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No. B.V-7-C/2025-26-C (VC)-QR CELL Dated, the 04 May'2026

Subject: - REQUEST FOR COMMENTS OF STAKEHOLDERS /OEM/FIRMS ON DRAFT QRs & TDs OF "MCU (MULTIPOINT CONTROL UNIT) BASED VIDEO CONFERENCING SYSTEM ALONG WITH ACCESSORIES" REGARDING.

The Draft QRs/TDs of "**MCU (Multipoint Control Unit) based Video Conferencing System Along with Accessories**" are attached as **Appendix 'A'**. The OEMs/Vendors are requested to forward information of the product, which they can offer and also forward correct specifications of their product against each parameter. Only complied or not complied remarks will not be accepted. The firms are also requested to furnish the following details: -

- Whether you are OEM/Vendor?
- If vendor, details of OEM required.
- Authorization certificate from OEM.

2. The required information/details may please be forwarded at the following addresses by 20 **May'2026**.

Communication Directorate, CRPF
East Block-7, Sec-1, R.K. Puram, New Delhi-110066
Email: comncell@crpf.gov.in

3. An early response is requested.

04/5/26

Ujjwal Kumar Singh, AC(QR)}
For DIG (Equipment)
Communication & IT Branch
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DRAFT QRs/TDs of MCU (MULTIPOINT CONTROL UNIT) BASED VIDEO CONFERENCING SYSTEM ALONG WITH ACCESSORIES

S.N.	Parameters	Specifications	Trial Directives
1.	**VIDEO**		
1(a)	Signal system	The VC Endpoint Solution should be codec based and should be a point to point system with FHD **(1080p) camera resolution with support for UHD/4K (2160p)** with a minimum of 12x Optical Zoom, Mic, Remote control/Touch Panel, cables and power supply.	Refer user documentation. Mic, Remote Control, Cable and Power Supply can be physically verified.
1(b)	Standards and protocol	H.264, H.264 High Profile, H.265 or better	Use legacy endpoint during field trial and connect the same with offered endpoint
1(c)	Resolution	The system should support video resolution from 720P@30fps, 1080p@30fp, **1080p@60fp** ,4k@30fps or higher. The Content sharing resolution shall support minimum 1080p and preferably 4K (up to 4K@15fps **or better** during VC call).	Refer the user documentation. Also check the call statistics when call is on between two endpoints.
1(d)	Frame Rate	Minimum 30 FPS	Refer the user documentation
1(e)	Bandwidth	The system should support point-to-point video conferencing up to **2/4/8 Mbps OR Better** over IP network**.** (As per user Requirement)	Connect a call on 4Mbps and check that endpoints bitrate in call statistics.
1(f)	Video Inputs	The system should have minimum **02 x HDMI Ports and 01 x USB-C input port** and **01 x DP Port**. The system should support content sharing from PC/Laptop/Document camera.	Refer the user documentation and check the port physically on endpoint.
1(g)	Video Outputs	The system should have 2 video outputs 2XHDMI (High-Definition Multimedia Interface) / **DP Port**	Refer the user documentation and check the port physically on endpoint.
1(h)	Picture in Picture	Should support Picture in Picture (PIP)	Refer the user documentation and check the port physically on endpoint.
1(i)	Connectivity	The system should support LAN connectivity and optionally support Wi-Fi (802.11 a/b/g/n/ac/**ax or better**) and Bluetooth for wireless connectivity and wireless content sharing from smartphones, tablets, or laptops (Android / iOS).	Refer the user documentation and check through trial.
2.	**AUDIO**		
2(a)	Standards and protocol	G.711, G.722, G.722.1 or better	Refer the user documentation.
2(b)	Features	CD- Quality audio or Equivalent or Higher, Instant Adaption Echo cancellation or Equivalent or Higher Automatic Gain Control (AGC) or Equivalent or Higher Automatic Noise Suppression (ANS) or Equivalent or Higher.	Refer the user documentation.
2(c)	Audio Inputs	It should have 2 Audio Inputs (microphone / line-in / HDMI) or equivalent or higher and support for additional microphones as required.	Refer the user documentation and check the port physically on endpoint.

2(d)	Audio Outputs	It should have Minimum 2 Audio Outputs (HDMI, line-out for external speakers) or Equivalent or Higher and supporting multiple display outputs if needed.	Refer the user documentation and check the port physically on endpoint.
2(e)	Lip synchronization	Active Lip Synchronization or Equivalent or Higher	Connect the call and interact with the far end and see Lip Synchronization.
3.	**NETWORK**		
3(a)	Features	The system shall support **IPv4 and** should be ready for IPv6. The system should have features like **QoS/RSVP or equivalent for prioritization,** Packet loss based down speeding TCP/IP, DHCP, Auto Gatekeeper discovery, Dynamic Layout/lip sync buffering Protocol, DTMF, signalling tone, Date and Time.	Refer the user documentation. Also see the system settings for the ready for IPv6.
3(b)	ITU-T Standards	The system shall support **ITU-T dual stream (H.239) in both H.323 and SIP modes.**	Refer the user documentation.
3(c)	Network Protocols	H.323 and SIP protocols shall be supported for interoperability with existing and future VC systems.	Refer the user documentation.
3(d)	Interfaces	The system shall have at least **one Gigabit LAN port**. Optional **Wi-Fi or additional network interfaces** may be provided as per **user** requirements.	Refer the user documentation. Check the port physically on endpoint.
3(e)	Inbuilt MCU in end point	The endpoint shall have the **option of inbuilt MCU**. The number of ports shall be configurable based on user requirements. The system shall support **built-in conference capability to connect at least 1+3 sites at 720p@30fps in continuous presence mode**, which can be expanded in future using a license key.	Refer the user documentation.
3(f)	Security	Should capable of **AES-256** Bit or better for data encryption	Refer the user documentation.
4.	**CAMERA**		
4(a)	Image Sensor	**High-Quality 1/2.7" CMOS Sensor or better**	Refer the user documentation.
4(b)	Pan	Plus/ Minus 170 degree or More	Refer the user documentation. Check the right and left movement of the camera only.
4(c)	Tilt	Plus 10/ Minus 15 Degree or more	Refer the user documentation. Check the up and down movement of the camera only.
4(d)	Focus	Automatic/ Manual	Refer the user documentation. Zoom the camera on an object and check that auto focusing functionality.
4(e)	Total Field of View	250 Degree or More	Refer the user documentation.
4(f)	Horizontal View angle	65 Degree or More	Refer the user documentation.

4(g)	Zoom Ratio	12x Optical Zoom or better	Refer the user documentation. Zoom the camera and see.
4(h)	Remote Control	IR/Wireless	Refer the user documentation. Check the remote functionality.
4(i)	Microphone	2 x 360 Voice Pickup microphone	Refer the user documentation. Check the voice pickup of microphone from all directions.
4(j)	Administration	The administration of the Video endpoint should be through web interface using **HTTPS** (Hyper Text Transfer Protocol Secure)	Refer the user documentation. Browse the system through web interface and check the functionality.
5.	**System Features**		
5(a)	**CAPACITY**	(i) N ports@ 4Mbps with Full HD 1080p@ min 30 fps (4k supported). resolution should be supported on the same chassis / module/ Virtual Server without cascading with rate matching. The maximum number of ports upgradable/scalable up to 50 ports Full HD 1080p. (Note - Port capacity "N" to be decided by user department as per their requirement)	Refer the user documentation. Connect a call on the MCU and check the call statistics.
		(ii) The MCU should additionally support will be joining of ' N' Audio only participants. (Note - 'N" to be decided by user department)	Refer the user documentation. Add audio participants during a call and check the functionality.
		(iii) **Optional** External or internal **2 PRI-ISDN gateways** shall be supported for converged IP networks; scalable as per user requirements.	Refer the user documentation
		(iv) The system should 1080p in continuous presence.	Refer the user documentation. Add more two locations and see if they are displayed in a single screen.
		(v) The MCU must support 2 no's of 10/100/1000 Mbps Ethernet.	Refer the user documentation. Check the port physically.
5(b)	**AUDIO SUPPORT**	Audio Codecs G.711, G.722, G.722.1 or better	Refer the user documentation.
5(c)	**VIDEO SUPPORT**	Video codec **H.264, H.264 High Profile, H.265 or better**	Refer the user documentation. Connect legacy equipment and check the functionality of the system.
5(d)	**GATEKEEPER**	The Solution shall support an embedded/external Gatekeeper for minimum 200 registrations and "N/2" concurrent calls. MCU shall have the capability to support the PC/laptop for presentation sharing over LAN/IP network via Video endpoint. (Note - 'N" to be decided by user department).	Refer the user documentation. Register endpoint to the gatekeeper and management device and check the functionality. Send a presentation in a call and see the PC presentation.
5(e)	**NO's OF CONFERENCES**	The Solution for MCU should support multiple simultaneous conferences "N" conferences as per the MCU port capacity. Conferencing highlights auto/personal layout, active speaker indication, lecture / presenting mode, conference profiles.	Refer the user documentation. Create multiple conferences on the MCU and connect them from various endpoints.

5(f)	**CONTINUOUS PRESENCE VIEW**	MCU should support 24 Continuous Presence (CP) or better on a single screen	Refer the user documentation. Add 16 locations and see if they are displayed in a single screen.
5(g)	**INTERACTIVE KEYPAD**	MCU shall have a built-in auto-attendant/IVR from whom users can select conferences to join or start a new conference to join or start a new conference. This shall be operated using either DTMF or FECC (Far End and Camera Control)	Refer the user documentation. Connect a call and check the functionality.
5(h)	**DYNAMIC CP LAYOUT**	The MCU should support dynamic layouts wherein layout should adjust based on the participants joining the calls. MCU shall support automatic down speeding and packet error loss concealment methods to ensure optimum video, and audio quality. The MCU must provide standards based on method of compensating and correcting for packet loss of media streams.	Refer the user documentation. Connect a call and check the functionality of layout changing dynamically.
5(i)	**CHAIRPERSON VIEW**	IT should have chairperson/ Administrator view	Refer the user documentation.
5(j)	**FAR END CAMERA CONTROL (FECC) AND VOLUME CONTROL**	It Should be possible to control far end camera.	Refer the user documentation. Connect legacy equipment and check the functionality of the system.
5(k)	**H-239 Support**	The MCU shall support H.239 (Sharing content through Video Conferencing)	Refer the user documentation.
5(l)	**DIAL-OUT CAPABILITY**	Should dial out automatically to all participants. Retry dial out conferences to complete call setup and should report specific failures. MCU shall support dual video H.239 and ability to send content also.	Refer the user documentation. Connect the call and check the far end camera and see the functionality.
5(m)	**DIAL IN CAPABILITY**	Should offer dial-in and/or dial out capability.	Refer the user documentation.
5(n)	**SECURITY**	The MCU should support one level or more of conference password-Chair Person and Participant password.	Refer the user documentation. Add participants to the MCU and try dialling out from the MCU's interface.
5(o)	**OTHER FEATURES**	i) MCU Shall provide HD quality in continuous presence to all HD (1080p) endpoints connected and deliver this even if SD or HD end or port of the conference. The solution shall support standard definition and high definition in both voices activated and continuous presence mode without loss of functionality.	Refer the user documentation. Connect participants from PC and check the functionality.
		ii) MCU shall support communication up to 2/4/8 Mbps OR better per port using video codec H.264, H.265 or better.	Refer the user documentation. Connect participants from PC and check the resolution.
		iii) MCU shall support conferences that permanently exist but use no resources/port if no. Participants are in the conference. The functionality gives end user the flexibility to Directly join the conference without having to depend or wait for the system administrator/operator.	Connect a call on **2/4/8 Mbps OR better** and check that endpoints bitrate in call statistics.
		iv) The MCU must support ability to terminate two different non- routable networks, so that video calls from either network can be connected into	Refer the user documentation. Create permanent conferences on

		a single conference without compromising on the security.	the MCU and see if ports are consumed.
		v) MCU shall provide a built-in/web Interface, for configuration and administration.	Refer the user documentation. Connect calls from two separate networks and check the functionality.
		vi) MCU shall support 2 access level/user privileges from administrator to simple guest	Refer the user documentation. Browse the system through web interface and check the functionality.
		vii) MCU shall have a built-in/external address book and built-in/ external scheduling.	Refer the user documentation. Create multiple users on the MCU with different rights.
		viii) The MCU shall support scheduled conferences and ad-hoc conferencing mode at the same time for all the N ports of the system.	Refer the user documentation. Add participants to the address book of the MCU and check the functionality.
		ix) MCU shall support a predefined and unique PIN for each conference.	Refer the user documentation. Add an ad-hoc participant to the MCU and check the functionality.
		x) MCU shall allow users to create conferences on the fly from their end points without the need of Administrator / operator	Refer the user documentation. Create a conference and assign a pin to check the functionality.
		xi) The MCU shall support a mix of resolution in both voices activated mode and Continuous presence. Each end point shall receive at the maximum of its capacity without reducing the capacity of another.	Refer the user documentation. Add participant on the fly and check the functionality.
		xii) MCU shall be capable of supporting H.323, SIP and H.235 in the same conference at any bandwidth resolution.	Refer the user documentation. Connect a call on the MCU and check the functionality.
		xiii) Features Like **"Do Not Disturb"** and **"Auto Mode"** should be available.	Refer the user documentation. Connect a call and check the functionality.
		xiv) The system should have inbuilt functionality to use the VC system as an external camera and microphones when connected to a Laptop/PC over a single USB cable without using any external hardware components to connect to any Cloud Based VC platform like Cisco Webex, Zoom, Blue Jeans, Microsoft Teams, Google Meet, etc. The system should be able to support up to 1080p30fps video transmit in USB Pass-thru mode. It should be possible to Mute/Unmute all the microphones and control camera functionality from the same touch control panel during USB pass-thru mode.	Refer the user documentation and be checked by BoO.
		xv) It should be possible to natively register the VC system with **Other VC Platforms** for native cloud-based video calling features and experience. USB Pass-Thru mode functionality should also be available when the system is running in **Other VC Platforms**.	Refer the user documentation and be checked by BoO.

		xvi) It should support inbuilt feature for wireless content sharing from Windows, MacOS, Android, iOS Smartphones & Tables without downloading any application on the user device.	Refer the user documentation and be checked by BoO.
		xvii) It should support Content Annotation and Whiteboarding/ Blackboarding capability when connected to Touch Enabled Display/ Monitor.	Refer the user documentation and be checked by BoO.
5(p)	**CENTRALIZED RECORDING**	The MCU server either internally or externally should be able to record the ongoing conference on HD 1080P for multiple conferences Simultaneously (Min 500 hrs VC storage capacity)	Refer the user documentation. Record and ongoing conference and check the functionality.
5(q)	**CONNECTVITY WITH EXISTING UCM. (OPTIONAL FOR USER DEPARTMENT)**	It should support video conferencing with other UCM (Unified Communication System) Port capacity can be decided by user department	Refer the user documentation. Connect the UCM like Microsoft **Teams, Webex** etc and check the functionality.
5(r)	**DISPLAY UNIT**	**(Optional)** Dimension and features of display unit may be decided by user department as per their requirement.	Design the display plan as per as per requirement of conf hall or room.