

---

Co-funded  
by the European Union



COUNCIL OF EUROPE



---

Co-funded and implemented  
by the Council of Europe

## **Business and Technical Requirements**

Conferencing equipment for the  
Constitutional Court of the Republic of Moldova

<b>1. INTRODUCTION</b>	<b>3</b>
1.1. Background Information	3
1.2. Purpose of the present document	3
<b>2. BUSINESS REQUIREMENTS</b>	<b>4</b>
<b>3. TECHNICAL REQUIREMENTS</b>	<b>5</b>
3.1. General	5
3.2. Technical Specifications of the IT Equipment for the Constitutional Court of the Republic of Moldova	6
<b>4. SYSTEM SETUP AND ROOM INTEGRATION</b>	<b>11</b>
4.1. Room Overview	11
4.2. Seating & Use-Case Layout	12
4.3. Camera Placement & Coverage	12
4.4. Audio Layout	12
4.5. Equipment Rack, Power & UPS	13
4.6. Cabling & Pathways	13
4.7. Safety, Accessibility & Maintenance	13
<b>Annex 1</b>	<b>14</b>

# 1. INTRODUCTION

## 1.1. Background Information

The European Union and the Council of Europe are jointly implementing the Project “Support to the justice reform in the Republic of Moldova”. The Project covers the period from 27 May 2023 to 26 November 2026 and is designed as a national initiative to contribute to the overall justice sector reform.

The objective of the Project is to ensure that the justice reform in the Republic of Moldova is implemented in line with European standards, thereby promoting transparency, efficiency, and accessibility of judicial processes. The ultimate outcome of the Project is to secure a fair and effective delivery of justice to the public.

Among the beneficiaries of this Project is the Constitutional Court of the Republic of Moldova, which plays a critical role in safeguarding constitutional principles and the rule of law. Strengthening its institutional capacities through modern digital tools, including professional video conferencing and streaming systems, directly supports the Court’s ability to operate transparently, effectively, and in line with international best practices.

In this context, the Project is seeking a qualified provider for the supply of the required IT equipment for the Constitutional Court of the Republic of Moldova.

The equipment intended for procurement is outlined in the table below (the technical specification for each type of equipment is provided under chapter 3. Technical Requirements, subchapter 3.2.).

<b>Nr</b>	<b>Type of Equipment</b>	<b>Quantity</b>
1	Digital conference microphones (gooseneck, with headphone jack)	22 units
2	Central control unit for microphones	1 unit
3	Professional PTZ cameras 4K/60fps (with auto-tracking)	3 units
4	Digital Signal Processor (DSP)	1 unit
5	Streaming and recording server	1 unit
6	Professional video switcher	1 unit
7	Room speakers (column/ceiling type)	6 units
8	Press feed speakers	2 units
9	PoE network switch	1 unit
10	Rack cabinet with UPS ( $\geq$ 6h autonomy)	1 unit
11	Cabling and accessories	As required

## 1.2. Purpose of the present document

The purpose of this Technical Specification document is to define the functional and technical requirements for the **procurement, delivery, installation, and configuration** of a professional video conferencing and live streaming system for the Constitutional Court of the Republic of Moldova.

This document provides a comprehensive description of the equipment and associated services needed to upgrade the Court's audio-visual infrastructure. It establishes the minimum technical standards, quality expectations, and interoperability requirements that must be met by prospective suppliers.

The Technical Specification will serve as the foundation for the tendering process, ensuring that all proposals are evaluated on the basis of consistent and transparent criteria. It also aims to guarantee that the procured solution will:

- Support the Constitutional Court in conducting hearings with high-quality audio and video;
- Enable live streaming and secure recording of sessions in compliance with transparency requirements;
- Ensure long-term reliability, scalability, and maintainability of the installed system.

By setting out clear specifications for the eleven equipment categories identified, the present document ensures that the Constitutional Court receives a modern, reliable, and future-proof solution aligned with the objectives of the European Union and Council of Europe Joint Project "Support to the justice reform in the Republic of Moldova".

## 2. BUSINESS REQUIREMENTS

### **Standards**

The Goods supplied under this Business Requirements shall conform to the authoritative latest industry standards.

### **Commercial Availability**

The Goods supplied under this document shall be commercially available at the time of signing of the contract. Commercial availability means that such Goods shall have been sold, installed and operationalised.

### **Packing**

The Provider shall provide such packing of the Goods as is sufficient to prevent their damage or deterioration during storage / transportation to their final destination. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the final destination and withstand, without limitation, rough handling, exposure to extreme temperatures, salt and precipitation at all points in storage / transportation. The Provider shall arrange and pay for the packing and transportation of the Goods to the place of destination **(28, Alexandru Lapusneanu, street Chisinau, Republic of Moldova)** and the cost thereof shall be included in the offer.

**Labelling**

The Goods supplied under this document, shall be clearly labelled to correspond with the delivered documentation. All the equipment, cables, connectors, ports, boxes, etc shall be present and clearly labelled.

**Power**

The Goods supplied under this document, unless otherwise specified, shall be capable of operating normally with single phase AC power, within the range of 220-240V, with the corresponding frequency of 50 Hz, inclusive, and should be protected from over-voltage, overheating and out-of-tolerance current surges.

**Documentation**

Each appropriate unit of the supplied Goods should be accompanied by the user documentation, the operation manuals, service manuals and other information pertaining to the performance of the Goods, in hard copy format, in soft copy format and in the form of on-line help, before the Goods are taken over by the Purchaser.

**Installation**

The Provider is responsible for the installation of the professional video conferencing and live streaming system.

**Warranty**

The Provider shall warrant to the Council of Europe and the Recipient that the material is as per given specifications as provided in the detailed technical requirements below.

The Provider shall further warrant that the Goods supplied have no defect, arising from design, materials, workmanship or from any act or omission of the Contractor that may develop under normal use of the supplied Goods.

The Warranty Period shall start as indicated in the contract, and for the period indicated in the technical requirements below for each product.

The Provider shall, within the prescribed time period, after receipt of such notice, repair or replace the defective / damaged Goods or parts thereof on site, without any cost to the Recipient.

**Delivery and Implementation Timeline**

The delivery of equipment shall be completed within 3 weeks from the date of the last signature. Bidders are required to confirm their capacity to meet this timeline. Final delivery and implementation dates will be mutually agreed during contract finalisation.

## 3. TECHNICAL REQUIREMENTS

### 3.1. General

These specifications describe the requirements for goods. Tenderers are requested to submit with their offers the detailed specifications, drawings, catalogues, etc for the products they intend to supply.

All the dimensions and capacities of the equipment to be supplied shall not be less than those required in these specifications. Deviations from the basic requirements, if any shall be explained in detail in writing with the offer, with supporting data such as calculation sheets, etc. The procuring entity reserves the right to reject the products, if such deviations shall be found critical to the use and operation of the products.

Minor details, not influencing the prices of the goods to be provided, such as colour, shades, etc. – shall be coordinated between the supplier and the recipient, following the signature of the contract.

### 3.2. Technical Specifications of the IT Equipment for the Constitutional Court of the Republic of Moldova

<b>1. Digital conference microphones (gooseneck, with headphone jack)</b>			
<b>Specifications</b>	<b>No. of Units</b>	<b>Purpose of the Equipment</b>	<b>Warranty</b>
<ul style="list-style-type: none"> <li>• Gooseneck tabletop digital microphone unit with integrated loudspeaker and headphone jack (3.5 mm).</li> <li>• Built-in push-to-talk / request-to-speak button with status LED.</li> <li>• High-quality unidirectional condenser capsule with gooseneck <math>\geq 40</math> cm.</li> <li>• Frequency response: 100 Hz – 15 kHz minimum, optimized for speech intelligibility.</li> <li>• Integrated digital audio processing with noise suppression and echo cancellation.</li> <li>• Connection via shielded Cat5/6 or proprietary digital bus.</li> <li>• Individual volume control for headphone output.</li> <li>• Compatible with central control unit and camera auto-tracking system.</li> </ul>	22	Provide high-quality speech capture for judges, parties, and speakers. Ensure intelligible audio for recording, streaming, and live room amplification. Allow participants with hearing difficulties to use headphones for direct monitoring.	Minimum 3 years manufacturer warranty. Extended warranty up to 5 years preferred.
<b>2. Central control unit for microphones</b>			
<b>Specifications</b>	<b>No. of Units</b>	<b>Purpose of the Equipment</b>	<b>Warranty</b>

<ul style="list-style-type: none"> <li>• Digital central control unit compatible with the conference microphone system.</li> <li>• Supports a minimum of 22 connected microphone units, expandable up to at least 50.</li> <li>• Provides audio routing, microphone activation management, and control of speaking priorities.</li> <li>• Integrated digital audio processor with echo cancellation and automatic gain control.</li> <li>• Supports integration with PTZ cameras for automatic camera tracking based on active microphone.</li> <li>• Multiple operating modes: free discussion, request-to-speak, chairman override.</li> <li>• Audio input/output connectors (balanced/unbalanced, XLR or terminal).</li> <li>• Ethernet or RS-232/485 communication interface for system control and configuration.</li> <li>• Rack-mountable design (19"), power supply 100–240V AC, 50/60 Hz.</li> </ul>	1	Provides centralized control and coordination of all conference microphones, ensuring stable and synchronized audio distribution across the courtroom. Enables the operator to manage microphones, speaker order, and audio routing for streaming and recording.	Minimum 3 years manufacturer warranty. Extended warranty up to 5 years preferred.
<b>3. Professional PTZ cameras 4K/60fps (with auto-tracking)</b>			
<b>Specifications</b>	<b>No. of Units</b>	<b>Purpose of the Equipment</b>	<b>Warranty</b>
<ul style="list-style-type: none"> <li>• Professional-grade PTZ (Pan-Tilt-Zoom) camera for conference and courtroom applications.</li> <li>• Minimum video resolution: 4K (3840×2160) at 60 frames per second.</li> <li>• Optical zoom: ≥ 20x; Digital zoom: ≥ 10x.</li> <li>• Low-light performance: minimum illumination ≤ 0.5 lux.</li> <li>• Signal-to-noise ratio: ≥ 55 dB.</li> <li>• Connectivity: HDMI, SDI, and IP streaming outputs.</li> <li>• Control protocol: VISCA, Pelco-D/P, or ONVIF.</li> <li>• Automatic speaker tracking capability via audio input or AI-based face tracking.</li> <li>• Preset positions ≥ 10, recallable via remote or control system.</li> <li>• Horizontal rotation: ≥ ±170°, Vertical tilt: ≥ 90°.</li> <li>• Network interface for IP control and PoE support.</li> <li>• Mounting accessories for wall or ceiling installation included.</li> </ul>	3	Capture high-quality video of courtroom sessions, ensuring clear visual coverage of judges, parties, and general room view. Enables automated camera switching and integration with the conference system for live streaming and recording.	Minimum 3 years manufacturer warranty. Extended warranty up to 5 years preferred.
<b>4. Digital Signal Processor (DSP)</b>			

Specifications	No. of Units	Purpose of the Equipment	Warranty
<ul style="list-style-type: none"> <li>• Professional-grade digital signal processor for audio processing and routing in conference and courtroom environments.</li> <li>• Minimum 12 balanced audio inputs and 12 balanced outputs (analog or digital).</li> <li>• Built-in functions: automatic gain control (AGC), acoustic echo cancellation (AEC), noise suppression, equalization, and feedback elimination.</li> <li>• Integrated audio matrix with customizable routing.</li> <li>• Support for Dante / AES67 or equivalent audio-over-IP protocol.</li> <li>• Compatibility with the microphone central control unit and video switcher.</li> <li>• Ethernet-based configuration and remote control interface.</li> <li>• Internal memory for saving configuration presets.</li> <li>• Latency ≤ 5 ms.</li> <li>• 19" rack-mountable form factor, 230V AC power supply.</li> </ul>	1	Processes and optimizes all courtroom audio signals to ensure clear, echo-free sound for amplification, streaming, and recording. Provides reliable integration between microphones, speakers, and video components.	Minimum 3 years manufacturer warranty. Extended warranty up to 5 years preferred.

**5. Streaming and Recording Server**

Specifications	No. of Units	Purpose of the Equipment	Warranty
<ul style="list-style-type: none"> <li>• Professional-grade server for real-time video streaming and local recording of court sessions.</li> <li>• Supports video input via HDMI/SDI/IP from cameras and switcher.</li> <li>• Compatible with 4K/60fps signal input and output.</li> <li>• Supports major streaming protocols (RTMP, RTSP, SRT, HLS).</li> <li>• Simultaneous multi-destination streaming (e.g., internal display + online broadcast).</li> <li>• Local recording in MP4 or MOV format, minimum 4K@60fps.</li> <li>• Internal storage ≥ 1 TB SSD; external storage connectivity (USB 3.0 or NAS).</li> <li>• Integrated encoder (H.264/H.265/HEVC).</li> <li>• Web-based management interface for monitoring and control.</li> <li>• Built-in redundancy for network and power recommended.</li> <li>• Rack-mountable chassis, 230V AC power supply.</li> </ul>	1	Enables live broadcasting and high-quality recording of court sessions, ensuring transparency, accessibility, and secure archiving of video data.	Minimum 3 years manufacturer warranty. Extended warranty up to 5 years preferred.

<b>6. Professional Video Switcher</b>			
<b>Specifications</b>	<b>No. of Units</b>	<b>Purpose of the Equipment</b>	<b>Warranty</b>
<ul style="list-style-type: none"> <li>• Professional hardware video switcher for multi-camera live production.</li> <li>• Minimum 4 video inputs (HDMI/SDI) supporting 4K/60fps signals.</li> <li>• At least 2 independent program/preview outputs.</li> <li>• Integrated audio mixer for embedding external audio from DSP.</li> <li>• Real-time switching with smooth transitions and picture-in-picture capability.</li> <li>• Support for downstream keying (graphics overlay, titles, logo).</li> <li>• Multiview monitoring via HDMI/SDI output.</li> <li>• Integrated control software (Windows/macOS) for setup and operation.</li> <li>• Built-in hardware encoder for streaming recommended.</li> <li>• Rack-mountable or desktop form factor with external PSU or IEC power input.</li> </ul>	1	Provides seamless switching between PTZ cameras and other video sources for live streaming and recording. Ensures professional visual output during court sessions and public transmissions.	Minimum 3 years manufacturer warranty. Extended warranty up to 5 years preferred.
<b>7. Room Speakers</b>			
<b>Specifications</b>	<b>No. of Units</b>	<b>Purpose of the Equipment</b>	<b>Warranty</b>
<ul style="list-style-type: none"> <li>• Professional-grade speakers designed for speech reinforcement in conference and courtroom environments.</li> <li>• Type: column or ceiling-mounted, full-range loudspeaker.</li> <li>• Frequency response: 100 Hz – 16 kHz (<math>\pm 3</math> dB).</li> <li>• Power handling: RMS <math>\geq 50</math> W, peak <math>\geq 100</math> W.</li> <li>• Sensitivity: <math>\geq 90</math> dB SPL (1 W / 1 m).</li> <li>• Coverage angle: horizontal <math>\geq 90^\circ</math>, vertical <math>\geq 60^\circ</math>.</li> <li>• Impedance: 8 <math>\Omega</math> or 70/100V line compatible.</li> <li>• Housing: metal or high-grade ABS, color neutral (white/gray).</li> <li>• Mounting brackets and accessories included.</li> <li>• Compatible with the DSP audio output for balanced sound distribution.</li> </ul>	6	Provide clear and even sound coverage in the courtroom for judges, parties, and public seating. Ensure natural speech reproduction without distortion or feedback.	Minimum 3 years manufacturer warranty. Extended warranty up to 5 years preferred.
<b>8. Press Feed Speakers</b>			
<b>Specifications</b>	<b>No. of Units</b>	<b>Purpose of the Equipment</b>	<b>Warranty</b>

<ul style="list-style-type: none"> <li>• Compact professional loudspeakers designed for audio monitoring by media representatives.</li> <li>• Frequency response: 150 Hz – 15 kHz (<math>\pm 3</math> dB).</li> <li>• Power handling: RMS <math>\geq 30</math> W, peak <math>\geq 60</math> W.</li> <li>• Sensitivity: <math>\geq 88</math> dB SPL (1 W / 1 m).</li> <li>• Independent volume control or level adjustment from DSP.</li> <li>• Output connectors (XLR or 6.3 mm jack) for connection to recording devices.</li> <li>• Wall-mount or tabletop installation.</li> <li>• Robust housing with integrated power supply.</li> <li>• Electrically isolated output to avoid feedback into the main system.</li> </ul>	2	Deliver a clean, balanced audio feed from the courtroom sound system to the press area, ensuring reliable recording for journalists without affecting internal system performance.	Minimum 3 years manufacturer warranty. Extended warranty up to 5 years preferred.
---	---	--	---

### 9. PoE Network Switch

Specifications	No. of Units	Purpose of the Equipment	Warranty
<ul style="list-style-type: none"> <li>• Managed Gigabit Ethernet network switch with Power over Ethernet Plus (PoE+).</li> <li>• Minimum 24 ports 10/100/1000 Mbps with automatic detection and power management.</li> <li>• Total PoE power budget: <math>\geq 370</math> W.</li> <li>• At least 4 SFP uplink ports for fiber or high-speed connections.</li> <li>• Support for VLAN, QoS, IGMP Snooping, Link Aggregation, and SNMP management.</li> <li>• Web-based configuration interface; CLI access preferred.</li> <li>• Fanless or low-noise operation for conference room installation.</li> <li>• Redundant power supply or surge protection recommended.</li> <li>• 19" rack-mountable chassis, 230V AC, 50/60Hz.</li> </ul>	1	Provides network connectivity and power to PoE-enabled devices such as digital microphones, PTZ cameras, and control interfaces. Ensures reliable data transmission and stable power delivery within the AV system network.	Minimum 3 years manufacturer warranty. Extended warranty up to 5 years preferred.

### 10. Rack Cabinet with UPS

Specifications	No. of Units	Purpose of the Equipment	Warranty
<ul style="list-style-type: none"> <li>• 19-inch rack cabinet, minimum 18U capacity, for installation of AV equipment, network devices, and power units.</li> <li>• Construction: steel frame with lockable front and rear doors, removable side panels, and ventilation openings.</li> <li>• Includes integrated cooling fan(s) and power distribution unit (PDU) with surge protection.</li> <li>• Equipped with an online double-conversion</li> </ul>	1	Provides secure housing and stable uninterrupted power for all AV and IT components, ensuring continuous operation of the courtroom system for up to six hours in case of power failure.	Minimum 3 years manufacturer warranty for cabinet; minimum 2 years full warranty for UPS and

<p>UPS system with minimum power capacity of 5 kVA.</p> <ul style="list-style-type: none"> <li>• UPS autonomy: ≥ 6 hours at 50% load (sufficient to sustain the entire AV and streaming system).</li> <li>• UPS features: pure sinewave output, automatic voltage regulation (AVR), LCD display, and network monitoring (SNMP).</li> <li>• Hot-swappable battery modules preferred for easy maintenance.</li> <li>• Input voltage: 230V AC, 50/60 Hz.</li> <li>• UPS efficiency: ≥ 90%.</li> <li>• All mounting rails, brackets, and cabling accessories included.</li> </ul>			batteries.
<b>11. Cabling and Accessories</b>			
Specifications	No. of Units	Purpose of the Equipment	Warranty
<ul style="list-style-type: none"> <li>• Professional-grade cabling and connectors required for full system installation and integration.</li> <li>• Network cables: shielded Cat6/6a or Cat7 for PoE and signal transmission.</li> <li>• Video cables: HDMI 2.0 and/or SDI (3G/6G) certified for 4K signal transport.</li> <li>• Audio cables: balanced XLR and TRS with Neutrik or equivalent connectors.</li> <li>• Power cables, signal adapters, and cable management components (trays, ties, ducts).</li> <li>• All cables labeled and routed according to best installation practices.</li> <li>• Cable lengths and types adapted to the actual room layout and equipment placement.</li> </ul>	As required	Ensure reliable interconnection between all AV, audio, and network components, enabling stable operation of the complete system. Detailed information about the room setup and cabling layout will be provided in the following section of this document.	Warranty according to manufacturer's terms; minimum 2 years for all structured cabling components.

## 4. SYSTEM SETUP AND ROOM INTEGRATION

### 4.1. Room Overview

- Room dimensions: 12.52 m (L) × 6.83 m (W) × 3.30 m (H).
- Zoning:
  - (a) Front : Judges' bench (6 seats) along the 6.83 m wall;
  - (b) Middle : Parties' tables (7 + 7 seats) on left/right;
  - (c) Center : Speaking console;
  - (d) Back : Press & visitors area;

- (e) Back : Technical operator table in front of visitors.

## 4.2. Seating & Use-Case Layout

- Judges (front): 6 digital conference microphones on the bench.
- Parties (left/right): 14 digital conference microphones (7 per side) on the parties' tables.
- Central speaking console: 2 digital conference microphones (gooseneck).
- Press/visitors: Press feed area at the back with dedicated monitoring speakers and line-level outputs for recorders.
- Operator: Technical table at the back for system monitoring and manual overrides.

**Note:** Annex 1 includes a visual representation of seating and use case layout.

## 4.3. Camera Placement & Coverage

- Camera 1 (Front wall, centered): Mounted above the judges' bench on the 6.83 m wall, centered, height ~2.8–3.0 m. Coverage: general room + parties + speaking console; supports wide establishing shots.
- Camera 2 (Ceiling, mid-room): Mounted on ceiling near the longitudinal center (~6.3 m from front), height ~3.0 m. Coverage: primary close/medium shots of the judges' bench; used for proceedings focus.
- Camera 3 (Back wall or ceiling, centered): Mounted above the visitors area on the back wall or in the ceiling, height ~2.6–3.3 m. Coverage: general view from the back; alternative angle for proceedings and audience context.

Notes (minimums):

- Optical zoom  $\geq 20\times$ , presets  $\geq 10$ , VISCA/ONVIF control, AI/speaker tracking integrated with mic activity.
- Avoid direct backlight; ensure symmetrical mounting for consistent sightlines.
- Provide wall/ceiling plates and vibration-damping as needed.

## 4.4. Audio Layout

- Digital conference microphones (22):
  - 6 × judges' bench (front).
  - 14 × parties tables (7 left + 7 right).
  - 2 × central speaking console.
  - All units with push-to-talk, LED status, integrated loudspeaker, headphone jack 3.5 mm.

- DSP & routing: Centralized AEC/AGC/NR, matrix routing to (a) room speakers, (b) press feed, (c) streaming/recording, (d) foyer TV program audio via switcher/encoder.
- Room speakers (6): Column/ceiling-type, distributed evenly (front/mid/back) to achieve uniform STI  $\geq 0.6$  for speech. Aim for symmetrical left/right placement aligned with seating.
- Press feed speakers (2): At the back (press area) with independent level control from the DSP; provide balanced, isolated line outputs (XLR/TRS) for journalists' recorders.

#### 4.5. Equipment Rack, Power & UPS

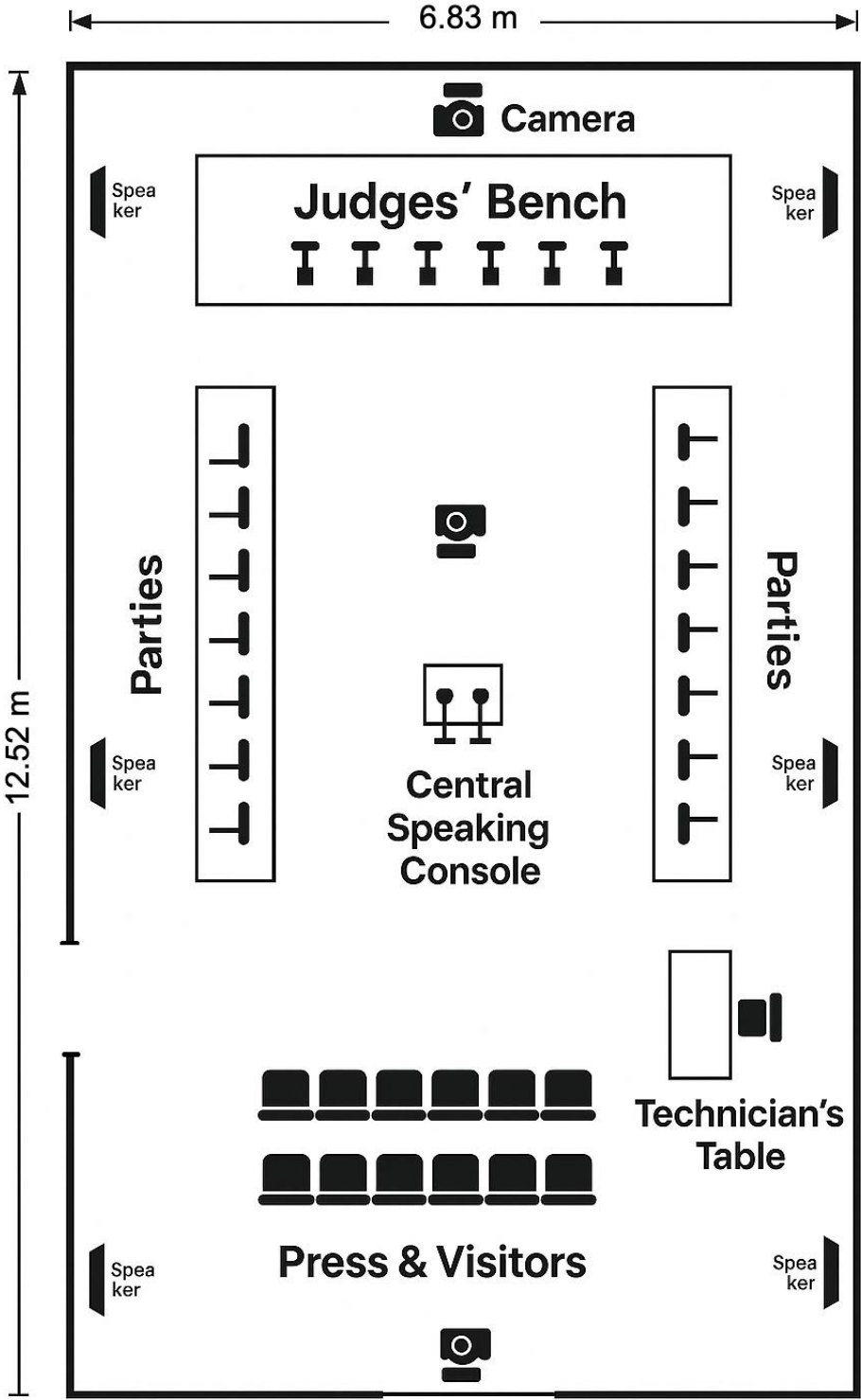
- Rack location: Back of the room, adjacent to the technical table to minimize operator cable runs and to isolate fan noise from the front.
- Content: Microphone central control unit, DSP, video switcher, streaming/recording server, PoE switch, PDU, network gear, and encoder/decoder as applicable.
- UPS: Online double-conversion  $\geq 5$  kVA with external battery modules sized for  $\geq 6$  hours autonomy of the entire AV chain (cameras, DSP, switcher, server, network, press feed monitors). Provide SNMP monitoring and hot-swappable batteries.

#### 4.6. Cabling & Pathways

- Structured cabling: Shielded Cat6/6a (or Cat7) for PoE devices and control; certified HDMI/SDI for 4K/60 back-haul between cameras/switcher/encoder if not using IP transport.
- Routing: Prefer ceiling trays and side conduits; avoid floor crossings in public paths.

#### 4.7. Safety, Accessibility & Maintenance

- Safety: All wall/ceiling mounts rated for device mass with seismic anchors where required; cable management to avoid trip hazards.
- Maintenance: Front-accessible rack, filter cleaning schedule, battery health checks, firmware lifecycle management; provide administrator documentation and training.



- END OF DOCUMENT -