



Republic of the Philippines  
 NATIONAL POLICE COMMISSION  
 NATIONAL HEADQUARTERS, PHILIPPINE NATIONAL POLICE  
 OFFICE OF THE CHIEF, PNP  
 Camp BGen Rafael T Crame Cuzon City

MEMORANDUM CIRCULAR  
 NO.: 2021-035

25 MAR 2021

**PRESCRIBING THE MINIMUM TECHNICAL SPECIFICATIONS FOR  
 VIDEO CONFERENCING SYSTEM**

**1. REFERENCES:**

- a. NAPOLCOM Memorandum Circular (MC) No. 2019-002 entitled: "Defining the Duty and Authority of the NAPOLCOM to Prescribe Minimum Standards for Uniforms, Arms, and Equipment to be Procured by the Philippine National Police" dated January 29, 2019;
- b. NAPOLCOM Resolution No. 2020-0715 entitled: "Prescribing the Minimum Standards for Video Conferencing System" dated September 7, 2020; and
- c. PNP UESB Resolution No. 2021-002 entitled: "Approving the Proposed Minimum Technical Specifications for Video Conferencing System" dated January 22, 2021.

**2. RATIONALE:**

This MC sets forth the technical specifications for Video Conferencing System (VCS) to be used by offices of the Philippine National Police (PNP) during command conferences/meetings

**3. SITUATION:**

Conferences or meetings are important activities of any organization. It is through them that plans/strategies for improvement are being developed and assessed. Like any organization, regular staff meetings/conferences are regularly being held in PNP offices/units. In the past, meetings were being held in person; however, on the onset of COVID-19, physical distancing was implemented to prevent the spread of the virus. Thus, in the absence of equipment and system for teleconferencing, a popular virtual meeting application was adopted. The said application addresses the need to carry out a virtual meeting between personnel in different locations but its effectiveness is affected by the internet capacity in the area of the participants. The issue on security is also a major concern especially if the agenda of the meeting involves planning of a highly sensitive operation where classified information and documents are being shared between the participants.

To address the issues, a secure and reliable Video Conferencing System (VCS) has been included in the modernization program of the PNP. The project would include not only the hardware and software components of the system but also the communication infrastructure that can provide high resolution videos, audible and clear audios, secure connection that can ensure that documents and presentations

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will be viewed by the participants only, and capable on-premise recording of conferences.

#### 4. PURPOSE:

To provide and establish the technical specifications for Video Conferencing System that will serve as reference in its procurement.

#### 5. DEFINITION OF TERMS:

- a. **Advanced Encryption Standard 256 (AES 256)** – specifies the Rijndael algorithm, a symmetric block cipher that can process data blocks of 128 bits, using cipher keys with lengths of 128, 192, and 256 bits.
- b. **Automatic Gain Control (AGC)** – it smooths audio signals through normalization, by lowering sounds which are too strong and strengthening sounds which are too weak.
- c. **Binary Floor Control Protocol (BFCP)** – refers to a protocol to coordinate access to shared resources in a conference.
- d. **Client** – refers to a desktop computer, laptop, smartphone or tablet, as well as any other electronic device that sends or receives data from a server.
- e. **Codec** – refers to an electronic device that converts analog signals, such as video and voice signals, into digital form and compresses them to conserve bandwidth on a transmission path.
- f. **Dual-Tone Multi Frequency (DTMF)** – refers to the use of two simultaneous voice-band tones for dialing.
- g. **Firewall** – refers to a system designed to protect a computer network from unauthorized access, especially through the internet.
- h. **H.235** – an ITU-T Recommendation that provides for authentication, privacy, and integrity within the current H-series protocol framework.
- i. **H.239** – refers to a widespread protocol used with H.323 endpoints, to define the additional media channel for data sharing alongside the videoconference and ensures one presenter at a time.
- j. **H.261** – an ITU-T Recommendation that describes the video coding and decoding methods for the moving picture component of audiovisual services at the rates of  $p \times 64$  kbit/sec., where  $p$  is in the range 1 to 30.
- k. **H.263** – an ITU-T Recommendation that specifies a coded representation that can be used for compressing the moving picture component of audio-visual services at low bit rates.
- l. **H.264** – an ITU-T Recommendation developed in response to the growing need for higher compression of moving pictures for various

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applications such as videoconferencing, digital storage media, television broadcasting, internet streaming, and communication.

- m. H.323 – refers to the international standard for multimedia communication over packet-switched networks, including local area networks (LANs), wide area networks (WANs), and the internet. The H.323 interworking capability enables multimedia products and applications from multiple vendors to interoperate and allows users to communicate without concern for compatibility.
- n. H.460 – enhances the standard H.323 protocol to manage firewall and Network Address Translation (NAT) traversal using International Telecommunication Union (ITU) standards.
- o. IP version 4 (IPv4) – a version of the internet protocol that supports a 32-bit address space.
- p. IP version 6 (IPv6) – a new version of the Internet Protocol, designed as the successor to IPv4. It increases the IP address size from 32 bits to 128 bits, to support more levels of addressing hierarchy, a much greater number of addressable nodes, and simpler auto-configuration of addresses.
- q. International Telecommunication Union's Telecommunication Standardization Sector (ITU-T) - the primary international body for fostering cooperative standards for telecommunications equipment and systems.
- r. Multipoint Control Unit (MCU) – refers to a device used to moderate a videoconference of three or more endpoints.
- s. Network – refers to a connection of two or more computers that enables them to communicate. It may include transmission devices, servers, cables, routers, and satellites.
- t. Network Address Translation (NAT) – refers to a networking mode designed to conserve IP addresses by mapping an external IP address and port to a much larger set of internal IP addresses.
- u. Public Switched Telephone Network (PSTN) – refers to the network of the world's public circuit-switched telephone networks providing commercial telephony services.
- v. Real-time Transport Protocol (RTP) – it provides end-to-end network transport functions suitable for applications transmitting real-time data, such as audio, video or simulation data, over multicast or unicast network services.
- w. Secure Real-time Transport Protocol (SRTP) – refers to a profile of the RTP which can provide confidentiality, message authentication, and replay protection to the RTP traffic and to the control traffic for RTP.

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- x. **Session Initiation Protocol (SIP)** – refers to an application-layer protocol originally developed by the Multiparty Multimedia Session Control (MMUSIC) working group of the Internet Engineering Task Force (IETF) in order to equip platforms to signal the setup of voice and multimedia calls over internet protocol (IP) networks.
- y. **Streaming Server** – refers to a dedicated web server or streaming server software in a web server that delivers live or on-demand multimedia content to client devices.
- z. **Transport Layer Security (TLS)** – refers to a protocol that provides data integrity and privacy on a communications link over the internet. It allows client/server applications to communicate and is designed to prevent eavesdropping, message forgery, and interference.
- aa. **Video conference** – refers to a two-way electronic communications system that permits two or more persons in different locations to engage in the equivalent of face-to-face audio and video communications.

**6. GUIDELINES:**

**a. Specifications:**

**1) Description**

VCS is a fixed mounted or portable, hardware and/or software-based communication equipment such as but not limited to audio/video devices, monitor, and server. It is capable of simultaneous two-way audio and video broadcast; can accommodate participants who use communication mobile devices; records and stores ongoing conferences; shares presentation, documents, or files to multiple or all participants, provides secure connectivity, conferencing and access control; supports future expansion; utilizes both public and private data networks; and cancels background noise.

**2) Technical Specifications**

**a) General Features**

- (1) Supports multipoint conferencing and be able to provide connectivity to VCS of other PNP offices/units, other government agencies, and non-government agencies operating on different networks;
- (2) Capable of accommodating participants who use mobile devices such as laptop computer, tablet, and smartphones;
- (3) Supports or has the capability to integrate with other VCS brands and/or platform, the PSTN or other legacy technology;
- (4) Can accommodate future expansion and/or interface with different brands of VCS equipment;

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- (5) Supports content or presentation sharing, or the sharing of documents or files to multiple or all participants;
- (6) Provides secure connectivity, conferencing, and prevents unauthorized participants from joining or intruding to the conference. Security can be by means of industry standard encryption such as but not limited to Advance Encryption Standard, H.235 and/or TLS, and password or pin protection;
- (7) Capable of packet loss concealment to ensure that both audio and video are not affected by high packet loss rate;
- (8) Supports cascading of bridges/MCUs when the number of participants exceeds the maximum number of ports of the particular bridge/MCU;
- (9) Installed operating system must be of the latest version and must be compatible with the videoconferencing application software;
- (10) Provides host/chair participants with the following conference controls:
  - (a) Broadcast, view, add, disconnect, and delete a site;
  - (b) Mute or unmute speakers and microphone; and
  - (c) End a conference.
- (11) Enable users to select multiple participants from the address book and initiate and schedule multipoint and dual-stream conferences;
- (12) Capable of recording and storing ongoing conferences;
- (13) Supports dual power supply redundancy or backup;
- (14) Supports multiple output display and can accommodate any brand of monitor/display;
- (15) Supports status and connectivity monitoring of VCS components and conference participants; and
- (16) Capable of activation and termination of links of participants for each session or connectivity of participants is limited to per conference/session.


**b) Components**

- (1) Codec

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- (a) Video : At least two industry standard input ports and two output ports such as but not limited to High-Definition Multimedia Interface (HDMI), Digital Visual Interface – Integrated (DVI-I), and Visual Graphics Array (VGA).
- (b) Audio : At least two industry standard input ports and two output ports such as but not limited to HDMI, Universal Serial Bus (USB) 2.0, Radio Corporation of America jack, and 3.5 mm line-in jack.
- (c) Network : Interfaces or ports such as but not limited to 10/100/1000 Mbit Local Area Network (LAN)
- (d) At least two USB ports
- (e) Can support four microphone arrays
- (f) Features
  - (f.1) Supports any of H.263 series and H.264 series video coding protocols/standard;
  - (f.2) Supports video resolution/format from Common Intermediate Format (CIF) up to the highest resolution/format;
  - (f.3) Supports G.711, G.722 series, G.728 and Advanced Audio Coding – Low Delay (AAC-LD) audio coding protocols/standard;
  - (f.4) Supports acoustic echo cancellation, AGC, and automatic noise suppression/reduction;
  - (f.5) Configuration, call, diagnostics and management functions are accessible with the latest versions of various web browsers;
  - (f.6) Supports H.323 and SIP videoconferencing standard; and
  - (f.7) Must have embedded firewall NAT traversal functionality for limited internet access and cross firewall security such as but not limited to H.460 standard.

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**(2) Camera**

- (a) Supports 1080p 60 fps resolution;
- (b) Supports 5x optical zoom or higher;

- (c) Provides a horizontal field/angle of view of at least 70°; and
- (d) Capable of panning to at least 90° and tilting to at least 15°.

**(3) Bridge/MCU**

**Features**

- (a) Supports H.261 and any of H.263 series, and H.264 series video coding protocols/standard;
- (b) Supports video resolution/format from CIF up to the highest resolution/format;
- (c) Supports G.711, G.722 series and/or Advanced Audio Coding – Low Complexity (AAC-LC) audio coding protocols/standard;
- (d) Has a minimum bandwidth requirement of up to 2 Mbps per port/participant;
- (e) Supports IPv4 and IPv6;
- (f) Can accommodate a minimum of eight participants;
- (g) Supports web-based scheduling, monitoring, and control of conferences;
- (h) Supports locking a conference to prevent other participants from joining;
- (i) Supports H.239 and BFCP for presentation and content sharing among participants;
- (j) Capable of switching to another working bridge/MCU when the active one malfunctions; and
- (k) Allow various endpoints using different communication protocols, various audio and video encoding protocols, different bandwidths and video resolutions to join the same conference.

**(4) Streaming and Recording Server**

- (a) On-premises recording of conferences
- (b) Has a minimum of 2TB Hard Disk Drive or Serial Advanced Technology Attachment storage
- (c) Features

  
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- (c.1) Supports recording of conferences into any of but not limited to the following video formats: MPEG4, WMV, AVI;
- (c.2) Supports video resolution/format from CIF up to the highest resolution/format;
- (c.3) Supports audio coding protocols/standard such as but not limited to G.711, G.722, AAC-LC and AAC-LD;
- (c.4) Supports unicast and multicast live and on-demand streaming on any terminals (mobile devices, desktop, and laptop); and
- (c.5) Supports pin or password recording of conferences and access to recorded or saved conferences, content, and presentation.

**(5) Desktop Client**

**Features**

- (a) Supports video resolution/format from CIF up to the highest resolution/format;
- (b) Supports Web Real-Time Communication for smooth videoconferencing display;
- (c) Can support G.711, G.722 audio coding standard/protocols;
- (d) Supports Acoustic Echo Cancelling (AEC) and AGC for audio noise correction error;
- (e) Supports the following host and participant controls:
  - (e.1) Scheduled and ad-hoc meetings with system generated video meeting rooms or personal video meeting room;
  - (e.2) Group Chat;
  - (e.3) Video mute;
  - (e.4) Audio mute; and
  - (e.5) Roster Control, Mute All, Mute a Participant, Delete a Participant, Promote a user from Guest to Participant or Chairperson, or Participant to Chairperson.
- (f) Supports content sharing but not limited to H.239, BFCP and HTML5; and
- (g) Supports any major operating system.

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**(6) Mobile Client**

**Features**

- (a) Supports video resolution/format from CIF up to the highest resolution/format;
- (b) Runs on any smartphone operating system such as but not limited to Android 5.0 and iOS 9.0;
- (c) Supports network connectivity from 3G/4G/LTE and WiFi 802.11 a/b/g/n/c;
- (d) Can support G.711, G.722 audio coding standard/protocols;
- (e) Supports AEC and AGC for audio noise correction error;
- (f) Supports H.323 and SIP videoconferencing standard;
- (g) Supports security standards/protocols such as but not limited to the following:
  - (g.1) Firewall Traversal H.460;
  - (g.2) H.323 Encryption;
  - (g.3) Advanced Encryption Standard 256 Encryption;
  - (g.4) SIP Digest Authentication;
  - (g.5) RTP keep-alive;
  - (g.6) SIP outbound proxy; and
  - (g.7) SIP fail-over.
- (h) Supports the following user interface features:
  - (h.1) Call statistics;
  - (h.2) Time in call;
  - (h.3) Signaling protocol used;
  - (h.4) Encryption icon;
  - (h.5) Video and microphone mute;
  - (h.6) Active camera swap;
  - (h.7) DTMF;
  - (h.8) Answer/Hang up;

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- (h.9) Local picture-in-picture on/off (for tablets);
- (h.10) Content send (for tablets);
- (h.11) Far-end camera control (for tablets); and
- (h.12) Provision for portrait mode.

**7. REPEALING CLAUSE:**

All other technical specifications contrary to or inconsistent with the provisions of this MC are hereby rescinded, modified or amended.

**8. EFFECTIVITY:**

This MC shall take effect after 15 days from filing a copy thereof at the UP Law Center in consonance with Section 3, Chapter 2, Book VII of Executive Order 292 otherwise known as the "Revised Administrative Code of 1987," as amended.



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FAR 25 2021

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