

Cubbon Courtroom
Technology Status:
Component List,
Wiring Details, and
System Assessment

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Part A

Component List

THE COURTROOM ITSELF

Microphones

Six 18" Shure AMS 24 gooseneck microphones

One microphone for each of the three judges on the judges' bench (one judge microphone has been removed due to damage)

One microphone on the witness stand

One microphone on each of the two attorneys' tables (one of the attorney microphones is broken)

Two Shure AMS 22 boundary microphones

Located on the jury box

Video Monitors

Panasonic BT-S901y color video monitor

Displays the picture to be recorded by the VCR. Located on the top equipment shelf on the judges' bench.

Sony PVM-411 video monitor

A set of four monitors showing the individual camera angles. Located on the top equipment shelf on the judges' bench.

VCR

Panasonic AG 1300 VCR.

Located on the top equipment shelf on the judges' bench.

Cameras

Four Canon VC-C1 MK II cameras

There is one camera above each end of the judges' bench pointing toward the well. A third camera is mounted above the door to Room 1010 pointing toward the well. The fourth camera is mounted in the middle of the opposite wall pointed toward the judges' bench.

Speakers

Six speakers built into the wall, manufacturer and model number unknown. There is one speaker at each end of the judges' bench. There is a pair of speakers located directly across from the first pair on the opposite wall. There is one speaker of each wall of the gallery.

Assisted Listening Devices

Williams Sound PPA T-17 transmitter with four R7 receivers. Transmitter located on the bottom equipment shelf on the judges' bench.

Multi-Media Input Panels

Panels are obsolete technology. Were intended to provide the user with a choice of composite or component video inputs, line level or microphone level audio inputs and touch panel power. There are two panels on the jury box, and two on the judges' bench.

Gallery Input Panel

Composite video and touch panel power.

Projection Screens

Two Da-Lite Cosmopolitan screens (approx. 5x7)

Touch Screen Control Panel

AMX AXP-TLC touch screen

MULTI-MEDIA CLOSET

Multimedia Cabinet

Components Listed by Cabinet Position (Top to Bottom)

Extron SW4 AR component video switcher

TOA A-906MK2 mixer-amplifier

AMX Axxess control system card frame

Shure AMS 8000 mixer

Sigma SS 2100-16 card frame (composite video switcher)

Components Basic Functions and Connections Defined

Extron SW4 AR component video switcher

Accepts component video input of the multi-media input panels in the Cubbon Courtroom. Sends component video output to the projector. Connected to Slot 10 of the Axxess card frame by a serial port. Obsolete equipment.

TOA A-906MK2 mixer-amplifier

Mixes the microphone level sound from the multi-media input panels and the line level sound from the VCR. Sends audio output to the speakers. Sends audio output to the FM transmitter. Sends audio output to the line level audio output jack in the Forum. Connected to Slot 8 of the Axxess card frame, allows the touch panel a single volume control for all system components in the courtroom.

AMX Axxess control system card frame

Various cards define what the touch panel can do. Provides the connection between the touch panel and other system devices.

Shure AMS 8000 mixer

Mixes all Shure AMS microphones. Sends audio output to VCR. Connects to Slot 5 of the Axxess card frame.

Sigma SS 2100-16 card frame composite video switcher

Has video signals coming in from the Sony PVM-411 video monitor, panels and VCR. Sends video signals out to the Panasonic BT-S901y color video monitor, projector, and VCR. Connected to Slot 6 of the Axxess card frame.

Other Closet Components

Sharp XG-E1100U projector

Obsolete technology

Part B

Wiring Details

CARDS AND CABLES

AMX Access control system card frame slot assignments

Slot MC1 (AXC-EM card)- Master Control card

Slot CS (AXC-S card)- Manages communication among control cards

Slot 1 (AXC-232 card)- Controls PTZ and presets for the floor camera

Slot 2 (AXC-232 card)- Controls PTZ and presets for the left attorney camera

Slot 3 (AXC-232 card)- Controls PTZ and presets for the right attorney camera

Slot 4 (AXC-232 card)- Controls PTZ and presets for the judge\witness camera

Slot 5 (AXC-INP8 card)- Card can respond to logic high/low frequency changes. Each Shure AMS microphone comes in from the Shure AMS mixer. This is probably the (microphone-controlled) camera voice-switching card.

Slot 6 (AXC-232 card)- Connects to the Sigma composite video switcher

Slot 7 (AXC-IR/S card)- Controls VCR

Slot 8 (AXC-IR/S card)- Controls projector

Slot 9 (AXC-Vol)- Volume Control

Slot 10 (AXC-Rel8)- Extron component video switcher

Cable Assignments

Video (black) cables

1-This cable carries component video green from the 1008 side jury box multi-media panel to the Extron switcher.

2-This cable carries component video red from the 1008 side jury box multi-media panel to the Extron switcher.

3-This cable carries component video sync from the 1008 side jury box multi-media panel to the Extron switcher.

4-This cable carries component video blue from the 1008 side jury box multi-media panel to the Extron switcher.

5-This cable carries composite video from the 1008 side jury box multi-media panel to the Sigma switcher.

6-This cable carries component video green from the 1010 side jury box multi-media panel to the Extron switcher.

7-This cable carries component video red from the 1010 side jury box multi-media panel to the Extron switcher.

8-This cable carries component video sync from the 1010 side jury box multi-media panel to the Extron switcher.

9-This cable carries component video blue from the 1010 side jury box multi-media panel to the Extron switcher.

10-This cable carries composite video from the 1010 side jury box multi-media panel to the Sigma switcher.

11-There is no cable with this number.

12-This cable carries component video green from the jury side judges' bench multi-media panel to the Extron switcher.

13-This cable carries component video red from the jury side judges' bench multi-media panel to the Extron switcher.

14-This cable carries component video sync from the jury side judges' bench multi-media panel to the Extron switcher.

15-This cable carries component video blue from the jury side judges' bench multi-media panel to the Extron switcher.

16-This cable carries composite video from the jury side judges' bench multi-media panel to the Sigma switcher.

17-This cable carries component video green from the gallery side judges' bench multi-media panel to the Extron switcher.

18-This cable carries component video red from the gallery side judges' bench multi-media panel to the Extron switcher.

19-This cable carries component video sync from the gallery side judges' bench multi-media panel to the Extron switcher.

20-This cable carries component video blue from the gallery side judges' bench multi-media panel to the Extron switcher.

21-This cable carries composite video from the gallery side judges' bench multi-media panel to the Sigma switcher.

22-This cable carries composite video from the left attorney camera (located above the monitors) to the left attorney camera monitor. The cable runs all the way back into the multimedia cabinet without connecting to it and loops back out to the monitor.

23-This cable carries composite video from the right attorney camera (located above the judges' bench/witness box) to the right attorney camera monitor. The cable runs all the way back into the multimedia cabinet without connecting to it and loops back out to the monitor.

24-This cable carries composite video from the floor camera (located above the 1010 doorway) to the floor camera monitor. The cable runs all the way back into the multimedia cabinet without connecting to it and loops back out to the monitor.

25-This cable carries composite video from the judge/witness camera (located in the middle of the opposite wall) to the judge/witness camera monitor. The cable runs all the way back into the multimedia cabinet without connecting to it and loops back out to the monitor.

26-This cable carries composite video from the floor camera monitor to the Sigma switcher.

27-This cable carries composite video from the left attorney monitor to the Sigma switcher.

28-This cable carries composite video from the right attorney camera monitor to the Sigma switcher.

29-This cable carries composite video from the judge/witness camera monitor to the Sigma switcher.

30-This cable carries composite video from the VCR to the Sigma switcher.

31-This cable carries composite video from the Sigma switcher to the Panasonic program monitor.

32-This cable carries composite video from the Sigma switcher to the VCR.

33-This cable carries composite video from the gallery multi-media panel to the Sigma switcher.

45-This cable carries composite video from the Sigma switcher to the projector. The signal splits at the projector. An unnumbered cable carries composite video from the splitter to the Forum.

Gray (audio, power, and switching) cables

Camera RS 232 input cables

1-This cable connects Slot 1 of the AMX Axxess card frame to the floor camera (located above the 1010 doorway)

2-This cable connects Slot 2 of the AMX Axxess card frame to the left attorney camera (located above the camera monitors)

3-This cable connects Slot 3 of the AMX Axxess card frame to the right attorney camera (located above judges' bench/witness stand)

4-This cable connects Slot 4 of the AMX Axxess card frame to the judge/witness camera (located on the opposite wall)

Microphone and Shure AMS mixer cables

1-This cable connects judges' microphone number one (the gallery side microphone) with channel one on the Shure AMS mixer.

2-This cable connects judges' microphone number two (the middle microphone) with channel two on the Shure AMS mixer.

3-This cable connects judges' microphone number three (the missing microphone) with channel three on the Shure AMS mixer.

4-This cable connects the right attorney microphone (the jury side table microphone) with channel four on the Shure AMS mixer.

5-This cable connects the left attorney microphone (the gallery side table microphone) with channel five on the Shure AMS mixer.

6-This cable connects the witness microphone with channel six on the Shure AMS mixer.

7-This cable connects the left jury microphone (the 1008 side microphone) with channel seven on the Shure AMS mixer.

8-This cable connects the right jury microphone (the 1010 side microphone) with channel eight on the Shure AMS mixer.

9-This cable connects channel one on the Shure AMS mixer with Slot 5 of the AMX Axxess card frame.

10-This cable connects channel two on the Shure AMS mixer with Slot 5 of the AMX Axxess card frame.

11-This cable connects channel three on the Shure AMS mixer with Slot 5 of the AMX Axxess card frame.

12-This cable connects channel four on the Shure AMS mixer with Slot 5 of the AMX Axxess card frame.

13-This cable connects channel five on the Shure AMS mixer with Slot 5 of the AMX Axxess card frame.

14-This cable connects channel six on the Shure AMS mixer with Slot 5 of the AMX Axxess card frame.

15-This cable connects channel seven on the Shure AMS mixer with Slot 5 of the AMX Axxess card frame.

16-This cable connects channel eight on the Shure AMS mixer with Slot 5 of the AMX Axxess card frame.

17-This cable carries audio from an auxiliary output channel on the Shure AMS mixer to the VCR.

18-This cable carries audio from the VCR to the TOA mixer-amp.

19-This cable connects the VCR with Slot 7 of the AMX Axxess card frame.

TOA mixer amp cables

18-This cable carries audio from the VCR to the TOA mixer-amp.

20-This cable carries audio from a Y connector connected to the Bridge In/Out on the TOA mixer-amp to the assisted listening device.

21-This cable carries audio from a Y connector connected to the Bridge In/Out on the TOA mixer-amp to the Forum.

51-This cable connects “Pwr Amp In” on the TOA mixer-amp with Slot 9 of the AMX Axxess card frame.

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52-This cable connects “Pre Amp Out” on the TOA mixer-amp with Slot 9 of the AMX Axxess control system.

1-This cable carries line level audio from the 1008 side jury box multi-media panel to channel two.

2-This cable is an orphan cable. On one end it’s connected to a microphone level audio input jack on the 1008 side jury box multi-media panel. However, on the other end it is not connected to anything. It is just sitting in the bottom of the multi-media cabinet.

3-This cable carries microphone level audio from the 1010 side jury box multi-media panel to channel one.

4-This cable is an orphan cable. On one end it’s connected to a line level audio input jack on the 1010 side jury box multi-media panel. However, on the other end it is not connected to anything. It is just sitting in the bottom of the multi-media cabinet.

5-This cable carries line level audio from the jury side judges’ bench multi-media panel to channel three.

6-This cable is an orphan cable. On one end it’s connected to a microphone level audio input jack on the jury side judges’ bench multi-media panel. However, on the other end it is not connected to anything. It is just sitting in the bottom of the multi-media cabinet.

7-This cable carries microphone level audio from the gallery side judges’ bench multi-media panel to channel four.

8-This cable is an orphan cable. On one end it’s connected to a line level audio input jack on the gallery side judges’ bench multi-media panel. However, on the other end it is not connected to anything. It is just sitting in the bottom of the multi-media cabinet.

Extron switcher remote control cables

1-This cable connects the Extron switcher to Slot 10 of the AMX Axxess card frame.

2-This cable connects the Extron switcher to Slot 10 of the AMX Axxess card frame.

3-This cable connects the Extron switcher to Slot 10 of the AMX Axxess card frame.

4-This cable connects the Extron switcher to Slot 10 of the AMX Access card frame.

5-This is an orphan cable. One end connects to the Extron switcher, but the other end is not connected to anything.

6-This is an orphan cable. One end connects to the Extron switcher, but the other end is not connected to anything.

7-This is an orphan cable. One end connects to the Extron switcher, but the other end is not connected to anything.

8-This is an orphan cable. One end connects to the Extron switcher, but the other end is not connected to anything.

9-This cable connects the Extron switcher to Slot 10 of the AMX Access card frame.

Other AMX Access control system cables

1-This cable runs from the touch panel input jack on the 1008 side jury box multi-media panel to the CS Slot of the AMX Access card frame.

2-This cable runs from the touch panel input jack on the 1010 side jury box multi-media panel to the CS Slot of the AMX Access card frame.

3-This cable runs from the touch panel input jack on the jury side judges' bench multi-media panel to the CS Slot of the AMX Access card frame.

3- There is a second cable labeled "3" connected to the CS Slot of the AMX Access card frame. As far as I can determine, this is an orphan cable.

4-This cable runs from the touch panel input jack on the gallery side judges' bench multi-media panel to the CS Slot of the AMX Access card frame.

5-This cable runs from the touch panel input jack on the gallery multi-media panel to the CS Slot of the AMX Access card frame.

6-This cable runs from the touch panel input jack with the judges' bench camera monitoring equipment to the CS Slot of the AMX Access card frame. The touch panel is currently connected to this cable.

An unnumbered black cable connects the Sigma switcher with Slot 6 of the AMX Access card frame.

An unnumbered gray cable connects the projector with Slot 8 of the AMX Access card frame.

Part C

Functionality And Lifespan Assessment

Functionality

The courtroom equipment never functioned as the law school intended. It probably never functioned as the vendor promised it would do. After nine years, it's even less functional.

It appears the equipment was intended to provide three basic functions. First, allow us to videotape any proceedings. Second, accommodate multimedia presentations. Third, provide live sound to the room.

It performs the first task, but leaves much to be desired. It fails miserably at the second and third. Moreover, it failed miserably at these tasks even when the equipment was almost new.

The cameras themselves performed their task well. The touch panel controlling the cameras, however, is another matter. The panel is confusingly laid out and hard to use. Its programming limits the choice of readily available camera angles. Its voice switching function does not work as intended (though this may be partly due to room acoustics).

The accommodation for multimedia presentations fails on multiple levels. Even when the projector was brand new, it required a scan converter to display the most often used computers. The vendor wired the multimedia panels in a way that forced us to use another special piece of equipment to connect computers. The panel wiring also forces us to use a 640x480 projector display.

Even worse, only some of the multimedia jacks are live. The vendor ran out of room on the mixer. They left some of the wires unconnected.

Room sound is equally as bad. The microphones themselves, like the cameras, were good technology when purchased. However, the gooseneck microphones cannot be turned up loud enough to hear live without encountering feedback. The boundary microphones can't be turned up loud enough to be heard well on videotape without encountering feedback.

Lifespan

All of the equipment is old and well outside of its warranty date. Replace everything if sufficient funding is available to do so.

If we must prioritize our replacements, start with the microphones. The gooseneck microphones on the judges' bench and witness stand look terrible. The gooseneck microphones on the attorneys' tables are too easily damaged and should be replaced with wireless microphones. The boundary microphones on the jury box are poorly placed and cannot serve their intended function. They should be replaced with wireless microphones for the podium. Replacing the microphones means replacing the microphone mixer.

Second, replace the touch panel. It is neither wireless nor attractive. I have not determined whether the control system needs to be discarded.

Third, replace the cameras. I called the company to find out whether they still serviced that model. The answer was a heavily qualified yes. If one of the cameras broke, we might have to replace it with a different model. We should avoid the potential headache of video signal quality variations and replace all of them now.

Fourth, remove the multi-media panels because they are obsolete and would detract from the new look of the room. The projector is also obsolete. If we use a projector in the room we will have to buy a new one.

I am currently investigating the other items to determine in what priority we should replace them if limited funding is available. Some of them may be hard to integrate with newer technology.

Certain items need to be added to accommodate the new technology. That investigation is also ongoing.

For technology planning purposes, the lifespan is effectively zero.

