit must be encrypted for secure transmission. Data purging certificate should be available with OEM to assure preserving and secure disposal of data.		
30	User and administrator access control and activity logs are managed and maintained for specific/defined timeframe in the collaboration solution		
31	The collaboration platform must have "End-to-End Encryption". This should ensure that the traffic is encrypted from the source to destination without getting decrypted anywhere in between.		
32	Supporting documents should be submitted as proof of compliance.		
33	Audio and Video Watermarks to analyse if anyone has recorded meeting.		
34	When a meeting has audio watermarks, you can upload audio recordings to Administrator Console, which then analyzes the recording and looks up the unique identifiers. You can look at the results to see which source client or device recorded the meeting		
35	Visual watermarks superimpose a watermark image over the meeting video and shared content. Each meeting participant sees a watermark image with their own email address.		
36	Visual watermarks must be available for video conferencing devices joining into such meetings. The name of the conference room device must be visible in the watermark.		

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Technical Specifications for Collaboration Client for Computer/laptop/Mobile device for Virtual meeting room for Cloud Video Bridge

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Sr No.	Features	Response (Yes/No)	Remarks
1	The system should be an integrated system with Codec, Dual or more 4K Cameras, Built-in Microphone, Cables and Power Supply and 75" Touch 4K LCD/LED Screen.		
2	75" screen, Codec, 4K Camera, built-in Microphones and Mounting kit should be from same OEM with a single OEM part code. The system should not be a locally fabricated unit.		
3	The system should deliver 1080p@60fps in motion and in sharpness video mode from day one.		
4	The System should be available with Floor Mount options. Also wheel base option should be available from the OEM from day one to move the device from one location to another.		
5	Should have Annotate feature , users can immediately write on any content as your ideas flow, mark up changes, or iterate on projects		
6	Store whiteboards in the cloud , in OneDrive, or share them via email		
7	Write with up to two stylus pens at the same time and zoom with your fingers		
8	Easily move, add, and delete digital sticky notes.		
9	Active stylus allows selection, erase, and other advanced features on canvas		
10	Should have Dual 4k Camera at 80- and 120-degree field of view allows for close and further participants to be seen clearly when they speak. The Cameras must be autoselected by the software depending upon the location of the active speaker.		
11	Should have Background noise removal to keep the meeting attention on the active speaker by eliminating background noise.		
12	Should support most used web-based applications to run directly on the Board		
13	System should support SIP and upto 6 Mbps of bandwidth for point-to-point		
14	System should support latest video standards H.264,H.265 or better.		
15	Should havde native 16:9 Widescreen		
16	Should support Local Auto Layout		
17	One HDMI input with support for formats up to maximum 4K (3840 x 2160) at 30 fps to connect PC/Laptop.		
18	Should have another USB-C DisplayPort up to 3840 x 2160p60 (4kp60)		
19	Must have a Built-in Display and atleast 1 HDMI output to connect additional 3rd display. The second monitor must support the following modes: 1) Presentation Only Mode.		

19	2) Duplicate Main Monitor		
	3) Act like a second monitor. Displays non-active participants in a video call when there is no presentation and displays content when it is shared.		
20	System should have integrated 75" Touch Monitor with 4K resolution and Luminance Typ 350 cd/m2.		
21	Viewing angle must be at least +/- 85 degrees.		
22	System should support live video resolutions up to Full HD		
23	Should support G .711, G.722, G.722.1, OPUS		
24	Should have a built-in microphone 12-element microphone array (with intelligent voice tracking).		
25	Should support following audio feature:		
	Acoustic echo canceller		
	Automatic Gain Control (AGC)		
	Automatic Noise Reduction		
26	Should have additional 2 analog input to connect 2 mic from day one. 2 mic need to be delivered from day one.		
27	Should have integrated speakers		
28	Multi-channel loudspeaker system with high-quality full-range drivers and separate force-cancelling woofers		
29	System should have 1 additional audio output port of 3.5 mm, and USB-C output		
30	System should have the capability to support Presentation Shaiting along with Main Video		
31	System should support resolutions upto 1080p and 4K during Presentation Shairing		
32	System must have the ability to pair with laptop for sending content without any wires to the VC system.		
33	In case the above feature is not available natively, then additional components can be provided to achieve this.		
34	Must support Miracast and Apple Airplay natively.		
35	System should have H.323 and SIP capability		
36	System should have features such as TCP/IP, DHCP, Auto gatekeeper discovery, Date and Time support via NTP and URI Dialing.		
37	Standards-based: H.235 v3 and Advanced Encryption Standard (AES-128 or 256)		
38	System should have 1 LAN/Ethernet--10/100/1000 Mbps full duplex		
39	System should have Wi-Fi - 802.11a/b/g/n/ac 2.4 GHz/5 GHz		
40	The system should support the following security features:		
	1. Administration of the Video endpoint should be through Web Interface using HTTPS/HTTP		
	2. It should be possible to password protect administration menu		
	3. Should have IP services disable feature		
41	Should have mnimum 2 nos of 4K camera		

42	Should support atleast 80 degrees horizontal field of view and minimum 12 MP image sensor with 1/2.3" CMOS		
43	Should have the capability to automatically detect active speakers in the conference room. The camera should have face detection mechanism to enable automatic framing of participants.		
44	The camera and codec should be from the same OEM.		
45	Should support remote software upload: via web server, HTTP, HTTPS		
46	Should Support built-in Multiconference capability to connect at least 1+4 sites at 720p in a continuous presence mode. This feature should be made available by adding license in future.		
47	System should be accompanied with Power Cable, LAN Cable, presentation HDMI Cable and Power adaptors. Any other cables required		
48	System must have an intuitive Touch Screen/Panel for controlling the VC system.		
49	System must have ability to browse the directory, search a contact, dialpad for dialing numbers and SIP URI's, configure camera presets, change layouts, mute/ unmute, increase-decrease volume.		
50	The Unit should support Touch Re-Direct to a PC and should control the PC Remotely, vua HDMI and USB Cable Connected to the PC.		
51	It should be possible to connect the device (directly or via external device) to a PC/Laptop and Make use of Camera, Mic and Display to work with any Soft Client applications such as Webex, Zoom, MS Teams, Vidyo, etc		
52	The Interactive Display must be able to integrate with the proposed SIP Server natively or over standard Protocol followed by RFC 3261. The Interactive must be able to operation in the conjunction with SIP Server and Multi-Party Conferencing Unit for Video Conferencing & Calling both.		

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Technical Specifications for Links

Sr.No	General Functionality	Response (Y/N)	Remarks
1	Dedicated 1:1, wired,unshared, unfiltered, MPLS links of 3 Mbps and 4 Mbps bandwidth (at select locations) for each setup at respective LIC room based VC locations. In case one site has more than one setup (say "n" setup) the vendor may choose to provide 3/4 x n consolidated bandwidth or individual 3/4 Mbps each at the respective "n" setup .		
2	In case a consolidated bandwidth is provided (as mentioned above 3 x n or 4 x n) each endpoint should get 3 Mbps or 4 Mbps dedicated bandwidth by way of QoS .		
3	The links should support full HD Video traffic		
4	Latency Local Lead - 30 milliseconds (Maximum)		
5	Packet Delivery Packet drop should not exceed one out of every one thousand packets		
6	Jitter - 10 milliseconds (Maximum)		
7	Links shall be terminated on Fiber Channel/Ethernet/Serial interface port of the router which will be arranged by the vendor at the LIC room based locations.		
8	The links should support encrypted traffic . Minimum encryption standards expected is AES-128 bit encryption .		
9	The end to end traffic should be encrypted (media as well signal)		
10	Uptime - 99.99% per month		
11	Online Portal for Link Performance/latency/utilization/packet loss monitoring and reports generation. - Realtime, Hourly, Weekly, Monthly etc.		
12	Proactive monitoring of the link procured by LIC - 24x7x365 support		
13	Incident Reports - Monthly		
14	The ISP should be in a position to block Distributed Denial of Service (DDoS) attack at their end.		
15	The ISP should have Dual Stack (IPv4 plus IPv6) ready Network.		
16	Circuits should be in ring architecture with different exchanges connected to take care of last mile failure.		
17	The bidder should have the capability of increasing / decreasing bandwidth on demand and such changes in bandwidth must be provided within 21 days.		
18	The network should be MPLS with QoS an CoS for Video traffic		

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Technical Specifications for Streaming Platform

Features	Specifications	Response (Y/N)	Remarks
Capacity	Should allow Video Conferencing Sessions to be broadcast to a large number of people using Streaming/Webecast technology		
	Must support at least 80000 (eighty thousand) attendees to join a single Webcast/streaming session using their browser. Standard browsers Firefox, Chrome, Edge must be supported.		
Panelist	A set of designated users or VC devices should be able to join into the Streaming platform using SIP/VC devices. These users/VC devices shall be designated as Panelist. It should be possible to designated panelist basis their user name and password or their identity.		
	Panelist must be able to join in from any VC conference room.		
	Panelist can share their audio, video and presentation		
Attendees	Attendees must be able to join into the Streaming session using their browser or WebRTC		
	Attendees should be able to only view the Audio, Video and presentation and should not be able to send audio and video.		
Registration	The streaming platform must have a process to create a customizable registration webpage for attendees to register. Parameters that should be customizable are:		
	1) Title of the Session		
	2) Background of the webpage		
	3) Fields that need to be entered by the Attendee to identify himself.		
	4) Add Logo.		
	The administrator or Host of the session must be able mandate registration and define registration acceptance policy to be automatic or manual.		
	Only participants whose registration has been accepted will receive details of the streaming link and log in.		
	Integration with AD must be supported.		
	Host must be able to create a single Session or a Series that consist of multiple sessions' occurring at regular intervals.		
User Experience	User should be able to join Streaming sessions for which he/she is entitled basis acceptance of registration. Log should be using SSO.		
	The Streaming interface must have the following ways of interactivity with the panelists:		
	1) Q&A		
	2) Emojis		
	3) Chat		
	The host or moderator of the session must be able to define which panelsits are seen on the screen. Thus the panelist must be able to define a virtual stage for the audience.		
	Additional features such as defining a virtual background for the stage must be supported.		
	Time delay of the live streaming shpuld be in the range of 25-30 seconds		
	Proper synchronization of the video and voice during the live streaming		
Security	The platform must be ISO 27001 certified		
	The platform must be operated from a Datacentre which must be SOC 2 Type II compliant		
	TLS 1.2+ (signaling) & AES-256-GCM (media)		

	Data must be encrypted when at rest and in transit		
Engagement with audience	The audience should be engaged with tools such as an interactive Q&A, live polling, Select Options to a question etc using built in or 3rd party tools. When using 3rd party tools these must be tightly integrated.		
	Closed Captions for English language is desirable		

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LIC-CO/IT-DT/NW/RFP/2025-26/01 Dated: 06/10/2025
Technical Specifications for Display Unit

Paramater	Specifications	Response (Y/N)	Remarks
Screen Size (Diagonal) Minimum (cm)	75 inches		
Panel Technology	VA		
Native Resolution (Pixels)	3,840 x 2,160 (4K UHD)		
Aspect Ratio	16:09		
Brightness (Nits) Minimum	400 nits		
Viewing Angle (Horizontal:Vertical)	178/178		
Response Time (milli seconds)	8ms		
Wattage of Speakers	Built in Speaker(10W + 10W)		
Processor	A53 Quad Core 1.5 GHz, Mali -G52MC1-GPU		
Input	HDMI 2.1 (3), USB 2.0 (2)		
RF IN	RF X 1		
DTV	DTV X 1		
AV IN	Mini AV X 1		
SPDIF	SPDIF Out ax 1		
HDMI CEC	Yes		
Sound Output (ARC)	Yes		
HDR 10	Yes		
DTS	Yes		
Dolby Audio/Dolby MS12	Yes		
Duty Cycle	24x7		
Signage	Signage feature from same OEM		
Special Features Inbuilt SOC OS	Bluetooth, Built-In WI-FI, 16 GB Inbuilt Memory, 2 GB RAM, Built In Android 11 OS		
On Site OEM Warranty (Year)	5 years		
Certificates	BIS & MII		

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Technical Specifications Video Conferencing devices for Conference Rooms with Existing Display

Features	Specifications	Response (Y/N)	Remarks
Video Standards	Latest video standards H.264, H.265		
Video Frame Rate	Should support 30 fps with 1080p resolution.		
Video Features	Ability to send and receive two live simultaneous video sources in a single call, so that the image from the main camera and PC or document camera can be seen simultaneously.		
	Should support H.239 and BFCP protocols		
	The system must have the ability to pair with laptop for sending content without any wires to the VC system.		
	In case the above feature is not available natively, then additional components can be provided to achieve this.		
Video Output	Should have at least 2 no.'s of HDMI output to connect Full High Definition display devices such as plasma and projectors for both Video and Content.(Dual Monitor Support). Resolution upto 4K60fps		
Video Input	Should have a digital input (HDMI/DVI) to connect PC/ Laptop directly to the Video conferencing system and display resolutions upto 4K30fps and 1080p60fps		
	Should support the ability to view and share presentations at a resolution of 1080p30		
Audio standards supported	G.711, G.722, G.722.1, 64 kbps MPEG-4 AAC-LD standard must be supported.		
Other Audio features	Noise Removal, Automatic Gain control, Acoustic Echo Canceller, Active Lip syncronization		
Audio Inputs	Must have built-in microphone so that the solution does not have any wires coming onto the table.		
	Should support 2 Microphone inputs. One Mic should be supplied day one.		
	The pick up of the microphones should be at least 10 feet from the microphone.		
	Echo Cancellation for every input must be available.		
Audio Outputs	Must have a built in audio Loudspeaker for providing Hi Quality sound.		
Multisite Features	Should support built-in multiconference capability to connect at least 1+3 sites at 720p30fps in a continuous presence mode. This should be available by adding a license key in future.		
	H.323/SIP/VoIP in the same conference		
	Must have Individual transcoding for each site so that all the sites can be connected at different bandwidths and different audio and video protocols without affecting the resolution to the other sites.		
	Support for Presentation (H.239/BFCP) from any participant at resolutions up to 1080p30		
	H.264, Encryption, Dual Stream from any site		
Network Interfaces	1 LAN /Ethernet--10/100/1000 Mbps full duplex		
Bandwidth	H323/SIP upto 6 Mbps point-to-point.		
Network Capabilities	Packet loss handling mechanism		
H.323/ IP Features	Differentiated Services(QOS):		
	IP adaptive bandwidth management (including flow control)		
	Auto Network Address Translation(NAT) support		
	Standards based- Packet Loss Recovery feature		
	Should support URI Dialling		
	Support for H.245 DTMF tones in H.323		
	Should support IPv4 and IPv6 from day one.		
Management	System Management using HTTPS and SSH		
	In order to provide a good user experience, the unit must be equipped with an intuitive Touch Screen/Panel for controlling the VC unit.		

User Interface	Must have ability to browse the directory, search a contact, Enable / disable speaker tracking, change layouts, mute/ unmute, increase-decrease volume.		
	The Touch Interface should be able to provide Room information such as display Room Temperature, humidity, air quality, ambient light etc.		
	Must have the capability to integrate with external control systems to control Blinds, Lights, air conditioning using the API's . The User interface must have the necessary icons for controlling the external devices		
Menu Control	Password protected system menu		
Encryption of video call	ITU-T standards based Encryption of the video call		
	Call should be encrypted end-to-end on IP		
	Should support Standards-based AES Encryption via Automatic key generation and exchange. The same should be available in a call with Video with presentation (dual video)		
	Ability to manually turn encryption ON/ OFF should be there.		
	Automatic key generation and exchange		
Camera	10MP camera		
	5x Zoom		
	Should support at least 120 degrees horizontal field of view and 90 Degrees Vertical FoV		
	Should have the capability to automatically detect active speakers in the conference room. The camera should also have face detection mechanism to enable automatic framing of participants.		
	The camera should automatically detect who in the room is speaking and select the best camera framing for that person. And when no one is speaking it should automatically select the best group framing.		
	Should have the ability to turn OFF speaker tracking if need be.		
	The camera should have the capability to capture the people in the room in Frames mode, such that when there is an empty space between two people , this empty space is removed and the two people are shown in two different frames with a virtual line between these two people. The Frames mode must support at least 4 frames and should maintain spatiality of the room such that a person on the left is always seen on the left and the one on right is always seen on the right side.		
	The camera and codec should be from the same OEM.		
Directory services	Should support Local and Global directories		
	Should support LDAP and H.350 protocols for directory transfer.		
USB Pass-through	It should be possible to connect the Codec (directly or via external device) to a PC/Laptop and Make use of Camera, Mic and Display to work with any Soft Client applications such as Webex, Zoom, MS Teams, Bharat VC, etc.		

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