**Draft**

**Standards for AV/Video Systems in Supreme and Appellate Court Courtrooms**

This working draft of a standards document for Supreme and Appellate Court Webcasting is intended to provide a point for discussion by the members of the workgroup that can be finalized in an iterative fashion. Agreement and approval of the technical standards is time sensitive, however, as there is a need to employ them for design of the Supreme Court rooms during this fiscal year in order to take advantage of available funding. So, priority should be given to reviewing, improving and approving the technical standards so that design work can be contracted and implemented.

The document is formatted with a project description and rationale and then with sections for AV/Video technical standards for courtrooms and operational standards for webcasting for public outreach. The technical standards section has been populated with a lot of information drawn from experience with actual systems, and includes both specific technical recommendations and the business reasons for them. The operational standards section is less defined because the project is still relatively new, but some suggested operational issues and practices have been included based on work performed over the past year. The intent is for the workgroup to consider and perhaps research some of these issues further. It’s expected that the technical section will be much easier and quicker to consider and complete. Ideally, the technical standards should be ultimately driven by the courtroom’s operational needs

**Project Description**

The need to develop standards for the AV/Video systems in Supreme and Appellate Court Courtrooms was generated by the new initiative, announced by the Chief Justice during her State of the State Judiciary in 2016, to provide live access to Supreme Court oral argument through the use of webcasting technology. Providing access to justice is a primary goal of the Judicial Branch and this work is considered an important element of that work for the appellate courts. Webcasting was initiated almost immediately by the Supreme Court and then one appellate court, with other appellate courts planning to do so also.

An initial assessment by staff of leadership expectations and the emerging business needs for webcasting revealed a desire by both the Supreme Court and Appellate Courts to deliver a higher quality video experience for the general public than available with existing equipment and systems. An initial investigation by Judicial Council staff of the technical requirements to meet those needs and a review of existing courtroom systems confirmed that most courtrooms would require more than simple integration of discrete new equipment and that most existing courtroom systems were greatly in need of modernization.

Various discussions between the Supreme Court, Judicial Council staff, Appellate Presiding Justices and Appellate Clerks yielded general agreement that all courts could benefit from a coordinated approach to this project and that the development of standards would be a useful foundational element for planning and implementing this new court function. Staff noted that in addition to technical standards that could be used for design and construction of upgraded courtroom systems, there was also a need to consider operational details, such as the website interfaces through with the public would access the hearings remotely and the functionality they would experience when viewing online. The Appellate Clerks noted that the standards should be flexible enough to accommodate both different practices in different courts and the different level of expectation for the Supreme Court. Consequently, these draft standards address both technical and operational details.

It was further noted that a standards based approach could enable reduced capital cost if multiple projects could be undertaken in a relatively short time and economies of scale created for equipment purchases and installation costs. Similar systems could also make maintenance easier, enable a less expensive maintenance contract to cover multiple locations, enable a less expensive statewide contract for streaming software and hardware, and reduce costs for maintenance and repair over time. All of these ideas can be investigated and addressed by the workgroup.

**Project scope**

These draft standards addresses business needs associated with the following work:

1. Current and expected practices in supreme court hearings held in the three regular Supreme Court locations (San Francisco, Sacramento, Los Angeles);
2. Current and expected practices in appellate court hearings held in each appellate courtroom location, including those in Sacramento and Los Angeles;
3. Occasional Supreme Court hearings held within any appellate courtroom by enabling the integration of the portable equipment, operated by Council staff in support of the Supreme Court, required to increase the level of video production to that required by the Supreme Court;
4. Hearings of the Commission on Judicial Appointments (COJA) that, while typically held in one of the Supreme Court locations, might occasionally be held in any other appellate court courtroom.

Note: These standards *do not* address:

1. AV or video associated with any elements of the security systems that are located in a courtroom.
2. Portable systems for trial court or other locations;
3. Webcasting for the Council of Council Committees or task forces.

**Some Operational Principles for the Project**

* 1. Prioritize access to the public (When priorities must be made for application of staff time or other resources, access to the public should take precedence over access for internal branch viewers).
	2. Define and manage the project scope (Finish the initial project scope and work iteratively in later phases if necessary so as not to be derailed by “scope creep”).
	3. Contain costs (Avoid scope creep. Build simply. Look for low cost solutions. Seek economies of scale where operationally effective).
	4. Provide immediate access (Avoid “analysis paralysis” and begin providing services/access as soon as possible. Consider portable and ad hoc solutions while permanent solutions are created. Expand access and increase quality iteratively over time).

**Draft Technical and Operational Standards**

1. **Standards**

The Technical Standards section is formatted to include the following:

1. Appellate Court Courtroom Standards
2. Appellate Court Courtroom Optional Features
3. Supreme Court Courtroom Standards



Table 1.0

1. **Appellate Court Courtroom Standards**
	1. Voice reinforcement
		1. Number of bench microphones – 4 for the justices. Push to mute. Recommended: gooseneck microphones and momentary mute
		2. Lectern mic for the speaker
		3. Clerk – at the clerks desk rarely used, default is to be muted when system is turned on
		4. Bailiff- rarely used, default is to be muted when system is turned on
		5. Two Wireless handheld – to enable the clerk to call the calendar standing up
		6. Three Additional audio inputs (line level). -  to enable for the output of a portable audio systems (used occasionally for supreme ct events or ceremonial events). Locate one at the rack, one at the end of the bench and one elsewhere in the room (back)
		7. Audio playback from multi-channel FTR or other recorder
		8. Infrastructure for seven rather than three microphones at the bench to accommodate the Sup Ct
	2. Other audio sources
		1. Input to Telephone teleconference system - for remote appearances
		2. Input to telephone access for listen-only conference line to serve as backup for a captioner to ensure continued access to the hearing in case of failure of the web video hardware or software.
		3. Music player for streaming encoder only
	3. Audio outputs
		1. Loud speakers for house sound
		2. Assistive listening systems – consider whether this should also be two channel capable of use for audio translation; include portable equipment per ADA requirements like small induction loops for the neck and shoulders that can work with specialized earphone hearing devices. Use IR as a standard because it provides privacy since it will not work outside of the courtroom or line of sight. RF can be picked up outside the courtroom, defeating privacy Audio recorder; FTR as a standard. Granicus does not support audio multi-channels like FTR does. Note that Granicus used for webcasting but not in lieu of separate audio recording system. FTR Gold, FTR Touch or similar recording device as standard
		3. To and from telephone for teleconference, SIP VOIP over analog for quality control and support; routing audio for translation to 2nd channel of ALS
		4. Audio for web streaming, consider need for 2 types of captioning: there would be a need for two streams of captions. Second language as an optional or available feature. Currently, a party desiring an interpreter in the court room must receive prior permission from the court by way of order. A second language feature may be part of a larger accessibility initiative but may not necessarily need to be a standard at this time.
		5. Audio for media feeds at press room or press pedestal
		6. Audio to overflow rooms for general public
		7. Audio for internal courthouse distribution (CCTV, direct court audio feeds to courthouse conference rooms, judges’ robing room, to a systems for attorneys to watch or hear on their computers, etc.)
		8. Audio monitoring at the rack for multiple channels
		9. Audio output to support third party voice recognition software; location at lectern or rack?
		10. At least two additional  outputs at the rack for ad hoc use
	4. Other audio components
		1. Audio processor/mixer/feedback elimination etc. at the rack
		2. Amplifiers at the rack
	5. Video
		1. Cameras – 3 - One for the lectern and one for a wide shot of the bench to enable a picture in picture input for web streaming. The third camera will need to be used for close ups on the justices on rare occasions for high profile cases when a very basic live switch is required and can be staffed for a short period of time (so the rack needs to be where someone can sit and perform a live switch if necessary). Consider courts’ own business processes: Include a third camera as it provides flexibility for courts to enhance their video locally if desired in some simple ways; third camera could also be used to capture live sign language in the courtroom.
		2. Camera monitors at the rack; multiviewer
		3. PTZ controls; cameras should be able to adjust independently
		4. Camera control units for each camera.
		5. Program and preview monitors
		6. Video switcher to enable three camera switching, along with picture-in-picture. Also allow for one additional input for graphics for ceremonial occasions and to allow for framestore of some standard slides. Note, this would require a qualified operator and so would only be used on an infrequent ad hoc basis.
		7. Video for internal courthouse distribution (CCTV, direct feeds to courthouse conference rooms, judges’ robing room, to a systems for attorneys to watch or hear on their computers, etc.)?
		8. Monitor for streaming encoder
		9. Video web streaming encoder (Granicus or the like)
		10. Modulator for building distribution system
	6. Control

Touch panel at the clerk’s desk and bench; include two touch panels as standard for control systems. One will be for the Clerk and another will be located elsewhere in different courts. Some courts may want additional at the rack or on the bench, but those would not be standard. Ability to control the audio and video feed out of courtroom (from the touch panel) Mutes to black. Minimum operation required by clerk; Ensure that there is a “mute” capability to control the video and audio output to Granicus at the control screen. Toggle on/off to give control to the clerk. There is no need to include any kind of music or graphics ability that would require additional tasks by the Clerk or other staff. This would be nice if it could be automated, so that when there was no video signal, a graphic with simple music played to provide a signal to the general public and so the on and off are not so abrupt back to black. Also to give a clue to the public that they are in the right place and have something to watch for a few minutes before the hearing starts.

* + 1. Control the lights
		2. Control shades
		3. Control the overall audio level in the room
		4. Mic mutes and mic volume controls
		5. Volume controls for any input
		6. Control the audio teleconference
		7. Control the video conference if used as an option
	1. Control Room Work Space
		1. Location of rack, equipment and systems should be accessible to court staff while court is in session to enable occasional camera or simple switching work.
		2. Configured and sufficiently large to enable court staff to stand at the rack for a short while when court is in session.
		3. Identify a separate location to situate portable video production equipment (switchers, mixers etc.) for support of occasional Supreme Court live streaming events in appellate court courtrooms. A close but separate location to allow for conversation within the control room while court is in session.
		4. Provide a defined cable path from the rack to the portable equipment location to enable audio and video connections to the webcast encoder, telephone interface and other components.
		5. Uninterrupted Power Supply (UPS), power conditioning
		6. Temperature and humidity control
		7. Connectivity to JCC LAN
1. **Appellate Court Courtroom Optional Features**
	1. Videoconferencing
		1. Point to point for separate appellate court locations within the same district (LA/Ventura)
		2. VRI project to be considered for future integration: There needs to be some accommodation made to enable integration of video remote interpreting later. This needs some additional research for tech specifics.
	2. Digital signage
		1. Outside the courtroom
	3. Additional video monitoring
		1. At the metal detector (separate from the security system)
	4. Video monitors on the bench to show videoconference near end/far end (video only) or the live steam being provided for the general public or both?
	5. Monitor(s) for the audience to view videoconference far end.
	6. Microphones at the Counsel tables (2) Note that this would impact the size and cost of the audio processor; ; Counsel mics for the purpose of being able to hear Counsel when they introduce themselves. These need to be able to capture sound while Counsel is standing up to introduce themselves. Note that these mics would then be turned down during the hearing so that there is no more sound captured by them and that this would be an operational task for the clerk
	7. Additional control features on the touch panel to handle any optional functionality above.
	8. Courtroom Lighting and/or Light levels
	9. Additional touch panels for control
	10. Split screen: Some courts might want split screen as well as picture in picture. Split screen may be useful if/when sign language is mandatory
	11. Speaker timer control at the bench and clerk (on all touch panels) – at PJ seat with slack for movement; Certain justices prefer not to have the speaker timer feature in the courtroom,. Feature should be readily accessible, however, for placement in Supreme Court setting if desired in that environment.
	12. Speaker timer display indicator at lectern and possibly other locations
	13. Sound masking system
2. **Supreme Court Courtroom Standards**
	1. Voice reinforcement
		1. Number of bench microphones – 7 for the justices. Push to mute. Recommended: gooseneck microphones and momentary mute
		2. Lectern for the speaker
		3. Clerk – at the clerks desk rarely used, default is to be muted when system is turned on
		4. Bailiff rarely used, default is to be muted when system is turned on
		5. Two Wireless handheld/lavalier – to enable the clerk to call the calendar standing up
		6. Three Additional audio inputs (line level). -  To enable for the output of a portable audio systems (used occasionally ceremonial events). Locate one at the rack, one at the end of the bench and one elsewhere in the room (back)
		7. Audio playback from FTR or other recorder
	2. Other audio sources
		1. Input to Telephone teleconference system - for remote appearances
		2. Input to telephone access for listen-only conference line to serve as backup for a captioner to ensure continued access to the hearing in case of failure of the web video hardware or software.
		3. Music player for streaming encoder only
	3. Audio outputs
		1. Loud speakers for house sound
		2. Assistive listening systems – consider whether this should also be two channel capable of use for audio translation; include portable equipment per ADA requirements like small induction loops for the neck and shoulders that can work with specialized earphone hearing devices. Use IR as a standard because it provides privacy since it will not work outside of the courtroom or line of sight. RF can be picked up outside the courtroom, defeating privacy
		3. Audio recorder; FTR as a standard? Granicus does not support audio multi-channels like FTR does.
		4. To and from telephone for teleconference, SIP VOIP over analog for quality control and support; routing audio for translation to 2nd channel of ALS
		5. Audio for web streaming, consider need for 2 types of captioning: there would be a need for two streams of captions. One in English and one in Spanish
		6. Audio for media feeds at press room or press pedestal
		7. Audio to overflow rooms for general public
		8. Audio for internal courthouse distribution (CCTV, direct court audio feeds to courthouse conference rooms, judges’ robing room, to a systems for attorneys to watch or hear on their computers, etc.)
		9. Audio monitoring at the rack for multiple channels
		10. Audio output to support third party voice recognition software; location at lectern or rack?
		11. At least two additional  outputs at the rack for ad hoc use
	4. Other audio components
		1. Audio processor/mixer/feedback elimination etc. at the rack
		2. Amplifiers at the rack
		3. Separate mechanism to control outbound (media, streaming, overflow) audio
	5. Video
		1. Cameras – 7 - One for the lectern and one for a wide shot of the bench to enable a picture in picture. Others cameras for justice’s close-up shots (Rack needs to be where someone can sit and perform a live switch, operate cameras, recall presets).
		2. Camera monitors at the rack; Multiviewer; split screen
		3. PTZ controls (possibly separate from video switcher operation)
		4. Camera control units for each camera
		5. Program and preview monitors
		6. Video switcher to enable 8 input switching, along with picture-in-picture. Also allow for one additional input for graphics for ceremonial occasions and to allow for framestore of some standard slides. Note, this would require a qualified operator and so wouldn’t be used on a daily basis. Consider computer graphic input, which may require additional operator for more production value.
		7. Video for internal courthouse distribution (CCTV, direct feeds to courthouse conference rooms, judges’ robing room, to a systems for attorneys to watch or hear on their computers, etc.)?
		8. Monitor for streaming encoder
		9. Video web streaming encoder (Granicus or the like)
		10. Modulator for building distribution system
		11. Solid state recorder and monitor
		12. Future: Videoconferencing?
			1. Point to point for separate Supreme court locations
			2. Remote appearances for counsel or justices, including BYOD
			3. VRI project to be considered for future integration: There needs to be some accommodation made to enable integration of video remote interpreting later. This needs some additional research for tech specifics.
	6. Control
		1. Touch panel at the clerk’s bench
		2. Touch panel at the rack (capable of functioning without affecting the clerk’s touch panel)
		3. Speaker timer control at the bench - Ensure that the speaker timer is operable easily via the touch panel, with lights visible at the podium and at the central location for the APJ
		4. Ability to control/adjust the audio and video feed out of courtroom (from the touch panel or separate mixer for audio); Ensure that there is a “mute” capability to control the video and audio output to Granicus at the control screen. Toggle on/off to give control to the clerk
		5. There is no need to include any kind of music or graphics ability that would require additional tasks by the Clerk or other staff. This would be nice if it could be automated, so that when there was no video signal, a graphic with simple music played to provide a signal to the general public and so the on and off are not so abrupt back to black. Also to give a clue to the public that they are in the right place and have something to watch for a few minutes before the hearing starts.
		6. Control the lights
		7. Control shades
		8. Control the overall audio level in the room
		9. Mic mutes and mic volume controls
		10. Volume controls for any input
		11. Speaker timer display lights
		12. Control the audio teleconference
		13. Control the video conference if used as an option
	7. Control Room Work Space
		1. Control room work space and rack systems must enable at least two personnel to sit and perform a live switch, operate cameras, recall presets.
		2. Fully up to code to enable the control room to be habitable for a full day (appropriate ventilation, ergonomics, ADA etc.)
		3. Noise abatement measures. Door sweeps, some separation from the courtroom if possible to allow for conversation within the control room while court is in session.
		4. Uninterrupted Power Supply (UPS), power conditioning
		5. Temperature and humidity control
		6. Connectivity to JCC LAN

**Key Differences between Standard Appellate and Supreme Court Systems**

* + Number of bench mics
	+ Number of cameras
	+ Rack touch panel
	+ Video Switcher inputs
	+ No counsel table mics for SC
	+ 2 wireless mics instead of one for SC?
	+ Separate audio control for outbound audio
	+ CG for input video switcher
	+ Solid state recorder and monitor
	+ Split screen
1. **Operational Standards**

The Operational Standards section has formatted to consider the following:

1. Day of hearing operational standards
2. General web interface for public access
3. Policies
4. **Pre hearing operational standards**
	1. Training in the use of Media manager/Live Manager
	2. Staff role for the use of Media Manager/Live Manager
	3. Timelines for uploading materials to Granicus
	4. Pre hearing access by the public (What do they see?)

**Use of Media Manager/Live Manager to establish hearings**

1. **Day of hearing operational standards**
	1. Timing: When to start and stop
	2. Appearance and functionality of Web interfaces and online materials
	3. Technical support (for the public, for internal users, for 2nd tier needs).
	4. Captioning required for both Supreme Court and COJA. Appellate Courts?
	5. Audio
	6. Video
	7. Music
	8. Graphics
	9. Procedures (e.g. Does the clerk need a mic to address the audience?)
	10. Quality control, (operations validation, troubleshooting, redundant systems)
	11. Press and media access
	12. Time stamping (by day or by case, staff role)
2. **General web interface for public access**
	1. Develop a style guide
	2. Location and format of information on court and other branch web pages.
	3. Consider whether there should be a webcasting portal or a standard location for each court on the web site.
	4. Nature of information about specific hearings
	5. Format of online materials
	6. Finding accompanying information about webcasting and how to access the hearing.
	7. How to link to the calendar
3. **Policies**
	1. Note Video of past COJA hearings not available online after the fact.
	2. Video of appellate court hearings not available online after the fact.
	3. Choice of the number of cameras to be used in operation will be determined by each court.
	4. Supreme Court hearing video provided online after the fact along with a verbatim transcript derived from the captioned. Timeline for that.
	5. For the Supreme Court, post-program video will be trimmed to enable access to cases individually. Cases will include hearing materials and briefs.
	6. Final opinions will be added when they become available if the Supreme Ct. decides this is wanted.
	7. Handling requests for hearing videos after the fact. Will individual courts determine their own procedures for providing public access to past hearings if allowed (much the same way FTR recordings are made available now, for a fee)?
	8. Supreme Court captioning will be adapted into a transcript and provided at a high level of quality after the hearing. Video will not be posted until the updated transcript is complete and can be posted.
	9. Provide full rationale for operational practices associated with live captioning.

**Key Differences between Standards Appellate and Supreme Court Operations**

* + Hearing video posted online for public access after the fact
	+ Live captioning improved and posted as a transcript with video for public access
	+ Staffing providing to enable live switching with multiple cameras and the use of graphics for higher production value
	+ More quality control processes/staff/resources