ΤΕΥΧΗ ΠΡΟΣΚΛΗΣΗΣ ΔΕΑ-41923

ΓΙΑ ΤΗΝ:

«ΠΡΟΜΗΘΕΙΑ, ΕΓΚΑΤΑΣΤΑΣΗ, ΠΑΡΑΜΕΤΡΟΠΟΙΗΣΗ, ΤΕΧΝΙΚΗ ΥΠΟΣΤΗΡΙΞΗ ΚΑΙ ΣΥΝΤΗΡΗΣΗ ΕΝΟΣ ΟΛΟΚΛΗΡΩΜΕΝΟΥ ΕΤΑΙΡΙΚΟΥ ΣΥΣΤΗΜΑΤΟΣ ΤΗΛΕΔΙΑΣΚΕΨΕΩΝ ΓΙΑ ΤΟΝ ΑΔΜΗΕ»

ΤΕΥΧΟΣ 7 - ΤΕΧΝΙΚΗ ΠΡΟΔΙΑΓΡΑΦΗ
ΚΑΙ ΠΑΡΑΤΗΜΑ ΠΙΝΑΚΩΝ ΣΥΜΜΟΡΦΩΣΗΣ

(Οι υποψήφιοι πέραν των απαντήσεων στους Πίνακες Συμμόρφωσης θα πρέπει να αποδεχθούν και όλα τα αναγραφόμενα/ απαιτούμενα στο Τεύχος Τεχνικών Προδιαγραφών με την «Υπεύθυνη Δήλωση» του Τεύχους 6 «Υποδείγματα».)

1. ΤΕΧΝΙΚΗ ΠΡΟΔΙΑΓΡΑΦΗ: ΟΡΟΙ ΚΑΙ ΑΠΑΙΤΗΣΕΙΣ

1. General Description

The videoconferencing solution must be a comprehensive video conference solution that supports immersive remote conferences, desktop and mobile video access, and enterprise streaming media applications. The solution must be developed to serve users from Governments, Enterprises of all sizes, and a variety of industries, including Utilities, Public Sector, Energy and Telecommunications.

1.1 Service Platform Layer

The service management system, registration and call server, and corporate directory collaborate to implement device management and service control and provide conference scheduling, notification, and control functions for users.

1.1.1 Service Management System (SMC)

The SMC must be a service management system that manages videoconferencing devices and resources. It allows users to schedule, hold, dispatch, and control conferences.
The SMC must be deployed on a dedicated physical server developed by the same vendor.

1.2 Media Processing Layer

Different media processing components collaborate to implement audio and video forwarding and adaptation, multi-stream forwarding and data collaboration, network recording, and gateway interworking functions in multimedia conferences.

1.2.1 Multipoint Control Unit (MCU)

The MCU must be a powerful media convergence platform. It integrates voice, video, and data functions, and supports virtualized deployment.
Without dedicated hardware devices, the MCU must be deployed on a server where the VMware Virtual Machine (VM) or FusionSphere software must be installed.

1.3 User Access Layer

Telepresence systems and videoconferencing endpoints of various models, TE Desktop, and TE Mobile join conferences to implement functions such as audio and video communication and desktop sharing.

1.3.1 Conferencing Endpoint Device

The Endpoint Device must be a boxlike device that needs to work with a display device, camera, microphone, and speaker. The external display device may be a display, IWB, or display + IWB.

1.3.2 Front Panel and Rear Panel

Front Panel

Table 3 at the Compliance Tables Appendix describes the functions of each component of the Front Panel.

Rear Panel

Table 4. at the Compliance Tables Appendix describes the functions of each component on the Endpoint Device's rear panel

The Endpoint Device must be a next-generation boxlike ultra-HD video conferencing endpoint that must be used with The VPC series HD camera and VPT300 intelligent camera. The Endpoint Device must be operated from a connected THE Touch or using voice commands through the AI voice assistant to implement audio and video conferencing. The Endpoint Device must also connect to a third-party interactive whiteboard (IWB), facilitating collaboration between local and remote participants.

4K Ultra-HD Video with Low Bandwidth Consumption
- The Endpoint Device supports up to 1080p 60 fps + 4K data experience based on the new H.265 codec capabilities.
- With The-patented Video Motion Enhancement (VME) technology, 50% of bandwidth must be saved and video quality must be improved.
- A maximum of 1080p 60 fps video must be delivered at a bandwidth only of 768 Kbit/s.
- Intelligent face detection and backend video image enhancement broaden the light adaptability range, reduce bandwidth consumption, improve image definition, and enhance motion images.
- The Endpoint Device provides hi-fi audio using MPEG-4 Low Delay Audio Coder (AAC-LD) and Opus, acoustic echo cancellation (AEC), and automatic noise suppression (ANS) technologies.

AI Assistant, Bringing a New Conference Control Experience
- The intelligent voice assistant allows users to manage meetings through voice commands, including setting up a meeting, joining a meeting, calling a site, and adjusting the volume.
- The Endpoint Device must automatically detect speakers through voice detection and facial recognition and provide close-up images of the speakers. (supported when working with the camera)

Device-Cloud Collaboration, Openness, and Convergence
- The Endpoint Device must connect to the cloud and support one-click configuration, simplifying maintenance with no professional assistance required.
- The Endpoint Device provides sound interoperability with NEs in the solutions and other mainstream terminals in the industry.

- Various Application Programming Interfaces (APIs) are available for integration with third-party systems and service customization.

User-Friendly Touchscreen Designed for Ease of Use

- The Endpoint Device must work with THE Touch, which provides a 10-inch touchscreen and simplified UI.
- Wired and wireless connections are available.
- Power over Ethernet (PoE) must be supported in wired connection mode.

Wireless Connection and Easy Sharing

- The Endpoint Device has a built-in Wi-Fi module that supports 2.4 GHz and 5 GHz frequency bands, enabling the Endpoint Device to function as a Wi-Fi hotspot or a Wi-Fi client.
- Users must use the WiFi client to connect to the Endpoint Device and share content by scanning the QR code.
- The Endpoint Device supports content sharing using the WiFi device Key, which must be connected to a PC through the USB port.

High Network Adaptability and Security

- Using H.264 SVC, the Endpoint Device excellently adapts to different line bandwidths, device capabilities, and network environments.
- The unique super error concealment (SEC) technology ensures good video image quality when the network packet loss rate reaches 20%.
- The proprietary intelligent rate control (IRC) technology must be used to automatically detect network service bandwidth occupation and intelligently select optimal resolution based on the bandwidth to ensure meeting quality.
- Secure Real-time Transport Protocol (SRTP), Transport Layer Security (TLS), and Hypertext Transfer Protocol Secure (HTTPS) are supported for media stream and signaling encryption, ensuring secure and stable running of the videoconferencing system.

Data Collaboration for Multiple Users

- The combination of the built-in data collaboration capability and external touchscreen makes collaboration easy.
- Multiple pen modes and gesture erasing ensure a smooth writing experience.
- The split-screen mode must be supported to display multiple content sources such as the whiteboard and presentation.
- Whiteboard content must be sent through emails.

1.4 HD Cameras

Table 5. at the Compliance Tables Appendix describes the required features for the HD Cameras.

1.5 Microphones

The omnidirectional microphone arrays may include wired and wireless microphones and must be deployed with the HD videoconferencing endpoints.

ΠΑΡΑΡΤΗΜΑ

(APPENDIX)

2. ΠΙΝΑΚΕΣ ΣΥΜΜΟΡΦΩΣΗΣ

(COMPLIANCE TABLES SECTION)

2.1. Compliance Table 1. SMC Required Technical features:

Description	Answer (Yes – No)
Administrators must manage a complete portfolio of videoconferencing resources with one device.	
Large enterprises must categorize users, define or assign user roles, and access rights depending on organizational architecture.	
Users must easily create conferences via conference templates, Outlook, or ad hoc. The SMC also supports one-click-to-join-conferences, online status query, and conference notification.	
The SMC supports all-in-one deployment with a built-in Gatekeeper (GK) or SIP Server.	
The SMC provides the interfaces that comply with the Simple Object Access Protocol (SOAP) to integrate with a variety of UC systems, including Microsoft Lync and IBM Sametime.	
The SMC seamlessly integrates with mainstream video surveillance platforms, and connects surveillance video to video conferences, facilitating visualized scheduling.	
The SMC also manages devices and conferences for private line devices (E1/4E1)	
Uses the B/S architecture and an independent hardware server (not the built-in module of the MCU), and provides functions such as conference management, device management, and conference	

control.	
Supports H.235, TLS, and SRTP security encryption protocols; supports IPv4 and IPv6 protocol stacks.	
Supports level- and rights-based management of user accounts by user type and organization.	
Supports distributed deployment of the conference management platform. The upper-level conference management platform shall manage network-wide cascaded conferences in a unified manner, and the lower-level conference management platform shall ensure that the local conferences are not affected even if it must be disconnected from the upper-level conference management platform	
Supports H.323 Gatekeeper, SIP Server, and SIP Proxy functions.	
Supports call control, bandwidth management, blacklist and whitelist, registration status display, routing management, domain-based management, number change, and URL calling.	
Provides the network address book server for implementing functions such as querying, downloading, and automatically updating items in the address book; Supports LDAP access authentication and encryption.	
Supports and provides the surveillance convergence gateway for interconnecting with the mainstream video surveillance platform digitally, without the need of encoding the video surveillance code streams a second time.	
Supports functions such as setting the chair, muting with one click, broadcasting/selecting to view a site, setting continuous presence, broadcasting sites in continuous presence in turn, controlling the cameras using PTZ, locking conference presentation, controlling presentation sharing of a specified site, enabling/disabling voice activation, and giving the floor.	
Locks the video source of a site so that participant must watch the video without being affected by operations such as broadcasting, giving floor, or voice activation.	
Supports conference merge and split.	
Upgrades a P2P conference to a multipoint conference without interrupting the conference. During a P2P conference, other sites must be added to the conference, and the conference management system automatically schedules the added sites to the MCU that must be not built in the endpoint.	
Provides a conference template that presets parameters such as continuous presence, caption, banner, broadcasting, and broadcasting in turn for the chair participant.	
Supports and provides network topology management. The	

network topology must be organized according to the physical locations of involved devices, and multi-layer display must be supported. The network topology must also be zoomed in or out. The administrator must monitor the device busy/idle status and alarms on the network topology in real time, and parameter setting must be supported.

2.2. Compliance Table 2. MCU product features

Function	Description	Answer (Yes – No)
Unified media plane	A single network element (NE) enables media convergence for voice, video, and data functions in the same conference.	
Data and content stream interoperability	It supports complex collaboration capabilities in a data conference, including desktop sharing, file sharing, screen control, and annotation. It also supports presentation sharing as content streams in a traditional video conference. The MCU supports the convergence and interoperability between the two sharing modes. Endpoints must still choose a content sharing mode based their own capabilities, leaving the interoperability issue to be resolved by the MCU.	
SVC-compliant multi-stream forwarding mode	Using the Scalable Video Coding (SVC) protocol, the MCU must forward video streams of a signaling participant in multiple resolutions. When receiving the streams, an endpoint must display a desired continuous presence layout by itself. That must be, the MCU does not need to allocate encoding and decoding resources to transcode the streams for the endpoint. This function significantly improves the access capabilities of the MCU, decreases platform costs, and improves user experience.	
Large-capacity voice conference	The MCU provides voice-only ports independent from video resources and supports dynamic conversion between voice and video ports in proportion.	
Dynamic port allocation	The MCU supports voice, video, and data ports, as well as dynamic conversion of the ports based on the conference running status, ensuring efficient usage of media computing capabilities.	
Distributed	The MCU supports distributed deployment and	

deployment of resource pools	forms resource pools to ensure the stable running of the platform.	
AVC and SVC hybrid networking	The MCU allows SVC and AVC endpoints to join a conference at the same time. It also supports hybrid networking with VP9600 series MCUs.	
Required Function	Supports virtualization deployment based on universal servers, convergent access of video, audio, and data conferences	
Required Function	Supports a variety of virtualization and cloud platform software, such as VMware and FusionSphere, must manage conference resources in a centralized manner, and meets the requirements of quick deployment and scalability.	
Required Function	Supports ITU-T H.323 and IETF SIP protocols, supports concurrent access of H.323, SIP endpoints, and three-screen telepresence	
Required Function	Supports call bandwidth of 64 kbit/s to 8 Mbit/s, and supports active video of the 1080p, 720p, 4CIF, and CIF resolutions.	
Required Function	Supports universal transcoding and ensures that all sites must join the same group of conferences using different protocols, bandwidths, formats, and frame rates. Packet loss on an endpoint does not affect the site or the entire conference effect.。	
Required Function	Supports dynamic resource management so that the platform must dynamically allocate access port resources based on the site type. One 1080P60 AVC port must be equal to two 1080P30 AVC port, four 720p30 AVC port, eight SD AVC port, 24 SVC ports, 24 data conference port and 72 voice ports.	
Required Function	Uses servers of the same brand as the MCU cloud platform.	
Required Function	Supports ITU-T H.263, H.263+, H.264, H.264 HP, and H.264 SVC video protocols.	
Required Function	Supports G.711a/μ, G.722, G.722.1, G.722.1C*, G.729A, G.729AB, AAC-LD, iLBC, and Opus audio protocols.	
Required Function	Supports ITU-T H.239 and IETF BFCP dual-stream protocols.	
Required	Supports a resource pool consisting of multiple	

Function	MCUs, manages MCU resources in a unified manner, and dynamically allocates MCU resources based on the resource usage to implement load balancing for MCU resources. MUCs that form a resource pool must be of different models. If the number of endpoints in a conference exceeds the maximum number supported by a single MCU, the system automatically distributes the conference on multiple MCUs.	
Required Function	Supports MCU resource pool backup. A backup MCU automatically takes over conferences when an MCU must be faulty, without conference interruption or manual configuration modification. The switchover duration must be shorter than 10s.	
Required Function	Supports presentation adaptation that does not affect the port access capability.	
Required Function	Supports audio, video, and dual-stream communication with H.323 and SIP sites without a gateway and supports 1080p content sharing at most.	
Required Function	Supports bidirectional 720p30 conference effect with 384 kbit/s bandwidth and bidirectional 1080p30 conference effect with 512 kbit/s bandwidth, saving network bandwidth.	

2.3. Compliance Table 3. Conferencing Endpoint Device

Component	Function	Answer (Yes – No)
LCD	Displays the IP address and site number, as well as startup, upgrade, sleep, and malfunction statuses.	
Indicator (two-color)	Shows whether the Endpoint Device must be running, sleeping, or faulty.	

2.4. Compliance Table 4. Conferencing Endpoint Device

Category	Component	Function	Answer (Yes – No)
Audio input ports	Microphone input port (XLR port)	Connects to the XLR port on a microphone.	
	RCA ports (L: left audio channel; R: right audio channel)	Connects to an audio input source such as a computer.	
	HD-AI port (audio input port)	Connects to a microphone array. Up to three VPM220s must be connected.	
Audio output ports	RCA ports (L: left audio channel; R: right audio channel)	Connects to an external speaker as the first output to deliver audio of the local and remote participants.	
	RCA ports (L: left audio channel; R: right audio channel)	Connects to an external speaker as the second output. It must be a reserved audio output port.	
Video input ports	HDMI port (HD video input port)	Connects to a content source (such as a local computer) as the third input, at a resolution of up to 3840 x 2160 30 fps. This port must also connect to a camera through a converter cable.	
	VGA port	Connects to a content source (such as a local computer) as the second input, at a resolution of up to 1920×1200 60 fps. This port supports input of VGA signals, but not YPbPr signals.	
	HD-VI port	Connects to a THE VPC620/VPC600/VPC800 HD camera or THE VPT300 intelligent camera as the first input, at a resolution of up to 3840 x 2160 30 fps. This port supports video input, power supply, and infrared control and also functions as a serial port. A camera connected to the Endpoint Device must be upgraded through this	

Catego ry	Component	Function	Answer (Yes – No)
		port or the COM port. **NOTE** A device connected to the Endpoint Device through the HD-VI or HDBaseT port must be powered through this port. If both ports are in use, only one port (default: HD-VI port) must supply power for the connected device. The default port for power supply must be changed on the Endpoint Device's web interface.	
	HDBaseT port	Reserved for connecting to an HDBaseT-compliant camera as the fourth input within a maximum distance of 50 m, at a resolution of up to 3840 x 2160 30 fps. This port supports video input, power supply, and camera control.	
Video output ports	HDMI port (HD video output port)	Delivers audio and video of the local participants as the third output by default, at a resolution of up to 1080p 60 fps. This port does not support output of YPbPr signals. Connects to an IWB.	
	HDMI port (HD video output port)	Delivers the shared content of the remote participants as the second output by default, at a resolution of up to 3840 x 2160 60 fps. This port does not support output of YPbPr signals. Connects to an IWB.	
	HDMI port (HD video output port)	Delivers audio and video of the remote participants as the first output by default, at a resolution of up to 3840 x 2160 60 fps. This port does not support output of YPbPr signals. Connects to an IWB.	
Other compo nents	Touch port	Connects to the Touch and supplies power to it.	
	USB Type-B port	Connects to a computer and controls it during content sharing.	
	USB Type-A	Connects to a USB device, such as a USB flash drive, wireless keyboard, or	

Catego ry	Component	Function	Answer (Yes – No)
	port	IWB.	
	COM port (dual-mode serial communication port)	Connects to a camera control cable for camera control and infrared transmission. It must also be used for fault diagnosis and maintenance of the Endpoint Device. A camera connected to the Endpoint Device must be upgraded through this port or the HD-VI port.	
	Ethernet ports (LAN1: primary network port used for external services; LAN2: backup network port used for transparent transmission and internal management)	• 10/100/1000 Mbit/s full duplex and half duplex • Transparent transmission at the IP layer	
	RESET button	• During startup, press and hold this button for 10s to restore the A/B system. • When the Endpoint Device must be running, press and hold this button for 10s to reset it to factory settings. After you press and hold this button for 5s, the system will display a prompt indicating that your Endpoint Device will be reset to factory settings if you press and hold this button for 10s.	
	Power input port (100-240 V AC, 50/60 Hz, 3 A)	Connects to a power supply.	
	Ground stud	Connects to a ground cable.	
	Power switch	Powers the Endpoint Device on or off. **NOTE** Connect all necessary cables before	

Catego ry	Component	Function	Answer (Yes – No)
		powering on the Endpoint Device.	

Αποδέχομαι ρητά και χωρίς επιφυλάξεις να τηρήσω όλους τους αναγραφόμενους όρους και τεχνικές απαιτήσεις της προδιαγραφής.

Υπογραφή

2.5. Compliance Table 5. Minimum Features for HD Cameras

Description	Answer (Yes – No)
Image enhancement technologies based on human eye models	
Button settings and Liquid-Crystal Display (LCD)	
Video noise reduction, environment adaptation, and automatic adjustment for Automatic White Balance (AWB), Automatic Exposure (AE), and Automatic Focus (AF)	
Support for inverted installation, infrared transparent transmission, and presets	
Three-in-one interface (power, control, and video cables), simplifying cable deployment and connections	

2.6. Compliance Table 6. Minimum Features for Microphones

Description	Answer (Yes – No)
Compact design and low power consumption	
Plug and play	
Dual-channel stereo audio and 360-degree sound pickup even at a distance of 6 meters	
Automatic Noise Suppression (ANS), Acoustic Echo cancellation (AEC), and Automatic Gain Control (AGC)	
Able to operate for up to 8 hours on a single charge with embedded lithium battery.	
Lossless audio transmission with Wi-Fi connectivity.	