ADA: What’s the Frequency AV?

*Note: transcript lightly edited for clarity.*

**Joel Hagen:** Hello and welcome to the Legrand | AV Podcast, The Download. This month we're doing a series of episodes on making AV technology ADA compliant. I'm Joel Hagen, your guide through this special series. Thanks for joining me on this journey.

This is the third of our four parts to the series. In part one, we covered a lot of the physical space requirements for AV systems, including protrusion limits, work surfaces, and reach ranges. In part two, we took a step back to look at the ADA as a whole, why it exists, who it covers, and the benefits of universal and multi-sensory design.

For this episode, we're focusing on the A in AV. Audio. This is different than fine-tuning a home theater experience or optimizing the overall soundscape for a live event space. We're focusing on getting the one-to-one interpersonal experience right in conferencing and learning applications. Making sure everyone can hear through assistive listening systems, captioning and voice lift is very much on AV integrators to consider when scoping a project that includes ADA requirements. Consider this podcast series a sort of companion piece to Legrand | AV's publication, “ADA in AV, Making AV Technology ADA Compliant.” You can find it at legrandav.com. The guide is the most comprehensive publication specifically for the AV industry about the ADA that we know of.

This podcast and the guide are meant to serve for educational purposes only, not as legal advice. If you're looking for specific guidance or details, you should contact the folks at ada.gov.

To talk audio in this episode, we've reached out to Williams AV, a manufacturer of pro AV technology for inclusion and engagement for nearly 50 years, they've been creating solutions that bridge physical and language barriers, including assistive listening systems, wireless intercom, and language interpretation solutions. And they're right down the road from Legrand | AV. Here to talk our ears off in all the right ways is Tony Braun, Vice President of Global Sales and Marketing at Williams AV. Welcome to the podcast, Tony.

**Tony Braun:** Thanks, Joel. Glad to be here. And thanks to Legrand for putting out this ADA in AV guide. I'm sure it'd be a great resource for a lot of people.

**Joel Hagen:** Yeah, we're super excited about it. And I'm glad to have you guys on because you guys have a much bigger role to play in this in this field, and we want to get the top experts. So let's start with the challenge. What are some of the basic barriers to understanding auditory language in a conference or learning environment?

**Tony Braun:** Yeah, great. Well, if I if I back up a little bit here, the National Institutes of Health, according to some of their most recent statistics say that there's 15 percent of American adults that have some difficulty in hearing. So I just wanted to provide a little scope for the size of the issue we're trying to address here.

That 15 percent equates to about 37 million people that have hearing trouble. And if you extend that globally, it's about 1.5 billion people. These factors increase with age, and when you combine that with those auditory challenges, you're talking about things like poor room acoustics, like a reverberation, or when you're in a space and there's a lot of people moving around, that creates a lot of low-frequency noise, other background noise, people shuffling papers, clicking on their phone, all of those things in addition to distance from the actual sound source or a speaker that you can hear creates a poor signal-to-noise ratio. And that's really the heart of the equation that we try and address. Even with folks with hearing aids’ latest and greatest technology, that technology is designed to pick up the audio it hears within about a six- to eight-foot radius of where they sit.

So if you're sitting in a corner of a venue or any space that's away from the speaker, it may be picking up the sounds around you more than it is the intended audio from the public address system.

**Joel Hagen:** Okay, so we have assistive listening systems to help with this, these challenges. What is an assistive listening system, or I'm going to call it an ALS from here on out just to keep the tongue twisters away.

**Tony Braun:** Yeah, no problem. We use ALS every day. So generally at one point in time, these were wired systems, but you can imagine the complexity that came with that. So when we're talking about any modern-day ALS, or assistive listening system, we're generally talking about a wireless system that's designed to overcome the barriers we just talked about to improve that signal-to-noise ratio, because ultimately, if we can bring more of the intended sounds and have those overpower or, or come in before any of the undesired sounds, we improve intelligibility.

So that's a word that we use around here every day and that helps with understanding. A general assistive listening system usually is wireless, so there's a transmitter and there is a receiver. Most common forms have a body-pack style receiver – something you can clip on your belt or set on the table ahead of you with a wired headphone.

Some of them come in different formats. You might have more of an earphone style that is wireless as well, depending on the technology used. And all of these can be and are required to be compatible with hearing aids. I think we'll talk about that more in a little bit. But all of these technologies that are ADA-approved are compatible either directly to a hearing aid or compatible using something called a neck loop.

**Joel Hagen:** Okay. You've touched on it a bit, but what are some of the more common types of ALS systems? ALS systems is repetitive. Okay. I'm learning. Some types of ALS are available and what are their main benefits and drawbacks to each system?

**Tony Braun:** When you actually look at the requirements of the ADA, and I can point you to more resources there later for those who want to dig in a little bit further, there are three approved technologies that satisfy ADA requirements.

The first one is Radio Frequency. Most commonly that comes in the form of an FM system. So think of it like a short-range radio transmitter, a radio station of its own, but radio frequency can also include digital audio signals, radio signals, even audio being transmitted over Wi-Fi. Because that all falls within the radio frequency category.

So radio frequency is one approved type of technology by the ADA. Second, probably most common, is infrared. There's some misconception that come with infrared. I'll try and address those a little bit later, but infrared is great for indoor spaces or when security is really important. Something like radio frequency can transmit through walls and other places.

So infrared can be contained within a room, or even when there's lots of adjacent spaces where we don't want signals to inter overlap. Infrared is great for those, when radio frequencies are used more for large spaces. And one technology that is part of the ADA is an Induction Loop or sometimes referred to as a Hearing Loop.

And some people think of this as old technology, but like anything else, it's been around a while, but it has progressed massively in the last 10 years or so. And this is an amplifier that goes in a room. It's a little bit more involved to install because it involves putting a wire either around the perimeter of a small room or in a phased array pattern in a large room, and what happens is the, that amplifier, when you bring in an audio signal, brings that audio directly to someone's T-coil or telecoil-equipped hearing aid directly through a magnetic field coming out of that wire, generally under the carpet or in the floor. And so that becomes one of the most discreet forms of assistive listening. Somebody can walk into a room and instead of having to go pick up a receiver and headphones and then return those at the end of the event, they can walk in, see an ADA sign on the wall indicating there's hearing support, and simply click the button on their hearing aid and get a direct feed directly to their hearing aid, which, by the way, is tuned to their specific form of hearing loss. So that is something that's been around a while that some may consider older technology, but is really a proven technology that has advanced greatly in the last 10 years or so.

**Joel Hagen:** Just curious. You were talking about security. When you're talking about a government installation where they're going to need assistive listening, is IR just the baseline?

**Tony Braun:** It can be, so IR is probably the most commonly used technology in courtrooms. I know we're gonna talk a little bit about what spaces require assistive listening, courtrooms are one of those where security is very important.

There's always adjacent spaces, either above or below, in multiple courtrooms within a courthouse. So we have to account for the adjacency of those spaces, and they often want to contain that audio within the room. Infrared is a go-to and we work with some of the largest integrators who work in courtroom spaces.

**Joel Hagen:** How do we know if a space requires ALS when planning a system?

**Tony Braun:** There are a couple of answers to that one. One is that one primary requirement under the ADA is that space has to be open to the public. So if it is a private space or a corporation, technically they're not required unless that space is open to the public.

One gray area there becomes, well, what about houses of worship? Technically they're not required to except a couple of states, but if they open up that house of worship to the public for different events or rent out the space, then they would be required. So a primary requirement is that it's open to the public in what the ADA would call an assembly area.

That could be for a number of purposes, whether it's entertainment, education, civic gatherings. Any of those fall under that assembly area criteria. The second part of it is that audio has to be integral to the use of the space. And usually what that means is, if the space is large enough that the venue has determined, “We need a public address system.” We need an audio system in the space. So if the space is open to the public, but they don't have an audio system, they're generally not required to have an assistive listening system. But when you put those two together: It's open to the public and they have a public address system because the audio is integral to the use of the space. That's usually when the ADA requirement kicks in.

There are a few spaces like courtrooms and other government facilities that are always required, but outside of those, those are the general guidelines. The ADA does not specifically dictate what technology has to be used. That's where we come in and have been doing that for nearly 50 years – helping select the best technology for a given space.

If you want to dig in a little bit further and actually read some of these requirements, the sections of the ADA pertaining to assistive listening systems are sections 219 and 706. So that defines what is an assembly area. What “integral to the use of the space” means, and what are the acceptable technology types.

And Joel, I got to put a caveat on all of this because these are the U.S. requirements, but there are some local cities or municipalities or others that may put requirements above and beyond what the ADA requires. So it’s important to always check with local, authorities as required.

**Joel Hagen:** What are some types of hearing impairments or difficulties that we're talking about that are most commonly in need of an ALS environments?

**Tony Braun:** I'll start by saying I'm not an audiologist, but having been in this role for close to 10 years now, we've learned a little bit about hearing loss, working with a number of folks.

So there, there's really four common types of hearing loss. One is sensorineural. And that is what we hear about all the time about the damaging the tiny little hair cells in your inner ear. That can happen for a number of reasons, but kind of the most common causes for sensorineural is exposure to loud noises, prolonged exposure to even moderate level of audio, aging. Those tiny little hairs start to degrade over time.

So that's type number one. The second hearing impairment type is conductive. Which is your ear's ability to move sound from the outer ear, the middle ear to the inner ear where it's being received. So that can be a matter of mechanics and the structure of your ear, blockages, anything that's preventing audio from getting from the outside or middle ear to the inner ear.

Third type is a combination of those two, or a mix between sensorineural and conductive. And then less common, but also part of the mixture of hearing loss types is neural. And that means that the audio is getting into your inner ear properly. All those tiny little hair cells in there are working properly, but the auditory nerve is missing, or it's not really receiving that in a proper way to transmit it to the brain.

**Joel Hagen:** Okay. So here's a jump. Studies show that we hear four times as better with two ears over one ear, which is more than you'd expect if you were guessing. Can you tell me a little about that and how that affects ALS spaces.

**Tony Braun:** I think the phrase that you just used, you hear four times better with both ears than you do with one ear comes out of a study that was done by Vanderbilt University.

And they introduced the concept of interaural cross correlation, which is as I understand it, again, not an audiologist, but as I understand it, when you have proper or adequate hearing in both ears, what the study says is that your brain is not just hearing one side, but it's comparing what it's hearing from both sides, what it's getting from left and right, and looks for differences that provides cues for greater understanding. So if you want to learn more about that one, I recommend you look under Vanderbilt university for interaural cross correlation.

**Joel Hagen:** How do ALS spaces help address all these difficulties?

**Tony Braun:** When you pick the right technology, what we're really trying to do is make sure that no matter where you are in one of these assembly spaces or in any public venue, you have the ability to hear sound clearly and improve that signal-to-noise ratio.

So the ADA requirements and the best practices for this are actually call out a minimum signal-to-noise ratio of 18 dB.

When these systems are in, the audio is properly being broadcast throughout that facility regardless of the technology type, we're reducing or eliminating those undesirable sounds we’re amplifying. So we add gain to the whole thing and even use some DSP technology within these things to boost frequencies that are often hard to distinguish.

So you combine some of the DSP technology and the coverage. That's how we solve that signal-to-noise ratio challenge.

**Joel Hagen:** Are you seeing an increase in the use of these systems? And if so, why do you think that is? Are we just listening to music too loud more and more?

**Tony Braun:** Yeah, it could be some of that. I mean, the use of the systems… it's funny because the original ADA laws that started to address hearing loss started in the early nineties and didn't even really see refinement until about 2010. We here at Williams AV have been as part of our core business, we do other things as well, but as part of the core business have been helping solve this challenge for almost 50 years.

So the requirement to have an assistive listening system has been there for quite a while, but we're definitely seeing an increase in the use of the system. Even if they were in, unfortunately, sometimes they sat in the corner. People didn't know what they were, but they were put in to check a box so that the venue could get a certificate of occupancy. They're being used more and more now. The improvements in the technology make these work better for a broader array of users. There's been a lot more education. And in the guides that have been produced to educate people on what these systems can do to alleviate or to compensate for hearing impairment. Also, previously there were more facilities that were exempt under the law.

These venues that had been constructed years ago and people didn't want to disrupt them. They said, “well, that was in place. You're not required to.” But now, as a lot of those facilities go through renovations, and there's even a specific percentage of renovation where this legislation would then kick in at somewhere around 65 percent that are now requiring some of those older facilities going through renovation to meet the requirement now as well, not just new construction.

So, for those reasons, they're coming into play a lot more, and those systems most often benefit those with mild and moderate hearing loss. Interestingly enough, most of those assistive listening systems also support multiple channels of audio. So the same assistive listening system that we help integrators put in could also be used with a human interpreter to deliver language interpretation to its intended audience.

As soon as people become aware that you can use it for language interpretation, it creates awareness for the assistive listening systems as well.

**Joel Hagen:** That's awesome. Okay. So what are the most common misconceptions you come across when being asked about these systems and their uses?

**Tony Braun:** These are conversations we have every day despite the requirements being around for quite some time. Most people understand that an assistive listening system is required for a public space. That one's kind of a given, but where we end up really providing some context is that most people don't realize the number of people affected by hearing loss and how important that is. Earlier I said 15 percent of the audience may be suffering from hearing loss, right?

So the impact that the system can have is something that we help people understand. There's often confusion about which technology to apply and why. We touched on a little bit of that and also how much equipment is required. You know, what do I do, whether I've got a 500 seat space or a 20,000 seat space, what is the right mix of equipment to make sure I'm both compliant and creating the most inclusive experience that I can?

The good news is that's what that's what we do. We're here to help. I don't want to make this a commercial for Williams, but that's what we get up and do and eat and sleep and breathe every day. So if, if anybody has those questions or there's confusion, please reach out to our team. We'd love to help.

**Joel Hagen:** And I'm sure your team is very aware of new advancements every day. What are some of the new assistive listening technologies Wi-Fi, phone apps, whatnot?

**Tony Braun:** Yep, you hit you hit it on the head there. So one of the fastest growing categories around assistive listening technology is audio over Wi-Fi. This is the ability to take a signal, run it into a device that's connected to your in-house Wi-Fi and then deliver that audio directly to somebody's own smartphone or tablet.

So the experience is something like this. You walk into a venue, you see a sign saying that you could receive audio over Wi-Fi to your smartphone, to your own device. You go out to the app store or use a QR code to download a free listening app. And then once you've downloaded that app and you're on the guest network in that venue, you can choose the channel you want to hear and stream audio directly through your own smartphone or tablet. That helps with the management of equipment in terms of what has to be handed out and collected at the beginning or end of an event, and also addresses some of the hygiene concerns of managing equipment.

They're great systems. They've improved greatly over time. They do take some network configuration in order to prioritize that audio stream over other network traffic, but that's a really fast-growing category for us that works well. We even offer systems that provide some redundancy.

So there can be both FM transmission or IR transmission in addition to the audio over Wi-Fi, all coming from the same transmitter. Another area in terms of the advancements, something that we're going to see and hear more about in the next few years, is the next generation of Bluetooth. I don't know, Joel, have you heard of AuraCast at all?

**Joel Hagen:** I have not.

**Tony Braun:** Okay. So you're going to start hearing more about that over time. It's a technology that we're actively researching. Think about the attributes of Bluetooth today, but now Bluetooth that is in a one-to-many environment. So I can broadcast not just from my phone to my earpiece, but from a device to anybody within range and ranges that are much further, hundreds of feet compared to, you know, the 30 to 40 typical feet we see with Bluetooth.

So as Bluetooth continues to evolve, we know that's going to have an impact on our space. And, and we're already innovating in that space. We shared some initial prototypes to get feedback at InfoComm a few months ago. We're going to hear more about AuraCast as the next gen Bluetooth capability.

**Joel Hagen:** I look forward to that, especially when I take my dog out and I forget my smartphone inside and my headphones stop working.

**Tony Braun:** Yep. I hear you.

**Joel Hagen:** With the Wi-Fi, is that also a secure thing? It seems like it would be a securable system.

**Tony Braun:** Yeah, there there's multiple layers there, right? The first level of control you have is whether or not you allow somebody's device on your network. Once they're on the network and they have access to the listening app, we even have the capability to, when they're presented with a list of channels on a per channel basis, when you click a channel, if you, as the venue choose to do so, you can re require a pin code before you can have access to that audio stream.

**Joel Hagen:** Okay. Those with hearing aids are also able to benefit from these systems as you have talked about. I understand hearing aids are just miles ahead of what they used to be even a couple of years ago. So how do AV integrators make sure their systems can work with hearing aid devices? Is it even a huge issue?

**Tony Braun:** It is an issue. The ADA requires compatibility with hearing aids. And generally when they say that, they're referring to a hearing aid behind the ear style that has a coil in it called a telecoil. And the way that we achieve that is, as I mentioned before, through a neck loop. So if this were an assistive listening receiver, instead of putting on headphones… Some people do that and have a good experience. They can put on headphones right over their hearing aid, and that works okay. They may have to be careful about the volume adjustment and such, but others, instead of plugging in headphones, will plug in a neck loop and it hangs around their neck like a lanyard and essentially acts like a hearing loop system.

So the magnetic field is now created between the lanyard they're wearing and the coil in their hearing aid. That can be plugged into an FM receiver, an infrared receiver, a digital audio receiver, even into the smartphone and create that magnetic field. And the beauty of that is that hearing aid is specifically tuned for that individual's form of hearing loss, regardless of what frequency it is.

So that creates a very good experience and maximizes intelligibility. And if they're in a hearing looped area, they don't even need a device. They can go right to their T-coil equipped hearing aid. If someone doesn't have a T-coil equipped hearing aid or accessory device, that does that they can simply go pick up a body pack style receiver, just as you can with the other technologies, and make it work.

But when a hearing aid is in play, we really want to leverage that the best that we can because they have gotten so much better and it's tuned for that individual.

**Joel Hagen:** How do you see closed captioning fitting into all this? I feel like I turn them on a lot more myself. I've heard other people, It's just become the first choice for younger people. Even though I don't think my hearing has changed dramatically in the last 15 years. My wife might think otherwise. But I do wonder about this need for reading while you're listening.

**Tony Braun:** Yeah. Captioning provides another layer of support. I'm fortunate to have a fairly normal hearing. My wife might argue with that as well. It's more of a selective thing, I think, but but captions are another important thing. My daughter's the same way. If she's watching television, her hearing is normal, but she doesn't watch it without captioning. There are a lot of statistics that say when captions are involved, whether you have hearing loss or not, it increases comprehension.

And for those with hearing loss, they typically rely on multiple methods, right? The thing that I noticed with some family members who have hearing loss, before they even acknowledge they had hearing loss, you can tell that they're reading lips more, the captions come on. And again, it provides another layer of support.

And there's some new artificial intelligence-based technology that provides real-time captioning. As opposed to closed captioning, which gets created and embedded in the video source when the content is created, some of these systems allow you to take a real time feed or use microphones like we're using today to feed them into a an AI engine.

And they'll create captions in real time. So we're starting to see more of that in Teams and other video conferencing technology as well as other places. So again, if you're trying to create an inclusive experience, more methods is generally better in order to provide multiple levels of support because everybody takes in these inputs differently.

**Joel Hagen:** It's interesting. The one place I don't turn on captions is live TV because they're always a minute behind and then they just skip a bunch. I don't know what they're doing.

**Tony Braun:** They do. And a lot of those are still dependent on a human typing as fast as they can. And they're not great, but we've been experimenting and have had products with AI engines that learn over time.

So the more common the languages, the more that you update libraries, the smarter they get. I think we're to the point where we're starting to cross that threshold of them going from annoying in a live event to something that's really meaningful.

**Joel Hagen:** We're in a new world with always being aware of viruses now.

And when you have an ALS in place that includes receivers that people have to borrow like a theater auditorium, how do you go about keeping them clean between uses and safe to use?

**Tony Braun:** Again, part of every conversation we have, you know, the hygiene was always a part of the discussion for us and picking the right assistive listening system and the pandemic only accentuated that.

But basically, we design our products with hygiene in mind as do most manufacturers. They're designed where moisture cannot get in. We try to design it with as few seams as possible. So there's not places for them to be held and they're built with non-porous surfaces that make it really easy to grab a, not to promote a particular brand, but a Clorox wipe or an alcohol wipe and wipe those down and get them back to a sanitary state.

The other thing that's changed quite a bit is to use different styles of headphones and earpieces. So as opposed to something like what you're wearing that has cushions or the old foam style some of these now hang off of the ear. Rather than go in the ear or over the ear, they just kind of sit just outside the ear and are made of a plastic that is really easy to wipe down.

**Joel Hagen:** Any last thoughts about the ADA and how ALS should be as common an acronym as any other in the AV industry?

**Tony Braun:** The more that we can share the impact that an assistive listening can have on an audience, I think the more people will think about it as part of the overall venue’s experience and less about just being compliant.

I'm always impressed when I get to work with audio design consultants and integrators who just live and breathe audio. And those folks, what always strikes me is these folks would never even think about designing an audio system that only delivered a good experience to 85 percent of the audience.

If you don't consider the assistive listening part of that, that's essentially what you're doing. So again, it's not just about checking that box. It's about considering the overall experience that you're trying to create and understanding that somewhere around 15 percent of that audience is going to need some support beyond what the regular in-house audio systems going to deliver.

The more that we can talk about that and understand it and talk about inclusion, the way that you are today, the more ALS will become a what will become a household term. I guess that's, that's our goal anyway.

**Joel Hagen:** Awesome. So where can people reach you if they want to learn more?

**Tony Braun:** We're easy to reach. We’re a Minneapolis-based company, but we have representation all over the world in 60 countries. The easiest way to dig up some more information on your own, on any of the things we talked about today is at Williams with an S williamsav.com. Or you can give us a call or drop us an email, just info@williamsav.com.

I've got a team of people out here that are more than happy to jump in and discuss the topic and, and really understand, that experience, the venue, the capability of the audience and help guide to the right technology. We even have a team here that we call our tech blue team.

Think of it as the geek squad on steroids, guys with integration experience and a lot of passion for designing. We can do a lot of design work on how to put that technology into a space and optimize it.

**Joel Hagen:** Awesome. Well, thank you so much for joining me today. And it's really been great to learn a lot more about the audio part of AV. Thank you.

**Tony Braun:** Yeah. Thanks, Joe. I appreciate the opportunity. And again I would love to keep the dialogue going. If anybody has any further questions or wants to continue the conversation, I'd love the chance. So thank you again.

**Joel Hagen:** Okay. Turning to our next guest to tie up some other aspects of this topic. We have Alan Jacobson, Solutions Engineer at Legrand | AV. He's part of our elite squad of AV mavens we call the solutions engineering team. Their primary mission? To help dealers through the AV design process at no additional cost.

I am biased, but I have to say it's a pretty incredible service along with AV University and the digital signage team that Legrand | AV has in place to be of assistance to our partners and the industry as a whole. Alan has been with Legrand | AV for five years and came to us with a deep expertise in electronics engineering, security government systems, and more. He's no stranger to the regular podcast, and I'm glad to have him on for this series. Hello, Alan.

**Alan Jacobson:** Hey, good morning. I don't know where everyone is, but for me, it's good morning. Thanks for having me on.

**Joel Hagen:** All right, and okay, so jumping into this topic, how do you approach the integration of assistive technologies such as captioning or audio description in an AV installation?

**Alan Jacobson:** It has to be in your DNA. If you're designing, your approach to design is part of what you do, then you're going to automatically look at the size of the room, determine how big it is, where people are going to be positioned and make sure that you have your audio equalized so you're not skimping on components or size of your display for where the people will be sitting. You can't always have people sit in the front. They're going to sit wherever. So having the audio and the video images the right size, having the sound equal throughout the area, so you don't have to make it louder or softer in areas as part of the whole design. The installers that do that should not have a problem moving forward.

**Joel Hagen:** Part of the AVIXA guidelines for audio is to have the speakers 25 decibels above ambient noise. And I'm wondering if that's the same if you're talking about voice lift for an assistive listening system, or if there's any differences that you have to take into account when you're thinking about the ADA.

**Alan Jacobson:** There probably is because most conference room spaces don't adhere to voice lift. They're not designed specifically for, with voice lift. There are products out there that can do it. There's some that can't. And, you know, I hear this all the time as a manufacturer and as someone in solutions engineering, helping customers design spaces. You hear, “Well, we only have this much budget.”

Limiting the products you can use to stay within a budget will definitely be an issue. It's something that they're gonna have to think about moving forward because you're not going to… with some of the laws and we'll talk about that later. I'm sure those are things you can have to think about.

But yeah, if you design the room correctly, you should be able to increase the volume to wherever you need it for the space. A lot of times, people will want a sound bar in the front of the room. Well, that's great. And the microphone is built into it. What happens is the people sitting in the front of the room can be heard a lot easier than the people in the back of the room.

But now they have the reverse. If, you know, now they're hearing the audio from the front louder than the people that are 20 feet away. When you're designing it correctly, part of this is really teaching the customer what things you need to think about.

**Joel Hagen:** Sure. On that line, how do you conduct an accessibility assessment for an AV installation and what tools or methodologies do you use or recommend?

**Alan Jacobson:** There are a lot of resources that you can go to for help with this guideline. AVIXA has plenty of resources out there as well. We just came out with a new ebook for ADA compliance, so there's a ton of resources that you can use. But again, And I think now that a lot of people are trying to do AV, a lot of them are not installers that are used to ADA compliance.

And now since people are going to be working from home, from the office hybrid type thing, you have to design it into every concept that you're doing. Every installation, that has to be a thought.

**Joel Hagen:** Can you share any success stories or recent instances where you successfully achieved ADA compliance in a challenging AV situation?

**Alan Jacobson:** So we had an agency that was installing AV rooms across the country, well, across the world, anywhere in the world. And they wanted to make sure they were able to install a room that would meet all standards. ADA compliance, anything else, but without doing a site survey. And get in and out without having to worry about any issues with the space.

So, we developed a product we call our Tempo, which is a floor-standing mount. Basically, it sits on the floor, all the weight is on the floor, it's not on the walls. You put a mount on it, you put a display on it, and then it has a cabinet base. So, you have ADA compliance with that, but it also has a cutout for an over-floor raceway, which is ADA compliant. It's our Wiremold over-floor raceway that allows you to bring all your cables or microphones and anything else you need to the table. If you have a 10-person table, 8-person, whatever the size of the table is, you can bring the amount of microphones you would need, so everyone can be heard clearly. You can then run anything you need in the ceiling for speakers.

Everyone can hear clearly. It [Tempo] had a cabinet under it. To be ADA compliant, you can only have a display set, or any other thing that you have off the wall, four inches off the wall to be ADA compliant. If someone is blind and has a cane, they would have to be able to feel something on the floor because they're going to run along the wall, and they would have to be able to feel a piece of furniture or something under it to let them know that this thing is sticking out further.

So that product that we have, which is our Tempo, has a cabinet underneath that just sits right on top to hide your gear, but it also gives you the ability to be ADA compliant.

**Joel Hagen:** That was an amazing answer. I'm just going to say that. Speaking of that global thing, you know, we're talking about the ADA, but a lot of it is pretty similar globally, isn't it?

**Alan Jacobson:** It is. I think every country has something. Disabilities is not just in the U. S., it is worldwide, and there are agencies that are working together worldwide to help with this. So in this situation, you know, they needed to cover all bases in the U.S., in Europe, in Asia. Wherever they were going, they needed to cover all bases and get in and out, but still be compliant wherever they were. So that's what this product was able to do. And we have other products that do a similar thing. And because of that product, we have now a bunch of other products that offer the same – we have a C3 credenza. That's a thinner credenza that you can put under your display. We now have other products that we've created and other manufacturers have done the same to follow, to support, ADA and disabilities.

**Joel Hagen:** Are there any emerging technologies or trends that you see further improving accessibility in AV installations? One thing that jumps to my mind is AI getting better at closed captioning. I know some quadrants call it “crap-tioning” at this point because the AI isn't quite up to their level of expectation. But where are you thinking we're going with this?

**Alan Jacobson:** Yeah, it's definitely helping in many, many areas.

Closed caption is one. There's lots of other areas. Someone that is disabled or with disabilities, they can talk to it. There's lots of different ways you can get information right back, so it does help in a lot of areas. But like everything else, technology, it can also harm things, right? So one of the things they are finding with AI is that using it as a tool for job applicants can be a disadvantage to people with disabilities. So like everything else, it can definitely help with closed captioning. It can help. I mean, there's other things it can do if you're utilizing it to gain feedback. It can hear your voices and it can raise the lower volumes.

And there's lots of things you can do with it, but you have to utilize it correctly.

**Joel Hagen:** Jumping to sign language. How can Vaddio help with sign language interpretation in a conference space?

**Alan Jacobson:** Funny you ask that. Years ago, I was an integrator, and we supported the Department of Education. They would do a lot of town hall meetings. I think probably at least once a month, they would do these town hall meetings, and it would be all across all of the Department of Education offices, and they have them overseas, so they're all over the world. And at that time, this was several years ago, but at that time they had to hire someone to come in and type in the closed caption pieces of it.

And then if it was signed, they'd have to have someone signing and then use a lot of broadcast equipment to embed that in. And you would see the person down in the corner. And now, I mean, we have our easy IP system and an easy IP mixer. So that gives you with a small little box, which is part of our standard product offering for a room system, what that gives you is the ability to, as we're talking right now, we're in a basically a web call and I see myself, I see you. I could also have another computer coming in. I can feed them, they could be seeing the same thing and they could be signing. I can take that image of them signing and with our Easy IP Mixer, I can send HDMI into our Easy IP Mixer and send a dual stream. So now instead of you just seeing me. You would then see me and someone signing everything that I'm saying or the far side person talking. So because of technology, we as Legrand have products and Vaddio has a product that allows you to add and embed these automatically. So I can embed it into it or I can have side by side with just a touch of a button.

So we do make that simpler and easier.

**Joel Hagen:** Awesome. Moving into the larger room surroundings and how that can help with assistive listening and close captioning. How can integrators better set up a room for success with, you know, lighting, sound design, video quality, all that, all the above?

**Alan Jacobson:** That start from good common practices. If that's something you've been deploying for years, then it's just you have to think about a little bit more. If you've not done it, then it's a lot of learning, right? Because a lot of installers and people doing spaces are just trying to support what they think the customer needs.

Well, it's more than just what they think they need because they don't really know what they need. They know what they think they want, but not what they truly need, right? It is an integrator’s job to make sure that is clear and ask all the appropriate questions. The first thing you would need to do is just ask a bunch of questions.

Find out exactly what they want that space to do. Who's going to be using that space? If it's for a classroom, what age are they? There's a lot of differences to a space. You could set displays up at one height, and if it's interactive, we have product that allows you to raise or lower displays, whether it's by moving it manually, or if it's by electronic pushing a button and it goes up and down.

Those are all things you have to, from the very beginning, ask all the right questions. When you're doing a site survey or where you're talking to a customer, ask all those questions. Once you know that, it could be, I mean, is the crowd young? Do they use texting? So AI can text to them if they needed it to.

There's lots of things. You know, my age, I don't need to be texted in the middle of a presentation of something I need to do. You just have to ask all those questions. And then once you've figured that out and you've got those answers, then you can appropriately size for the displays that you need, whether it's projection or whether it's a display.

I mean, we have displays up to a hundred and some inches, but maybe projection is better because the room. We have tools to give you an idea of what size your display should be. It's a little flip chart. It's something simple. But people always think, oh, the room is 20 by 15. I can get away with the 55-inch display. But when you get them to sit in the back of the room and look at an image, and if it's a spreadsheet or if it's whatever it is. Then they may say, Oh, I can't read that. So we have a flip chart that you can kind of walk away and when they can read the bottom line, you say, okay, this is the size the screen is.

So it's having the right tools, asking the right questions, and then you design for that, the audio. You want to make sure that you have the quality in the sound throughout the entire room. When you're putting speakers in, a lot of times people like them from the front. That's good if you're just doing movies or something like that.

If for voice, you want to hear it clearly. If I'm in a room, and the guy's 20 feet away, I'm going to say, hey, can you please speak up? I can't hear you. We want to put speakers throughout the space so anyone, anywhere can hear it the same and you want to make sure you overlap. So there's a lot of design tools.

We offer a lot of them, but there's a lot of design tools out there that will help you and guide you to designing the room correctly for any person that could be in the room.

**Joel Hagen:** So I'm no AV designer and I don't play one on TV. I'm wondering if when you're talking to them with the site survey and scope of project, and having those conversations when you are putting together your system, should you tell them or mark the limitations of the system that it doesn't meet ADA guidelines for this situation or is that a thing?

**Alan Jacobson:** It should be, and it is for whenever I'm working with a customer. One of the first questions I ask is, is ADA an issue for you? And 95% of the customers say it is. Originally when I was an installer or when I worked for an installer, an integrator, we were only federal government. That's all we did.

So ADA was definitely a requirement, but now we deal with a lot of commercial, most more commercial than federal and ADA is definitely a requirement. All of those facets for ADA are things that, again, my point is when you're with a customer, they want a room, but if you don't teach them what they need to think about, then they'll never know.

Just because they may have a budget here, they say they have a budget at this. If you let them know it's our responsibility as an integrator, us as a manufacturer, to make sure people fully understand. Okay. So you want to put a display in and it's going to sit six inches off the wall because it's a very large display that's interactive, and that's fantastic But if you don't put a piece of furniture under it, it won't be ADA compliant.

“Oh, we don't really care.” Okay, that's up to you. We're not going to tell you what you need to do or not, but I have to ask that question if they want a very inexpensive webcam – “I just saw one in the store. It's $30. Can we just put that in?” We can put whatever you want. But the difference is the people on the far side may not be able to see.

So if they have disabilities and they're reading lips or if they can't see it clearly enough, then that's something you have to think about. Legrand and Vaddio, but Legrand in general, we make products and we've been making products that are broad broadcast quality, but for every space.

One of the things is that our cameras are all very, very clear. We hold them to a high level. They may not be the most inexpensive cameras out there, but they are at a very high level. If you're designing and you're installing these, those are things you need to ask the customer and let them know.

I can put that in, but the image may not be as good. I can give you an example. I can show you. We can do a demo if you'd like, but these are things that if they're not a problem now and they're not an issue, there is going to be a time with some of the new government acts that are coming out that are going to require it.

You have to make these features available to everyone on anything that you're doing. So if you're doing a web call that's going out on the internet, you're going to need to think about these,

**Joel Hagen:** Beyond the ADA, there's a lot of other guidelines and laws in effect. The Federal Communications 21st Century Communications and Video Accessibility Act make sure that laws enacted in the 1980s and 90s are caught up with current technologies. What should integrators know about the CVAA when it comes to designing a system?

**Alan Jacobson:** So from my understanding, it's more about making the material accessible and not as much the actual space, right? So an integrator, again, if you're doing all of the things that we've talked about, then your space will be fine.

But any new material and any new rooms, you need to make sure that you can add closed captioning. You can do some of these things that we spoke about and it has the ability to do them. Now, of course, Teams, Zoom, all of these different web things, they offer that. But you have to make sure that the quality of the audio and the quality of the video can be seen and heard, that these features work well.

**Joel Hagen:** Sure. Along that line, the FCC has already passed some requirements on video conferencing and captioning that'll kick into effect within the year. And Congress has some things in the pipeline as well called the Communications Video and Technology Accessibility Act, CVTA. They don't make it easy to say.

It's always good to be ahead of the curve though. What can you share about any of these new requirements to increase accessibility in video conferencing and other online areas and what AV professionals should be aware of?

**Alan Jacobson:** By requiring audio description on almost all presentations, the quality, again, of the product chosen for the installation is essential, even down to the room itself, like the cables being protected on the floor. Being ADA compliant, we have products like Wiremold has OFR, which is an over-floor raceway, which I spoke about before we have Connectrak, which is in-the-floor, under-the-floor raceway.

By basically in the future requiring all spaces and all presentations, all material being presented to be done in accordance with the new laws or something. I don't know all of the variables associated with it. I think we have taken some of those in consideration in our e book. Basically, it's a lot of what we've talked about already today, and it's just, in the future, you're going to have to make all of these features available on anything that you're producing.

**Joel Hagen:** Wrapping this up, is there anything else on this topic that we should be aware of?

**Alan Jacobson:** You know, I went through a couple brochures. I looked through some of the stuff we've done, andI think what I've noticed is there's some things that not all of us think about. I was just asked yesterday, it was for a university and they wanted to put cameras in and they wanted a tracking camera and we have projection and they have an area now, instead of it just going up like a theater-type space, they have a space where you can have wheelchairs with that. Then it goes up from behind that.

One of the things I never thought of until reading some of this literature is, you know, you have a section where people have to stand up. Well, someone in a wheelchair can't do that. So you want to make sure they can still see. So you have to design the space for a lot of different variables that not everyone will take into consideration.

I guess the one thing I would say is for any integrator, even people that are asking for someone to come in and design a space form, take the time out, read the resources. We have them on our new ebook, but the government has plenty of them out there. Read those resources, look at some of the things and just so you better understand the requirements so when two, three, four, five years from now, someone says, this room doesn't work, you're going to have to change it. You've already taken that into consideration when you did it the first time.

**Joel Hagen:** And it goes beyond, you know, just meeting requirements. It's making that experience really the best it can be for whoever might be using the space.

**Alan Jacobson:** Absolutely.

**Joel Hagen:** Awesome. Well, thank you so much for your time today, Alan. Have a great day.

**Alan Jacobson:** Joel, thanks for having me. This was great. Thanks.

**Joel Hagen:** That winds up this episode of the series. I'd like to thank Tony Braun and Alan Jacobson for lending an ear and singing a song on this topic. For the next and final episode, we're covering the ADA for common AV applications in conferencing and education. If you can't wait, I've got news for you. Our freshly published ADA guide for AV is available right now at Legrandav.com

This podcast series is intended to be used for educational purposes only. The intent is to serve as a guide to ADA regulations pertaining to the installation and usage of audio visual technology. However, none of it should be construed as legal advice, nor should you rely on this content without obtaining your own project-specific verification.

Those seeking additional details or legally accurate definitions of the ADA's audiovisual technology requirements should contact ADA.gov.

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