

Audio/Visual & Multi-Media Room Standards

Request to provide better baseline for starting projects that could be incorporated into the low-voltage standards kept by WashU IT – University Network Planning and Services

Provide a standardized approach to A/V and multi-media technology in applicable rooms across campus.

These are applicable for departments / schools where there are no current standards and do not override existing standards. Classrooms that are under the auspices of the Classroom Management Committee and The Teaching Center (<http://teachingcenter.wustl.edu>) have their own set of standards that apply. Please contact The Teaching Center directly when working with a pooled classroom.

Room A/V & Multi-Media Technology Goals

- Goals:
 - Help professionalize A/V build process, create more realistic expectations and better collaborative partnerships with A/V integrators, designers, engineers, installers, and WUSTL departments/schools by providing equipment packages based upon room size and most likely use-case.
 - Use equipment packages to help room owners as a starting point for decision-making process
 - Reduce scope for consultants, engineer design, and vendor programming by providing basic design schematics and programming up front.
 - Provide common room-use experience across university.
 - Provide better/more realistic A/V budgeting.

Room A/V & Multi-Media Technology Design Considerations

- Deployment of any meeting room audio-visual equipment needs to be carefully planned and engineered. The start of the design and deployment process of audio-visual equipment for a particular location is influenced by room size/occupants and likely use-cases. Recognition also that class rooms could become conference / meeting rooms after hours and vice-versa.
- **Room Size:**
 - Small: 3-5 occupants
 - Medium: 5-20 occupants
 - Large: 20-50 occupants
 - Stadium Seating: 50-150 occupants
 - Auditorium
- **Use-Case:**
 - Infrequent need for A/V
 - Frequent A/V, single input for BYO computer
 - Frequent A/V, multiple inputs to include room-based computer
 - Classroom / Stadium Seating
 - Presentation or Performance
- **Other Design Considerations:**
 - Interactivity options (video camera and microphone) can be added to any package
 - Control System – AMX w/ Resource Management Suite (RMS)
 - Basic design schematic for each equipment package provided*
 - Basic programming for AMX control systems provided*

* WashU IT – Media Services

Room A/V & Multi-Media Technology Equipment Basics

- E1 - Infrequent need for AV:
 - Flat Screen w/ "Bring Your Own" (BYO) computer and wall plate / direct connections

- E2 - Frequent AV w/ single input:
 - Flat Screen or Projector, w/ BYO computer, cubby box
 - Option: Resource Management System (RMS)
 - Option: Controllable Zone Lighting and Audio

- E3 – Frequent AV w/ multiple inputs:
 - Projector w/ installed computer, cubby box, control panel, room switching
 - Resource Management System (RMS)
 - Option: Controllable Zone Lighting and Audio

- E4 – Classroom / Stadium Seating:
 - E3 plus Confidence Monitors, Document Camera

- Auditorium – Presentation or Performance?
 - Most auditoriums require more specialized planning and design

Room A/V & Multi-Media Technology Equipment Options

- Interactivity – Web/Video Conferencing
 - Portable
 - Logitech HD C-series webcam, Jabra 510 Speakerphone, Joby GuerillaPod Tripod, USB 25 foot extender cable
 - ~\$300
 - Installed V1
 - USB Camera and USB Microphones
 - ~\$5,000
 - Installed V2
 - USB PTZ Camera
 - USB Ceiling Microphones
 - In-Room Audio Processor w/ Noise Cancellation
 - ~\$15,000

- A/V Accessories
 - Document Camera
 - DVD Player
 - CATV

A/V Standards

Revised: 2.20.15

	Infrequent need for A/V • Users 'bring your own' (BYO) computer/technology as needed to connect to room A/V	Frequent A/V with Single Input • Single Input Cubby Box for BYO computer • Flat Screen or Projector	Frequent A/V with Multiple Inputs • Installed Computer • Room-Controlled A/V w/ RMS	Classroom / Stadium Seating • Installed Computer • Room-Controlled A/V w/ RMS • Classroom Technology Included	Auditorium • Emerson Auditorium • Whitaker Auditorium
small 3 - 5 occupants					
medium 5 - 20 occupants					
large 20 - 50 occupants					
stadium seating 50 - 150 occupants					
auditorium					
equipment	E1 <ul style="list-style-type: none"> • flat screen with BYO computer • wall plate / direct connections • interactivity option - portable 	E2 <ul style="list-style-type: none"> • flat screen or projector with BYO computer • cubby box (wall or table) • ceiling or rack equipment • interactivity option <ul style="list-style-type: none"> • portable • installed V1 or V2 	E3 <ul style="list-style-type: none"> • projector with installed computer • cubby box (table) • ceiling mounted speakers • room control system (AMX) • touch panel • interactivity option <ul style="list-style-type: none"> • installed V1 or V2 	E4 <ul style="list-style-type: none"> • projector with installed computer • cubby box (table) • ceiling mounted speakers • room control system (AMX) • touch panel • interactivity option <ul style="list-style-type: none"> • installed V1 or V2 • confidence monitor(s) • document camera 	E5 <ul style="list-style-type: none"> • custom • E4 plus consultant and design fees

Room A/V & Multi-Media Technology Network Considerations

- WUSTL has an approved set of network standards that are applicable towards A/V installations. All network drops, switches, etc... must conform to these standards.
 - I.E., it is no longer acceptable for A/V vendors to supply or install any network hub, switch, router, or wireless access point outside a WUSTL TR.
- Approval for any exceptions must be coordinated with IS&T during design phase
- Wireless networking devices are also included in the approved network standards. All wireless devices must conform to these standards and must be approved during design phase.
- Any wired or wireless network equipment required for A/V installations must be designed by IS&T – University Network Planning and Services.

Room A/V & Multi-Media Technology Moving Forward


























- Template 'Look/Feel' design for classroom control panels
- This is a living document and it is our intention to continually work with groups on campus to get input.
 - Applied to a number of installations over last few months:
 - Brown School Hillman Hall
 - Classrooms, Conference Rooms, Offices, Auditorium
 - Whitaker Auditorium
 - West Campus CIO Conference Room
 - Athletic Director's Office
 - Classroom Management Committee presentation – Spring
 - Med School Discussions
 - Develop 'marketing' pamphlet for room/building owners

Room A/V & Multi-Media Technology Questions & Contact

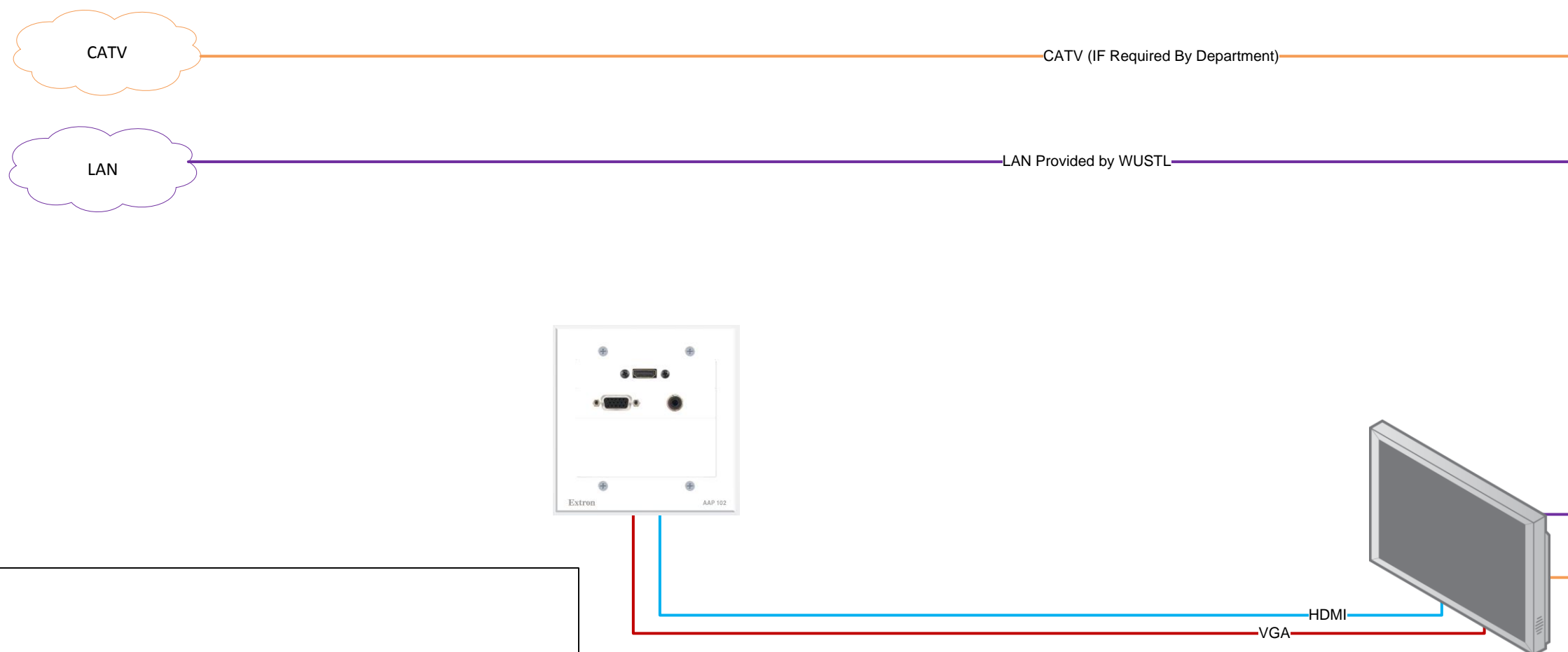
- ▣ Questions - ???
- ▣ Matt Arthur – Director, IS&T Media Services
 - ▣ arthur@wustl.edu
 - ▣ 314.935.3899

A/V Standards

Revised: 2.20.15

	Inrequent need for A/V • Users bring your own (BYO) computer/technology as needed to connect to room A/V	Frequent A/V with Single Input • Single Input Cubby Box for BYO computer • Flat Screen or Projector	Frequent A/V with Multiple Inputs • Installed Computer • Room-Controlled A/V w/ RMS	Classroom / Stadium Seating • Installed Computer • Room-Controlled A/V w/ RMS • Classroom Technology Included	Auditorium • Emerson Auditorium • Whitaker Auditorium
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equipment	E1 • flat screen with BYO computer • wall plate / direct connections • interactivity option - portable	E2 • flat screen or projector with BYO computer • cubby box (wall or table) • ceiling or rack equipment • interactivity option • portable • installed V1 or V2	E3 • projector with installed computer • cubby box (table) • ceiling mounted speakers • room control system (AMX) • touch panel • interactivity option • installed V1 or V2	E4 • projector with installed computer • cubby box (table) • ceiling mounted speakers • room control system (AMX) • touch panel • interactivity option • installed V1 or V2 • confidence monitor(s) • document camera	E5 • custom • E4 plus consultant and design fees

L1 – Flat Panel



- Notes:
- LTMU display mount or Media Services approved alternative
 - PAC-526 back box (on suitable walls) is required
 - Extron AAP 102 Series wall plate required
 - CATV/LAN to be provided by WUSTL or approved Network vendor
 - All cables from wall will be no longer than 25' and are to be flexible and easy to manage (Liberty E-HDVAM-M-19 or approved alternative)
 - In wall cables will not exceed 50' and must be able to pass all EDID and HDCP information

Notes

Notes	Rev	
Initial	0	04/28/15
Update		

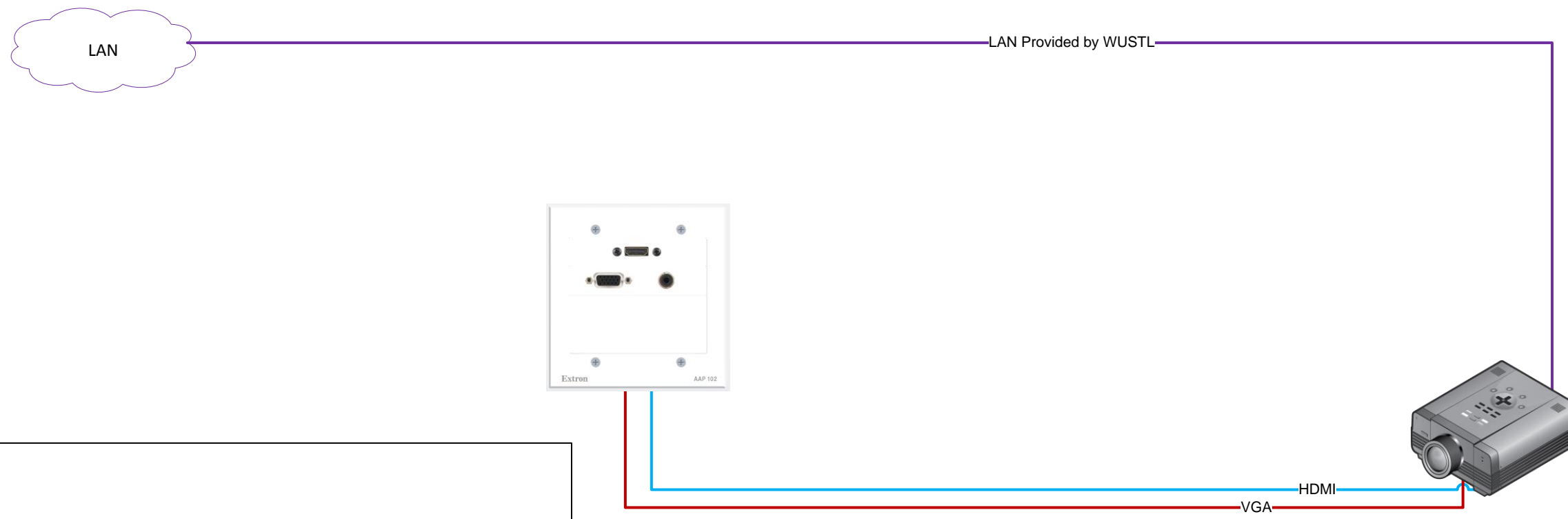
ISSUE DATE: 04/28/15



PROJECT ENGINEER: Brian Goetz, CTS
 DRAWN BY: Brian Goetz, CTS
 OPPORTUNITY NUMBER: N/A

DRAWING NUMBER
 AV-01A
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L1 – Projector



- Notes:
- RPMA projector mount or Media Services approved alternative
 - Extron AAP 102 Series wall plate required
 - LAN to be provided by WUSTL or approved Network vendor
 - All cables from wall will be no longer than 25' and are to be flexible and easy to manage (Liberty E-HDVAM-M-19 or approved alternative)
 - In wall cables will not exceed 50' and must be able to pass all EDID and HDCP information

Notes

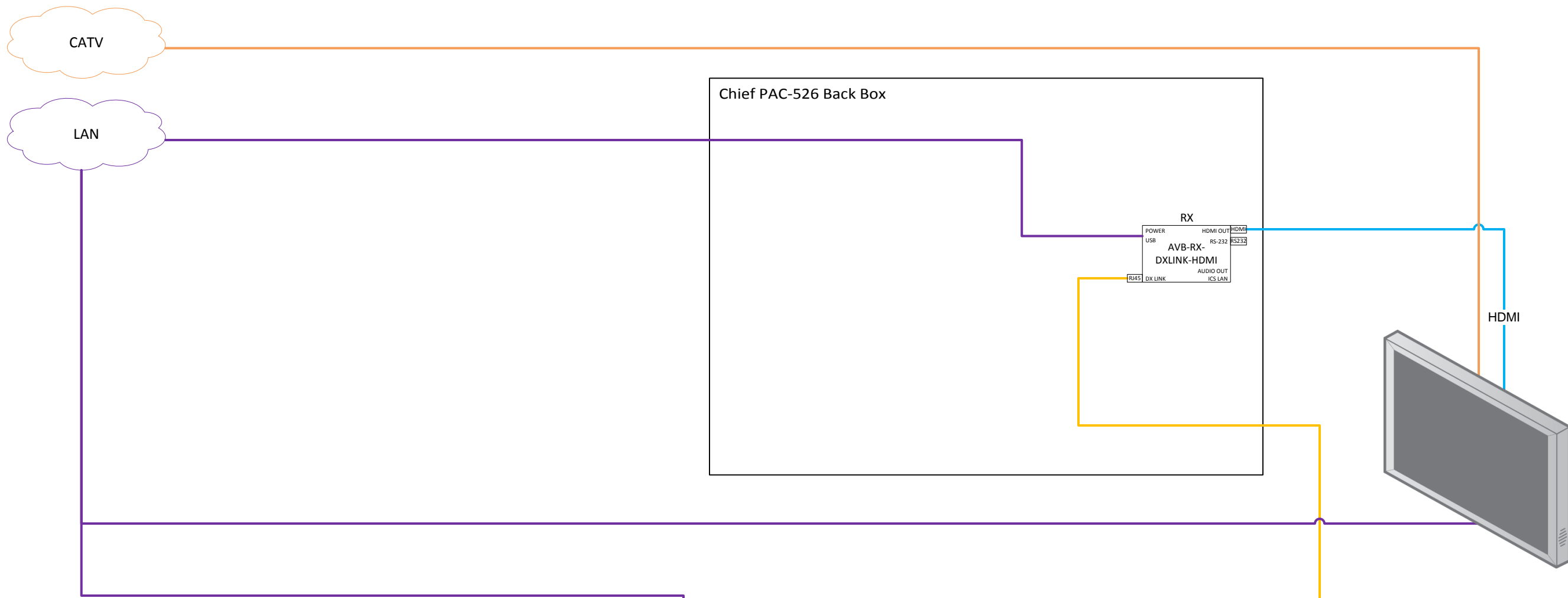
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Initial	0	04/28/15
Update		

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PROJECT ENGINEER: Brian Goetz, CTS
 DRAWN BY: Brian Goetz, CTS
 OPPORTUNITY NUMBER: N/A

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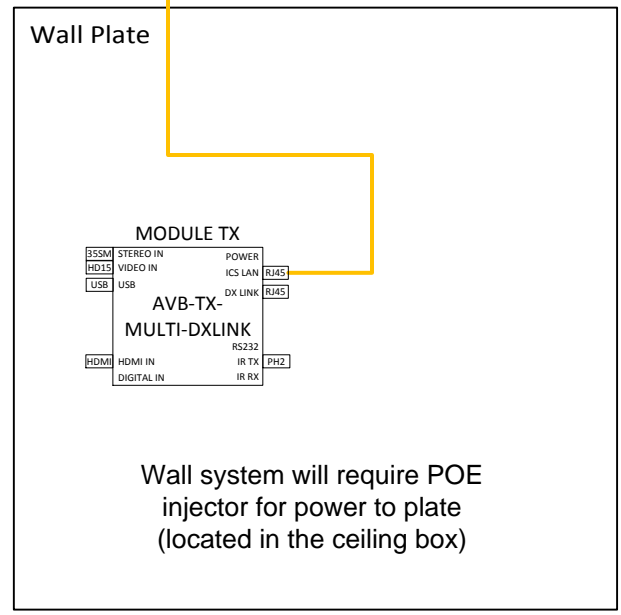
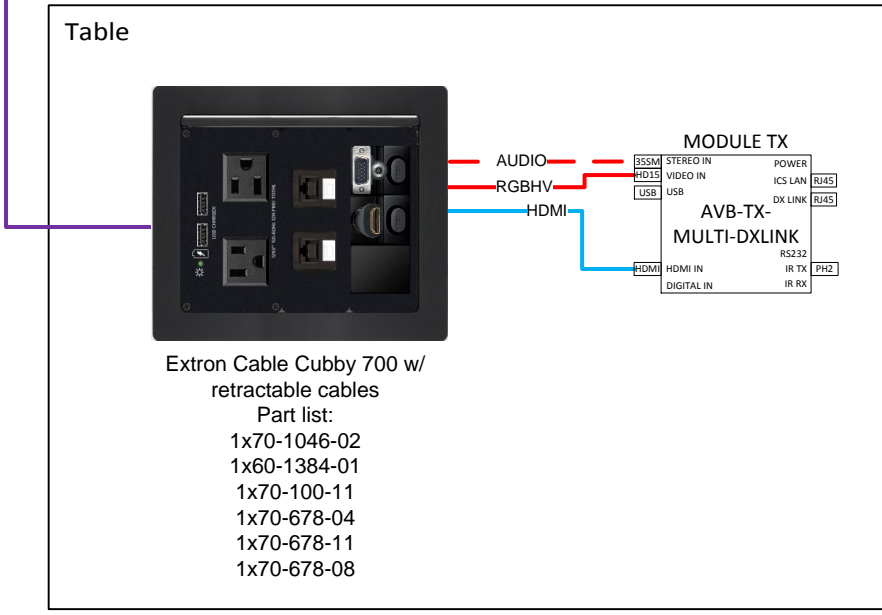


E2 - Equipment Configuration

- Content to display via DXLink Receiver.
- Wallplate input with VGA and HDMI inputs. (optional Table input)
- Room can be connected to an AMX master and RMS

Notes:

- LTMU display mount or Media Services approved alternative
- PAC-526 back box (on suitable walls) is required
- CATV/LAN to be provided by WUSTL or approved Network vendor
- NEC preferred display, Professional series displays required
- Infocomm standard display sizing rules are to be followed



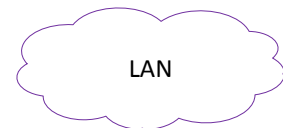
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Notes	Rev	
Initial	0	04/17/14
Update	A	04/28/15

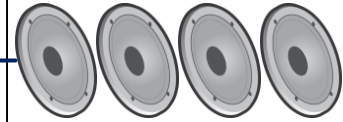
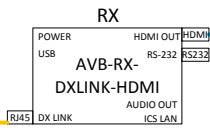
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PROJECT ENGINEER: Brian Goetz, CTS
DRAWN BY: Brian Goetz, CTS
OPPORTUNITY NUMBER: N/A

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AV-02A
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FSR, Legrand, Chief or Middle Atlantic Ceiling equipment box



HDMI

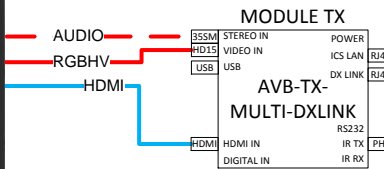
Notes:

- RPMA projector mount or Media Services approved alternative
- FSR, Legrand, Chief or Middle Atlantic ceiling equipment box for future expansion
- The table configuration or Wall Plate options are based on room needs
- Speakers and amplifier are optional additions based on user needs and space considerations
- Laser Phosphor Projector recommendations: Panasonic PT-RZ470UK
- Other Projector Options: NEC NP-PA622 U-13ZL, Christie LWU501i

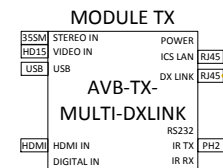
Table



Extron Cable Cubby 700 w/ retractable cables
Part list:
1x70-1046-02
1x60-1384-01
1x70-100-11
1x70-678-04
1x70-678-11
1x70-678-08



Wall Plate



Wall system will require POE injector for power to plate (located in the ceiling box)

E2 Equipment Configuration - Projector

- Content to display via DXLink Receiver.
- Wallplate input with VGA and HDMI inputs. (optional table input)

Notes

Notes	Rev	
Initial	0	04/17/14
Update	A	04/29/15

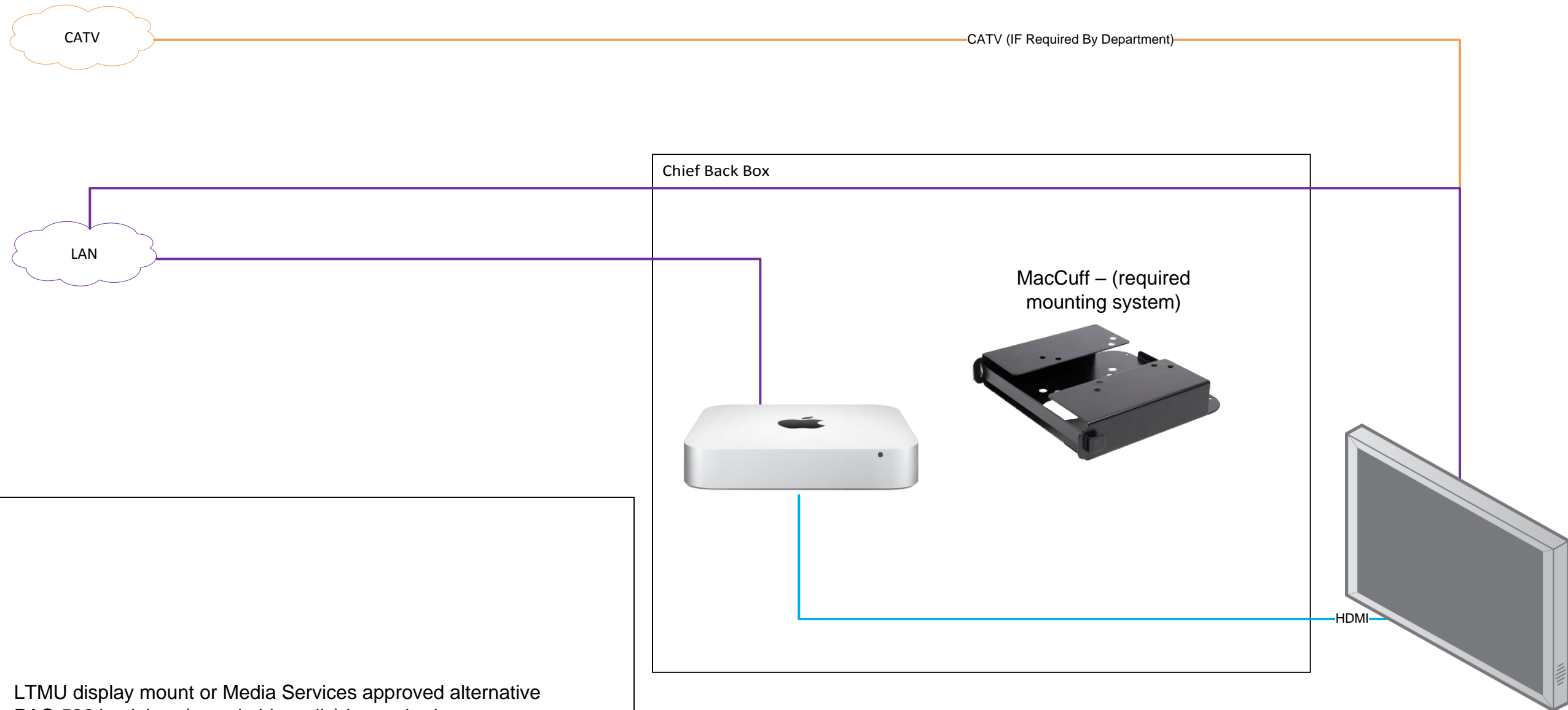
ISSUE DATE: 04/29/15



PROJECT ENGINEER: Brian Goez, CTS
DRAWN BY: Brian Goez, CTS
OPPORTUNITY NUMBER: N/A

DRAWING NUMBER

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Basic Digital Sign

- Notes:
- LTMU display mount or Media Services approved alternative
 - PAC-526 back box (on suitable walls) is required
 - CATV/LAN to be provided by WUSTL or approved Network vendor
 - Lock for mount and MacCuff are to be specified by owner

Notes

Notes	Rev	
Initial	0	04/28/15
Update		

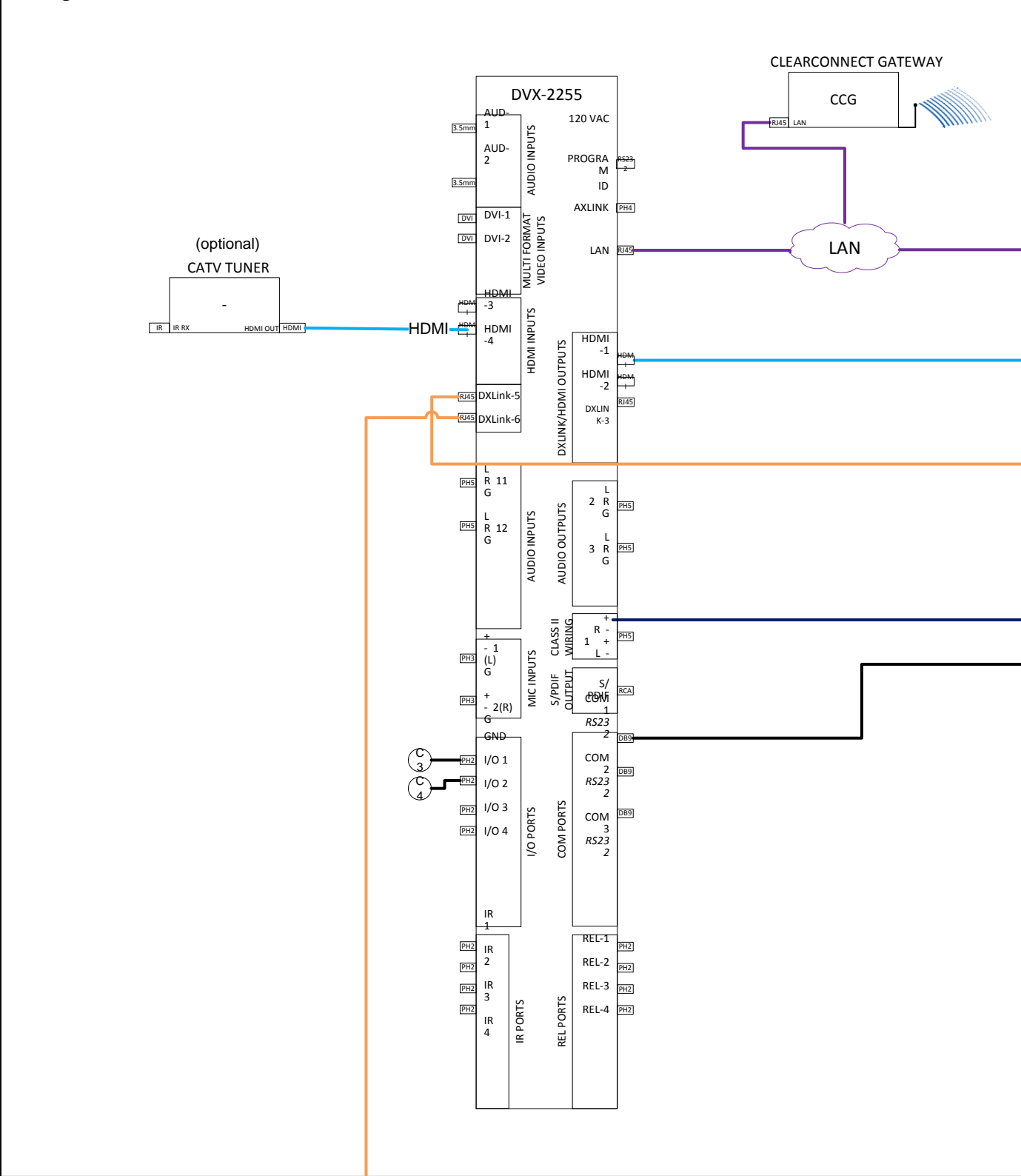
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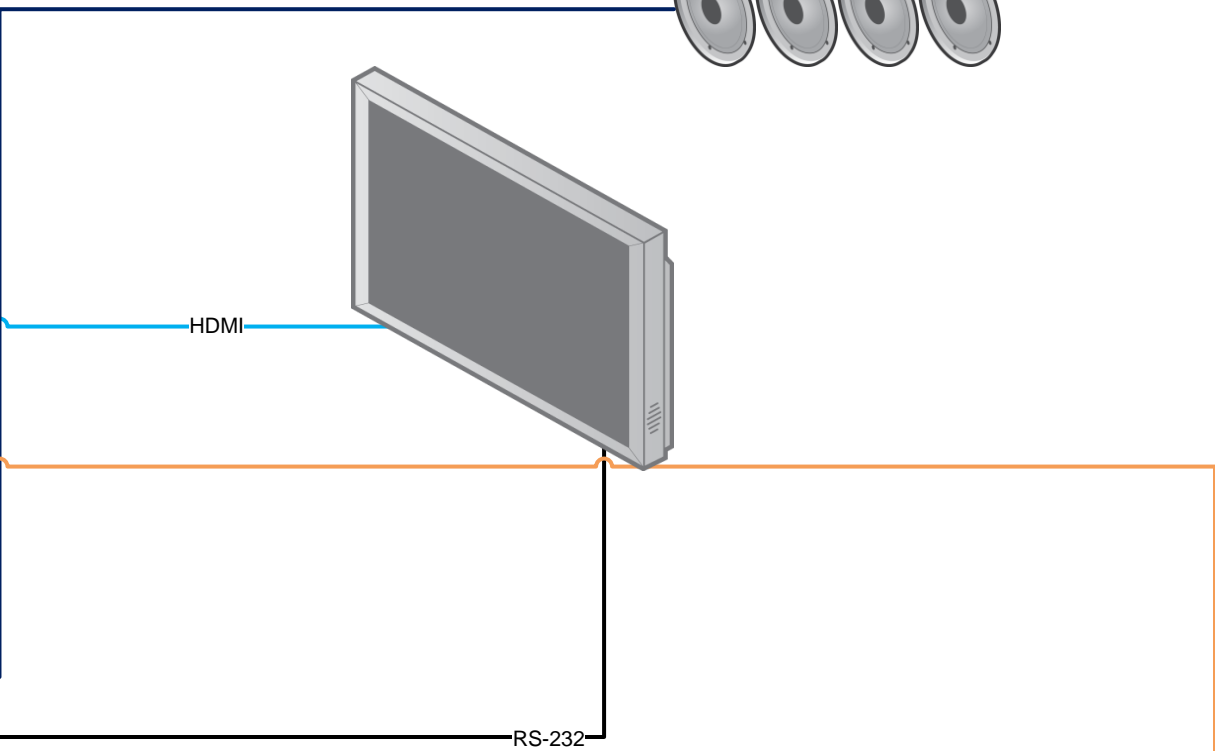
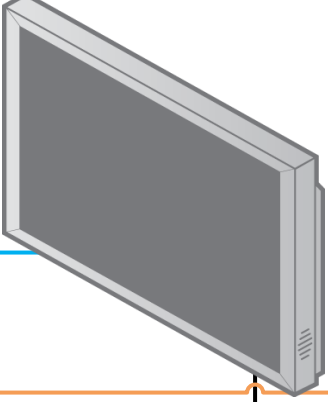
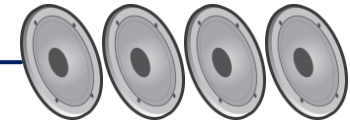
PROJECT ENGINEER: Brian Goetz, CTS
 DRAWN BY: Brian Goetz, CTS
 OPPORTUNITY NUMBER: N/A

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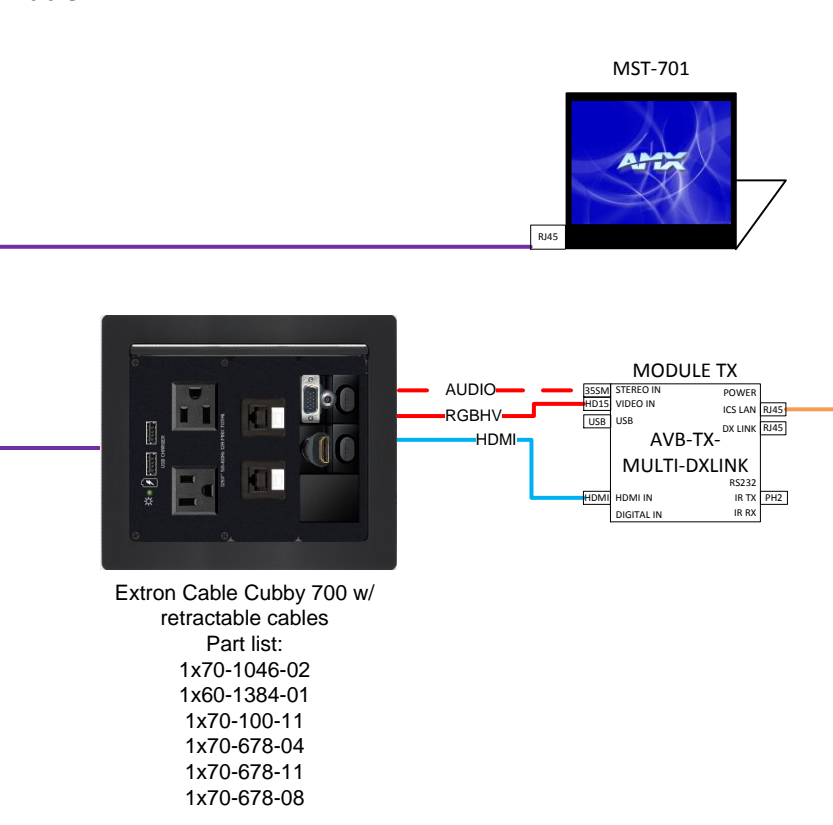
Ceiling Box – FSR- CB224



OCCUPANCY/VACANCY SENSOR
And LIGHTS



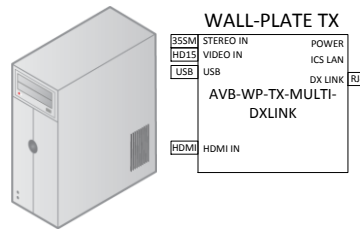
Table



Extron Cable Cubby 700 w/
retractable cables

- Part list:
 1x70-1046-02
 1x60-1384-01
 1x70-100-11
 1x70-678-04
 1x70-678-11
 1x70-678-08

ROOM PC



L3- Flat Panel System

- Enova all-in-one design
- Extron CableCubby with retractable cables and power.
- Room shuts down automatically when not occupied.

Notes

Notes	Rev	
Initial	0	04/17/14
Update	A	04/30/15
Update	B	07/06/15

ISSUE DATE: 07/06/15



PROJECT ENGINEER: Brian Goetz, CTS
 DRAWN BY: Brian Goetz, CTS
 OPPORTUNITY NUMBER: N/A

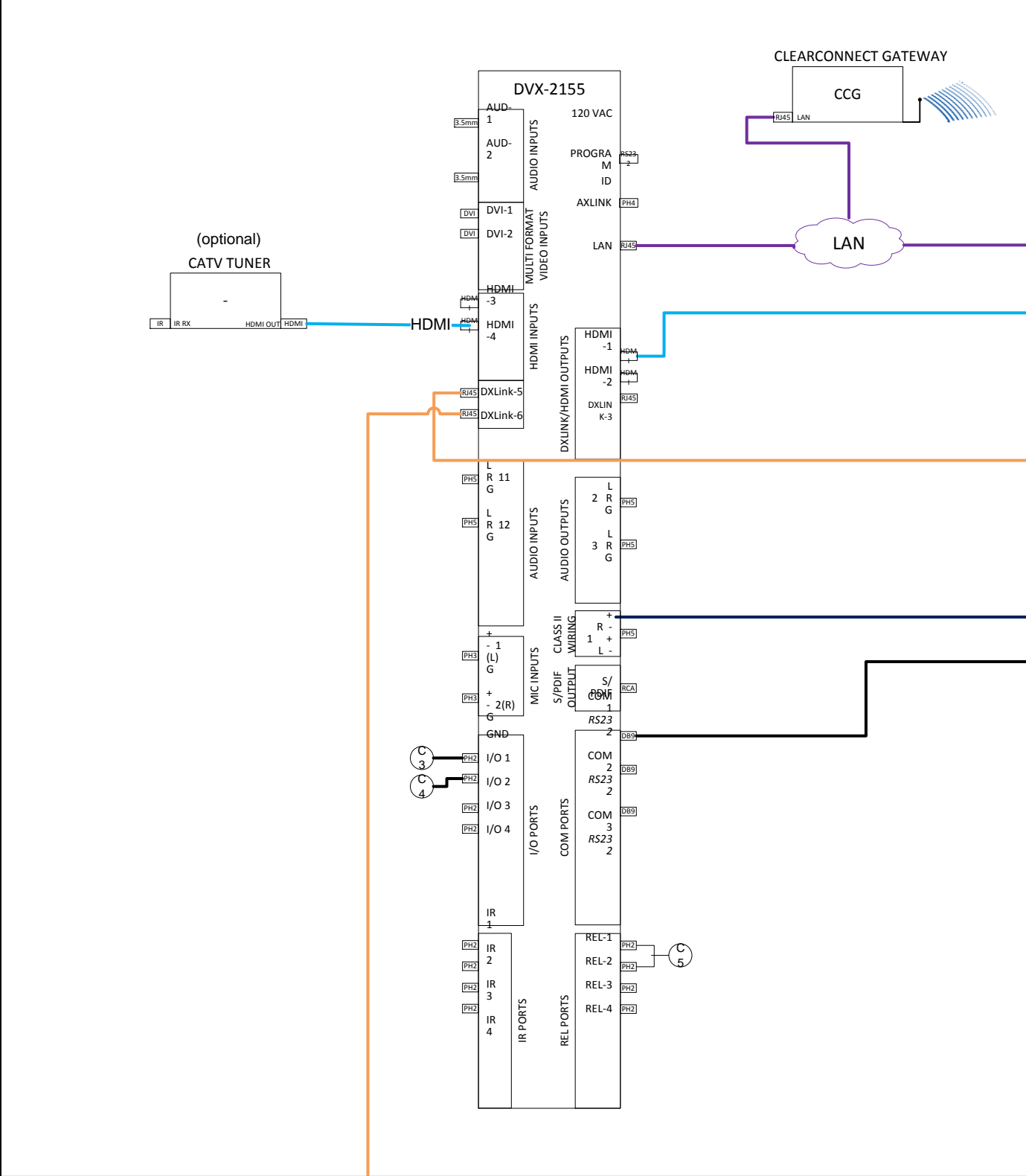
DRAWING NUMBER

AV-03A
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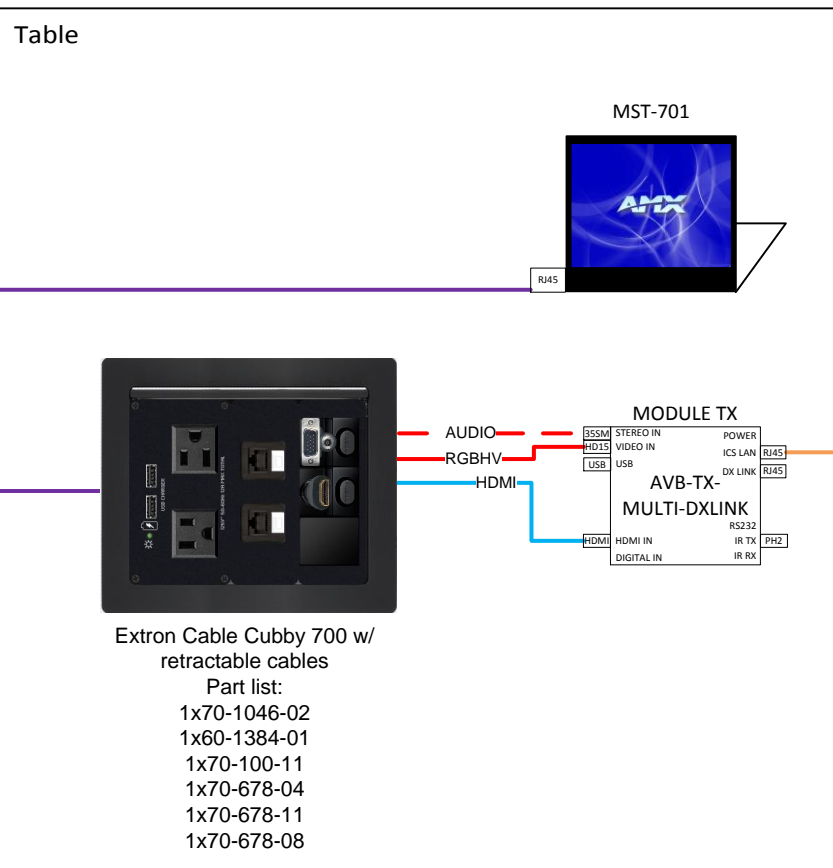
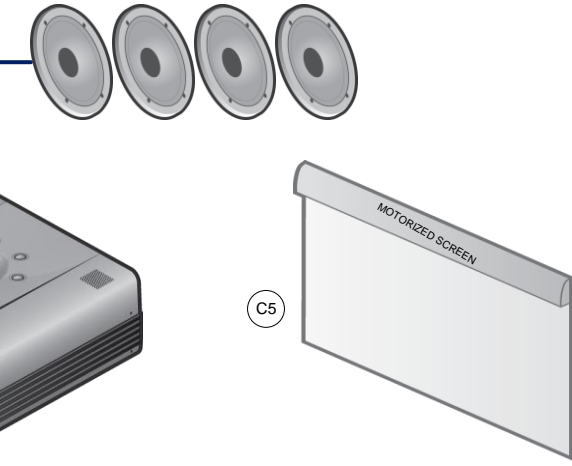
Notes:

- LTMU display mount or Media Services approved alternative
- PAC-526 back box (on suitable walls) is required
- CATV/LAN to be provided by WUSTL or approved Network vendor
- NEC preferred display, Professional series displays required, contact Media Services for recommendations
- Infocomm standard display sizing rules are to be followed
- Speakers may be optional in smaller spaces
- CATV tuner may be optional in certain spaces
- FSR, Legrand, Chief or Middle Atlantic ceiling equipment box for future expansion
- The table configuration or Wall Plate options are based on room needs
- Lutron Pieces can be substituted with QS series controllers, wired OCC sensors and QS Shading systems if required

Ceiling Box – FSR- CB224



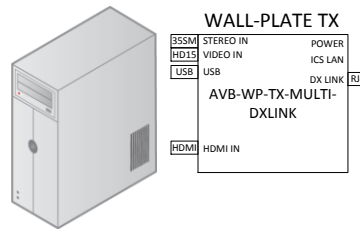
OCCUPANCY/VACANCY SENSOR
And LIGHTS



Extron Cable Cubby 700 w/
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- Part list:
 1x70-1046-02
 1x60-1384-01
 1x70-100-11
 1x70-678-04
 1x70-678-11
 1x70-678-08

ROOM PC



L3- Projector System

- Ennova all-in-one design
- Extron CableCubby with retractable cables and power.
- Room shuts down automatically when not occupied.

Notes

Notes	Rev	
Initial	0	04/17/14
Update	A	04/30/15

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PROJECT ENGINEER: Brian Goetz, CTS
 DRAWN BY: Brian Goetz, CTS
 OPPORTUNITY NUMBER: N/A

DRAWING NUMBER

AV-03B
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Notes:

- RPMA projector mount or Media Services approved alternative
- FSR, Legrand, Chief or Middle Atlantic ceiling equipment box for future expansion
- The table configuration or Wall Plate options are based on room needs
- Speakers and amplifier are optional additions based on user needs and space considerations
- Laser Phosphor Projector recommendations: Panasonic PT-RZ470UK
- Other Projector Options: NEC NP-PA622 U-13ZL, Christie LWU501i
- In larger rooms, Other projector options might need consideration. Contact Media Services for list of approved projectors
- Lutron Pieces can be substituted with QS series controllers, wired OCC sensors and QS Shading systems if required
- Motorized screen is optional, manual screens are also acceptable from Da-Lite and Draper
- Optional CATV tuner must have an HDMI output, RS-232 control and be QAM and ATSC compatible